NWL PR19 CMA REDETERMINATION

RESPONSE TO PROVISIONAL FINDINGS

NORTHUMBRIAN WATER *living water* | ESSEX&SUFFOLK WATER *living water*

FOREWORD FROM HEIDI MOTTRAM, CEO NORTHUMBRIAN WATER

We thank the CMA for its diligence on this redetermination and the comprehensive Provisional Findings. We appreciate the focus and attention to detail the CMA has demonstrated throughout the process. This has been welcomed by all stakeholders who have been given an opportunity to contribute to the evidence base on which the CMA has based its Provisional Findings. It has also further reinforced the importance and value of the fully independent merits-based redetermination process that we are fortunate to have in the water sector in England and Wales.

In considering the Provisional Findings and what they mean for our customers, our business and our investors, we have assessed the package in the round, just as we did with FD19. With that perspective we welcome the Provisional Findings as a significant step in the right direction. If the Provisional Findings were to be adopted as the final outcome in this PR19 process they would result in one of the largest bill reductions in our history. This will ensure a highly cost-efficient outcome for our customers at a time of particular economic stress. We are pleased that the CMA's Provisional Findings recognise the importance of investing in resilience and ensuring the ongoing financial sustainability of the sector both of which are in the long-term interests of our customers.

The stretch on performance, costs and ODIs remains extremely challenging. It is right and proper that we should be stretched, but the package must be achievable if we are to deliver effectively and efficiently for our customers.

In our response we have taken a comprehensive approach to commenting on the impact of Provisional Findings, as well as looking at points of detail. Our aim is to help the CMA arrive at the best possible outcomes for customers, bearing in mind the need to sustain investment in the sector. We have proposed various modifications which we consider would improve the overall balance of the package. We consider that this should include a modest increase in our totex allowance to mitigate the known risk of significant overspend against the CMA's provisional allowance.

Given the broad acceptance by the CMA of the importance of the resilience objective, we respectfully request the CMA to look again at our sewer flooding proposals and help us find a way to fund a programme that will improve long-term system resilience in the face of urban creep and climate change. This response demonstrates that company performance varies due to a range of factors. It also shows that we have invested more than other companies in this area historically and that we have met our significant commitments to customers. A number of companies sought similar additional investment in this area at PR19 but almost all were rejected. There is clearly a gap in the regulatory framework that needs to be addressed. If it is not then sensible investments that are in the interests of customers will not be taken forward. We look forward to discussing our feedback in more detail with the CMA.

We are mindful of the need to conclude what has been a long PR19 process. It has been a shared aim of the main parties to this process, and the CMA, to reach a final determination in enough time for the findings to take effect in relation to customer bills from April 2021 onwards. If we fail to conclude the process in December 2020, or at the latest early January, then there is a risk that the CMAs findings might not take effect until April 2022. As we have already outlined to the CMA, this would inevitably increase the financial impact on our customers. We will work constructively with the CMA to assist it in reaching a conclusion to this process in December 2020 to ensure that its redetermination can take effect from April 2021. Should the CMA conclude that additional time is required, we have provided alternative proposals that could accommodate that and still enable the process to conclude in time for implementation in 2021.

PART A

INTRODUCTION AND OVERVIEW OF OUR RESPONSE

1 INTRODUCTION

(1) This paper sets out our response to the CMA's Provisional Findings for Northumbrian Water dated 29 September 2020 (**PFs**):

- **Part A** provides our views on the overall package provided for in the PFs.
- In **Part B** we provide a more detailed analysis of the PFs alongside our suggestions for where the CMA may wish to focus additional attention in reaching its final determination.

(2) We support the CMAs approach to the redetermination[1] in terms of the decisions taken with respect to the prioritisation and de-prioritisation of issues but note that there are some consequential impacts of the CMA's decisions on other parts of the determination (see Section 9).

2 OVERVIEW OF OUR RESPONSE TO THE PFS

(3) In its PFs the CMA has acknowledged a number of important principles that we consider are at the heart of setting a price control that achieves a better overall balance in the package for customers and is consistent with the relevant WIA 91 statutory duties, including that:

- the right balance must be made between short-term bill reductions and the longer-term interests of current and future customers in investing in resilient infrastructure;
- incentives must be structured so that they genuinely promote improved outcomes for customers, for example in terms of efficiency and service quality;
- the allowed return must be set according to sound methodology, based on best regulatory practice and reflecting market evidence; and
- the overall settlement must ensure the financial sustainability of the business so that we have the resources to meet our service commitments to our customers and can continue to attract the external capital we need to properly finance our functions.

2.1 IT IS CRITICAL THAT CUSTOMERS REMAIN AT THE HEART OF PRICE REGULATION IN WATER

(4) The CMA provisionally concludes that "*customer views are an important element in informing the price review process … [but that] there may be limits to the weight such evidence should be given when considering all evidence in the round*".[2] We agree with the principle that customer views should not be wholly determinative but we consider insufficient weight has been attached to those views by Ofwat during the PR19 process. As CCW has recently observed, if well-evidenced customer views do not flow through to outcomes, Ofwat should be obliged to provide a robust and explicit rationale for this.[3] Our real concern, shared by CCW and others, is that the significant positive benefits derived from improvements in customer engagement over the last two AMPs might be undermined and, potentially, eroded. We ask the CMA to reflect these concerns in its final determination by sending a strong signal about the importance of getting this balance right for PR24 and beyond to ensure that customers, and those bodies that ensure their interests are properly addressed (such as the CCGs), remain incentivised to engage effectively (see Part B Section 10.2).

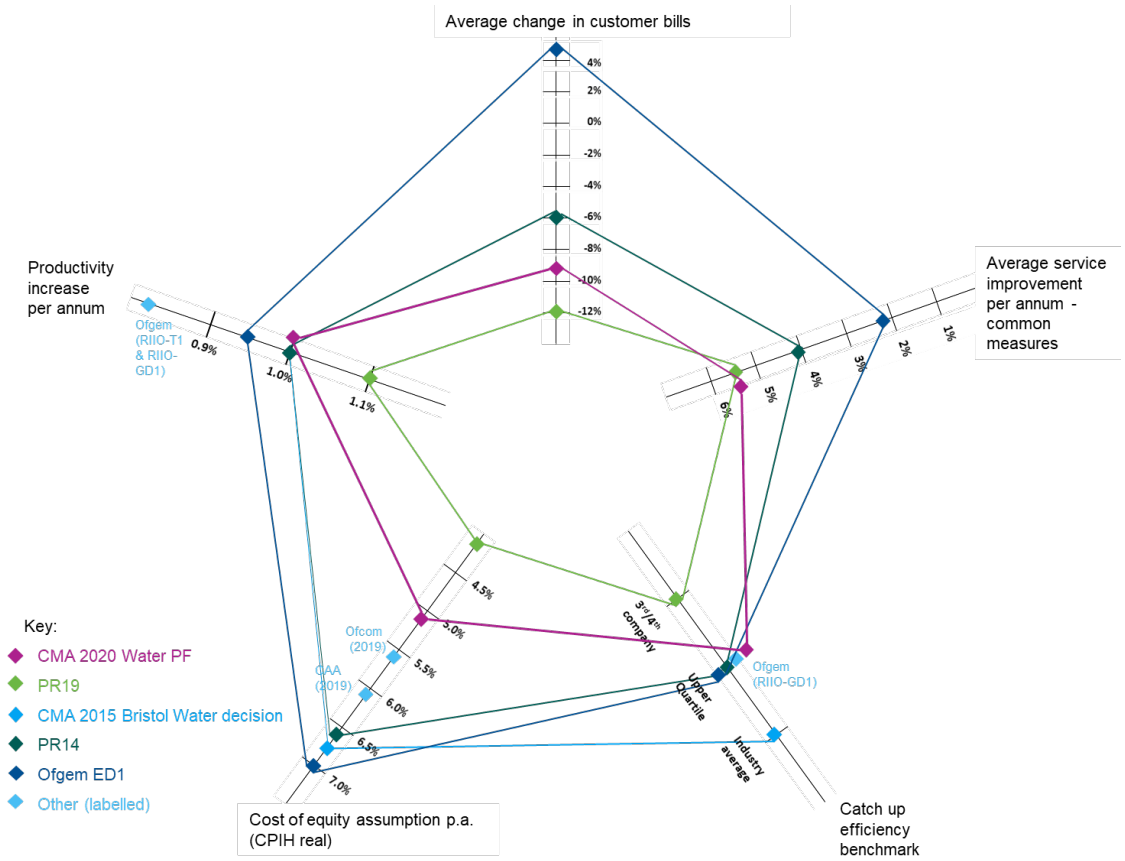
1 PFs, Section 3.
2 PFs, para. 3.13.
*3 CCWater Lessons Learned from the 2019 price review, 9 October 2020 (**CCW PR19 Review**) **PFREP001**, para. 4.36.*

2.2 THE PACKAGE REMAINS VERY STRETCHING

(5) Overall, our view is that the PFs represent a package that moves towards a more holistic balance than FD19, whilst still setting stretching performance targets and delivering substantial bill reductions for our customers.

(6) The package remains very tough. The overall 'stretch' in the PFs package is reasonably demonstrated by the comparison to recent price controls in Figure 1 below. This graphic clearly demonstrates that the stretch remains very high. It is, for example, significantly more stretching than PR14 which resulted in the sector on average overspending against totex allowances with half the sector failing to earn the base allowed return.

Figure 1: A comparative assessment of the CMA's PFs show the package remains very stretching



Source: NWL

2.3 THE TOTEX ALLOWANCE APPEARS INSUFFICIENT TO CARRY OUT OUR FUNCTIONS

(7) We recognise that a balanced determination will be stretching, presenting the company with a challenge to reduce its costs and in parallel improve service levels to customers. It should be tough, but there must be good evidence that it can be met by effective management teams.

(8) We welcome the CMA's approach to important methodological decisions that influence the degree of stretch on costs, including with respect to reducing the frontier shift challenge and adopting a catch-up efficiency challenge based on the upper quartile (**UQ**). We accept the CMA's judgements in relation to the allowances for compliance with the Industrial Emissions Directive (**IED**).

(9) The CMA's PFs broadly maintain the service package contained in the performance commitments (**PCs**) and outcome delivery incentives (**ODIs**) from FD19. Whilst our overall totex allowance is increased by c. £22m, £20m of that increase is attributable to the new obligation to deliver the Essex Resilience Scheme. As such, the combined effect of the CMA's decisions with respect to totex allowance and outcomes mean that our allowance still represents significant risk. Indeed, our base modelled cost allowance has actually fallen by £7m,[4] and our allowances for enhancements (excluding the Essex Resilience Scheme) have fallen by a further £7m.[5]

(10) In our SoC we identified a gap of c.£85m in our totex allowance (excluding the two disputed resilience enhancement schemes).[6] The interventions proposed by the PFs, when viewed in the aggregate, improve this position marginally but we still anticipate an overspend on our base costs across AMP 7 of c.£83m (see Annex 3).

(11) The scale of that cost gap is supported by additional analysis based on the PFs and updated information. For instance, if the base cost models are updated to include the most recent 2019/20 expenditure data our modelled base allowance would increase by c.£39m (see Part B Section 3.2.1). The CMA's approach to enhancement cost requirements for meeting stretching AMP 7 leakage targets suggests we are underfunded by c.£16m (see Part B Section 6). When combined with the impact of an error in data used in the spill frequency model and the Covid-19 pandemic on productivity in 2020/21, altogether this implies a c.£77m funding gap.

(12) In Part B Section 3 of this response we have identified the individual adjustments to totex that have been provisionally rejected by the CMA but which would bridge this remaining gap. In particular this includes revisiting: the justification for applying the downward adjustment to our costs for growth; the appropriate assumptions for frontier shift efficiency; and the position on real price effects. We also outline the adjustments the CMA should consider to take account of the updated information and methodologies as referenced in para. (11). The use of the 2019/20 costing data and adjusting the frontier shift assumption for 2020/21 would, for example, be consistent with the CMA's approach of taking "*account of current circumstances and information*"[7] as it already has done in setting the PC levels.

(13) We ask the CMA to make an appropriate combination of adjustments in its final determination to close this gap to ensure that our allowance funds our efficient costs to allow us to deliver the right outcomes for customers.

2.4 THE CMA SHOULD GO FURTHER TO SUPPORT INVESTMENT IN RESILIENCE

(14) We welcome the CMA's decision to fund our **Essex Resilience Scheme**. This will deliver necessary resilience against the risk of substantial supply loss in the local area for a significant number of customers, at modest cost. That risk is material, particularly given the impact of climate change and other long-term drivers. Recent events, such as changes to demand patterns arising from the Covid-19 lockdown, have also reaffirmed the essential importance of a reliable supply of water. As such, it is a correct and proportionate judgment to conclude that this investment is justified and will clearly further both the consumer and resilience objectives.

(15) We are disappointed that the CMA has not funded our **Sewer Flooding Resilience Scheme**. We set out our concerns in detail in Part B Section 4.2. Our proposed investment represents significant additional activity and risk mitigation beyond that historically (and

4 PFs Table 14-2.
5 PFs Table 6-10.
*6 Northumbrian Water Statement of Case, April 2020 (**SoC**), Section 5.9.1, Table 30.*
7 PFs, para. 3.8.

prospectively) undertaken out of base spend, deals with an issue that has particularly adverse impacts on individual customers and has strong customer support.

(16) Sewer flooding represents one of the worst service failures that customers can experience. The historical approach to addressing sewer flooding has been to focus on properties that have flooded and try to stop them flooding again. These were put on a register (DG5) and companies were provided a unit cost allowance per property to remove them from that register over each control period. This resulted in every company receiving a different performance target and a different cost allowance. Allowances were set using this approach for the period covered by Ofwat's cost assessment modelling, but a common comparative target was set for the first time in PR19 and allowances funded through base models. In that context the parallels with the approach to leakage, where the CMA has provisionally considered it appropriate to grant extra funding, are strong. Just as SELL resulted in different company specific targets and funding levels, DG5 did the same for sewer flooding. This data also suggests that we will be underfunded from the base cost models for our sewer flooding activity and certainly that there will not be sufficient funding for the resilience programme.

(17) We firmly reject any suggestion that the enhancement scheme is nothing more than an attempt to catch up on historical poor performance. We show in this response that on a unit cost basis we have invested more than other companies and been set and delivered tougher targets for reducing sewer flooding across multiple control periods. Instead it has been motivated by our desire to deliver resilient services to our customers in an area which they see as having high value and to address their significant concerns.

(18) For the avoidance of doubt, despite strong evidence to suggest that our base funding allowance is insufficient, **we are not seeking any additional funding to deliver our AMP7 PC** (i.e. over and above the funding that comes from a properly calibrated botex allowance). We are, however, **asking for funding for an additional programme of work that is intended to improve long-term system resilience in the face of urban creep and climate change**. Our proposed scheme targets 7,400 properties that will be at risk of flooding in the future as a result of climate change and urban creep where there are demonstrable benefits in intervening now to reduce the risks that customers face in the medium and long term.

(19) An additional funding allowance is required if this work is to go ahead because: (a) it is a discretionary scheme that delivers a better outcome for customers over and above our PC (i.e. reduced risk); and (b) it is improbable that we will receive enough additional revenue reward for the reduction in risk through the PR19 ODIs. That is why we have presented this as an enhancement case even though, arguably, a properly calibrated regime appropriately focussed on resilience would classify such spend differently.

(20) We consider that an outcome where this programme is not funded is not in customers' interests and so we are asking one final time if there is room in the regulatory framework to accommodate our proposed programme of work in addition to delivery of the base PC.

(21) Whatever the CMA's decision in the final determination, we request that it acknowledges the clear limitations of the regulatory framework for funding resilience investment in this area and suggests appropriate changes for PR24.

2.5 VIEWS ON COST OF CAPITAL AND FINANCEABILITY

(22) We support the CMA's methodological approach to setting the WACC to reflect best regulatory practice and market evidence, recognising the importance of ensuring continued investment in the sector. In a capital intensive sector like ours, the customer interest is best met by ensuring that the right level of investment is maintained. We welcome the thoughtful and detailed review of the individual parameters the CMA has undertaken to identify its

ranges and a WACC which acknowledges the need to finance and attract investment into the sector both now and in the future.

(23) As a point of principle, we agree with the CMA's reasoning as to why aiming up is appropriate - as such, we concur that aiming up can be warranted in the context of setting the WACC for this package given the need for investment in the sector and the asymmetry that the CMA has rightly identified.

(24) Additionally, in Part B Section 7 of our response we highlight various pieces of evidence in respect of individual components of the WACC and outline why targeted amendments to the CMA's range would be appropriate for certain parameters. This evidence demonstrates that when looked at in the context of the revised ranges, the CMA's point estimate is close to the mid-point. This is shown in the adjusted range in Table 1.

Table 1: Summary of NWL's proposed amendments to CMA allowed return range (CPIH-real) and impact on point estimate

	CMA PFs range		Adjusted range		Change	
	Low	**High**	**Low**	**High**	**Low**	**High**
Appointee-level Vanilla WACC	2.82%	3.99%	2.92%	4.16%	0.09%	0.17%
Point estimate percentile	58.11%		47.14%		n/a	

Source: NWL analysis

(25) We agree with the market-based approach and principles used by the CMA, including the greater recognition of the rating agencies' methodologies, and using the allowed return as a key parameter in establishing financeability. We support the CMA testing financeability through checking that the allowed return supports a strong Baa1 investment grade credit rating under the notional structure.

(26) Whilst financeability has improved under the PFs when compared to FD19, the CMA's PFs remain an extremely tough settlement when considering the remaining material risks which are not fully reflected in the CMA's analysis. In particular, whilst the provisional findings adjust the PCs/ODIs and reach a better balance on the cost sharing rates, asymmetry remains. We consider that the downside analysis carried out to support the financeability assessment needs to adequately recognise those material downside risks.

(27) Given the uncertainties and volatility we have recently seen in respect of the Covid-19 pandemic and its impacts on the wider economic outlook, ensuring that companies have sufficient headroom will be important in the coming years, particularly given the critical nature of water and sewerage services to our customers.

2.6 FOCUS FOR THE FINAL DETERMINATION

(28) In finalising its redetermination we would specifically ask the CMA to:

- reconfirm its commitment to long-term resilience objective in the sector by continuing to support the Essex Resilience Scheme and by allowing us funding for our Sewer Flooding Resilience scheme;
- reconfirm its commitment to a methodological approach to the WACC which is set at a rate which delivers financeability for the company and secures long term investment into the sector;
- set an expectation as to how customer engagement and feedback will be treated in future price controls; and
- ensure that our base cost allowance is sufficient to enable us to carry out our functions by mitigating the anticipated overspend.

PART B

DETAILED ANALYSIS OF THE PROVISIONAL FINDINGS

3 BASE COSTS

- **Modelling:** We accept nearly all of the CMA's decisions on the base cost assessment models with two exceptions: we would challenge the removal of the SWC1 model for sewage collection; and in line with the CMA's policy of using the latest data we would encourage the CMA to rerun the models including data for 2019/20.
- **Efficiency challenge:** We agree with the CMA's decision to adopt a UQ efficiency challenge.
- **Frontier shift:** We ask the CMA to make two adjustments: (i) to adjust downwards the frontier shift assumption for 2020/21 by 0.4% to take into account of the impact of Covid-19; and (ii) to remove the frontier shift (and RPE) adjustment from business rates and abstraction charges.
- **RPEs**: We ask the CMA to reconsider its criteria for the inclusion of an RPE. Although we consider that the rising cost of chemicals is not adequately catered for, we accept that a *chemicals* RPE should be excluded as we recognise the difficulty in finding an appropriate index. However, we think that an *energy* RPE should be included as there is sufficient independent data to make such an adjustment. In addition, we urge the CMA to consider a more appropriate actual labour costs index given that the 'actual labour costs' index selected for the end-of-year true-up mechanism has much higher sensitivity to Covid-19 and Brexit than the water sector more widely, undermining the purpose of the labour RPE true-up mechanism.
- **Growth adjustment:** We ask the CMA to reconsider the growth adjustment, which we consider is not necessary and should be removed.

3.1 OVERVIEW OF OUR BASE COSTS POSITION

(29) In our SoC we set out a series of concerns with Ofwat's overall FD19 cost allowances. Overall these issues resulted in an underfunding of efficient base cost allowances by c. £60m. Table 2 below summarises how our issues relating to base costs have evolved since the SoC and the extent to which they remain unresolved by the PFs.

Table 2: Summary of NWL's totex position in response to the PFs[8]

Issue	Comment	Value in SoC vs PR19 FD (£m)[9]	Value now vs PFs (£m)
Botex issues in our SoC			
Catch-up efficiency	UQ argued in SoC now reflected in PFs	16	NA
RPEs: chemicals	We no longer request an RPE adjustment	6	6
RPEs: energy	We continue to request an RPE for energy	7	7
RPEs: labour	We continue to argue for a different wage index to be used in the true-up mechanism	NA	NA
Growth adjustment	We continue to believe that the growth adjustment should be removed	32	42
Cost sharing rates	We accept CMA's revised approach to cost sharing rates	NA	NA
Botex issues arising from PF			
SWC1 model	The SWC1 model should be reinstated	NA	12
Frontier shift: scope	Frontier shift should not be applied to abstraction charges and business rates (we argued for pass-through in the SoC).	NA	9
Total botex requests from SoC and PF issues		**60**	**75**
New botex issues identified by NWL			
Frontier shift: overall level	We think that the 2020/21 assumption should be lowered due to Covid-19 impacts	NA	12
Inclusion of 2019/20 data	The cost models would be improved if they used the most up to date information	NA	39
Total new botex issues identified by NWL		**NA**	**51**

Source: NWL analysis

8 The SoC and PF columns are not directly comparable as in a number of areas they are against different bases. For example, we are still asking for the same change to be made on growth (removal of the adjustment) but the PFs make a different adjustment to the PR19 FD.

9 SoC, Table 34

(30) Based on the issues raised in our SoC and those arising from the PFs we have identified a funding shortfall of c.£75m against our forecast of efficient base costs. This means that we are likely to experience an overspend against our allowed base costs across AMP 7 in the region of c. £75m. We present a reconciliation between our SoC and PF response totex requests in Annex 3 which shows that our requests overall across water and waste remain consistent.

(31) We have also identified additional issues accounting for c.£51m of totex independently of the PFs that supports this view that a significant totex gap remains at the PFs. For example, analysis of the most recent 2019/20 expenditure data (see Section 3.2.1) supports this view that overspending against the PFs allowance is likely. If this data were included in the CMA's base cost assessment models, in line with its stated preference to use the most up to date information,[10] our modelled base allowance would increase by c.£39m. This is consistent with our anticipated overspend and supports our view that the cost allowances remain insufficient.

(32) In reaching its final determination we ask the CMA to make the combination of interventions it considers appropriate to ensure that our allowance adequately reflects the efficient costs that we anticipate will be incurred during AMP 7.

(33) Each of these issues, and the potential solutions, are considered in more detail in the following sections.

3.2 BASE COST MODELLING

(34) Throughout the PR19 process we have been supportive of Ofwat's approach to develop the base cost models: a robust process of consultation was run; the models are built on robust principles; the models capture the key cost drivers affecting the sector; and they are not unnecessarily complex. We therefore agree with the CMA's provisional decision to largely retain these models. In particular:

- we agree with the CMA's reasoning on the **choice of estimation technique** and that the use of a random effects models provides a robust basis for assessing relative efficiency in a panel dataset;[11]
- we agree with the continued use of a **Cobb-Douglas functional form** focusing on the key explanatory variables to ensure robust estimation of the relationships between the drivers and costs.[12] We agree that translog models are not appropriate due to the complexity that they bring and the difficulties they have in identifying and interpreting the relationships between drivers and costs;[13]
- we support the CMA's **framework for explanatory variable selection**[14] and note that this is very similar to the framework we set out in our SoC.[15] We also agree with the CMA's assessment of the explanatory variables under dispute (average pumping head etc.).[16] In particular, we agree with not including service level variables due to endogeneity concerns;[17]
- we agree with the approach to **modelling of capital maintenance spend** and support the arguments not to smooth the expenditure.[18] We are also pleased that the CMA has

10 PFs, para. 23.
11 PFs, paras. 4.8-4.24; This is consistent with REP066 Appendix 2 Base Costs Appendix, para. 36.
12 PFs, para. 4.25-4.34;
13 PFs, para. 4.34.
14 PFs, para. 4.46. This is consistent with REP2001 Base Costs Appendix, Section 2 pp.3-12.
15 SoC Section 5.3.2 and para. 288 in particular: the robustness of models should be assessed by reference to: engineering and economic rationale; confidence in the estimated co-efficients; and model statistical robustness.
16 PFs, paras. 4.58-4.60; This is consistent with This is consistent with REP2001 Base Costs Appendix, para. 7-10.
17 PFs, para. 4.134-4.141; This is consistent with This is consistent with REP2001 Base Costs Appendix Section 3, p. 13-15.
18 PFs, para. 4.180. This is consistent with REP2001 Base Costs Appendix para. 33.

recognised the potential problems associated with capturing capital maintenance expenditure in cost models using backward looking data where this expenditure is likely to be lumpy over time;[19]

- on the **log-transformation bias**, we agree in theory that a bias may exist and therefore an adjustment may be required.[20] However, due to the existence of alpha adjustment factors less than 100% and the small materiality of potential adjustments, they are not necessary in this case and the CMA has reached a proportionate decision;
- we agree with the use of **updated ONS data** as it makes sense to use the most up to date data to set allowances.[21] However, actual cost and explanatory variable data for 2019/20 should also be used in the model estimation (see Section 3.2.1 below); and
- we agree with the continued application of **triangulation** between models and agree with the CMA's assessment of proposed additional **wholesale wastewater models**.[22]

(35) The only areas relating to the choice and estimation of the base cost models that we ask the CMA to consider further in its final determination concern the inclusion of 2019/20 data which is now available and the removal of the SWC1 model. We discuss these two issues below.

3.2.1 Inclusion of data for 2019/20 in the base cost models

(36) The PF models use the FD19 dataset which stops at 2018/19. Outturn data for 2019/20 became available in July 2020. It would be appropriate to update the base cost models to include the 2019/20 data:

- increasing the data period from 8 years to 9 years will increase the sample size and will result in more accurate estimation of the parameters in the model;
- expenditure for 2019/20 is more relevant for AMP7 than the years in the current sample as it reflects circumstances and levels of efficiency closest to those likely to be seen in AMP7; and
- it ensures that the full AMP6 cycle is included in the models so that any profiling of workloads within the regulatory period does not distort the results.

(37) Using 2019/20 data in the base cost models would also be consistent with the CMA's stated approach that it will "*use the most up to date information available*", including data that was not available at the time of FD19 but which "*has an impact on the water industry and, specifically, the price control*".[23] For instance, the CMA has already used 2019/20 data when assessing:

- the cost of capital parameters;
- new information on unmodelled costs including abstraction charges, business rates and IED; and
- service performance targets. For example, the CMA uses 2019/20 performance data when considering the three upper quartile PCs and other common PCs/ODIs.

(38) For water, the 2019/20 data represents a level of expenditure that is higher than the average in AMP 6 but is 0.7% lower than 2018/19. For wastewater, the costs for 2019/20 are in line

19 PFs, para. 4.181. This is consistent with REP2001 Base Costs Appendix para. 34.
20 PFs, para. 4.194-4.197.
21 PFs, para. 4.208.
22 PFs, paras. 4.215-4.224; This is consistent with REP2001 Base Costs Appendix p 5-10, 14 and 16-18
23 PFs, para. 3.53.

with the average for AMP 6, hence the very small change in allowances in this area. Data for 2019/20 therefore does not appear to be atypical.

(39) We have commissioned a report from Oxera[24] which reruns the CMA's PFs analysis of base modelled costs using the additional 2019/20 data. During AMP 6 Severn Trent Water merged with Dee Valley Water and the merged company was then split into two parts, Severn Trent Water and Hafren Dyfrdwy. The 2019/20 data represents the first year including these as separate companies. In its report Oxera proposes an approach which best incorporates this data. The underlying data and files are provided alongside the report.[25] Other than the inclusion of the additional data it replicates the CMA's approach and uses: the same explanatory variables; the final 5 years of data in the sample to set the efficiency benchmark; and the same triangulation weightings to the combine the results of the different models.

(40) The post modelling adjustments are also updated for the inclusion of the additional year of data. An UQ catch up efficiency benchmark is still applied. Frontier shift and RPEs are no longer applied to the financial year 2019/20 as these are already reflected in the actual data for that year. To apply them again would result in double counting. The same change was made between Ofwat's DD19 and FD19 in relation to the inclusion of 2018/19 actual data.

(41) The report confirms that the estimated models remain robust with the additional year's data included. In particular, the model coefficients remain the expected sign and magnitude, and they continue to be statistically significant. In light of these findings we consider that the variables included in these updated models continue to satisfy the CMA's framework in relation to explanatory variables so are robust.[26]

(42) Table 3 below sets out the impact of the inclusion of 2019/20 data on our base plus modelled cost allowances.

Table 3: Updated base modelled cost allowances from inclusion of 2019/20 data

	Water	Wastewater
CMA PF allowances	£1,144m	£853m
Updated allowances with 2019/20 data	£1,181	£855m
Impact, £m, %	+£37m, +3.2%	+£2m, +0.2%

Source: PFREP002 Oxera Report on 19/20 data

(43) This analysis incorporating 2019/20 data shows that our base modelled cost allowances would increase by £39m. This further demonstrates that the FD19 and PFs' base cost allowances represent a tough package that is likely to give rise to totex overspends. This is because they do not fund a level of allowances consistent with the historical upper quartile and a 1% level of assumed frontier shift when the most recent data is taken into account.

3.2.2 Removal of the SWC1 model

(44) The CMA has removed one of the wholesale wastewater models for sewage collection (**SWC1**) as it considered the results to be counterintuitive. The CMA was concerned that the model could be re-expressed in a way that suggests a negative relationship between scale (sewer length) and costs.[27]

(45) We do not think the model should be interpreted in the way suggested in the PFs. This is because the scale variable (sewer length) cannot be interpreted independently from the

*24 On the use of 2019/20 APR data in econometric modelling, Oxera, 23 October 2020 (**Oxera Report on 19/20 data**)] **PFREP002.***
*25 Databook for Oxera Report on 19/20 data, **PFREP002a**.*
26 PFs, para 4.46
27 PFs, para. 4.226(b).

other variables, including energy intensity (pumping capacity per sewer length) and density (number of properties per sewer length).

(46) To illustrate this, we set out below two different scenarios and how the model can be interpreted. In each scenario we explain how, if all the variables are considered together, the models do not provide counterintuitive results:

- **Scenario A:** an existing company increasing the size of its sewer network holding all other variables constant. Under scenario A the model would suggest that the level of efficient costs would decrease which does seem counterintuitive. However, this is not a meaningful scenario as an existing wastewater company would not build more sewers in isolation. It would only do so while building more pumping capacity and in response to serving more customers. Assuming that these variables increase in the same proportions that they have done historically (e.g. sewer length increases in the same way that it has done in the past to increases in connected properties) then there is an intuitive expected relationship between scale and costs; and
- **Scenario B**: comparing two companies with identical explanatory variables except that one has a longer sewer network. The company with the larger network will have a smaller energy intensity and a lower density (i.e. they are companies with different operating environments). In scenario B we expect (from engineering and economic intuition) and know (from the estimated model) that reduced energy intensity and reduced density are both expected to reduce costs in sewage collection. This again restores the positive relationship between scale and costs. The reduction in costs is not driven by the increase in scale but instead by the reduction in energy intensity and density. This scenario therefore does not seem counterintuitive.

(47) We therefore agree with the explanation provided by Ofwat[28] and suggest that the model be reinstated as it provides a helpful cross check on the impact of density on costs.

3.3 CATCH-UP EFFICIENCY CHALLENGE

(48) We agree with the CMA's move to UQ efficiency challenge.[29] A UQ benchmark more appropriately reflects the level of confidence in the models. As such it achieves a better balance between setting a challenging efficiency target and avoiding the risk that companies will not be able to recover efficient costs. As the CMA identifies, a UQ assessment is also more consistent with the relevant regulatory precedents.[30]

(49) We re-emphasise that a UQ challenge based on historical costs represents a stretching benchmark. It requires three quarters of the sector to make catch-up improvements on top of the required frontier shift improvements just to remain within the cost allowances.

(50) As a point of clarification, the industry did not on average "*underspend its overall PR14 allowance by 1.4%*" as suggest by the PFs.[31] Instead, over the full five year AMP6 period the industry as a whole overspent its PR14 wholesale totex allowances by 1.1% (or 1.6% when retail cost overspending is included at an appointee level).[32] This further supports the CMA's proposal to use the UQ rather than a more challenging benchmark. Additional stretch is not required if the package is well calibrated. The AMP6 outturn data confirms that the UQ benchmark was very stretching for companies when used at PR14.

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28 REP020 Ofwat Response Anglian Water, paras 3.41-4.42.

*29 PFs, paras. 4.294-4.296. This is consistent with SoC Section 5.4; Northumbrian Water Reply to Ofwat's Response, May 2020 (**Reply**) Section 4.4; and Northumbrian Water's reply to Ofwat's June Response (**July Reply**) Annex A.*

30 PFs, para 4.295, first bullet.

31 PFs, para 4.295, third bullet. We note that the CMA's comment is based on evidence presented by Ofwat that considered performance over just the first four years of AMP 6.

*32 Northumbrian Water's Post hearing submission, August 2020 (**Post Hearing Submission**), Table 6 on p13. This was based on the data provided by Ofwat in its RFI011 Ofwat Response, Question 24.*

3.4 FRONTIER SHIFT

3.4.1 The overall level of frontier shift

(51) In ordinary circumstances we would support the CMA's provisional decision to adopt a 1% frontier shift assumption. The exceptional circumstances associated with the Covid-19 pandemic, however, and the associated impact on our productivity mean that we consider an adjustment for just 2020/21 is required.[33]

(52) Our BP19 contained an ambitious and challenging frontier shift assumption of 1.5% for base costs and 1% for enhancements. These figures are not directly comparable with the figures presented in Table 4-14 of the PFs:

- the assumptions in our business plan were only applied from 2020/21 onwards rather than from 2019/20 onwards as in the PFs (i.e. our assumptions applied for a year less than those adopted by the PFs); and
- we did not apply our assumptions to any unmodelled costs whereas the PFs assumption applies to unmodelled costs.

(53) If we were to re-express the challenge implied by our business plan assumptions as a single figure on the same basis as the application in the PFs then it would equate to a 0.91% p.a. challenge (i.e. less than the 1% assumed in the PFs). We understand that other Disputing Companies applied frontier shift in their business plans in a similar way to us, so their assumptions would also be lower than the CMA's on a comparable basis.

Table 4: Differences between appellants' frontier shift methods and CMA's PFs approach

Company	Difference in scope of application	Difference in years applied to
Anglian	Not applied to unmodelled costs	Applied to same years as CMA PFs
Bristol	Not applied to unmodelled costs	Applied from 2020/21 onwards
Northumbrian	Not applied to unmodelled costs	Applied from 2020/21 onwards
Yorkshire	Not applied to unmodelled costs or enhancements	Applied from 2020/21 onwards

Source: NWL analysis

(54) In addition, the frontier shift estimates proposed by companies were applied to their proposed costs and not the CMA's lower estimates of efficient costs. This makes the CMA's assumption even more challenging than those proposed in business plans. As such we do not think it is accurate for the CMA to conclude that "*Table 4-14 shows the majority of the Disputing Companies' own frontier shift assumptions were in line with or higher than this estimate [1%]*".[34] In Table 5 below we recalculate the same data across the four Disputing Companies and provide a like for like comparison.

Table 5: Reworked version of CMA's PF Table 4-14 showing company frontier assumptions taking account of years of application and scope of costs to which they were applied

Company	Frontier shift (% per year)
Anglian	0.8%
Bristol	0.7%
Northumbrian	0.9%
Yorkshire	0.4%
CMA PFs	1%

Source: NWL analysis

(55) This shows that the CMA's assumption is more demanding than our BP19 assumption and that of the other Disputing Companies. In normal circumstances we would be willing to accept that productivity challenge. However, the restrictions on working conditions as a

*33 We note that prior to our Covid-19 Submission on 31 July 2020 (**Covid-19 Submission**) we hadn't challenged Ofwat's FD19 frontier shift assumption.*
34 PFs, para 4.377

result of Covid-19, in particular lockdown and social distancing requirements, have resulted in a detrimental impact on the level of productivity of our workforce and contractors in carrying out their functions.

(56) The CMA provisionally decided not to make an adjustment for Covid-19 because:[35]

- there was limited information on the potential impact of Covid-19 on water sector productivity growth;
- analysis of recession periods showed average productivity growth was 0.6% but ranged from 0% - 1.1%; and
- Covid-19's impact on productivity is better addressed by Ofwat examining individual cost and outcome impacts.

(57) We can demonstrate, however, that:[36]

- our internal data shows that Covid-19 has had a clear impact on our productivity, particularly in the delivery of our capital programme where the effect of changed working conditions has been the greatest. ONS data for the wider economy also clearly shows falls in productivity resulting from Covid-19. We discuss this in sections 3.4.1.1 and 3.4.1.2;
- comparisons with past recessions only partially capture the impacts of Covid-19. Recessions will affect capital and labour utilisation with consequential productivity impacts. Covid-19 has a different impact to a recession. In addition to normal recessionary productivity impacts being felt by ourselves and our supply chain, we are also affected by the unique changes to working conditions (social distancing, etc.) that further worsen productivity and will not be present in historical data covering earlier recessions. A downward adjustment from the 0.6% identified by the CMA would therefore appear appropriate; and
- the Ofwat/WaterUK examination of Covid-19 is focussed primarily on ODIs where Ofwat has discretion under the ODI performance reconciliation model regarding the application of penalties. There is not an equivalent process or mechanism to consider productivity in this context. This is discussed further in Section 3.4.1.3 where we outline our proposed adjustment to frontier shift in 2020/21.

3.4.1.1 The productivity impact of Covid-19 on Northumbrian Water

(58) Covid-19 has impacted our productivity in the following ways:

- **Social distancing requirements**: We have had to change our working procedures in a number of ways to accommodate social distancing requirements, such as changing close quarter construction techniques (e.g. use of machines to lift equipment that would normally be lifted by hand). We have also had to phase access to sites for workers who would normally operate simultaneously which adds time and cost to our programmes. Transportation arrangements to get staff and contractors to and from site have also been adapted;
- **Additional safety/welfare requirements**: Our site operating procedures have changed significantly. We have had to introduce site welfare facilities, workforce briefings, additional training and PPE requirements. In the small number of instances where there

35 PFs, paras 4.362-4.363

36 We note that this position contrasts with our view on the WACC where we have argued that data since February 2020 is unlikely to represent an unbiased view of the cost of capital in AMP 7. This difference arises because we do not consider the Covid-19 impacts to be the same across the two areas. For the WACC, we think the best available evidence is up to February 2020 as there are structural breaks thereafter which do not help assess the WACC for AMP 7. By contrast the cost allowances for AMP 7 are directly affected by the Covid-19 productivity impacts in 2020/21 and should be taken into account to ensure efficient costs can be recovered.

have been cases of Covid-19 temporary site closures have been necessary to ensure the safety of those working there. These requirements have increased the labour and materials necessary to complete the essential works that we must undertake; and

- **Supply chain disruption**: We have experienced: subcontractors furloughing staff working on our sites before works have been completed; delays to the delivery of key components and materials (e.g. cement) resulting from suppliers fully/partially shutting down; reduced availability of specialist skills on site due to individuals shielding due to their high risk status; and lack of continuous supply of necessary PPE. This has resulted in staff on site being unable to undertake their normal duties and delays to programme delivery.

(59) We have worked hard to minimise the impact of Covid-19 on the delivery of our capital programme and monitored the cost impacts. We have negotiated with contractors to ensure that we only pay the efficient increase in costs due to Covid-19 where there is not a workaround solution. On a capital spend of just over £100m we estimate that Covid-19 has increased the costs of our capital delivery by around 0.8%.[37] This is a conservative estimate as it is calculated on identified impacts. There will have been impacts that are not captured by the figures.

3.4.1.2 The productivity impact of Covid-19 on comparator sectors

(60) The impact we have seen on productivity has been replicated in other comparable sectors. Table 6 below illustrates the change in productivity from 2020 Q1 to Q2 in the sectors identified by Europe Economics as comparator sectors in its frontier shift reports for Ofwat.[38] Four of the six sectors have shown a significant fall in labour productivity resulting from Covid-19. The two sectors showing an improvement are likely have been positively affected by Covid from a productivity point of view as they will have seen increased demand for their products (pharmaceuticals, and medical and dental instruments and supplies included within other manufacturing) which through increased capital utilisation will have increased labour productivity.

Table 6 Output per Hour: UK industries, Chained volume measure, SA[39]

Period	Other manufacturing	Chemical & pharmaceutical products	Other machinery and equipment	Construction	Transport and Storage	Professional, and support service activities
% change from 2020 Q1 to Q2	2%	3%	-7%	-11%	-11%	-10%

Source: ONS Flash productivity by industry section Q2 2020

3.4.1.3 Our proposals for frontier shift adjustments due to Covid-19

(61) There has been a clear and demonstrable negative impact on our productivity for 2020/21, particularly in the delivery of our capital programme. This is consistent with the experience in recognised comparator sectors. We therefore consider it is necessary to reflect this impact in the 2020/21 assumption for frontier shift.

(62) Based on our understanding of the Covid-19 industry-wide workstream initiated by Ofwat, the issue of frontier shift and totex impacts will not be addressed. As such it is appropriate for the CMA to make an adjustment as part of its redetermination.

(63) Our evidence indicates that the 1% assumption for frontier shift in 2020/21 should be reduced by 0.4% (0.8% impact on our costs identified above multiplied by the capex share

37 Estimate derived from data provided by our costing consultants, based on detailed contractor submissions.
38 Europe Economics, Real price effects and frontier shift – Updated assessment (July 2019) https://www.ofwat.gov.uk/wp-content/uploads/2019/07/Europe-Economics-Real-Price-Effects-and-Frontier-Shift-%E2%80%93-Updated-Assessment.pdf
39 ONS Flash productivity by section https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/datasets/flashproductivitybysection

of our totex based on the Total PAYG rate as set out in our PR19 FD PAYG model). This is a reasonable and conservative adjustment in light of the unidentified impacts, delays to innovative improvements, and the observed impacts in other comparable sectors. It also applies the adjustment for a single year out of the five-year cycle, again this is likely to be a conservative assumption given the current evolution of the pandemic.

3.4.2 The application of frontier shift to different costs

(64) We agree with the CMA's provisional conclusion that frontier shift should be applied to enhancement costs.[40] Whilst we remain concerned that the adjustment may represent a double-count given our inclusion of frontier shift within our BP19 enhancement costs, we acknowledge that the CMA has reasonably considered the evidence presented[41] and we have no further points to raise (see Section 10.4 for our views on how this could be improved for PR24).

(65) We disagree with the application of frontier shift to business rates and abstraction charges. The CMA concludes that this is appropriate "*because our frontier shift estimate is based on the total cost base of comparator sectors*".[42] We raised a number of points previously on this matter in our earlier submissions:[43]

- the frontier shift estimate is not based on the total cost base of comparator sectors. The evidence used by the CMA on comparator sectors from EU KLEMS is productivity data which focuses on the relationship between the volume of inputs (capital, labour, energy, materials, services) and the volume of outputs. The key point is that inputs are not synonymous with costs;
- even if the CMA focuses on productivity measures that consider all of the inputs used by a sector this does not mean that it is considering the entire cost base. In particular, abstraction charges and business rates are a cost to water companies' but they are not inputs. Business rates and abstraction charges are effectively taxes that we must pay but they do not represent the cost of any of the inputs we rely on to provide water and wastewater services. For the CMA's position to be valid, taxes such as business rates and abstraction charges would need to be classified as one of the five different inputs in the EU KLEMS database and a volume would need to be assigned to them in order to calculate productivity. This does not match our understanding of the database;
- if we reduced the volumes of inputs we use over AMP7 (including the volume of water abstracted), it will not change the charges we face for business rates and abstraction. This is because business rates are levied on a 'cumulo' basis and our abstraction charges are fixed to recover the Environment Agency's fixed costs in the north east;[44]
- due to these characteristics, productivity measures from other sectors would not be relevant to these costs as they do not represent inputs. Similar taxes would also not be included in the input measures for the comparable sectors in the EU KLEMS as they are not input or productivity related.

(66) We therefore think the right approach is not to apply a frontier shift adjustment to business rates and abstraction charges. To do so would be inconsistent with the basis on which the productivity estimates were derived. We ask the CMA to reconsider this in its final determination.

40 PFs, paras. 4.386-4.387.
41 PFs, paras.5.515-5.519.
42 PFs, para. 4.386.
43 SoC, Section 5.8; Reply Section 4.9.2.2.
44 Reply, para. 351

3.4.3 True-up and link to real price effects

(67) We note that the CMA has not introduced a true up for frontier shift.[45] We agree with the CMA's conclusions in principle, as it does not seem practical or necessary to implement.

3.5 REAL PRICE EFFECTS

(68) We are concerned that the framework adopted at PR19 for assessing potential RPEs places too high a bar on their consideration and risks undermining the ability of companies to recover efficiently incurred costs. This concern is particularly acute given the transition to CPIH indexation which escalates by around 1% p.a. less than the previous RPI approach. Against this lower general measure of inflation there is an enhanced need to recognise particular cost pressures on the sector if companies are to be able to recover efficiently incurred costs.

(69) In the remainder of this section we consider:

- the approach to assessing whether an RPE should be implemented (see Section 3.5.1);
- our view that an energy RPE is justified and that indexation (or an ex post reconciliation) would provide the appropriate protection for both water companies and customers (see Section 3.5.2);
- the likelihood of the manufacturing labour earnings index proposed for the end of period reconciliation to give rise to a significant under-recovery of efficient costs for the sector (due to Covid-19) and that an alternative is required (see Section 3.5.3); and
- the need for the CMA to help provide guidance to the sector for the future with respect to potential chemicals RPEs (see Section 3.5.4).

3.5.1 The approach to determining whether an RPE is required

(70) The overall approach adopted in FD19 and the PFs sets an unduly high bar for considering RPEs. This results in an outcome that is biased against efficient cost recovery as it does not allow cost pressures to be reflected in price control allowances.

3.5.1.1 The share of a cost item in the CPIH basket is not relevant

(71) The first step in the CMA's approach to assessing RPEs is to consider whether there is a significant wedge between the input price and CPIH.[46] As such it does not matter what share an input (e.g. energy) has of the CPIH basket. The only way a water company can recover its efficient costs is if all significant wedges are reflected in RPE adjustments.

(72) Under the CMA's approach the fact that energy is "*partially captured in CPIH*"[47] is not relevant as indexing by CPIH will not allow efficient recovery of energy costs if they do increase by more than CPIH. We therefore think this criterion should be removed from the CMA's assessment.

3.5.1.2 Controllability is inconsistently applied and is not relevant for these inputs

(73) The issue of controllability is only really relevant in situations where there are alternative inputs that can be purchased as a substitute in response to price increases. The ability to purchase the input on a long-term contract (e.g. for energy) does not mitigate the need for

45 PFs, pp. 186-187.
46 PFs, para. 4.399 Criterion 1A.
47 PFs, para. 4.437.

an RPE as the long-term contract will itself reflect the market's view of the future trajectory of spot prices which could include price increases above CPIH.

(74) All input costs are controllable to an extent whether they are labour, energy or chemicals. The relevant question is whether that control enables above inflation price increases to be avoided by the business. This should be assessed in the context of the importance of each input to the provision of a water and wastewater service and lack of substitutability that exists at the margin. We do not see how this criterion is not an issue for labour costs but is for energy costs. In both assessments, the CMA identifies the inputs as "*partially under management control*".[48]

(75) We have taken all practical steps to minimise our energy usage (e.g. by treating 100% of our sludge for energy production) and deploying time of use technologies to optimise our electricity use.[49] The 1% frontier shift adjustment also captures the degree to which costs are under management control and can be reduced over time. We do not see a great degree of management control that could help us avoid an increase in energy prices were it to arise.

3.5.1.3 RPEs do not undermine management incentives to manage costs efficiently

(76) The CMA indicates that the approach to RPE assessment promoted by Europe Economics "*helps to preserve management incentives to control costs*".[50] We do not consider this to be the case:

- with an ex ante RPE allowance and/or an ex post RPE true-up that is defined in advance with reference to an exogenous index, the expenditure allowance is determined independently of the companies' actions;
- this independence between the expenditure allowance and the company's actions combined with the cost sharing mechanism creates the incentive to manage costs efficiently; and
- RPEs do not, therefore, affect or undermine management incentives.

(77) Another way of considering the issue is that indexing allowances by CPIH (an exogenous index) does not undermine incentives and indexing by a different exogenous index is completely analogous.

3.5.1.4 Links drawn between input prices and productivity growth are not relevant

(78) As identified by the CMA, Europe Economics raise the theoretical link between wages and labour productivity.[51] We do not think that it warrants the importance that it appears to have been given in the PFs. What matters is the best forecast of input price inflation for each input to determine the appropriate price control allowances to allow efficient cost recovery.

(79) Even for wages there are many reasons why they might rise more or less than changes in labour productivity. For example, changes in minimum wage legislation could increase wages by more than productivity improvements. Conversely, a relaxation of visa requirements for workers in a sector could reduce wages. Both reasons are unrelated to productivity but would be legitimate to support a different RPE assessment. It is therefore not really important whether there is a link between productivity and input prices when trying to determine efficient cost allowances in a price control.

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48 PFs, para. 4.424 for labour and para. 4.437 for energy.
49 SoC Section 5.5.3.4; Reply Section 4.5.2.2; Post Hearing Submission Section 3.2.4.
50 PFs, para 4.409
51 PFs, para 4.420

(80) The same argument applies to other inputs. We therefore disagree with the CMA's provisional conclusion that "There is no theoretical link between energy prices and productivity to provide a rationale for including an energy RPE adjustment".[52] As discussed above there does not need to be a theoretical link between the two. All that matters is whether there is sufficient expectation of a wedge between CPIH and future energy price rises to justify an RPE.

3.5.2 Energy RPE

(81) As noted in para. (80) above we disagree with the CMA's reasoning for not allowing an RPE adjustment for energy costs. By not making an adjustment it is clear than CPIH inflation would not fund efficient cost pressures arising from above CPIH energy cost rises and it is clear from historical data as well as forecasts that there is a real possibility that this could happen. It is also possible that energy prices could fall in real terms.

(82) We therefore think that is important that the CMA reconsiders the case for an energy RPE with an end of period reconciliation mechanism to ensure that both companies and customers are protected from windfall gains/losses resulting from changes in energy prices that are outside of their control. We think that such an end period reconciliation should be implemented in the same way as the labour RPE as follows:

- Ex ante assessment of an energy RPE based on:
  - the weight of energy in water company totex – this could be based on the 9.0% share calculated by Europe Economics for Ofwat based on business plan data tables;[53]
  - a forecast of the wedge between CPIH growth and electricity price growth – this could be based on the BEIS "Energy and emissions projections"[54] using the Annex M retail electricity price forecasts for industrial consumers. Alternatively, the CMA could decide to assume zero RPEs for electricity ex ante and rely solely on the end of period true-up; and
  - incorporation of ex ante RPE adjustments for electricity prices into the final determination allowances using the weights and forecasts discussed above using the same method as for labour costs.
- An end of period reconciliation based on:
  - the use of a suitable external and independent index that appropriately tracks electricity costs faced by the sector. For this we would suggest using the BEIS 'Industrial energy price indices'.[55] Within these indices we think the 'Table 3.3.2 (current CCL)' indices for electricity prices including the climate change levy are the most appropriate ones to use;
  - re-estimating the allowances and resulting revenues provided by the final determination using the outturn BEIS data in the bullet above as the basis for the wedge between CPIH and electricity prices; and
  - an adjustment to price control revenue in AMP8 to correct for any under/over-recoveries in AMP7 revenues based on the difference between the ex ante forecast and outturn electricity prices.

52 PFs, para 4.437
53 Europe Economics, Real price effects and frontier shift – Final assessment and response to company representations, page 38 https://www.ofwat.gov.uk/wp-content/uploads/2019/12/Europe-Economics-—-Real-Price-Effects-and-Frontier-Shift-—-Final-Assessment-and-Response-to-Company-Representations.pdf
54 https://www.gov.uk/government/collections/energy-and-emissions-projections
55 https://www.gov.uk/government/statistical-data-sets/industrial-energy-price-indices

(83) This mechanism would work in the same way as the reconciliation that already exists for labour RPEs and would follow the same process which would make it a simple modification to the regulatory framework to implement and would achieve the objective of protecting customers and water companies against unpredictable but potentially significant deviations between electricity price growth and CPIH inflation.

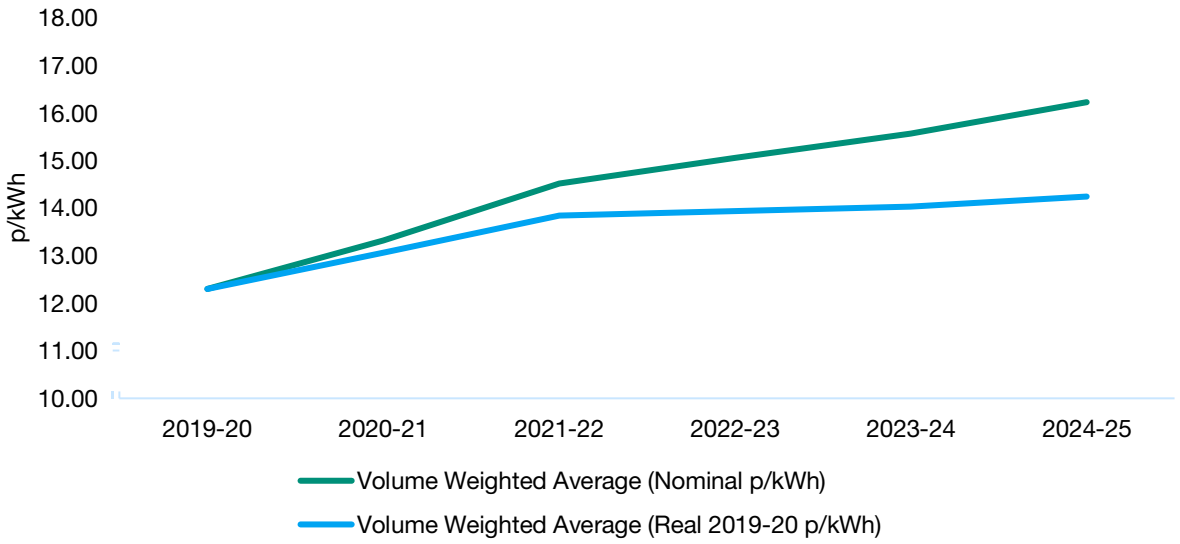
(84) To further support our case for an energy RPE we commissioned a report from Cornwall Insight to forecast energy prices for a customer with our energy consumption profile over the AMP7 period.[56] These forecasts are based on known and projected changes to the non-commodity elements of the energy bill (e.g. changes to electricity transportation charging methodologies) and extrapolation of the wholesale energy price forward curve.

(85) The results of this analysis are shown in Figure 2 below. Using this volume weighted average (and using RPI for the calculation of real prices as per Cornwall's analysis), the report finds that:

- in real terms with a 2019-20 Base Year, our fully delivered energy cost will increase by an average of approximately 3.0% (c. 4% on a CPIH-real basis) over the review period; and
- in nominal terms our fully delivered energy cost will increase by an average of approximately 5.7% over the review period.

(86) These forecasts show consistent price increases in excess of CPIH inflation (c.2%) and support the inclusion of an RPE adjustment to allow efficient cost recovery.

Figure 2: Cornwall Insight forecast of NWL's fully delivered electricity costs, volume weighted portfolio average (Real 2019-20 and Nominal p/kWh, MSP)



Source: Cornwall Insight analysis

(87) Based on this analysis, we ask the CMA to reconsider our case for an energy RPE adjustment with an end of period reconciliation.

56 *Northumbrian Water Group Forecast of GB electricity costs: 2020-21 to 2024-25 (CI Code 20-4107), Cornwall Insight, 22.10.20 (**Cornwall Insight Forecast 22.10.20**), **PFREP013** and Appendix to Cornwall Insight Forecast 22.10.20, **PFREP014**.*

3.5.3 Labour RPE

(88) The CMA has applied an RPE adjustment for labour costs based on the expectation that labour costs will typically increase by more than CPIH.[57] It has also retained the end-of-period true-up mechanism to account for any differences between actual wage growth and those assumed in setting the price control, citing forecasting uncertainties due to Brexit and COVID.[58] In line with Ofwat's FD19, the CMA has chosen the Annual Survey of Hours and Earnings (**ASHE**) manufacturing index[59] (all employees, mean hourly wages, including overtime) for the true-up reconciliation.[60]

(89) We agree with the general approach to reflect expected RPEs *ex ante* and to have a reconciliation at the end of the period. However, we have significant concerns that ASHE manufacturing index is more sensitive to the negative impact of Covid-19 (and potentially Brexit) than water sector wages, and hence is a sub-optimal proxy of actual wage growth.

(90) In the following sections, we outline the pros and cons of ASHE manufacturing index compared to Average Weekly Earnings (**AWE**) manufacturing and AWE electricity, gas and water supply indices.[61] We also consider the pros and cons of removing the true-up mechanism for the labour RPEs. We conclude that using the average weekly earnings index for the electricity, gas, and water supply (i.e. utilities) sector is most likely to ensure that the true-up is based on an accurate benchmark that allows allowances to match costs most closely.

3.5.3.1 Assessment of the ASHE manufacturing index

(91) The CMA and Ofwat favour the ASHE manufacturing index for the true-up mechanism on the premise that: manufacturing and water sectors share a similar labour market (regarding skills and experience) with similar historical wage growth; and ASHE indices (that are based on hourly earnings) are more robust to changes in working hours, as opposed to AWE indices (based on weekly earnings).

(92) We are concerned that ASHE manufacturing index has a significant shortcoming on both of those fronts:

- **The manufacturing sector is a sub-optimal proxy for the water sector:**
  - manufacturing output, and hence manufacturing demand for labour, has a higher exposure to Covid-19 and Brexit than the water sector; and
  - the manufacturing index covers unrelated sectors[62] with different skills and wage pressures,
- **ASHE indices will have a downward bias in 2020 compared to AWE indices:**
  - both ASHE and AWE indices include employees who were furloughed under the Coronavirus Job Retention scheme (i.e. they both include the downward impact of the scheme on reported wages); however,

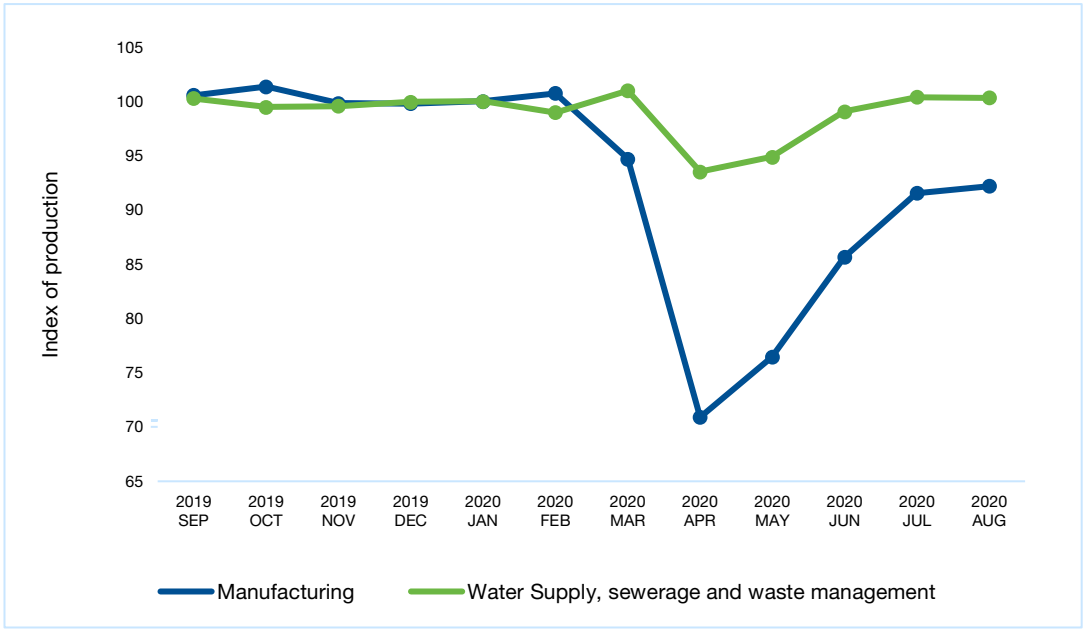
57 PFs, para. 4.424.
58 PFs, para. 4.425
59 https://www.ons.gov.uk/surveys/informationforbusinesses/businesssurveys/annualsurveyofhoursandearningsashe
60 PFs, para. 4.426; SOC417 PR19 FD Securing Cost Efficiency Technical Appendix, p.196-197, p.210.
61 https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/averageweeklyearningsingreatbritain/latest
62 ASHE Manufacturing sector includes a broad range of economic activities that are not directly related to the water sector, including but not limited to: Manufacture of Food Products and Beverages; Manufacture of Textiles and Textile Products; Manufacture of Wearing Apparel; Dressing and Dyeing of Fur; Manufacture of Wood and Wood Products; Manufacture of Pulp, Paper and Paper Products Publishing and Printing, etc.

- the ASHE 2020 index value will be based on wages earned during the Mar-May 2020 (the Covid-19 lockdown period)[63] where fall in output and wages was its highest. In contrast, AWE statistics for 2020 will be based on data across the full year, including the bounce-back in wage growth since June 2020 and therefore will be less dependent on data from a small window at the peak of Covid-19 impacts.

(93) We provide further detail on the points above by reference to ONS data:

- manufacturing output was significantly hit by Covid-19, whereas the water sector output was relatively flat (see Figure 3). The Covid-19 impact will likely cause any manufacturing wage index to underrepresent water labour costs in 2020. This is especially true for ASHE Manufacturing index, which is sampled in April 2020, at the peak of the lockdown; and
- the water sector experienced a much lower furlough rate than manufacturing, as acknowledged by Ofwat.[64] For example, we have not furloughed any of our staff. Therefore, we expect the wage growth in the water sector to not experience the dip in manufacturing wage growth shown for Spring 2020.

Figure 3: Impact of Covid-19 on manufacturing output and the water sector



Source: ONS Index of Production and Sectors to 4 decimal places, (Chained vol indices of gross value added, seasonally adjusted)

(94) We note that the Brexit impact could cause any manufacturing index to underrepresent water labour costs in 2021 and later if there are disruptions to trade.

(95) Since the ASHE 2020 index has not yet been published, we cannot compare wage growth in the ASHE Manufacturing and ASHE Water supply, sewerage and waste management indices. However, in Figure 4, we compare the 2020 wage growth in the alternative indices for the labour RPE true-up mechanism, where we proxy ASHE Manufacturing with AWE Manufacturing index (October update).[65] This shows that manufacturing wages were more heavily affected in April 2020 due to Covid-19 and were much slower in bouncing back that

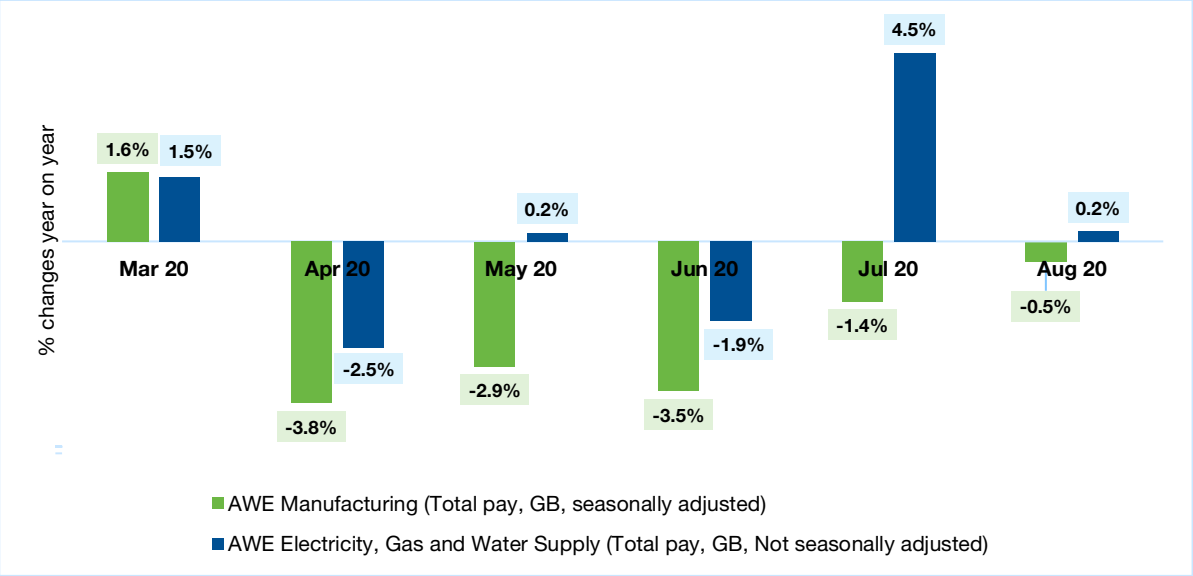
63 ASHE manufacturing index is based on employees' earnings and normal hours worked in the pay-period including the reference date of 22 Apr 2020. For example, if an employee is paid monthly (weekly), their earnings in the pay-month (week) including 22 Apr 2020 will contribute to the index. Hence, we estimate that the maximum time window that ASHE manufacturing index could capture from 21 March 2020 to 21 May 2020. Source: <https://www.ons.gov.uk/surveys/informationforbusinesses/businesssurveys/additionalguidanceforthe2020annualsurveyofhoursandearnings>.

64 PFs, para. 4.360: "Ofwat said that the latest Office for Budget Responsibility's (OBR) productivity and wage forecasts, which took account of COVID-19, showed an initial increase in productivity as the lowest productivity workers were furloughed or lost their jobs, […]. Given the limited furloughing of workers in the water sector, […]".

65 Note that if ASHE Manufacturing index is used, 2020 value will be based on April 2020; whereas if AWE Manufacturing or AWE Electricity, gas and water supply index is used the 2020 value will be based on the entire year, including the recovery in the second half of the year.

those in the utilities sector. We therefore expect the ASHE manufacturing wage index to underrepresent wage growth in the water sector.

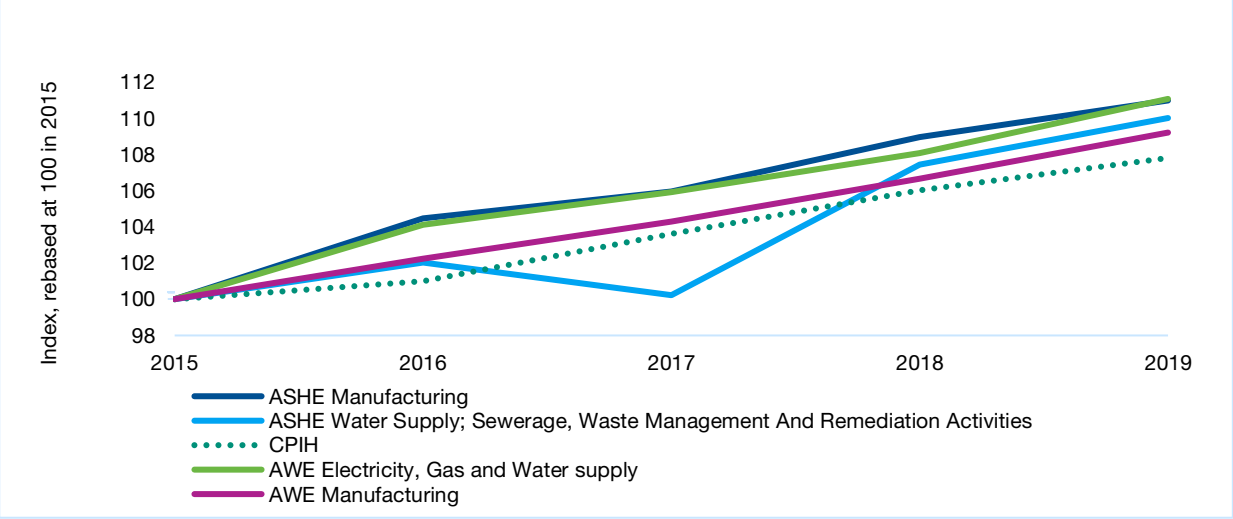
Figure 4: Manufacturing wage growth was -3.8% in Apr20, when ASHE index was sampled[66]



Source: See footnote.[67]

(96) Figure 5 compares all alternative indices in terms of historical wage growth performance. Both AWE and ASHE manufacturing, and AWE electricity, gas and water supply sectors/industries had similar historical wage growth to that in the water sector, represented by ASHE water supply, sewerage and waste management index. This wage growth has been larger than the CPIH growth, which is why the labour RPE is needed.

Figure 5: Historical wage growth



Source: see footnote.[68]

(97) In summary, Covid-19 is likely to cause a downward bias to the manufacturing wage index in 2020, and Brexit impacts could kick-in right as Covid-19 impacts wane, leading to a

66 *Note: Estimates of total pay include bonuses but exclude arrears of pay. The figures are the changes in the seasonally adjusted weekly earning values for the relevant month compared with the same month a year earlier. Although sector-level data is only available as seasonally adjusted and industry-level data is only available as not seasonally adjusted, it is fine to compare the datasets as we are using year-on-year changes.*

67 *Source for Manufacturing: ONS AWE (EARN01) 13 Oct 2020 publication; "AWE Total Pay" tab, CDID: K5CB.*
Source for Electricity, Gas and Water Supply: ONS AWE (EARN03) 13 Oct 2020 publication; "NSA ind monthly growth ibxa" tab, CCID: EQQV.

68 *Source for ASHE indices: ONS ASHE Table 5 (Table 5.1a Gross, for all employee jobs, UK);*
Source for CPI: ONS CPIH annual rate 00: All items (CDID: L55O and Source dataset ID: MM23);
Source for AWE indices: ONS AWE (EARN01) 13 Oct 2020 publication, "AWE Total Pay Index" tab, CCID: K552 and ONS AWE (EARN03) 13 Oct 2020 publication, "NSA ind monthly figs" tab, CCID: K57Y.

further potential downward pressure on manufacturing output and thus wage growth in the sector. The ASHE hourly manufacturing index is likely to have a longer-term under-estimation issue. The CMA has acknowledged that the relationship between wage pressures in the water sector and the manufacturing index used in the true-up had, at least temporarily, broken down,[69] but dismissed our concerns and stated that that "*any short-term fluctuations do not invalidate the use of this index*".[70] However, even if we assumed that wage levels caught-up in 2021 onwards and the lower manufacturing wage growth was confined to 2020, **this 'short-term fluctuation' is material**. If the 2020 wage growth estimate is too low, we would be underfunded through the reconciliation adjustment.

(98) We demonstrate this in a worked example (see Annex 1). In summary, compared to a true-up mechanism based on AWE utilities (2020 wage growth = 0.1% based on available data April to August 2020), the true-up mechanism based on ASHE manufacturing index (assuming the ASHE index replicates the AWE index, 2020 wage growth = -3.8%) gives rise to a c.1.5% under-recovery of efficient totex. Given that our total totex is £2.26bn, this **corresponds to c.£39m under-recovery of efficient costs**. This is the case even if we are assuming that the ASHE manufacturing index underrepresentation is only for a single year in 2020 and the wage growth is the same for both indices in all other financial years.

3.5.3.2 Alternatives to CMA's true-up provisional decision

(99) We first evaluate the pros and cons of switching to the AWE Manufacturing index. The switch from ASHE to AWE would allow the 2020 value for the index to not be based on April 2020 alone and reflect the recovery in the second half of the year. Nonetheless, the manufacturing sector has been affected more significantly than utilities by Covid-19 so it would still not be a representative index. Our concerns about the manufacturing sector being too broad and having a high sensitivity to Brexit also remain.

(100) The second alternative would be to use the ASHE Water supply, sewerage, waste management index. Although this index is the most likely to ensure that the correct labour market dynamics are captured, Ofwat ruled out using a water sector index due to 'circularity' concerns regarding the water companies' influence. While we understand this concern, we note that individual companies would have a small impact on the overall index level; so, using this index in the true-up mechanism would not distort efficiency incentives. Nonetheless, the shortcoming of this index is that water-sector specific data is only available in ASHE; and therefore, the index would still be affected by the reliance of data from April 2020.

(101) The third alternative is the AWE Electricity, gas and water supply index, which has the following advantages:

- an index based on the electricity, gas and water supply industries would more accurately capture the labour market dynamics with respect to the impact of Covid-19 and Brexit than a manufacturing index. Since Ofwat's and CMA's original reasoning for including a true-up mechanism with the labour RPE was to address this uncertainty, this is a key feature of an optimal index;
- the scope of the index is broader than just the water sector. An individual water company will, therefore, only have a very small impact on the index which mitigates Ofwat's circularity/management influence concerns; and
- it will reflect the labour costs across a full year instead of only April 2020 when the impact of Covid-19 and resulting furlough schemes was the highest.

69 PFs para. 4.426; Post Hearing Submission para. 60.
70 PFs, para. 4.426.

(102) We think the AWE Electricity, gas and water supply index is the best candidate to be used for an end of period true-up.

(103) We also considered two alternatives to an end-of-period true-up; but, ruled these out:

- removing the reconciliation mechanism altogether and just basing allowances on an *ex ante* assessment of future labour costs. Given the current levels of uncertainty over the future evolution of wages in the water sector and more importantly in CPI, we do not think this option should be preferred over the AWE index for the utilities sector. The latter provides a much better level of protection for customers and water companies against potential shocks and developments in the economy over the next 5 years; and
- removing the adjustment for labour RPEs altogether. This would allay concerns over choosing an appropriate index for the end of period reconciliation and would avoid the need for a robust *ex ante* forecast. However, it would not provide a protection to customers or water companies for the likely divergences between wage growth and CPIH over the AMP7 period.

3.5.3.3 Our labour RPE proposal

(104) In light of the advantages and disadvantages of each option discussed above, we consider that the most appropriate index for calculating labour RPEs true-up is the **AWE Electricity, Gas & Water Supply Index**. This index:

- will best capture the pressures likely to be faced in the water sector in the AMP7 period;
- will not be wholly reliant on wages in April 2020 which were heavily influenced by Covid-19 impacts, since it is calculated using data over an entire year;
- will not be unduly affected by Covid-19 and Brexit in a way that we think the manufacturing indices will be; and
- avoids a potentially significant underfunding of our efficient price control allowances resulting from the end-of-period true-up.

3.5.4 Chemicals RPE

(105) We continue to believe that we will face upward cost pressures on chemicals in AMP 7. As we have previously stated to the CMA these are costs that we must incur and the chemicals we buy are somewhat unique to the sector and often dependent upon a limited supply chain. We would encourage the CMA to reconsider the evidence we have previously submitted on this issue.[71]

(106) Our concerns over the risks in the supply chain for chemicals are also shared by the Drinking Water Inspectorate (**DWI**). On 11 September 2020 the DWI wrote to all water companies requesting a risk assessment citing that:

"As a result of planned closures of production and/or unplanned occurrences at suppliers there is a potential change in risk to supplies of critical water treatment chemicals."[72]

(107) This review was prompted by concerns from DEFRA about supplies from a key provider being put at risk following an incident in August 2020. It resulted in a sector wide response from the quality regulators recognising the importance of this matter and the dependence upon that supply chain. Whilst the number of suppliers for key water industry chemicals remains low, the impact of any disruption to the supply chain from Brexit or issues with one

71 SoC Section 5.5.4; Reply Section 4.5; July Reply Annex A.
72 Information Letter 06/20 from DWI to all water companies, 11 September 2020 ***PFREP011****.*

the suppliers[73] could introduce significant cost pressures that would not be reflected with CPIH.

(108) However, we understand the CMA's rationale for its decision in particular the absence of a representative independent external benchmark is a clear gap.

(109) The process does raise some significant concerns that the framework for RPEs will make it very difficult for us to ever make a convincing case for an RPE for chemicals, whether positive or negative. This is due to the circumstances in the area and the availability of data given the absence of an external independent index. We have set out below the challenges in considering whether an RPE cost adjustment is appropriate:

- the chemicals that we buy are often highly specialised and made specifically for the water industry;
- external price indices such as the ONS producer price index considered by Europe Economics poorly represent the chemicals we buy. External indices are often dominated by the effect of petrochemicals and are linked to the price of oil. We do not buy any petrochemicals and the resulting price pressures we face are completely different;
- the production of the chemicals we purchase captures a high proportion of the value added in their price. For example, ferric sulphate, the chemical we buy most of, is made from the mixing of iron ore and sulphuric acid. However, a large part of the price is driven by the transport of the raw materials and the manufacture of the product. This means that we cannot use price indices relating to the underlying components as a good proxy for the price pressures that we face;
- several of the key chemicals we buy are the by-product of other manufacturing processes and therefore the volume of supply is driven by factors external to the demand of the chemicals we purchase; and
- there are known large increases in demand that we expect to bite in the future, such as from tighter environmental consent requirements (e.g. p-removal), that will place upward pressure on prices.

(110) These circumstances make it very difficult to consider the appropriateness of an RPE for chemicals. However, we still believe that cost pressures in this area will rarely coincide closely with CPIH inflation. If the CMA accepts these points then we would welcome recognition in its final determination that this is an area where further work is needed so that genuine RPE cost changes can be reflected in price control allowances to facilitate efficient cost recovery.

3.6 GROWTH

(111) In summary our position on growth is that:

- we agree with the CMA that growth should be included within the base cost models, primarily due to concerns over cost allocation and thus ensuring fair comparisons between companies;
- we support the CMA's decision not to adopt alternative model specifications that include more specific growth drivers due to concerns over correlation between cost drivers and over the functional forms of the models providing meaningful results;

73 See, for example the details regarding chemicals resilience in light of potential disruption arising as a result of Covid-19 in the WaterUK Covid-19 Incident Management Manual, April 2020 ***PFREP012****. WaterUK has also separately considered in detail the resilience risks to the industry associated with critical reliance on one particular supplier.*

- we agree with the use of updated household growth projections from the ONS as it makes sense to use the most up to date information available;
- we still do not see the rationale to support a post-modelling growth unit rate adjustment and consider it should be reversed in its entirety; and
- the growth adjustment itself also uses an unjustifiably high unit cost which compounds the detrimental impact of an unwarranted adjustment for us.

(112) We also agree with the CMA's proposals to expand the DSRA true-up mechanism to adjust companies' allowed revenues for growth costs including growth at sewage treatment works.[74] We suggest that this might be calculated by adding an annualised STW unit cost to the existing DSRA unit cost. The annualised STW unit costs could be calculated applying the aggregate of the company wastewater run-off rate and the CMA determined return on capital to the business plan STW growth totex investment over 2020-25, then dividing by the forecast number of properties.

(113) Table 7 below shows how this might be calculated, using the average annual STW growth totex, converting this into an annualised cost, giving a cost per property of £417, then adding this to the relevant FD DSRA value (£367 in 20/21). This gives a DSRA of £785. It is possible to arrive at a much higher figure by using the totex figure without annualising, but we believe this would not represent the long term costs, as our business plan STW growth totex is high for AMP7.

Table 7: STW growth and the DSRA

STW Growth			Source
Average Totex 2020-25 £m	18.872		WWW1
Run off £m	4.63%	0.874	FD
Return on investment £m	5.49%	1.036	CMA WACC
Annualised Cost £m		**1.910**	
New properties connected '000 (20/21)	4.575		DSRA Table A4
STW growth cost/property		417	
Current DSRA (20/21)		367	DSRA Table A4
New DSRA value 20/21		**785**	

Source: Ofwat PR19 final determinations: Our approach to regulating developer services Table A4 and Ofwat Feeder model 1 for waste

3.6.1 The rationale for the growth unit rate adjustment

(114) The CMA supports Ofwat's decision to apply a growth unit rate adjustment on the grounds that "***The base models only fund the costs of an efficient company serving the average historical growth rate****. If the growth unit rate adjustment was removed it would risk underfunding companies in high growth areas and overfunding companies in low growth areas*" (emphasis added).[75]

(115) However, we do not understand why the adjustment is necessary at all. From our perspective, the base costs models work well and capture scale and density variables that would be expected to capture historical and future differences in growth between companies.[76]

(116) For the post modelling adjustments that we have been arguing for (e.g. on RPEs) we have rightly been assessed against a high evidential bar to ensure that any adjustments are well justified, accurate and proportionate. Given the magnitude of the adjustment (minus £42m in our case) we would expect there to be strong and evidenced justification behind the

74 PFs, para. 4.525.
75 PFs, para. 4.478
76 SoC Section 5.6.4; Reply Section 4.6.

assumption. We would expect this to be supported by evidence showing which companies had been over/under-funded, and the magnitude of the funding gap to show the appropriateness of the adjustment being applied.

(117) We therefore ask that the same evidential bar used elsewhere to assess adjustments be applied to this growth adjustment. To date there has been no articulation of the reasoning behind this assumption.

(118) We think the base cost models do capture growth. As the CMA itself notes "*the total number of properties should already reflect, at least to some extent, the variation in (net) new connected properties. We checked the correlation between the two variables, which is 90%"*.[77] We are therefore unclear why the CMA considers that the model does not provide an adequate assessment of historical growth impacts.

(119) In addition, differential growth rates are already accounted for in the projections of the explanatory variables. Companies with higher expected future growth rates are awarded higher cost allowances than companies with lower growth rates. Whilst we have not been convinced that there is a need for a downward adjustment, if there were, then we would be concerned that it represents a double-count of downward adjustment already applied to our AMP7 revenues by using lower growth rates on our forecasted cost drivers.

(120) The totex base cost models (WW3/WWW3, WW4/WWW4) use company specific growth rates from the ONS when forecasting the number of properties used as cost drivers. This means that companies with lower than average growth already receive a lower totex allowance from the base models than those with average growth. However, the growth unit rate adjustment repeats this growth adjustment, causing a double count of the adjustment for lower growth.

(121) This is best illustrated by running Model FM WW4 using average growth for the industry rather than company specific growth. For us, this would increase the totex allowance by £3.2m. This £3.2m is thus already deducted from our totex allowance by the CMA using company specific growth rates in the base cost model.

(122) The same principle applies to wastewater, although the driver is load rather than properties. We have lower than industry average growth rates for load, which is itself correlated to numbers of properties. Using average load growth rather than company specific increases totex by £2.8m. This means we already have a £2.8m reduction for lower than average growth in the base model.

(123) Together this means that we are already getting a downward £6m adjustment due to having lower forecast growth than the historical average. When combined with the £42m post model growth adjustment provisionally applied by the CMA, this represents a £48m total (water and wastewater) downward adjustment due to growth.

(124) This compares to our BP19 growth capex projections of £287m (combined water and wastewater),[78] and represents a 17% reduction.

(125) The growth adjustment is, therefore, unwarranted as growth is already captured in the model and there is already a downward adjustment from using forecast household numbers for our operating area that include lower than average levels of growth.

77 PFs, para 4.99
78 BP19: Tables WWS2 and WWWS2.

3.6.2 The choice of unit costs compounds the impact of an unnecessary adjustment

(126) The choice of unit cost to make the adjustment compounds the unfairness in its application as it increases the size of the unnecessary adjustment.

(127) We are concerned that the unit rate applied to wastewater erroneously includes sewer flooding costs which we do not consider to be linked to new property connections. Government planning requirements will often require new developments to separate surface water from foul flows and send the former to a nearby watercourse or SUDs. This separation means that new developments are much less likely to experience sewer flooding issues than existing properties with combined sewers. Growth is therefore not related to additional sewer flooding costs.

(128) For this reason, the CMA should recalculate the wastewater historical unit cost rate to exclude sewer flooding. This reduces the unit rate from £1,715 per property to £734 per property, which is a material change.[79] This would reduce the downward adjustment for wastewater by £18m.

3.7 UNMODELLED COSTS

(129) We welcome the CMA updating the allowances in this area for new information on abstraction charges (Kielder Transfer System) and business rates.

(130) We understand that the CMA proposes the following cost sharing rates:

Table 8: Cost sharing rates for unmodelled costs

Unmodelled Costs	Customer %	Business %
Abstraction Charges (including Thames transfer) (PFs, para. 4.614)	75	25
Kielder Transfer System (KTS) increase (PFs, para. 4.612)	100	0
Business Rates (PFs, para. 4.640)	90	10
Industrial Emissions Directive (costs > £12m) (PFs, para. 4.664)	75	25
Industrial Emissions Directive (costs < £12m) (PFs, para. 4.664)	100	0

Source: PFs as per table

(131) For clarification, it would help if the CMA confirmed whether the 100:0 cost sharing rate for KTS was just for the increase identified, or for the whole KTS charge. We assume the former. We also assume that the IED cost sharing for underspends is set at 100%.

3.7.1 The increase in the costs of the Thames Bulk Supply Abstraction Costs (SoC 959-962)

(132) The CMA concludes that there is a degree of management influence over the Thames abstraction charges, meaning that Ofwat's 75/25 (customer/company) cost sharing rate is appropriate.[80]

(133) For 'in-area' abstraction charges, Ofwat and the CMA have taken the approach of allowing the central confirmed forecast of abstraction charges, then setting a sharing rate for cost variations from this level.[81] The fact that these abstraction charges are recharged via a third party (Thames Water) within a bulk supply should not change this principle. Not to do so would disincentivise companies from making cross border trading agreements, which would be contrary to Ofwat and Government policy aims.

79 See NWL databooks: NES Base adjustment model - Growth unit rate adjustment NES amendment to exclude sewer flooding.
80 PFs,. Paras 4.613-4.614.
81 PFs, para. 4.590.

(134) As per our regulatory accounting separation report, in our accounts, we separated abstraction costs from bulk supply costs, so these costs are excluded from modelled costs.[82]

(135) The underlying contract refers to abstraction charges as part of the amounts payable.[83] This 1963 contract is an in-perpetuity one that we rely upon for the provision of a critical volume of water that would be unavailable elsewhere. We are contractually obliged to pay the increased amounts. The increased abstraction costs for Thames Water were due to the loss of the court case with the Canals and Rivers Trust and are thus unavoidable.[84] Details of the resultant increase in the Thames abstraction payments are set out in the British Transport Commission Act 1949 The River Lee (Increase of Payments) Order 2020.[85] Thames Water has confirmed that, under the bulk supply agreement Essex & Suffolk is liable for 12.5% of the increases.

(136) As such, we do not believe that there is any degree of management control over these increased abstraction costs.

(137) If the desire is to ensure we are incentivised to try to minimise the costs we suggest making an allowance for the central case (a £0.5m pa adjustment) but retaining the 75/25 customer/company cost sharing split for any variations from that.

3.7.2 IED

(138) The CMA has recognised that costs associated with Industrial Emissions Directive (**IED**) compliance are likely to arise in AMP 7, based on the current Environment Agency (**EA**) requirement for operators to secure IED permits by August 2022.[86] Reflecting the detailed evidence provided in our submissions and the supporting views from the Environment Agency, the CMA has provisionally provided an upfront allowance of £12 million alongside a reconciliation mechanism - on a 75/25 (customer/business) cost-sharing basis - to recover costs that exceed the allowance at the end of AMP 7.[87] The £12m allowance will be subject to clawback at the end of AMP 7 if our actual costs are less.[88]

(139) We welcome the CMA's provisional allowance and recognition that this obligation should be funded in AMP 7. We provided the CMA with a detailed business case based on a scope which represents the highest foreseeable level of intervention at a cost of £31m for our Howdon and Bran Sands sites.[89] The high level view from the EA, which was not supported by an evidenced cost estimate, suggested that the costs might be in the region of £12m-£20m.[90] Given the level of uncertainty regarding the cost of compliance we requested an allowance of £20m plus a cost adjustment mechanism. In making an allowance of £12m the CMA has opted for the lower end of the EA's range.

(140) Whilst we consider that there is sufficient evidence to support a higher allowance, we are prepared to accept the CMA's provisional approach.

82 Reply, Section 9.5.2
83 SOC284 Thames Chigwell Buk Supply Agreement, p. 11, Section 8c.
84 SoC Section 9.7; SOC341 Canal & River Trust v TWUL High Court Decision; SOC352 Canal & River Trust v TWUL Court of Appeal Decision
85 The British Transport Commission Act 1949 The River Lee (Increase of Payments) Order 2020, 23 March 2020, ***PRFEP010****.*
86 PFs, para. 4.648.
87 PFs, paras. 4.643-4.664
88 PFs, para. 4.664(a).
89 REP069 Appendix 5: IED Enhancement Case Appendix.
90 Email from EA to Ofwat dated 27 May 2020.

3.8 COST-SHARING INCENTIVES

(141) In the PFs the CMA has recognised our concerns about the novel cost sharing approach Ofwat adopted at PR19. It acknowledges the concerns about the incentive properties of substantially asymmetric cost sharing rates and has moved to a more balanced, but still asymmetric, cost sharing rate: 55/45.[91]

(142) Whilst we still consider that a 50/50 cost sharing rate would be the most appropriate outcome, based on the evidence and arguments provided in our submissions to date,[92] we recognise that the CMA has exercised its regulatory judgment in reaching this position given that it is not in a position to re-run the entire process. On that basis we accept the CMA's provisional finding on the setting of totex cost sharing rates.

(143) We note that in reaching its decision, the CMA has set out a series of principles for effective cost sharing rates.[93] We agree with these principles in so far as we have demonstrated that a mechanistic framework like the one applied in PR19, that offers increasingly asymmetric cost sharing rates unless companies simply reduce their proposed totex, is not in customers' interests. It will discourage companies from bringing forward new enhancement investments even where they are required and encourage companies to accept cost allowances that they expect to be insufficient to avoid the cost sharing rates. In both cases this risks driving underinvestment which will result in a significant detriment to customers. It is important that a strong precedent is established to avoid the incentive properties of Ofwat's novel approach being repeated in the future.

(144) Just as the CMA has recognised that the asymmetric ODI package will increase risk in the settlement, the asymmetric cost sharing rates it has retained will also have a similar effect. Where asymmetric cost sharing rates are set this should be taken into account as part of the financeability assessment.

3.9 CONCLUSIONS ON BASE TOTEX ALLOWANCE

(145) We are pleased that the CMA has decided to retain the vast majority of Ofwat's approach to developing the base cost models as we consider these to be robust.

(146) Overall, however, we still anticipate a gap between the PFs botex allowance and our actual efficient base costs of c.£75m. This could be addressed through making the individual adjustments to base totex that have been provisionally rejected by the CMA and/or implementing other changes prompted by the PFs which would bridge this remaining gap. In particular this includes revisiting:

- the justification for applying the downward adjustment to our costs for growth;
- the appropriate assumptions for frontier shift efficiency, particularly in light of the impact of the Covid-19 pandemic on productivity;
- the application to frontier shift to business rates and abstraction charges; and
- the position on real price effects.

(147) We also ask the CMA to consider whether it would be appropriate to recalculate the base allowances using the most up to date 2019/20 cost information and correcting its frontier shift assumption for 2020/21 to take account of the impact of Covid-19. This would be

91 PFs, paras. 6.100-6.118.
92 SoC Section 6.4; Reply Section 5.3.
93 PFs, para. 6.116.

consistent with the CMA approach to using current "*relevant additional and updated information*"[94] as it has already done in setting the PC levels.

(148) As the CMA confirms in its PFs its approach is based on setting a totex allowance that "*represents a reasonable level of costs that each of the Disputing Companies could be expected to incur*".[95] As we have demonstrated in this Section, our botex allowance currently falls short of that aim. We ask the CMA to make the combination of interventions it considers appropriate to ensure that our allowance adequately reflects our efficient anticipated costs.

94 PFs, para. 3.8.
95 PFs, para. 10.88.

4 ENHANCEMENT COSTS

- **Sewer flooding**: We ask the CMA to reconsider our sewer flooding resilience scheme which we believe is in the interests of our customers and should be funded. To address the marginal risk of overlap identified by the CMA between our base and enhancement programmes we have reduced our request by £7m.
- **Benchmark models for enhancement**: We ask the CMA to make adjustments in two areas. 1) For p-removal we accept the additional models developed by the CMA but request some adjustments to ensure the cost drivers reflect the policy intent and to give appropriate weighting to the different models based on their relative importance. 2) We identified an error in our BP19 data used to estimate the spill frequency model which we ask the CMA to correct.
- **Deep dive efficiency challenges**: We ask the CMA to revert to the PR19 FD approach on efficiency as there is not a clear evidence base to make the change. Furthermore, the change proposed by the CMA does not distinguish between the relative efficiencies of the plans submitted by the companies.
- **WINEP efficiency challenges**: although we still have concerns about the application of the upper quartile challenge we have no further evidence to advance and therefore accept the CMA's position.
- **Application of frontier shift to enhancement spend**: We accept the principle of applying frontier shift to enhancements and have concerns that the forecasts made by companies already include this. We have no new evidence to present and therefore accept the CMA's view on this point.
- **Essex Resilience Scheme**: We support the position reached by the CMA to fund the Essex Resilience Scheme.

4.1 OVERVIEW OF OUR ENHANCEMENT COSTS POSITION

(150) In our SoC we set out a series of concerns with Ofwat's FD19 cost allowances for enhancement. Table 9 below summarises how our issues relating to enhancement costs have evolved since the SoC and the extent to which they remain unresolved by the PFs.

Table 9: Summary of NWL's enhancement costs position in response to the PFs

Issue	Comment	Value in SoC vs PR19 FD (£m)[96]	Value now vs PFs (£m)
Enhancement issues in our SoC			
Sewer flooding	We think there is a marginal risk of overlap between our base and enhancement programmes and we have reduced our request by £7m to reflect that.	86	79
Essex Resilience	Funding requested in SoC granted in the PFs.	20	NA
WINEP efficiency challenge	Upper quartile and frontier shift disputed in SoC but now accepted due to PFs' assessment.	15	NA
WINEP p-removal models	3rd model argued for at SoC: different adjustments requested at PFs in response to new models.	10	1
Enhancement issues arising from the PFs			
Deep dive efficiency challenge	We disagree with the change to the deep dive efficiency challenge from the FD19.	NA	7
New enhancement issues identified by NWL			
Leakage investment	New request in response to change in approach to leakage costs for other companies.	0	16
Spill frequency	Correction of identified error within the input data to the model.	0	10

Source: NWL analysis

96 SoC, Table 34

(151) The issues identified in our SoC combined with the deep dive issue arising from the PFs are consistent overall (when combined with our base costs position) with the gap we had identified in SoC. We present this reconciliation in Annex 3. We still expect to overspend our enhancement allowances based on our assessment of efficient expenditure requirements.

(152) There are two new enhancement issues we have identified (leakage investment and spill frequency). These are not presented as additional requests to the CMA. These provide further evidence of a gap between our efficient costs and the allowances provided by the PFs. They also offer the CMA an alternative route of closing the gap in funding our efficient costs and allowing us to move even closer to our original business plan.

4.2 SEWER FLOODING RESILIENCE

(153) We are disappointed with the CMA's provisional decision not to fund our sewer flooding enhancement scheme.

(154) Securing the long-term resilience objective requires that undertakers make long-term plans and investment into their sewerage systems to cope with environmental pressures, population growth and changes in consumer behaviour. To meet that objective we not only looked at what we should do to minimise the risk of sewer flooding that our customers are experiencing now, but also into the future. We considered what we could do now to provide increased resilience in the light of climate change and urban creep to protect our customers.

(155) We believe that our proposed investment should be funded as a resilience scheme. It represents significant additional activity and medium-long term risk mitigation beyond that historically (and prospectively) undertaken out of our base allowance that deals with an issue that has particularly adverse impacts on individual customers. Both our base level programme and our additional resilience scheme have strong customer support.

(156) We do not accept that we are simply seeking additional funding to catch-up for historical poor performance.[97] On a unit cost basis we have made one of the highest levels of investment in the sector to reduce sewer flooding in recent price control periods which has enabled us to meet our performance targets in AMP 5 and AMP 6 for our customers.

(157) Ofwat set a comparative target on a consistent basis for sewer flooding and sought to fund it from base cost allowances using botex models across the sector for the first time at PR19. This is a departure both from the historical service metric definition which focussed on properties that have already experienced flooding, and from the historical cost assessment approach where service improvement targets and cost allowances were set 'in tandem', with targets set in relation to an individual companies' past performance. The impact for companies like ourselves, who have traditionally had materially larger programmes than the average, is that the base costs models are unlikely to fund the efficient costs required to achieve the very stretching targets we have been set and certainly could not be expected to fund our resilience programme.

(158) Just as the base allowance is clearly insufficient to fund our resilience programme, nor do we think that this could be funded through the ODI framework.[98] It would take us over 30 years to recoup the investment of c.£79 million through the ODI framework according to Ofwat's analysis during which time the regulatory framework would need to be consistent. This is not a credible assumption given that the service definitions, targets and cost assessment frameworks have all changed materially at each of just the last three price

97 PFs, para. 5.288.
98 RIF011A Ofwat Response, Q.1.

controls. Aside from the flaws we have highlighted in Ofwat's analysis the regulatory framework is not predictable enough for this to be a viable funding solution.[99]

(159) We have looked in detail at the concerns voiced by the CMA in the PFs and carefully considered whether to re-present a scheme which both Ofwat has and the CMA has provisionally rejected. On balance, because we believe our scheme is consistent with the resilience objective for planning future investment, we have decided that it is appropriate to do so.

(160) In the absence of specific funding for this resilience programme we struggle to see any viable pathway in the regulatory framework to taking forward this investment which our customers have requested through our consultations with them. The drivers for delivering additional resilience against this type of service failure, with severe negative consequences for impacted customers, will only grow in importance as the impacts of climate change manifest in the future. The experience highlights the gap that currently exists in the regime for the funding of long-term resilience schemes. As the assessment of this scheme by Ofwat and the CMA has shown, it is not funded by the base allowance, does not meet the cost adjustment claim criteria and has been rejected as enhancement on the premise that it falls within base. If this gap is not addressed there is a real risk that precedent will be set which supports the conclusion that investment of this sort should not be provided for in the future. The detriment to customers of such an outcome in the long-term could be very significant.

(161) As the UK Government's Strategic Policy Statement (**SPS**) makes clear an important part of securing long term resilience includes protection from service failures.[100] The SPS envisages allowing companies to consider a broad and innovative range of options to tackle these issues with a view to delivering the best value for money over the longer term considering the wider costs and benefits to the economy, society and the environment.

(162) In the following sections we set out the evidence to support these points.

4.2.1 Sewer flooding is one of the worst service failures customers can experience and the benefits from our resilience programme are clear

(163) Sewer flooding is arguably one of the worst service failures that can occur. It is rated as a key priority by our customers. In its PFs, the CMA suggests, however, that it has *"not seen any robust evidence that the scheme proposed by Northumbrian represents incremental benefits for customers which should attract additional funding".*[101]

(164) In line with SPS guidance on the resilience objective we undertook a range of research on customer valuations for PR19 service improvements. A core piece of research involved the development of a comparative tool which covered a number of service areas, including reducing internal sewer flooding.[102] The valuation results from the research were as follows:

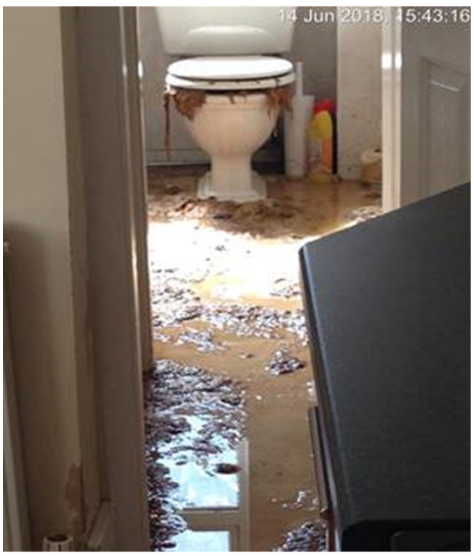
- internal sewer flooding - customers valued a reduction in internal flooding at a value of £26,351 per incident per year; and
- external sewer flooding - customers valued a reduction in external flooding at a value of £3,922 per incident per year.[103]

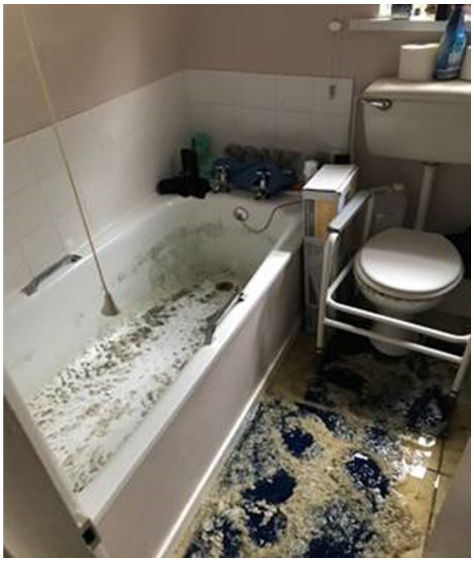
(165) This research clearly demonstrates the value that our consumers place on avoiding this service failure. Indeed, on a unit reward/penalty basis internal sewer flooding has the highest

99 Post Hearing Submission, Section 2.1.2.
100 SOC349 DEFRA, The government's strategic priorities and N/A objectives for Ofwat, (September 2017).
101 PFs para 5.292
102 SOC032 Appendix 2.3 to BP19 (ed. 09.18).
103 SOC278 Wastewater Reduce Flooding Risk for Properties Enhancement Business Case, para. 157.

unit rate of any of our common PCs.[104] We shared footage with the CMA of interviews with customers who have experienced flooding during our virtual site visit which shows the significant impacts on our customers in terms of the anxiety and stress it causes. The images below reinforce how distressing this can be. As a responsible company, listening to its customers, we are keen to ensure that we can attain the funding necessary to further minimise the risk of this happening to our customers.

Figure 6: The impact of internal sewer flooding





Source: NWL

(166) Using the information we have gathered, we can estimate a range for the total benefit that customers expect to receive from our proposed resilience programme on sewer flooding. This was set out in our enhancement case.[105] Using historical data, we estimated that 7,400 properties would move from the highest risk category to another in response to our planned interventions. We used hydraulic modelling to quantify the increase in properties at risk of flooding from climate change and urban creep. Based on the approach described above, we calculated the total customer benefits associated with our resilience scheme to range from £96m to £130m. This implies a benefit cost ratio for the scheme for customers ranging from 1.24 to 1.68 times the cost.[106]

(167) Furthermore, where flooding occurs it also drives additional costs in terms of damage and cleaning of the property. It can also impact on customers' ability to retain insurance against the threat in the future and affect the value of their properties. For an internal flood these clean up costs are typically around £2,000 and for external flooding they are typically £1,000-£1,500. This includes staff time and cleaning costs as well as Guaranteed Service Standard payments. The service valuation evidence probably underrepresents the detriment to customers.

(168) We are not seeking any additional funding to deliver our AMP 7 PC over and above the funding that comes from our botex allowance. We are only asking for funding for an additional programme of work that is intended to improve long-term system resilience in the face of urban creep and climate change. As demonstrated in Table 10 our scheme would address the sewer flooding risk faced by all of the category 5 properties and some of the category 4 properties.

104 SOC189 Ofwat FD19: Outcomes Performance Commitment Appendix.
105 SOC278 Wastewater Reduce Flooding Risk for Properties Enhancement Business Case.
106 We have subsequently reduced our totex requirement for this scheme to £79m (see Post Hearing Submission Section 2.1), meaning that the CBA will actually be higher than the figures quoted

Table 10: No. of properties experiencing increase in flooding risk due to climate change and urban creep: modelling 1 in 20-year rainfall probability and different depth of flooding impacts

	Property Impact – depth of flooding relative to ground level in m (No of properties affected)				
Rainfall Probability	**<-0.5 Category 1**	**-0.5 to 0.2 Category 2**	**-0.2 to 0 Category 3**	**0 to 0.2 Category 4**	**>0.2 Category 5**
1 in 20 year	464,663 **(-17,409)**	48,981 **(-1,809)**	32,077 **(2,916)**	129,899 **(11,809)**	49,668 **(4,515)**

Source: SOC278 Wastewater Reduce Flooding Risk for Properties Enhancement Business Case, Section 6.3.3.

(169) We will continue to prioritise properties which have already experienced flooding within our baseline expenditure to prevent flooding occurring again. We would like to be in a position to extend this protection under the resilience objective to more properties that are at risk of flooding in the future where we are given sufficient funding to do so.

4.2.2 Our programme is not driven by a desire catch-up with historical poor performance

(170) In the PFs the CMA has indicated that it shares a concern, voiced by Ofwat, that our enhancement scheme is really an attempt to gain additional funding to catch up with the performance of the rest of the sector.[107] It goes on to suggest that companies will have made different investment choices in the past and will have "*areas of strength and weakness*" and that providing "*additional funding in individual areas risks double-funding activities, either because the company has chosen not to invest in these areas in the past or because these were invested inefficiently*".[108]

(171) We are clear that our enhancement scheme has been genuinely motivated by a legitimate desire to increase resilience in our network to address the very clear concerns which our customers have around long term resilience to climatic conditions. We are not proposing this scheme to contribute to our performance against the common PC and we have accepted the funding and the PC in respect of this.

(172) Investment in sewer flooding is transparently recorded by companies in their annual reporting. That data demonstrates that we have not underspent in previous AMPs. Instead our levels of investment are amongst the highest of any company in the sector (see Table 11 and Annex 2). Details of our targets, performance and associated expenditure in AMP 5 and AMP 6 are also provided in Annex 2. Analysis of the data demonstrates that we have had some of the most challenging targets to deliver and we have broadly met those targets. We are categorically not seeking additional funding to 'catch up' for historical underspending.

Table 11: AMP 6 unit cost comparison across companies

	Capex 2015 20, £ms	£m s per km of length of sewers	£m s per 000 properties
ANH	21	54	1,517
WSH	42	234	5,845
NWL	**42**	**283**	**6,745**
SVE	164	352	7,934
SWB	17	191	4,446
SRN	13	67	1,347
TMS	153	280	5,231
UU	66	170	3,968
WSX	38	218	6,152
YKY	37	142	3,261
Industry	**593**	**209**	**4,748**

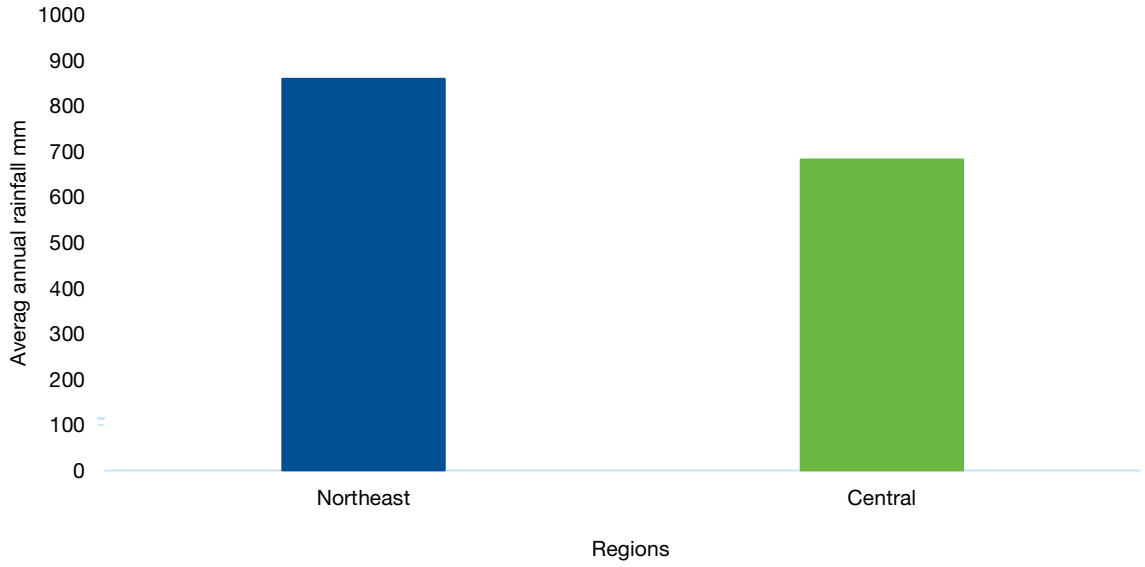
Source: NWL analysis of WWWS1

107 PFs, para. 5.288
108 PFs, para. 5.288.

(173) We acknowledge that on a simple benchmark of our sewer flooding performance we might compare less favourably to other companies. We are rising to the challenges set by Ofwat and our customers in this area, as we have demonstrated by the focus on this area in our BP19. This has informed our willingness to accept a strong challenge during AMP 7. We have never disputed the scope of, or targets contained in, the common PC, nor the base funding allowance to deliver it. Indeed, throughout PR19 we have always accepted more stretching targets where those were proposed by Ofwat based on revealed information from other companies and at no point during the entire PR19 process have we sought a softer PC target.

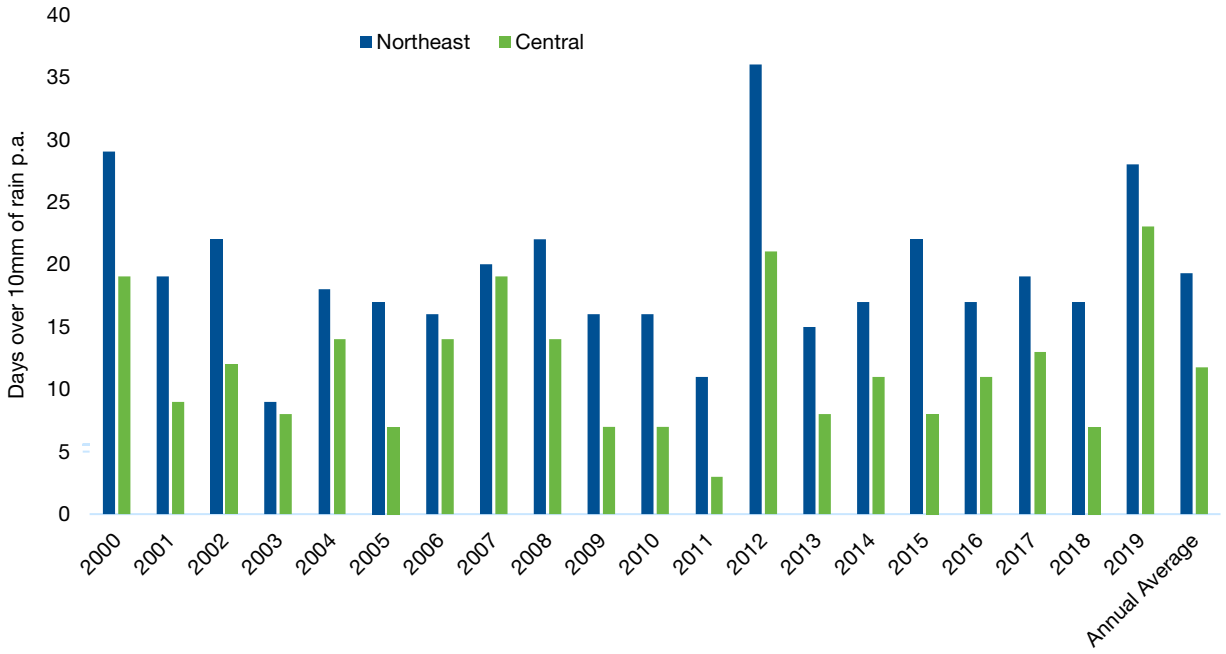
(174) However, we do not consider that the comparative measures of performance tell the whole story. There is reasonable evidence that companies face different operating conditions that will impact on the scale of the sewer flooding challenge they face. This can demonstrated by a comparison between annual average rainfall and extreme rainfall events between the Met office North-east (largely covering Northumbrian and Yorkshire) and Central (largely covering Anglian and Severn Trent) regions as set out in Figure 7 and Figure 8. This shows that over the last c.20 years the North East has on average experienced around 26% more rainfall and 64% more extreme rainfall events (when measured according to 10mm per day).

Figure 7: Average annual rainfall (2000-2019) for North-East and Central regions (mm of rain annual average)



Source: Met office open source homogenised regional rainfall data sets, NWL analysis

Figure 8: Annual rainfall intensity (2000-19) for North-East and Central regions (days over 10mm of rain per annum)



Source: Met office open source homogenised regional rainfall data sets, NWL analysis

(175) Table 12 below compares current performance, historical investment and rainfall between ourselves and the current top performer under comparative metrics, Anglian Water (ANH). It shows that not only did we experience a greater annual average volume of rainfall, and greater intensity of rainfall, we also experienced more internal flood incidents and spent significantly more in total and per property.

Table 12: Comparison between Northumbrian and Anglian Water internal sewer flooding performance, expenditure and rainfall

Company	Internal Flood Incidents per 10,000 connections (2019 20)	Rank (2019 20)	Total expenditure £/km sewer pa (2010 20)	Total expenditure £/property pa (2010 20)	Average annual rainfall (2000 19) mm	Average annual rainfall intensity (days over 10mm a day) (2000 19)
ANH	1.06	1st	0.10	2.82	683	11.8
NWL	3.68	8th	0.67	15.99	860	19.3
Industry	2.56	11 (total)	0.26	5.87		

Source: Current 19/20 performance sourced from company shadow reporting for 19/20 under the common PC. Total expenditure reported on sewer flooding taken from companies PR19 data tables, WWWS1. Weather data consistent with Figure 7 and Figure 8 above.

(176) In our SoC, we highlighted a range of companies that proposed additional investments to support reductions in sewer flooding for a variety of similar factors.[109] Some of these were enhancement investments and some were cost adjustment claims. Out of the £403m requested, Ofwat allowed just £16.4m. We consider that there is a cohort of companies who face a higher challenge in relation to sewer flooding, in part because of exposure to more intense rainfall, that is not reflected in the approach to setting base allowances. The claims made by these companies for extra funding to address these risks have roundly been rejected, regardless of how they were presented. Rather than simply concluding that all these requests for funding were flawed, it must also be considered whether this indicates a more fundamental gap in the regulatory regime when it comes to this type of investment.

109 NWL SoC, section 7.5.5.

(177) We firmly reject any suggestion that the enhancement scheme is nothing more than an attempt to catch up on historic poor performance. Instead it has been motivated by our desire to deliver resilient services to our customers in an area which they regard to having high value and to address significant concerns.

4.2.3 Customers are not at risk of paying twice

(178) It goes without saying that we agree with the CMA that customers should not pay twice for investment.[110] We listened carefully to the CMA's concern raised at the hearing and challenged ourselves to ensure that there was no double recovery. When investing in a dynamic system there is always a sense in which an improvement in one area may drive improvements in another part of the system.

(179) We have sought to address that concern by removing any potential theoretical overlap and reducing our requested enhancement funding accordingly.[111] In its decision to reject the enhancement case outright the CMA has provided no direct commentary on that analysis. If the CMA has any concerns with that work and its conclusions we would be happy to address these. We have also set out some further detail on the nature of the two programmes, showing that the programmes involve different activities and outcomes.[112]

(180) For this response we have considered other possible scenarios in which customers might be considered to be paying twice. This includes looking at whether it could be funded through the base allowance or through ODI rewards. In the following sections we reiterate that:

- the base cost allowances could not have funded this work; and
- the ODI framework is similarly inadequate to fund these types of investment.

4.2.3.1 The historical approach to sewer flooding would not have funded this type of investment in base costs

(181) We thought that it may be helpful to set out the historical approach to sewer flooding to put the performance target setting and funding allowances for the base programme and the current resilience enhancement scheme into context. In Annex 2 we provide details of the historical approach to addressing sewer flooding which has been used since 2010. That analysis shows that:

- Ofwat's approach in PR09 (and at previous price controls) was to focus on properties which have already flooded to seek to prevent them flooding again. These properties were added to a register (DG5) and companies were provided a unit cost allowance per property to remove them from that register over each control period until 2015. This resulted in every company receiving a different performance target and a different cost allowance, recognising that there would be regional differences in application depending on the level of sewer flooding in their areas;
- at PR14, Ofwat changed its approach to assessing costs and the PC targets. Whilst Ofwat used 'totex' cost assessment models it still appears to have used a unit cost analysis as part of setting allowances for sewer flooding costs. The performance commitment definitions also changed. Instead of retaining DG5 each company proposed their own PC. The differences in the PR14 PC definitions makes it difficult to accurately compare performance across the sector during AMP 6; and

110 In the PFs para 5.292 the CMA rejects funding for our sewer flooding resilience scheme and states 'We therefore consider that any additional funding would be likely to result in customers paying twice for the same improvement in outcomes'
111 Post Hearing Submission Section 2.1.
112 Reply, Sections 3.4.2.3 and 3.4.2.4.

- at PR19 the PC definition was standardised to drive consistency across companies. The cost assessment framework was changed entirely, with 'botex' models now created with different drivers and no use of unit cost analysis for PC performance targets and allowances. Any regional variability has been lost in the latest set of cost allowances and PCs and targets and allowances are not set 'in tandem' anymore.

(182) As can be seen from the detail set out in Annex 2:

- **the historical service targets are not consistent with the work we propose in our enhancement programme** - the DG5 service performance definition for sewer flooding, which was used from before privatisation until 2015, was focussed on properties that had already flooded. Expenditure by companies will have been similarly focussed. This supports our view that companies were focussed on reactive work as envisaged by our base programme rather than the work set out in our enhancement programme. This type of investment would not therefore be reflected in company expenditures that have been used as the basis for setting the base cost allowances; and
- **the base cost allowances are likely to underfund us relative to our past expenditures for sewer flooding and there certainly will not be sufficient funding for the enhancement programme -** for the 2010-20 period Ofwat set bespoke cost allowances for each company based on different targets for sewer flooding performance and using a unit cost allowance (see Annex 2 Section 1.2). This is clearest from the 2010-15 period. The 2015-20 period under PR14 is less clear. However, like the approach taken to leakage each company's targets and corresponding cost allowances were different. The base cost assessment models used by Ofwat in its FD19 draw data from 2011-12 to 2018-19. Half of this period is covered by that PR09 approach where costs and service targets were set 'in tandem' and half is covered by PR14 where there is also evidence that Ofwat used unit cost models. Furthermore, across AMP 5, AMP 6 and AMP 7 we have consistently had more stretching improvement rates and higher expenditure allowances than the average, despite also having comparatively cost efficient programmes compared to other companies. The cost models will generally provide a funding allowance consistent with the median across all companies. Companies like ourselves that have historically had materially more sewer flooding outputs and made significantly more investment will be underfunded by an allowance set at a median level that fails to take account of region-specific drivers. These lower allowances would certainly not cover the enhancement programme.

(183) Furthermore, we would request that when looking at sewer flooding, the CMA also takes into consideration how it has treated leakage. In the PFs, the CMA provides additional cost allowances for three of the Disputing Companies in relation to leakage.[113] It provides a number of justifications for doing so including:

"***Our analysis of the leakage targets that were set in the past, and the Totex allowances that were given, suggests that historically both were set in tandem****, … That is, different companies were set different targets based on how (supposedly) efficiently they were able to reduce leakage, but also based on other factors, … The evidence suggests that the leakage targets that Ofwat set in the past were appropriately funded, and that the companies generally met those targets, … Therefore, we provisionally conclude that the Disputing companies which identified that they required enhancement cost funding for achieving the leakage reductions they committed to should be allowed the efficient cost of*

113 PFs, Section 8.72.

doing so, regardless of their current performance relative to other companies."[114] *[Emphasis added]*

(184) The issues and history we have described above in respect of sewer flooding have strong parallels with the circumstances the CMA has taken into account in deciding to provisionally allow additional leakage funding. Just as SELL resulted in different company specific targets and funding levels being set in tandem, DG5 did the same for Internal Sewer Flooding.

(185) In its PFs the CMA also states that:

"We provisionally agree that there will be an additional cost associated with this level of leakage reduction. The leakage PC target represents a step change in expectations compared to the last decades."[115]

(186) The 'step change' in service performance for leakage relative to the past appears to have been an important consideration in the CMA's provisional decision on that issue. The same logic could be applied to sewer flooding, given that the historical perspective on costs and targets is very similar. Our historical improvement rate for AMP 6 on internal sewer flooding represents around a 35% improvement for internal sewer flooding, whilst for AMP 7 the improvement rate is 63%.[116] We consider that this represents a 'step change' in improvement relative to the past.

(187) We consider that the CMA's approach to sewer flooding should be consistent with its approach to leakage, particularly as we have shown that the base cost allowances are not sufficient to fund our resilience programme.

4.2.3.2 The ODI framework is similarly not likely to appropriately fund this investment

(188) In the PFs the CMA sets out that the "*ODI framework would generally support an approach to efficient investment in reducing sewer flooding".*[117] Ofwat has set out in its reply to RFI011A that the scheme should be able to be funded as part of a multi-AMP programme of investment. This envisages spending beyond allowances in AMP 7 to both avoid ODI penalties or earn rewards in AMPs 8-10.

(189) We provided a detailed response to Ofwat's ODI modelling in our Post Hearing Submission.[118] This demonstrated that that: a) Ofwat's modelling failed to account for the caps and collars in the current framework and removed them for subsequent time periods; and b) the model assumed a level of outperformance on sewer flooding that was mathematically impossible on the basis of the target set. Furthermore, for this approach to be credible, we would need to assume a degree of consistency in the regulatory framework over a number of periods. As demonstrated above and in Annex 2, Ofwat's cost assessment approaches and sewer flooding service definitions/performance commitments and incentive rates have changed materially in each of the last three control periods. This would not provide a sufficiently strong level of confidence in the proposition that investing now to improve service performance in the future would be appropriately rewarded.

(190) It may well be the case that an appropriately designed incentive regime and associated cost assessment process could provide the incentive properties that Ofwat and the CMA suggest, but we do not consider that the current regime does so. Moreover, we consider

114 PFs, paras. 8.62-8.64.
115 PFs, para. 8.57.
116 See Annex 2
117 PFs, para 5.291
118 Post Hearing Submission, Section 2.1.

that what this experience demonstrates is that there is a clear gap in the regulatory framework for funding these investments.

4.2.4 Conclusions

(191) We would encourage the CMA to assess our request for additional funding for sewer flooding resilience through the prism of the resilience objective. That objective requires the regulators to consider how companies can secure long term resilience and protect customers from service failures. We have shown how our scheme would protect a further 7,400 customers from the misery of sewer flooding, acting proactively, to manage the increased challenges of climate change and urban creep. We are willing to be held to account for that additional challenge through a more targeted ODI in respect of this scheme and to return to customers any investments that we fail to make. We have demonstrated clear need, that the costs are efficient and that customers are supportive of the scheme. We have also demonstrated that customers will not be paying twice for this investment and that this goes over and above what has been allowed for in the base costs.

(192) There are clear limitations in the current regulatory framework for funding resilience investment in this area beyond the basics. If this is not addressed then companies will face significant, if not impassable, barriers to bringing forward sensible resilience-focused investment proposals in this area in the future. This will significantly hamper companies' ability to mitigate the impacts of climate change on sewer flooding with inevitable negative consequences for our customers on something that drives substantial detriment to them.

(193) Multiple companies with higher rainfall tried to make arguments on this subject. The regime didn't lend itself to any of them succeeding, irrespective of how they presented their case. We think that it is a real problem that the regulatory framework doesn't have a natural home for investment proposals like this. That shouldn't preclude the scheme from being funded, however, particularly given the strong level of customer support.

4.3 BENCHMARK MODELS FOR ENHANCEMENT

(194) In this section we set out our responses on two issues:

- **P-removal models:** we accept the additional models developed by the CMA but consider that there needs to be some adjustments to give appropriate weighting to the different models based on their relative importance; and
- **Spill frequency model**: we have identified an error in the underlying BP19 data used to estimate the model which we think should be corrected.

4.3.1 Phosphorus removal (P-removal)

(195) In general, we agree with the changes made by the CMA in its PFs for P-removal enhancement costs. In particular we agree with the CMA that Ofwat's assessment of our allowance "*gave insufficient weight to a material factor*"[119] and welcome the addition of Models 4 and 5.

(196) However, we do not think that each of the models should have the same weight in setting our cost allowances as some drivers are better at explaining differences in investment drivers between companies. We discuss this issue below in section 4.3.1.1. We also set out our views in section 4.3.1.2 on the potential for a reputation incentive for P-removal costs.

119 PFs, para. 5.77.

4.3.1.1 Weighting of the models

(197) We agree that all four of the models have merit in explaining the different drivers of the costs of P-removal. However, we do not think that they should be given equal weighting when setting our cost allowances:

- Model 1: this is a simplistic model which just considers the number of enhanced sites. However, it does not take into account the complexity of the works involved, i.e. the tightness of the consent required or whether there is no current consent (and therefore whether first-time investment is required). As indicated by Aqua[120] the main cost drivers of a p-removal programme are: (1) whether there is any existing infrastructure or whether all infrastructure costs will be incurred for the first time; (2) the level of the existing infrastructure and whether it would need additional works to meet tighter regulation; and (3) the level of the future consent. Model 1 is completely ignorant of these critical cost drivers, treating any and all enhanced sites as the same. Hence, Model 1 allowances are less sophisticated estimates of actual costs likely to be incurred;
- Model 2: this model captures the impact of the tighter 0.5 mg/L consents which are higher cost, but these sites only make up just over half of our (56%) and the sector's (53%) enhanced sites requiring P-removal investment. It is therefore only a partial measure of the complexity of investment being undertaken. There could be significant variation in the remaining sites not captured by this cost driver;
- Model 4: this model uses a less stringent consent level of 1 mg/L and captures a much higher proportion of the sites affected within the sector (78%) and nearly all our sites (93%). This model better reflects the higher degree of complexity in our p-removal programme (no other company has a higher proportion of sites requiring consent at that level). Although it is based on the same cost driver as Model 2, we consider this model to be a better approximation of likely costs; and
- Model 5: this model focuses on the number of sites requiring first-time P-removal investment which, in our view, is the most important driver of investment requirements. Aqua's analysis also finds that the costs associated with installing an infrastructure for the first time is higher than costs at sites with existing infrastructure, at both 1mg/L and 2mg/L levels.[121] As with Model 4, Model 5 captures a high proportion of our sites (93%) and shows how our programme is more complex than the industry average where a lower proportions of sites are first-time investment (78%).

(198) The proportions of our sites captured by the cost drivers in Models 2, 4 and 5 are shown below in Table 13.

Table 13: Proportion of enhanced sites captured by the 2nd explanatory variable in each model

Company	Number of sites with future consent <=0.5mg/L (Model 2)	Number of sites with future consent <=1mg/L (model 4)	Number of sites with first time future consents (Model 5)
ANH	48%	92%	81%
NES	**56%**	**93%**	**93%**
NWT	52%	72%	65%
SRN	62%	80%	54%
SWB	32%	54%	93%
TME	65%	87%	87%
WSH	63%	83%	63%
WSX	38%	75%	79%
YKY	61%	76%	95%
SVT	52%	72%	69%
Sector Average	**53%**	**78%**	**78%**

Source: NWL analysis of Ofwat's "FM_E_WWW_p-removal_FD.xlsx" workbook

*120 Letter from Aqua to Northumbrian Water Limited, dated 22.10.20 (**Aqua Letter 22.10.10**) **PFREP004**.*
121 PFREP004 Aqua Letter 22.10.20.

(199) Based on the assessment above, we suggest that:

- reduced weight is placed on Models 1 and 2 in the triangulation of model outputs: Model 1 does not capture the differences in complexity of the investments that must be undertaken at each site; and Model 2 only captures the impact of investment complexity at around half of the enhanced sites in the sector and there are significant differences in their costs depending on whether the investments are first time and on the level of the consents required; and
- increased weight should be applied to Models 4 and 5 as they better capture the nature of our investment programme which has a much higher proportion of sites requiring less than 1 mg/L consents and a much higher proportion of first-time P-removal investments.

(200) We propose:

- weights of a sixth on each of Models 1 and 2 to reflect their lower ability to capture the cost pressures in our P-removal programme; and
- weights of a third each on Models 4 and 5 as these models better capture the complexity of our P-removal investments.

(201) Changing the weights in the manner suggested would better align the triangulated allowances with our efficient investment requirements as we have a higher proportion of more stringent new/tighter consents to comply with, and a higher proportion of first-time investment sites which are not properly captured by Models 1 and 2. Implementing this change would increase our allowances by £1.3m to £73.1m for P-removal.

4.3.1.2 P-removal incentive mechanism

(202) We understand the CMA's motivation in proposing a potential P-removal incentive mechanism to strengthen accountability for forecasts and to provide an information base for determining future allowances. In reviewing the information available we also discovered the limitations of the information available as the cost data is only available at an aggregate level and there is not sufficient data on the cost of historical projects.

(203) To assist these objectives, we think an approach requiring the following information to be submitted to Ofwat and published could be helpful:

- information on a STW site-level basis covering the nature of the works (e.g. PE equivalent of load treated, and the old and new consent levels) and the cost of the investment; and
- an assessment the most material divergences between spend and forecasts to highlight the factors that make forecasting challenging. We think it would be proportionate to focus on those sites as they would be most insightful in understanding the drivers behind changes in spend from forecasts.

(204) This could be implemented as a reputational incentive for just the WASCs involved in this redetermination but we think that it would have most value if implemented at a sector level. The collection of a large dataset of historical costs at the STW site-level may enable cost models to be estimated at the site level as there would be sufficient richness in the data to account for the different cost drivers and to ascertain which indeed are the most material. This would be a significant improvement on the modelling possible at PR19 which was forced to rely on models estimated on 10 data points.

4.3.2 Spill frequency model – (Storage in the network)

(205) In our response to RFI008, we noted that "*as part of the process of preparing the response to this RFI we have identified that the values submitted in the Business Plan data table WWS4 lines 11 and 13 were incorrect*".[122]

(206) It is not clear whether the CMA has run the spill frequency model with this new information. We believe that the corrected values in our RFI008 response[123] should be used and the totex allowance recalculated. We calculate this increases our allowance from £16.5m to £26.6m, a material change. The RFI008 response includes references to supporting evidence, such as the EA email and spreadsheet.[124] We summarise the changes to the spill frequency model in Table 14 below.

Table 14: Suggested amendments to spill frequency model

Excel Ref	Reference	Description	FD Value	Corrected Value
Cell I28	WWS4002	Volume of new or additional storage provided in the sewerage network	10,000	18,500
Cell I29	WWS4004	Number of sites in network at which new or additional storage is provided	1	7

Source: RFI008 response, specifically SOC068 BP19 (ed. 09.18) Data Tables / EA WINEP Spreadsheet RFI008-03. Also: FM_E_WWW_spill-frequency_FD with NES corrections

4.4 DEEP DIVE EFFICIENCY CHALLENGES

(207) When considering efficiency challenges on deep dive enhancement schemes, the CMA takes broadly the same approach as Ofwat: if the company has not provided sufficient evidence that its costs are robust and efficient an additional efficiency challenge is applied.[125] However, the CMA has adopted a blanket 10% efficiency challenge to all deep dives for all the Disputing Companies,[126] which **does not take into account the relative efficiency of each appellant**.

(208) Ofwat's calculation of deep dive efficiency factors did adjust for different levels of efficiency across the industry, ranging from 5% to 10%. Based on Ofwat's efficiency factors, we received the lowest efficiency factor for wastewater and the joint lowest for water out of the four appellant companies. These factors are almost doubled by the CMA's provisional decision on 10%.[127]

(209) Since the CMA use differentiated efficiency factors across the appellants for shallow dives, and since they have not provided any evidence on why Ofwat's approach of differentiated efficiency factors for deep dives is not appropriate, we consider that **Ofwat's original company-specific deep dive efficiency factors should be retained**.

4.5 WASTEWATER WINEP COST EFFICIENCY CHALLENGES

(210) We continue to have concerns that the UQ challenge applied to WINEP costs may be overly challenging due to use of forecast data, small sample sizes, and the risk of outliers having a disproportionate impact on the allowances for the sector. However, we consider that the CMA has assessed our arguments on these issues. We have no further evidence to submit in this area.

122 RFI008 NW Response, para. 19.
123 RFI008 NW Response, Table 1.
124 See RFI008-02 and RFI008-03.
125 PFs, para. 5.164.
126 PFs, para. 5.166.
127 PFs, Table 5-13.

4.6 APPLICATION OF FRONTIER SHIFT TO ENHANCEMENT ALLOWANCES

(211) As set out in Section 3.4.2 above we agree with the principle of applying frontier shift to enhancements and we did this in our business plan. We still have concerns that the forecasts made by companies already include frontier shift and there may be a degree of double counting. However, we have no new evidence to present.

4.7 ESSEX RESILIENCE SCHEME

(212) We welcome the CMA's provisional decision to allow funding for the Essex Resilience Scheme. This scheme is essential to provide resilience in our Essex region to protect a large number of households from the real risk of significant supply failure.

(213) As the CMA identifies, we do consider that this scheme will mitigate against the risk posed by the simultaneous occurrence of various low probability events.[128] We agree that our 'near-miss' experiences in 2016 and 2018 demonstrate that the risk is material, particularly given that the effects of climate change on water quality and quantity, because of frequency and intensity of rainfall, are now manifesting more rapidly. Recent events, such as the Covid-19 pandemic where access to water for hand-washing and general hygiene has played a vital role in fighting the pandemic and lockdown has caused spikes in domestic demand, and changes to food production in response to Brexit, are also important reminders of the potential volatility in demand as well as the essential importance of a reliable supply of water. As WICS has noted in its recent draft determination for Scottish Water:

"Perhaps most important, the [Covid-19] crisis has brought into focus the need to ensure that infrastructure is resilient, properly maintained and able to cope with unexpected events, including the growing impact of climate change on Scottish Water's operations."[129]

(214) As such, we welcome the CMA's willingness to look at the wider implications of this proposal and not to limit itself to a "*narrow application of a specific assessment framework*".[130] Seen in that broader context, we consider that it is both a correct and proportionate judgment to conclude that this investment is justified and will clearly further both the consumer and resilience objectives.

(215) We note that the CMA references possible rationales for not providing additional funding but rejects them on the premise that it has not seen convincing evidence in support.[131] We clearly agree with the CMA's conclusions, but thought it might be useful to add the following additional detail in support of the conclusion that this scheme is not seeking to correct or mitigate the impact of inefficient or suboptimal decisions taken in the past.[132] The decision to expand our Abberton reservoir, for instance, was taken in 2010 on the back of 15 years of investigation and planning during which c.260 sites potential reservoir sites across East Anglia were considered. Enlarging the Abberton reservoir was the most viable option from an environmental, engineering and economic perspective. By contrast, any enlargement of the Hanningfield reservoir is not logistically possible due to the topography of the site.

(216) We recognise and accept the importance of ensuring customers are adequately protected so welcome the CMA's acceptance of our proposal to extend the customer protection ODIs associated with our water resilience enhancement programme. We agree that the most appropriate solution is to increase the incentive rate from £0.294 million per unit (%) of delivery to -£0.388 million per unit in order to reflect the increased value of the programme

128 PFs. Para. 5.248.
*129 Water Industry Commission for Scotland (**WICS**) Strategic Review of Charges 2021-27, Draft Determination (**WICS DD21**), p.20. https://www.watercommission.co.uk/UserFiles/Documents/Strategic%20Review%20of%20Charges%202021-27%20Draft%20Determination_1.pdf*
130 PFs, para. 5.248
131 PFs, para. 5.247-5.248.
132 PFs, para. 5.247(a).

as a result of the Essex resilience scheme being funded. The details behind this, and also of a corresponding amendment to the FD table which sets out the various components of the programme, remain as set out in our response to RFI013.[133]

4.8 CONCLUSIONS ON ENHANCEMENT ALLOWANCES

(217) In finalising its determination, we ask the CMA to:

- reconsider and make a funding allowance for our Sewer Flooding Resilience Scheme recognising the £7m reduction we have made to the original cost of the scheme due to the marginal risk of overlap;
- update the weights applied to the different P-removal models to ensure that they give a fair assessment of our efficient costs by reflecting the relative importance of the cost drivers in the models to our investment programme;
- revert to the PR19 FD approach to the deep dive efficiency challenge as the change is unjustified and does not take into account the relative efficiency of the different appellants; and
- confirm funding in full for the Essex Resilience Scheme and the extension of the customer protection ODIs associated with our water resilience enhancement programme.

133 RFI013 NW Response, Question 4 paras. 4-8.

5 OUTCOMES: PERFORMANCE COMMITMENTS AND INCENTIVES

- We accept the provisional findings of the CMA with respect to PCs and ODIs, including in relation to the unplanned outage PC.

5.1 ASSESSMENT OF COMMON PCS AND ODIS

(218) In seeking a redetermination from the CMA we have not raised any significant objections to the overall package of PCs and ODIs set out in FD19, with only some limited exceptions. In particular we raised concerns with respect to the unplanned outage PC.[134]

(219) Whilst we are disappointed that the CMA has chosen to retain the unplanned outage PC as a financial incentive, we consider that the provisional decision to introduce an under-performance dead-band at 1.2x the PC level mitigates to some extent our concerns about the asymmetric risks. We therefore support the CMA's provisional findings with respect to the common PCs and ODIs. Our comments with respect to the common leakage PC are set out in Section 6.1 below.

5.2 ASSESSMENT OF BESPOKE PCS AND ODIS

(220) Other than commenting on the bespoke PCs and ODIs for our Essex Resilience and Sewer Flooding Resilience Schemes, we have not sought any changes to any other bespoke PCs or ODIs from the CMA.

(221) In a letter dated 13 July 2020 we did, however, draw the CMA's attention to a detailed but important point regarding the exact definition of our bespoke visible leaks PC.[135] As set out in the letter we had hoped that this issue would be resolved through Ofwat's business as usual corrections and clarifications process. Unfortunately, this has not been the case and the issue remains unresolved.

(222) We therefore ask the CMA to address this in its final determination by confirming that repairs to leaks on customer owned supply pipes should not be in scope for this bespoke PC.

5.3 ENHANCED ODI INCENTIVES

(223) We note in the PFs that the CMA has provisionally decided to remove the enhanced ODI incentives associated with the common leakage PC.[136]

(224) We concur that in the specific context of leakage this seems appropriate. As the CMA acknowledges, even when the ambition for leakage reductions at PR19 is accepted, there will remain a point at which it is no longer economical to reduce leakage further.[137] We comment further in Section 10.4 below on the potential implications for PR24.

134 SoC, Section 7.7.
135 NWL Letter to CMA, 13 July 2020: 'CMA Redetermination – Ofwat PR19 corrections and clarifications', Section 2.
136 PFs, para. 8.99.
137 PFs, para. 8.97.

5.4 OVERALL REWARD CAP

(225) In the PFs the CMA has provisionally decided to retain Ofwat's 3% gross cap on overall ODI rewards.[138] As set out in our previous submissions, we still consider that a 2% net cap is more appropriate:[139]

- the 3% cap introduced by Ofwat is inconsistent with the stated preferences of our customers;
- Ofwat's gross reward calculation is poorly designed, fails to achieve its stated aim of protecting customers against bill increases from ODI payments and drives further asymmetry in the package; and
- Ofwat's mechanism creates perverse incentives that may discourage companies from meeting customer preferences and could reduce service improvement in the future.

(226) However, given the tightness of the settlement the impact of this change is moot for the 2020-25 period because it is highly unlikely any company will reach the cap. We would suggest that this approach needs further thought for PR24 and would welcome some recognition of this from the CMA in its final decisions.

5.5 CONCLUSIONS ON OVERALL PACKAGE OF INCENTIVES

(227) Overall we accept the CMA's provisional approach to our PCs and ODIs.

138 PFs, para. 7.234.
139 SoC, Section 6.6.

6 LEAKAGE TOTEX

- We welcome the CMA's approach to leakage and the totex allowance and consider that it better reflects the costs companies will incur to achieve the performance expectations during AMP 7.
- We have demonstrated in our response to RFI018A that if the same methodology is applied to our leakage costs then we should be eligible for an additional £15.57m of enhancement funding.
- Our decision not to seek this additional funding in BP19 or in the SoC should be seen in the context of the prevailing guidance from Ofwat during the PR19 process. It also reflects our desire to stretch ourselves, but in the context of the overall package put forward in BP19 and the SoC where we sought additional totex allowances.
- The PFs, like FD19, represent a significantly more stretching package than our BP19 or indeed historical price control packages. This means that the stretch to fund and deliver the leakage targets is amplified.
- In the circumstances we have set out details of our leakage costs and ask the CMA to make an additional enhancement allowance of £15.57m in its final determination, in accordance with the same approach applied to the other Disputing Companies.

6.1 LEAKAGE (COMMON) PC LEVELS

(228) As acknowledged in the PFs we had not raised any concerns about the substantial targets set by Ofwat for leakage reduction at FD19.[140] We had, however, identified a potential issue with the setting of the baseline target.[141] We accept the CMA's provisional findings which propose not to make an adjustment to the baseline target for PR19. We believe that our concerns about incentives should be considered when setting this and other PCs for future reviews and would welcome the CMAs comments on this in its final redetermination.[142]

(229) In previous submissions we had flagged a technical error with regard to the calculation of our leakage percentage reduction targets.[143] We note that these are set out correctly in Table 8-1 of the PFs, indicating that the error has been acknowledged and appropriately addressed.

6.2 LEAKAGE TOTEX

(230) In considering whether FD19 allowed sufficient totex to deliver the level of leakage reduction expected by the PCs the CMA has drawn a clear distinction between the base allowance which will fund maintenance of current leakage levels and enhancement funding to deliver a reduction in line with AMP 7 targets.[144] The CMA provisionally concludes that for most companies the base models will allow sufficient costs to achieve the UQ leakage performance.[145] The 15% leakage reduction target is, however, acknowledged by the CMA as representing a step change in performance expectations that will require companies to do "*substantially more*" which inevitably "*will mean additional cost*".

(231) The CMA's provisional decisions are based on a robust interpretation of the historical approach to leakage and a rational and practical reflection of the real challenges faced by companies in funding such step changes in performance.

140 PFs, para. 8.25.
141 SoC, Section 6.5
142 PFs, para. 8.27.
143 See Ofwat letter dated 7 July 2020 and our letter to the CMA dated 13 July 2020 on corrections and clarifications to FD19
144 PFs, para. 8.100(b).
145 PFs, para. 8.55.

(232) Having accurately assessed the challenges posed by the targeted leakage reduction, we consider it important that the CMA applies the resulting principles, as set out in the PFs, to all Disputing Companies.

(233) In particular we request that the CMA make an allowance for our additional efficient enhancement costs to deliver the leakage reduction, in accordance with the approach applied to the other Disputing Companies in the PFs.

(234) In looking at both the base and enhancement allowances and making adjustments for the other Disputing Companies, the CMA notes that we had not sought any adjustment to base or enhancement expenditure – either in BP19 or in our SoC.

(235) We acknowledge that we have not sought specific funding for leakage reduction previously. The rationale for our approach, which is explained further below, should be seen in the context of the prevailing guidance from Ofwat during the PR19 process.

(236) We also note that the CMA's role under the WIA91 requires it to make its own determination untrammelled by the positions that either the regulator or company may have taken previously.

(237) As the CMA acknowledges, FD19 did not provide adequate funding for our leakage costs but we had taken a decision during the preparation of our original plan, looking at the package in the round and giving due consideration to the strong strategic steer from Ofwat, to "*cover the shortfall from [our] own resources*".[146]

(238) For instance, when creating our BP19 we were mindful of specific aspects of Ofwat's final methodology in relation to costs for delivering stretching service levels, as well the potential implications at Initial Assessment stage for plans deemed by Ofwat to be inefficient:

- Ofwat considered that its stretching performance targets should be efficiently funded by the base allowance:

  "we do not allow companies a higher cost allowance for a more stretching performance commitment"[147]

  "We consider that our package of common performance commitments with stretching performance commitment levels, represents a base level of service. We expect an efficient company to be able to deliver our performance commitments levels through our base allowance";[148]

- although Ofwat made a slight exception on leakage enhancement claims, it set a very high upper quartile test.[149] Our metrics did not pass this test; and
- Ofwat was clear that cost adjustment claims were reserved for 'unique or atypical' costs. As all companies had been given a 15% leakage reduction challenge, in our view associated costs could not be described as "unique".

(239) As acknowledged by the CMA, therefore, "*Ofwat's policy position was that its 15% baseline challenge should be funded from existing base cost allowances*".[150]

146 PFs, para. 8.30.
147 SOC211 Appendix 2 to Ofwat PR19 Methodology p.43.
148 SOC417 PR19 FD Securing Cost Efficiency Technical Appendix, p.61
149 SOC417 PR19 FD Securing Cost Efficiency Technical Appendix, p. 9.
150 PFs, para. 8.36.

(240) Having assessed our BP19 as a 'package in the round' we concluded that it was stretching but deliverable without the need to seek additional costs in relation to leakage, particularly in light of Ofwat's clear signalling.

(241) As the CMA is aware the level of challenge in the round in FD19 is significantly greater than that contained in BP19. As we indicated in our SoC the totex allowance in FD19 was insufficient by c.£85m to deliver our AMP 7 commitments.[151]

(242) The overall totex position in the PFs is no less challenging. Our overall allowance has increased by c. £22m but now includes the requirement to deliver our Essex Resilience Scheme, expected to cost c. £20.4m.

(243) Had this level of challenge been anticipated in our planning process, or if Ofwat's policy position had more closely resembled the methodology put forward in the PFs, then it is certain that we would have sought additional costs to deliver our leakage reduction targets, just as the other Disputing Companies have done.

(244) In the following sections we consider our base allowance and enhancement expenditure relative to the criteria for additional funding provisionally established in the PFs.

6.2.1 Leakage base allowance

(245) In our response to RFI012 we set out estimated base costs for maintaining leakage levels of c. £80m over five years.

(246) We acknowledge the CMA's provisional decision to grant additional base funding for maintaining current leakage levels for those Disputing Companies who have leakage levels which are currently better than upper quartile, calculated as a % of the total estimated base costs.

(247) Our NW and ESW operating areas present very different challenges with respect to managing leakage, as evidenced by separate leakage PCs for each area, and in light of ESW being defined as a water stressed area while NW is not.

(248) We note the CMA's choice of metric for determining upper quartile of leakage per unit length of mains.[152]

(249) There are other equally valid choices of metric for comparing leakage performance including leakage per property served, and leakage as a % of distribution input. Under both these alternative metrics ESW, when viewed as a separate entity, performs better than upper quartile.

(250) Nevertheless we acknowledge that, when viewed as a whole (i.e. NW and ESW combined), we do not beat the upper quartile benchmark for leakage when using any of the above three metrics. Consequently we do not propose to seek additional base funding by reference to the CMA's provisional method of assessment.

(251) We do, however, agree with the CMA that the principle of additional funding for better than upper quartile performance is appropriate.[153] We consider that this has scope to be applied in a broader sense at PR24.

151 SoC, para. 483 and Table 30.
152 PFs, footnote 1279.
153 PFs, para. 8.45.

6.2.2 Leakage enhancement allowance

(252) As set out in our response to RFI018A, our additional costs for delivering the reduction in leakage required by 2024/25 are £15.57m.[154] Our response to RFI018A sets out our strategy for delivering the leakage reduction targets in AMP 7, including our planned interventions, our approach to cost-benefit assessment, and the efficiency of the associated costs. In particular we demonstrate that:

- our strategy is based on deploying the most economical solutions for delivering the required leakage reduction;
- our cost estimates are based on actual experience of starting to deploy these technologies and techniques during AMP 6; and
- a comparative assessment of our leakage reduction costs, against those put forward by other companies in their business plans, places our proposed costs, on a £/mld reduction basis, as more efficient than upper quartile.[155]

6.3 LEAKAGE INCENTIVES

(253) Should additional enhancement funding be granted to deliver leakage reduction, we acknowledge that it is important to protect customers against any associated under delivery, in the same manner as achieved by the ODIs attached to a number of the enhancement schemes in our plan.

(254) Table 15 below sets out our proposal for additional leakage ODIs to protect customers. This has been calibrated on the same basis as other similar ODIs: should the company choose to under invest in relation to any additional allowed costs, and as a result under deliver against the associated performance commitment, a proportion of the costs would be returned to customers via the totex efficiency sharing mechanism (in line with the prevailing cost sharing rates) leaving a proportion to be returned via an ODI.

Table 15: Proposed ODI protection for additional leakage enhancement funding

	ESW	NW
Required Enhancement Funding (Sums to £15.57m – as per RFI012 and RFI018 responses)	£4.627m	£10.944m
Proportion which would not be returned to customers via cost sharing (45%)	£2.082m	£4.924m
% Leakage Reduction by 2024/25 (3 yr average terms)	14.10%	12.00%
Proposed ODI Penalty per % of under delivery by 2024/25	£148k	£410k
Penalty Capped At:	14.10% or £2.082m	12.00% or £4.924m

Source: NWL analysis provided in NWL leakage databook

6.4 CONCLUSIONS ON LEAKAGE

(255) In conclusion we welcome the CMA's provisional approach to determining leakage cost allowances. In light of the above points we consider that the CMA should apply this approach equally to all Disputing Companies. Subject to other cost changes it may make, allow us £15.57m of additional enhancement funding to deliver our target for leakage reduction.

154 RFI012 NW Response, response to Question 2(D) and RFI018A-001 Appendix 1: Overview of proposed leakage reduction activities and costs.
155 This analysis was carried out using the information provided by the Main Parties in response to RFI012.

7 COST OF CAPITAL

- In this section, we highlight various pieces of evidence in respect of individual components of the WACC. Where relevant, we outline why targeted amendments to the CMA's range would be appropriate for certain individual parameters and demonstrate that the CMA's point estimate is closer to the mid-point of the revised range. This evidence confirms that any aiming up in the CMA's point estimate is substantially less than what may appear to be the case.
- As a point of principle, we agree with the CMA's reasoning for why aiming up is appropriate – as such, we concur that a degree of aiming up is warranted in the context of setting the WACC.
- We agree with the CMA's decision to place weight on high-quality non-Gilt securities. We note that it could have adopted methodologies that would have resulted in a higher estimate, for example by using 1-year trailing averages and an updated Bank of England R* estimate. We further consider that the CMA should apply a forward rate adjustment.
- We propose that that the CMA include non-overlapping returns in its TMR determination. We consider that the most appropriate approach would be to apply no adjustment at all in respect of the increase in the formula effect in 2020 but, if an adjustment were to be applied, it should be no higher than Oxera's estimate of the increase in the formula effect (30bps).
- We acknowledge the reasoning behind the CMA's approach to estimating the notional equity beta. We continue to support an approach based on data during the period between the September 2014 structural break and February 2020. We have commissioned more detailed analysis from Professor Alan Gregory in this area, which supports an estimate towards the top of CMA's proposed range.
- In the context of the CMA's provisional decision to apply the notional capital structure when determining an appropriate allowance for the embedded cost of debt, we agree that a 20-year trailing average with no outperformance wedge is appropriate. We propose that the CMA estimates the cost of embedded debt using a cut-off date that aligns with the start of AMP 7 to avoid double-counting with the allowance for the cost of new debt. We consider that the point estimate for the cost of embedded debt should be set at the midpoint of the range.
- In line with our proposed approach to estimating the risk free rate, we consider that the CMA should apply a forward rate adjustment to the cost of new debt, noting that in practice this has no real impact given the presence of the indexation mechanism and true-up.
- We consider that there should be no deduction for double counting with the retail margin, since the assumed creditor balances are owed fully to the wholesale business.
- We agree with the CMA's decision not to include a gearing outperformance sharing mechanism.
- Notwithstanding the above, and as further detailed in the financeability section, we confirm that applying a WACC in line with the CMA's PFs would enable us to just meet our financeability test for AMP 7 on a reasonable base case basis, albeit with very little headroom to absorb a number of plausible downside scenarios.

7.1 INTRODUCTION

(256) The CMA has arrived at its point estimate for the allowed return by estimating a range for individual parameters that it considers is reasonable. It has then "aimed up" on the cost of equity to reflect the risk of error when choosing a point estimate, given the potential costs of setting the cost of capital too low. It has also referred to the exposure of companies to asymmetric PCs and ODIs and financeability as reasons for aiming up generally.

(257) In this section, we highlight various pieces of evidence in respect of individual components of the WACC. Where relevant, we outline why targeted amendments to the CMA's range would be appropriate for certain individual parameters.

(258) The CMA's point estimate is at the 47th percentile of our proposed range, compared with its position at the 58th percentile of the range set out in the PFs. This evidence confirms that any aiming up in the CMA's point estimate is substantially less than may appear to be the case. As a point of principle, we agree with the CMA's reasoning for why aiming up is appropriate and that aiming up is warranted in the context of setting the WACC.

7.2 RISK FREE RATE (RFR)

(259) We welcome the decision by the CMA to avoid exclusive reliance on index-linked gilts (**ILGs**).[156] We agree with the CMA that weight should be placed on high-quality non-Gilt bonds that better reflect the lowest-risk rate that is available to all relevant market participants.

(260) We note that Europe Economics, on behalf of Ofwat, has noted a number of concerns with respect to the use of these bonds[157] including:

- AAA-rated non-gilt yields may be subject to sector-specific distortions; and
- Investors can borrow unlimited amounts at the RFR by short-selling government bonds.

(261) We disagree with these conclusions for the following reasons. Firstly, we agree with the CMA that all proxy risk-free assets are subject to distortions to some degree, and we consider that ILGs are no closer to satisfying the CMA's RFR requirements than AAA-rated non-gilt bonds. Secondly, EE's claim that investors can effectively borrow by short-selling government bonds is not feasible in practice. Investors are required to post collateral to the lender of the government bond being sold, meaning that no financing is ultimately raised. Put another way, short-selling government bonds is not an effective way for investors to borrow money.

(262) We set out below some observations regarding the CMA's approach in respect of:

- the period over which the relevant instruments are averaged;
- the forward rate adjustment; and
- the Bank of England's R* model.

(263) In all cases, we note that the CMA could have adopted alternative approaches that would have led to a higher estimated range for the RFR.

7.2.1 Reference period for averaging

(264) The CMA has correctly recognised that excessively short averaging periods risk introducing inappropriate levels of volatility into the estimation process. On this basis, it has opted for a trailing average period of 6-months for its RFR reference instruments.[158]

(265) We agree with the CMA that a 1-month averaging period is too short to reasonably mitigate the risk of short-term market fluctuations. We would reiterate the CMA's own observation

156 PFs, para. 9.136.
157 Europe Economics (2020), "Comments Arising From CMA Expert Panels of July 2020" (supporting document to Ofwat Post Hearing Submission), p.2 and p.4.
158 PFs, para. 9.127.

in respect of the Brattle Group's analysis, which suggests that a reasonable balance is for a regulator to set the RFR by taking an average yield over a period of up to one year.

(266) This emphasises that the CMA's decision to opt for a 6-month averaging period is conservative, in the sense that there is a strong case for a longer averaging period.

7.2.2 Forward rate adjustment

(267) The CMA has indicated that it is not minded to apply a forward rate adjustment.[159] Its rationale for not doing so is its view that there is a "*distinctly poor relationship between forward curves and future spot rates*".[160]

(268) We acknowledge that the analysis by CEPA suggests that forward rates have, at times, tended to over-estimate future spot rates.[161] However, this does not mean that it is appropriate to discard forward rates altogether as a basis for predicting future spot rates.

(269) In doing so, the CMA's actions may imply that it: i) has better information than the market regarding future spot rates; or ii) there is a riskless arbitrage available in the market. We do not believe that either of these implications is likely to be correct.

(270) Given the CMA's correct decision to base its estimate of the RFR on a 6-month averaging period, we consider that it would be most appropriate to have regard to historical values of the forward rate adjustment over the averaging period. We estimate that the average forward rate adjustment between 1st October 2019 and 31st March 2020 was 26 basis points.[162]

7.2.3 Bank of England R*

(271) We agree with the CMA that the Bank of England's estimate of the UK's long-run equilibrium interest rate (R*) offers a useful and independent assessment of long-term interest rates.[163] The CMA expressed a view that the Bank of England's estimate of R* from its August 2018 Inflation Report is no longer representative of the current macroeconomic environment.

(272) We have therefore updated the estimate provided by a model on which the Bank of England's R* estimate depends, using current market data. The benchmark model contained in a paper authored by Malik and Meldrum (2014) indicates that market expectations for long-run UK interest rates have fallen from 0.2% real CPI in August 2018, to -0.3% real CPI (-1.2% real RPI) as of July 2020.[164] This suggests that the upper end of the CMA's range for RFR is more likely than the lower end.

7.2.4 Proposed range for the risk free rate

(273) We propose that the CMA's estimated range should be uplifted to reflect the average forward rate adjustment over the 6-month averaging period of 26 basis points. This implies a range of -1.14% to -0.55% CPIH-real.

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159 PFs, para 9.133.
160 PFs, para 9.132.
*161 CEPA (2016), "Alternative approaches to setting the cost of debt for PR19 and H7 for Ofwat and the Civil Aviation Authority" **PFREP009**, section 4.1.1 including Figure 4.1.*
162 Based on Bank of England spot rates for 5-year and 25-year maturity ILGs over the averaging period. In principle, the maturity of the reference instruments should fall over the course of the averaging period. In practice, there is insufficient data at the short end of the Bank of England yield curve to facilitate this. A forward curve is not available for the iboxx indices: as such, we have assumed that the shape of the forward curve is similar for the iboxx indices and ILGs.
163 PFs, para. 9.112.
*164 Malik, S., and Maldrum, A. (2014), "Evaluating the robustness of UK term structure decompositions using linear regression methods", Bank of England Working Paper No. 518, December, **PFREP007**.*

7.3 TOTAL MARKET RETURN (TMR)

(274) We agree with the CMA's provisional decision to place primary reliance on historical *ex post* equity returns, whilst relying on other methods as cross-checks.[165]

(275) The CMA has correctly opted to base its estimate of historical *ex post* returns on a relatively broad selection of evidence (CED/CPI and CED/RPI) and estimators (Blume, JKM and overlapping).[166] However, it has excluded some reference points without a clear justification for doing so. These are discussed in turn below.

7.3.1 Exclusion of non-overlapping estimators

(276) The CMA has indicated that it has not placed weight on non-overlapping estimators, on the grounds of the small sample size for these estimators.[167] In and of itself, this does not appear to constitute sufficient justification for excluding these results, particularly given that other estimators also suffer from statistical drawbacks. For example, the overlapping estimators will suffer from biased standard errors which are equally problematic from the perspective of inference testing. Given a range of estimators, each of which suffer from potential drawbacks and estimation errors, the most appropriate approach is to err on the side of inclusivity. This implies that the non-overlapping period estimator should be included.

7.3.2 Exclusion of higher end of TMR derived from CED-RPI series

(277) The CMA has also indicated that it is not appropriate to include the higher end of the range for historical *ex post* returns based on the CED-RPI series.[168] This has been justified on the basis that the formula effect increased in 2010 and hence the TMR range derived from the CED-RPI series will overestimate the real TMR.

(278) Our advisors, KPMG and Professor Alan Gregory, have provided a number of reasons why the increase in the formula effect in 2010 does not warrant an adjustment to the range based on the CED-RPI series:

- "*Adjusting the RPI-based TMR downwards would overlook the inherent uncertainty in the inflation data, particularly in the pre-1947 period. As stated by Wright and Smithers (2014). 'We therefore simply do not know whether, for example, this new source of bias [referring to the 2010 change in RPI] may simply offset the impact of other biases in earlier data*";
- the structural change in RPI in 2010 is under review by the UK government and may be reversed during the forward-looking time horizon, over which we are estimating the allowed return; and
- such an approach would amount to a sector regulator adjusting an ONS inflation series to arrive at an inflation series that it deems more robust than the ONS series. Should the ONS change its methodology again, the regulator would need to adjust the real return accordingly.[169]

(279) On this basis, our position continues to be no adjustment should be introduced in respect of the increase in the formula effect.

165 PFs, para. 9.216.
166 PFs, para. 9.181.
167 PFs, footnote to Table 9.3.
168 PFs, para. 9.218.
169 SOC416 KPMG - Estimating the cost of capital for PR19, para. 4.2.27.

(280) If any adjustment is introduced, this should be based on analysis of the scale of the formula effect over time. An analysis of this kind was produced by Oxera, and concluded that, "*the (average) RPI-CPI wedge historically is likely to be similar to the size of the wedge currently, with an upward adjustment to historical average inflation of at most 30bp to account for the cumulative impact of all changes to the RPI series over time".*[170]

(281) The CMA has highlighted certain drawbacks associated with the Oxera analysis, but has not put forward its own estimate that corrects for these drawbacks.[171] The exclusion of the higher end of the range based on the CED-RPI series (6.25%-6.80%) represents a deduction of 40 basis points that is greater than the highest reasonable estimate of the impact of the aggregate formula effect over time.

(282) In the absence of a superior, well-justified estimate, we consider that a better approach is to adjust the upper bound of the TMR range derived from the CED-RPI series downwards by 30 basis points (in line with Oxera's estimates) rather than to apply an adjustment of 40 basis points: though, in our view, the most appropriate alternative approach to both would be to apply no adjustment at all.

(283) For illustration, we have proposed a range for the TMR that reflects a 30 basis points adjustment to the upper end of the TMR range derived from the CED-RPI series.

7.3.3 Historic *ex ante* returns: Bias Adjustment

(284) We agree with the CMA's approach of applying a Bias Adjustment to the *ex ante* estimates and note the various reasons for this being the most appropriate approach, consistent with precedent and the academic literature.

7.3.4 Forward-looking estimates

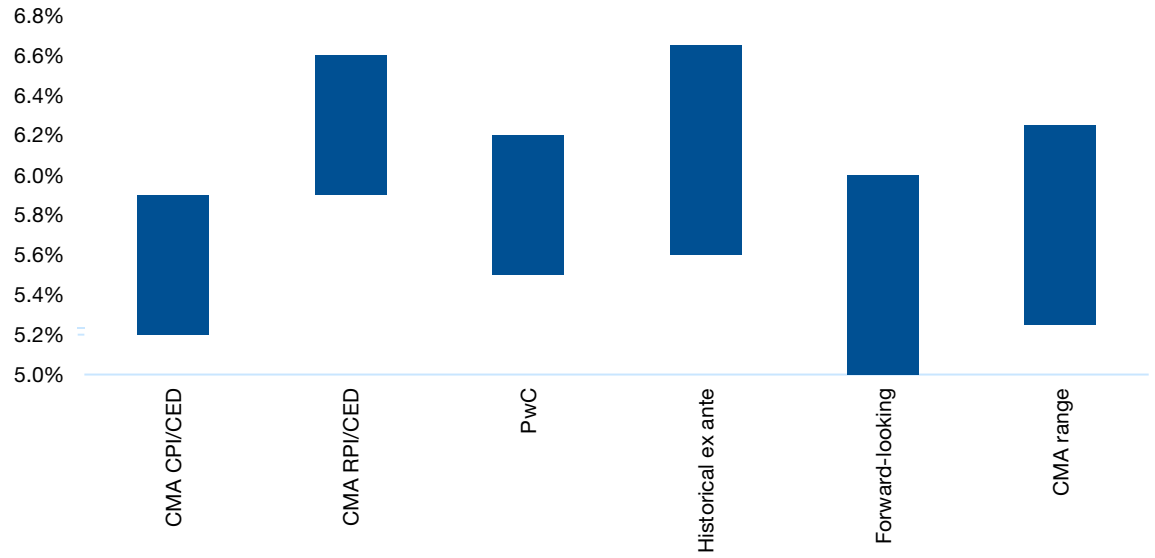
(285) We concur with the CMA's position that weight should not be placed on the forward-looking dividend discount/growth models due to their sensitivity to the various assumptions that can be made.[172] Notwithstanding that the results from these models may or may not be consistent with the evidence from historic *ex post* and *ex ante* sources, these models cannot add significant insight to the assessment of TMR given their drawbacks.

7.3.5 Summary

(286) Figure 9 below compares the CMA's proposed range for the TMR against corrected estimates for historical *ex post* returns. The latter include non-overlapping returns and apply a 30 basis point adjustment to the upper bound of the TMR range derived from the CED-RPI series. The effect of these corrections is to increase the upper bound of the range by 25 basis points. The lower bound remains unchanged. Our proposed range for the TMR is therefore 6.20% to 7.46% (CPIH-real).

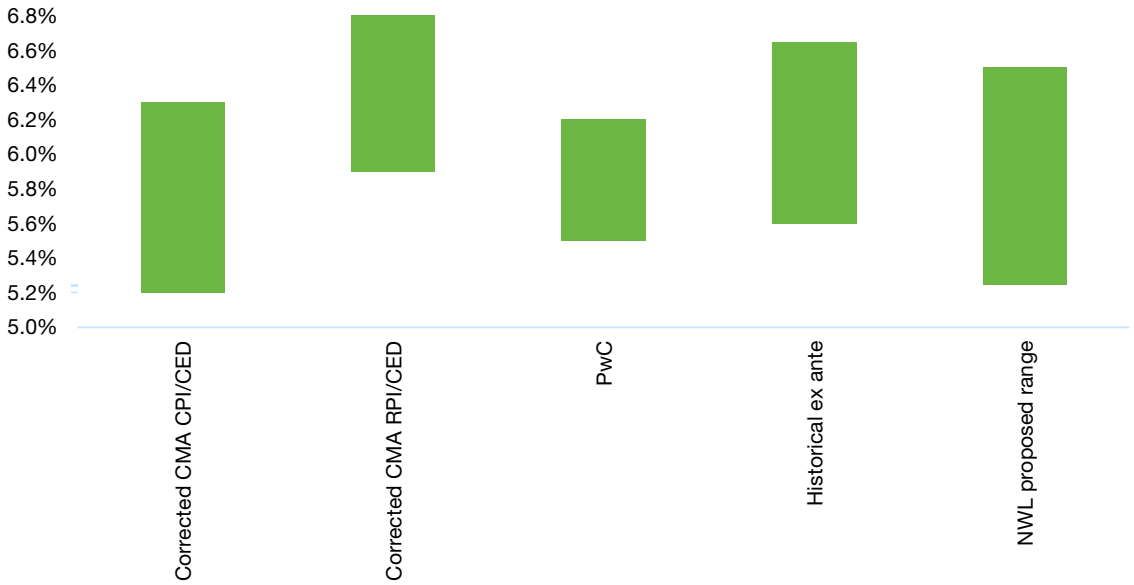
170 PFs, para 9.162.
171 It is plausible that once these drawbacks are corrected that the estimated impact of the formula effect could fall.
172 PFs, para. 9.212.

Figure 9: Derivation of CMA range for (RPI-real) TMR range



Source: CMA PFs and NWL analysis.

Figure 10: Proposed adjustments to CMA range for (RPI-real) TMR range)



Source: CMA PFs and NWL analysis.

(287) The TMR estimates outlined above represent the latest available data regardless of whether a cut off date of February or June is assumed. As such, no adjustment is required in respect of the February cut off date for the TMR.

7.4 BETA

(288) We agree with the CMA's provisional decision to move away from the approach adopted by Ofwat with respect to the calculation of the equity beta for SVT and UU.[173] As indicated in our SoC, Ofwat's approach to beta estimation is not reliable and there are a number of difficulties associated with placing exclusive weight on short-term, high frequency betas.[174]

173 PFs, para. 9.262.
174 SoC, Section 8.10.2, Paragraph 865.

(289) We acknowledge that the CMA's proposed approach – of examining many different configurations of frequencies, length of regressions and averaging periods – has been motivated by a desire to consider "*as wide a range of evidence as is practical and useful when calculating beta*".[175]

(290) We believe the most appropriate approach is to place weight on regressions for the full period since the last structural break in September 2014. This approach maximises the available datapoints whilst avoiding the inclusion of pre-structural break data that would bias the estimate of beta for the AMP 7 period.

(291) Since our last submission, further evidence has emerged that events subsequent to February 2020 have led to an additional structural break in the data. Jointly with Anglian Water, we have commissioned updated analysis from Professors Alan Gregory, Richard Harris and Rajesh Tharyan, which explores alternative ways forward in light of this evidence.[176] Their analysis suggests that the most robust approach is to continue to rely on the period between the last two structural breaks: i.e. between September 2014 and February 2020. It also provides evidence that suggests the effect of Covid on beta was concentrated in the three months following the structural break and may be transitory. In light of this observation, the authors examine an alternative approach to estimating beta: this is based on data up until the end of September 2020 but excludes data from the early Covid-19 period where the impact was concentrated. Finally, it examines an approach that ignores structural breaks altogether, and uses the longest available run of data.

(292) The authors find that all three approaches present a strong justification for setting a point estimate that is towards the upper bound of the CMA's range for the notional equity beta.

(293) This in turn further supports our view that the CMA's choice of point estimate within the overall range for the allowed return is justified by the preponderance of evidence in respect of individual parameter ranges – and does not rely exclusively on aiming up.

7.5 COST OF EMBEDDED DEBT

(294) The CMA has opted to use a notional capital structure for the purposes of estimating the cost of embedded debt.[177]

(295) Given this decision, we consider that the CMA is correct to base its estimate on a 20-year trailing average, and without the application of an outperformance wedge.[178] We consider that the cut-off date for the estimate of the cost of embedded debt should align with the start of AMP 7; this will avoid double-counting of the AMP 7 period with the cost of new debt allowance under the indexation mechanism. We do not consider that the A-rated index is consistent with the assumptions regarding the notional capital structure.

7.5.1 Outperformance wedge

(296) We agree with the CMA's provisional decision not to apply an outperformance adjustment to the index used to calculate the allowance for the cost of embedded debt.[179]

(297) We previously commissioned analysis from our advisors KPMG[180] to assess whether:

175 PFs, para 9.267
176 Gregory, A., Harris, R., and Tharyan, R., (2020), "A Response to The CMA's Provisional Findings on Water and the Estimation of Beta", October (Report on PFs Beta) ***PFREP003****. We have also provided two annexes cited in that report as PFREP003a (supporting data) and PRFEP003b (Constructing and Testing Alternative Versions of the Fama–French and Carhart Models in the UK, Alan Gregory, Rajesh Tharyan and Angela Christidis, 2013).*
177 PFs, paras 9.340 and 9.341.
178 PFs, para. 9.359(b).
179 PFs, para. 9.352
180 SOC416 KPMG - Estimating the cost of capital for PR19, para. 5.5.2.

- water companies are able to systematically outperform the iBoxx benchmark, when issuing debt with a comparable tenor and level of creditworthiness to the index; and
- the iBoxx is sufficiently comparable to the firm with a notional financial structure for the iBoxx yield to be used directly as an estimate of the market-wide CoD.

(298) KPMG concluded that the evidence it had considered did not support the existence of a material "halo effect"[181] and that the chosen indices are sufficiently comparable to a firm under the notional financial structure in respect of tenor and credit rating.[182]

(299) Following the PFs, KPMG has updated its analysis of the difference between water bond yields and the benchmark after accounting for tenor and credit related factors. It finds that after the inclusion of bonds issued by water companies up to 30 September 2020 that meet the criteria set out in its expert report, the average difference between water bond yields and the relevant benchmark, for bonds having a tenor at issue within five years of the weighted average tenor of the benchmark, remains approximately unchanged. The evidence therefore continues to support the finding that there is no statistical basis to the claim that water companies are able to systematically outperform the benchmark after accounting for tenor and credit related factors.

7.5.2 Use of a 20-year trailing average

(300) We concur with the CMA's decision that if a trailing average period is to be applied, then using a 20 year period, rather than a period any shorter than that, is most appropriate.

(301) A 20 year period is consistent with the investment horizon adopted throughout the CMA's analysis. It is also a more effective proxy for ensuring that the cost of efficiently incurred embedded debt is properly recovered whilst reducing, but not fully eliminating, the downside risk of any shortfall arising.

(302) Setting the allowance based on a trailing average period that is consistent with the investment horizon for the industry also provides a stable, transparent benchmark for companies. As the CMA correctly notes, a 20-year averaging period is consistent with a profile of debt issuance that minimises asset-liability mismatch and hence refinancing risk.

(303) In addition, longer trailing averages are more stable, such that if interest rates were to rise over AMP 7, consumers would be protected from these increases to a greater extent.

7.5.3 Cut-off date for the cost of embedded debt

(304) We consider that the cut-off date for the estimate of the cost of embedded debt should align with the start of AMP 7:

- the CMA will apply the allowed return for the duration of AMP 7. The allowance for the cost of new debt will be based on the indexation mechanism that will take into account the value of the index for the year commencing 1st April 2020; and
- if the embedded debt allowance is calculated based on data beyond this date, it will double count the values in the index during the overlapping period, which in our view would not be appropriate.

(305) We therefore propose that the CMA estimates the cost of embedded debt based on the 20-year trailing average period ending 31st March 2020 for each of the relevant indices.

181 SOC416 KPMG - Estimating the cost of capital for PR19, para. 5.5.7.
182 SOC416 KPMG - Estimating the cost of capital for PR19, para. 5.5.15 .

7.5.4 Selection of a point estimate based on the A-rated iboxx index

(306) We note that the CMA has chosen to estimate a range for the cost of embedded debt based on the A- and BBB-rated iboxx indices respectively. It has then chosen a point estimate for this parameter at the lower bound of this range, "*to reflect the fact that average embedded costs of debt for the notionally-capitalised company are likely to fall mechanically over the price control*".[183]

(307) The figure corresponding to the A-rated iboxx index is inconsistent with the notional credit rating underpinning the remainder of the price control determination, including the financeability assessment, which is based on a BBB+ rating. As such, we consider that the appropriate point estimate for the cost of embedded debt is the midpoint of the range – i.e., the simple average of the two indices.

(308) The 20-year trailing average for the relevant indices ending 31st March 2020 implies a range of 2.85% to 3.26%. We propose a point estimate at the midpoint of this range – i.e. 3.06%.

7.6 COST OF NEW DEBT

(309) The CMA has derived the range for the cost of new debt with reference to the A-rated iBoxx for the lower end and the BBB-rated iBoxx for the upper end.[184]

(310) In contrast to Ofwat, which used a forward rate adjustment of 25bps to reflect market-implied rate rises, the CMA chose not to apply a forward rate adjustment.

(311) For the same reasons as stated above in the context of the risk free rate, we consider that the CMA should apply a forward rate adjustment to the cost of new debt. We acknowledge that the forward rate adjustment based on Bank of England data points to a lower "pickup" (10 basis points) than assumed in Ofwat's FD19 (25 basis points) and propose that this figure should be applied to the cost of new debt. This suggests a range of 0.31%-0.62%.

(312) In practice, the forward rate adjustment will not have a material impact on the outturn allowance, given the proposal to apply a true-up mechanism in AMP 7.

7.7 RETAIL MARGIN ADJUSTMENT

(313) The CMA estimates the retail margin adjustment as 8bp.[185] Rather than making an adjustment to the WACC, it proposes to make a direct adjustment to the allowed revenue.[186]

(314) The CMA's approach assumes zero working capital requirements for retail.[187] We presume that the CMA has relied upon Ofwat's analysis provided in response to RFI012. As a result it concludes there is no need to assume an additional return to manage the costs of financing working capital. It has based this on its observation that the majority of the water companies maintain a neutral or favourable working capital balance – in the sense of creditor days being similar to, or higher than, debtor days.[188]

183 PFs, para. 9.674(a).
184 PFs, para. 9.377.
185 PFs, para. 9.558
186 PFs, para. 9.559
187 PFs, para. 9.560(b).
188 PFs, para. 9.560 (b).

(315) In its response to RFI012 Ofwat calculated working capital using trade receivables and advance receipts but did not include measured income accrual balances alongside the trade debtor balances.[189]

(316) The omission of the measured income accrual balance is particularly surprising as it is clearly identified as a working capital balance in the financial model and has a separate subheading in the retail working capital data that is used in Ofwat's retail margin model.

(317) The measured income accrual is a debtor balance relating to water supplied to measured customers but not yet billed. It is the largest of the industry retail working capital balances (see Table 17). If all the retail working capital balances are used and a weighted approach taken, we arrive at 55 debtor days and 32 creditor days, a gap of 23 days which generates a material working capital requirement.

(318) As illustrated in Table 16 below, we do not find sufficient evidence to show that creditor days are similar to, or higher than, debtor days. Only 4 companies out of 17 (highlighted in red) had creditor days similar to or higher than debtor days.

Table 16: Debtor and creditor days by company

	Debtor Days	Creditor Days (months * 30)
NWT	31	0
SVE	43	45
SWB	51	0
YKY	4	0
WSX	43	0
WSH	27	0
TMS	40	30
SSC	43	30
SRN	78	45
SEW	42	45
SES	72	30
PRT	20	0
NES	45	0
HDD	42	45
BRL	45	85
ANH	47	0
AFW	45	30
Average	**42**	**23**

Source: FD Financial models, residential retail tab, line 409 (debtor days) & line 483 (creditor months).[190]

(319) Advanced receipts have average creditor days of 39 days, whilst measured income accrual debtor days average 80 days, so including them in the analysis further widens the gap.

(320) It is important to recognise the nature of the retail creditor balance. This represents money owed by retailers to wholesalers, who are part of the appointed business and so is matched by an equal debtor balance in the wholesale business. This explains why many companies assumed zero retail creditor days in their business plans. When aggregated, the intra retail-wholesale balances cancel out, **removing the creditor balance from the net working capital calculation.** As the retail creditor is thus an artificial intra-company balance, it should be excluded from any working capital adjustments.

(321) In our post-hearing submission and response to RFI015, we presented an alternative approach for the working capital requirement.[191] This approach calculated the working capital directly from the balance sheets in Ofwat's model for each company as summarised

189 Ofwat response to RFI012 - Retail Margin Adjustment (Q15-16 workings final)
*190 Retail Margin Working Capital Analysis spreadsheet, **PFREP008**.*
191 Post Hearing Submission Section 4.2; RFI015 NW Response, Question 1.

in Table 17 below. Using values directly from the balance sheet as opposed to estimating working capital through metrics such as debtor/creditor days represents a more robust approach as it is these balances that require financing.

Table 17: Industry Aggregate Working Capital Components

Average Balance over 2020 25	£m
Debtors	1,021
Creditors	-461
Measured income accrual	1,244
Advance receipts (meas & unmeas)	-901
Net Retail Working Capital	**903**

Source: Retail Margin Working Capital Analysis spreadsheet

(322) Using the £903m working capital balance would generate a 3bp retail margin adjustment. Removing the retail creditor balance entirely would increase average industry working capital to £1,364m and mean a zero retail margin adjustment.

7.8 GEARING OUTPERFORMANCE SHARING MECHANISM (GOSM)

(323) We agree with the CMA's decision not to include a GOSM in the redetermined price control. As previously highlighted in our past submissions:[192]

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

7.9 CONCLUSIONS ON THE COST OF CAPITAL

(324) We have proposed some targeted amendments to the CMA's estimate of the range for individual parameters. These are summarised in Table 18 below.

(325) We observe that the CMA's point estimate is consistent with previously commissioned analysis by KPMG and Professor Alan Gregory as well as others. In a report commissioned by us in February 2020, KPMG estimated that the appropriate return for the water companies in AMP 7 was 2.49% to 2.75% RPI-real, or roughly 3.4% to 3.7% CPIH-real. The CMA's point estimate of 3.5% CPIH-real sits within the lower half of this range.

(326) We further observe that this determination represents a substantial reduction in the allowed return compared with previous determinations. This is illustrated in the following excerpt from a note produced by Moody's on 30 September 2020: "*cash returns will fall by around 0.7 percentage points to 3.0% at the start of the period versus the previous regulatory period. This is around half the reduction they would have faced had they accepted Ofwat's final determination*".[193]

192 SoC Section 8.14, Paragraphs 897 to 909.
*193 Moody's, "CMA appeals give higher returns", September 2020 (**Moody's View on PFs**), p.2 **PFREP006**.*

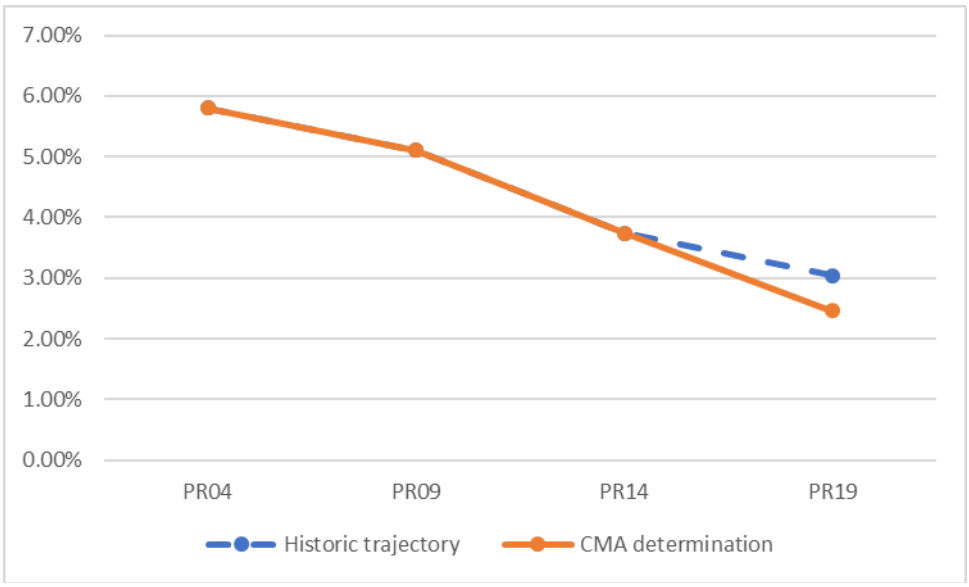
Table 18: Summary of amendments to CMA allowed return range (CPIH-real)

	CMA PFs range		Adjusted range		Change	
	Low	High	Low	High	Low	High
TMR	6.20%	7.21%	6.20%	7.46%	0.00%	0.25%
RFR	-1.40%	-0.81%	-1.14%	-0.55%	0.26%	0.26%
ERP	7.59%	8.00%	7.34%	8.01%	-0.25%	0.01%
Unlevered beta	0.27	0.32	0.27	0.32	0.00	0.00
Debt beta	0.15	0.00	0.15	0.00	0.00	0.00
Equity beta	0.65	0.80	0.65	0.80	0.00	0.00
Cost of new debt	0.21%	0.52%	0.31%	0.62%	0.10%	0.10%
Cost of embedded debt	2.76%	3.16%	2.85%	3.26%	0.09%	0.10%
Proportion of new debt	21%	13%	21%	13%	0.00%	0.00%
Issuance and liquidity costs	0.10%	0.10%	0.10%	0.10%	0.00%	0.00%
Pre-tax cost of debt	2.32%	2.92%	2.42%	3.01%	0.09%	0.10%
Post-tax cost of equity	3.56%	5.60%	3.66%	5.87%	0.10%	0.27%
Gearing	60%	60%	60%	60%	0.00%	0.00%
Appointee-level Vanilla WACC	2.82%	3.99%	2.92%	4.16%	0.09%	0.17%
Point estimate percentile	58.11%		47.14%		n/a	

Source: CMA PFs and NWL analysis.

(327) For illustration, the progression of water allowed return determinations is set out in Figure 11 below.

Figure 11: allowed return determinations over time



Source: Moody's (2020), "CMA appeals give higher returns", September.

(328) Notwithstanding the proposed range adjustments noted above, and as further detailed in the financeability section, we confirm that applying a WACC in line with the CMA's PFs would enable us to just meet our financeability test for AMP 7 on a reasonable base case basis, albeit with very little headroom to absorb a number of plausible downside scenarios.

8 FINANCEABILITY

- We agree with the CMA's approach to assessing financeability. In particular we support the CMA's assessment of debt financeability based on the methodologies applied by the independent rating agencies.
- We note that the cost of capital in the PFs has been calibrated such that the notional company is just able to achieve a Baa1 rating, this is also supported by statements from the rating agencies themselves. We contend that a lower cost of capital would not support the stable Baa1 rating or the financial resilience required to manage the scale of risks given the toughness and risk inherent in the package.
- We acknowledge that the PFs represent a tough package with respect to costs, performance targets and the additional risk resulting from asymmetry in the incentive package. Although the CMA has partly moderated our risk exposure as compared to Ofwat's FD19, such as through changes to cost sharing rates, we contend that the package still remains very stretching.
- We would ask the CMA to look again at the downside scenario analysis given its importance in assessing financial resilience. The CMA's scenario does not fully take into account the magnitude of the real downside risk exposure. Additional scenarios based on our risk analysis indicate that the notional company has limited financial resources available for management of risk.

8.1 THE CMA'S APPROACH TO ASSESSING FINANCEABILITY

(329) The CMA has followed a clear market-based approach for assessing debt financeability, which is based on key tests that are considered by debt investors and rating agencies.

(330) In particular, the CMA has:

- applied financeability as a meaningful and binding cross-check on the calibration of the package;
- relied on rating agency methodologies, and their approach to calculating ratios;
- considered financeability is irrevocably tied to the WACC - when WACC is set appropriately adjustments to regulatory levers such as PAYG rates are unnecessary and should be reversed;
- assessed the level of asymmetric risk in the package and recognised the need to price this in to ensure that price control is a 'fair bet'; and
- assessed the ability to maintain an investment grade rating under a downside scenario.

(331) We agree with the approach used by the CMA to assess financeability and consider that its analysis supports the application of the financeability test as a binding constraint on the price control. We consider the detail of the CMA's approach in the sections below and request that the CMA send a strong signal that this approach should be followed in future price control setting processes.

(332) We agree with the principle of 'aiming up' on the cost of capital. It is not clear, however, that the CMA has in fact aimed up sufficiently to price in our residual asymmetric risk, even once the broader de-risking measures are taken into account (e.g. changes to cost sharing rates and targeted adjustments to ODIs). As set out in Section 7, if the WACC is based on what we believe are the most robust estimates for each parameter, the CMA's PFF WACC is, in fact, closer to reflecting the midpoint. Moreover, our asymmetric risk implied by the PFs package is higher than assumed by the CMA. This justifies a higher adjustment to 'price in'

this risk and ensure that the package represents a 'fair bet'. This is discussed in further detail below.

8.1.1 Financeability as a meaningful cross-check on the price control with a clear link between WACC and financeability

(333) As the CMA sets out, financeability tests should provide a holistic cross-check on the regulatory determination when its elements are considered together, i.e. whether the cost of capital, totex allowances and incentives package have been calibrated appropriately.[194] If these tests indicate financeability constraints, then it must be the case that one or a combination of these parameters has not been set correctly.

(334) The CMA concludes that the WACC is the main driver of projected metrics and the primary factor which determines whether an efficient firm can finance its functions.[195] It states that as a matter of principle, if the WACC is set at a reasonable level, both debt and equity investors should earn sufficient returns to cover the costs of financing (i.e. the price control should be financeable from a debt and equity perspective).[196]

(335) We agree that financeability concerns can only properly be addressed by setting the correct cost of capital in the first instance, as opposed to adjusting more peripheral regulatory levers such as PAYG rates, the capital structure or the timing of cashflows.[197]

8.1.2 Consistency with rating agency methodologies[198]

(336) The CMA's analysis considers rating agency methodologies and their approach to calculating ratios (i.e. it does not include the benefit of PAYG in Moody's AICR).[199] It recognises the role of credit ratio analysis (e.g. testing the PFs against target ratio thresholds).

(337) This is consistent with a market-based approach to assessing debt financeability – rating agencies are a proxy for lenders' credit assessments and represent an independent assessment of credit quality. This is key given that companies rely on the opinions provided by credit rating agencies to raise debt finance, and providers of debt capital have regard to these assessments of credit quality, when determining pricing and contractual terms.

(338) Ofwat's departure from rating agency methodologies and adoption of unrealistic assumptions masked real financeability constraints for the notional company that were not being properly addressed.

8.1.3 Adjustments to PAYG rates are unnecessary and should be reversed[200]

(339) Ofwat's reliance on adjustments to PAYG and RCV run-off rates obscured financeability issues that were in effect caused by the FD19 cost of capital.[201] We welcome the CMA's acknowledgement of the problems inherent in that approach and its provisional decision to reverse PAYG adjustments.[202] A key determinant of financeability is the ability of the company to achieve the ratio thresholds for the target Baa1/BBB+ rating. The CMA has

194 PFs, para. 10.49
195 PFs, para 9.673
196 PFs, para 10.58
197 SoC, Section 10.8, and Reply Section 7.6.. We note that Ofwat's suggested adjustments included faster transition to CPIH, changes to notional gearing, and changes to the proportion of ILD (REP026 Ofwat Response Risk & Return, pp. 133-138.
198 PFs, para. 10.59, 10.68
199 PFs, para. 10.56
200 PFs, para. 10.56, 10.95, 10.96, 10.98
201 We have provided evidence and arguments to demonstrate that adjustments to PAYG rates are not justifiable in principle nor are they an effective solution to addressing financeability constraints. See SoC Section 10.8.1.1 and Reply Section 7.2.
202 PFs, para. 10.98.

correctly recognised that it is the "*choice of WACC, which will be directly related to the level of free cash flow generated by companies that will achieve the targets in the determination*" and that this is the most important determinant of financeability.[203]

8.1.4 Asymmetric risk and financeability

(340) The CMA considers that reasons specific to the determination, related to asymmetry[204] and financeability, justify a degree of caution against setting the cost of capital too low or aiming straight in setting equity returns.[205]

(341) A necessary condition for financeability is that expected returns are equal to allowed returns (i.e. the package represents a 'fair bet'). Asymmetric risk would result in companies incurring an expected loss, which would lead to an outcome where companies achieve a lower return than required on a mean expected basis.[206]

(342) Without adjustments to account for the expected loss, this would negatively impact the return achieved by equity investors.

(343) Pricing asymmetric risk in the cost of capital is, therefore, crucial to ensuring the package is financeable. We support the principle of 'aiming up' on cost of capital as a proxy for the application of a premium for asymmetric risk. In the SONI appeal, the CMA recognised that failing to account the expected loss resulting from asymmetric risk would materially affect the return required to remunerate investors for the risks they are faced with. The CMA applied an uplift on costs to reflect the existence of asymmetric risk. [207]

8.1.5 Downside scenario analysis

(344) We support the CMA's approach to place weight on downside scenario analysis and, more crucially, to assess whether a company can maintain an investment grade rating under realistic but "*severe*" downside scenarios.[208] This is a crucial element of assessing financeability, reflects standard market practice and is a pre-condition for investors providing capital.

8.2 ASSESSMENT OF OUR FINANCEABILITY BASED ON PFS

8.2.1 The overall package remains very tough

(345) The PF's represent a tough settlement across multiple dimensions and exposes us to material risk, in particular through the calibration of the ODI package.

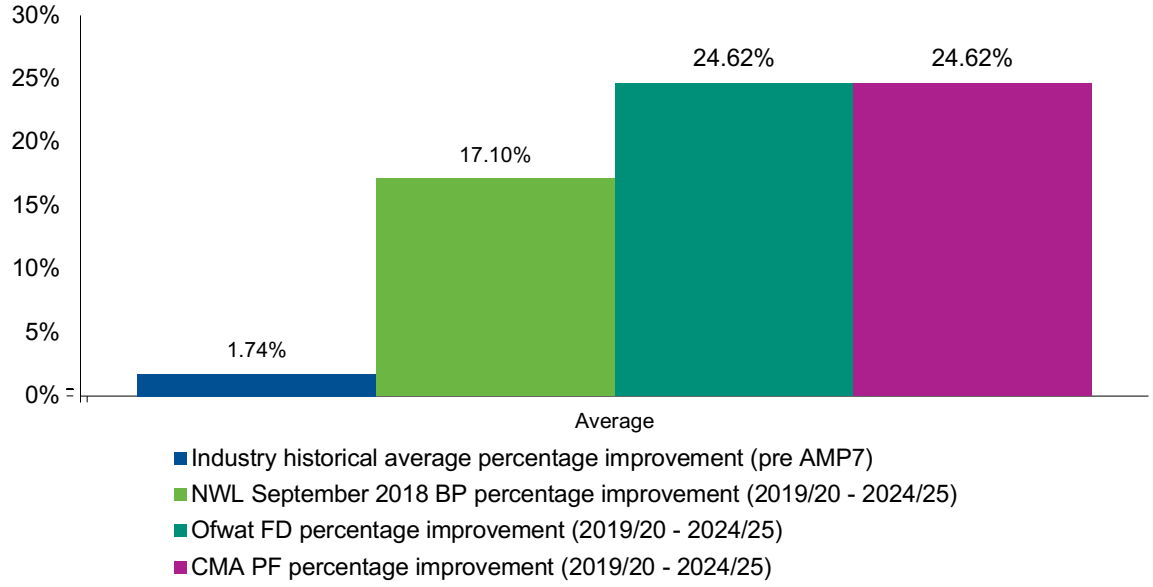
(346) The CMA has recognised this and made targeted improvements to penalty only ODIs but notes that "*these only have a small effect on the overall balance of risk in ODIs*".[209] The CMA's changes result in a marginal improvement of 0.10% on our P10 RoRE impact.

(347) Figure 12 below shows the stretch on performance targets by reference to average improvement rates in 10 common PC targets implied by: 1) historical sector average; 2)

203 PFs, para. 10.95
204 See PFs, para. 9.665 on the asymmetry of returns.
205 PFs, para. 9.674
206 The CMA recognised this in its FD for SONI: "the UR failed to have regard to asymmetric risk and that, [..], this would result in expected returns being lower than the assumed WACC". SOC312 CMA (2017), 'SONI Limited v Northern Ireland Authority for Utility Regulation Final Determination', 10 November para. 7.371
207 SOC312 CMA (2017), 'SONI Limited v Northern Ireland Authority for Utility Regulation Final Determination', 10 November para. 7.376, 12.103, 12.113
208 PFs, para. 10.71; 10.91.
209 PFs, para. 10.51

BP19; 3) FD19; and 4) the PFs. The targeted level of improvement remains significantly greater than what has been achieved in the recent past and has not changed from the FD19.

Figure 12: Historical improvements and PR19 performance target improvements



Source: NWL analysis based on App1 data for NWL, sector and the PR19 FD. Based on 10 PCs, excludes comparative and binary PCs.

(348) Figure 1 in Section 2.2 demonstrates that the PFs are almost as challenging as FD19 from an operational perspective, and represent a very tough settlement compared to previous water price controls and controls in other sectors. The comparison to PR14 should take into account that across that whole control period the sector, on average, overspent against allowances and half the sector failed to earn their base return.[210]

(349) It is important to consider the implications of this level of stretch and challenge driven by the design of the regulatory framework for risk exposure and the balance of risk and return.

8.2.2 Financeability under the CMA's PFs

(350) The CMA has estimated the WACC such that the notional company is just able to achieve a stable Baa1 rating. The implied AICR under the PFs is c.1.55x, which is just slightly above the 1.5x minimum threshold for AICR. We consider that projected AICR implies a weak Baa1 rating, taking into account efficient financing costs before adjusting projected cashflows to reflect expected losses on ODIs (see below).

(351) The projected Baa1/BBB+ rating for the notional company would likely be jeopardised if there were any negative financial or risk adjustments to the PF package as a whole.

(352) Commenting on the PFs, Moody's recognised the continued relative tightness of ratios against thresholds. Its analysis highlights that the overall financeability position would still be weak relative to minimum thresholds for core ratios as well as compared to PR14 based on the CMA PFs:

"we estimate that the increase in allowed returns alone will boost the four companies' adjusted interested coverage ratios (AICR) by around 0.20 – 0.25x over AMP7 compared

210 Post Hearing Submission Section 3.1 and Annex 3: AMP 6 Outturn Information.

*with Ofwat's final determination, although they will **still fall below historical levels and be weakly positioned against our ratio guidance**"*[211] *[emphasis added]*

(353) Similarly, S&P has recognised that although credit metrics are projected to improve relative to FD19, it still expects material downwards pressure on ratings given the stretch implied by the PFs:

*"Although credit metrics could improve, compared with the projections we based on inputs from Ofwat's FD, we still expect these **U.K. water companies to face tougher operating conditions in AMP7** than in the current regulatory period, like the rest of the sector. The **ratings remain under strain**."*[212] *[emphasis added]*

(354) The CMA has recognised that an efficient notional company would expect on average to face penalties due to the number of asymmetric and penalty only ODIs. The CMA estimates the expected loss to be in the range 0.1%-0.2% of RORE, which it does not consider would change conclusions about financeability of base case ratios.[213] We agree that, all else being equal, an additional 0.1% - 0.2% RoRE is unlikely to impact on the projected credit rating for the notional company.

(355) Notwithstanding this, the expected loss would exert downward pressure on metrics. It is appropriate to include the expected loss from asymmetry in cash flows in base case financial projections as this reflects expected outcomes based on the calibration of the overall package.

(356) To assess this we have adopted the same ratio thresholds as presented in our SoC and recreated in below.[214]

Table 19: Ratio thresholds and Red, Amber, Green (RAG) grid

Ratio thresholds and RAG grid							
RAG Grid	Stable Baa1	Baa1	Stable Baa2	Baa2	Stable Baa3	Baa3	Baa3 at risk
Moody's							
- AICR	≥ 1.6	≥ 1.5	1.5 - 1.4	1.4 - 1.3	1.3 - 1.2	1.2 - 1.1	≤ 1.1
- Net debt / RCV	≤ 70%	≤ 72%	72%-75%	75%-80%	80%-82.5%	82.5%-85%	≥ 85%
S&P							
FFO / Net debt (S&P)	≥ 10%	≥ 9%		8.5%-8%	8%-7%	7% - 6%	≤ 6%

Source: SOC283 KPMG, Financeability of Northumbrian Water under the PR19 Final Determination (2020), Section 4.

(357) Including the CMA's estimates of the expected loss (penalties) resulting from the asymmetric design of the ODIs implies an AICR of 1.50x in the base case. This indicates that the WACC has been set at a level that is consistent with ratios only marginally above the minimum thresholds for Baa1. This leaves very limited headroom against Baa1/BBB+ thresholds. Modest under-performance could result in projected metrics below strong investment grade thresholds.

211 Moody's View on PFs), PFREP006, p.1
*212 PFREP005 S&P Global Ratings, 'U.K. Water Utilities: Was Appealing Ofwat's Determination Worth it?', October (**S&P View on PFs**), **PFREP005**, p.3*
213 PFs, para. 10.72.
214 SoC, Table 56.

Table 20: Projected metrics - implications of asymmetry

Case Name	CMA PF (WACC & Totex)	CMA PF + 0.15% RoRE penalty	CMA PF + ODI penalty + Totex gap of £83m	CMA PF + ODI penalty + totex gap of 6m	CMA PF + ODI penalty + no totex gap
Moody's AICR	1.53x	1.50x		1.50x	1.50x
S&P FFO/Net Debt	9.7%	9.6%	9.34%	9.8%	9.8%
RoRE impact (%)	-	(0.15%)	(0.66%)	(0.15%)	(0.11%)

Note: We have run the analysis on the Ofwat model but have used the CMA financeability model as a cross check. In general, we found very small differences between the two models once we made adjustments to the CMA model in order to ensure consistency with the Ofwat model. These are detailed in our response to RFI017.

Source: Analysis of CMA and Ofwat model

(358) Given the combination of material risk exposure and very limited headroom at the target rating we have updated our ODI analysis[215] to reflect changes made in the PFs. This implies an ODI penalty in the range c.0.15 – 0.3% of RoRE on a mean expected basis, which reflects both the penalty from asymmetric risk and the challenging performance targets. Assuming an expected loss equivalent to 0.3% RoRE (as opposed to the CMA's estimate of 0.15%), would imply an AICR of 1.48x, which is below the minimum thresholds consistent with Baa1.

(359) In our SoC, we highlighted a totex gap of £85.1m (excluding the two enhancement schemes).[216] The CMA has adjusted base costs in its PFs but not to the extent we consider necessary for an efficient company to recover its costs, meet efficiency challenges and deliver the levels of service assumed in the PFs. Taking into account the CMA's changes, we expect a totex gap of c.£83m. In our SoC, we also modelled an ODI penalty of £12m in the base case. Following an update to our ODI analysis (as described above) we consider ODI penalties in the base case of c.0.15% of RoRE (consistent with the lower bound of our range) over the last four years of the price control. The following scenarios are considered for the base case:

- CMA PFs with the ODI penalties and totex overspend (equivalent to the totex gap of £83m);
- CMA PFs with the ODI penalties, but CMA provides an allowance for 2019/20 base costs (£39m), leakage (£16m), addressing an error in an enhancement model (£10m) and reflecting the impact of Covid on 2020/21 productivity (£12m) - reducing the totex overspend to (£6m); and
- CMA PFs with the ODI penalties, but CMA provides an allowance for the totex gap (i.e. no overspend).

(360) As set out in Table 20 above, the first two scenarios imply an AICR of 1.46 – 1.50x, which is lower/just meets the Baa1 threshold. It would also result in implications for equity financeability with a RoRE impact of 0.15% - 0.66% on an expected basis (i.e. it would result in the expected return being lower than the allowed return). In the third scenario, if the CMA allows for the full totex gap, the projected metrics would imply an AICR of 1.50x, which just meets the Baa1 threshold.

(361) Overall, this suggests that the cost of capital supports a weak Baa1/BBB+ rating. Further reductions could result in a lower credit quality for the notional company and an inconsistency between the achieved rating for the notional company and the pricing of debt costs. Taking the totex gap into account implies ratios that are consistent with a Baa2 rating in the base case.

215 Reply,Table 26
216 SoC, Tables 34 and 57

8.2.3 Stress testing the CMA's PFs to assess the consistency of risk exposure and the financial resources available for management of risk

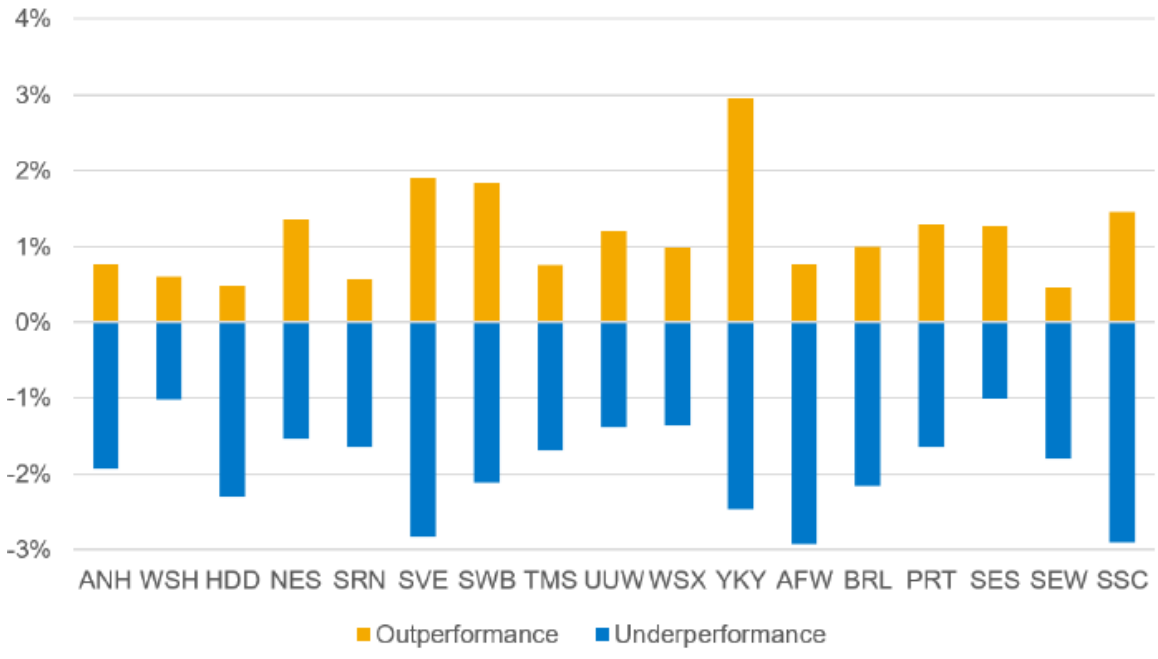
(362) Given the scale of stretch implied by the PFs, the severity of the CMA's downside scenario is likely to under-estimate our risk exposure. In turn, this could under-estimate the financial resources required to manage the risks implied by the PFs.

(363) The CMA has modelled the impact of a 1% RORE penalty p.a. on projected credit ratios for each disputing company, which it considers to be a severe downside case. The CMA then states that in practice companies may be expected to respond in order to mitigate this level of impact. [217]

(364) We do not consider the 1% RORE penalty to represent a severe pre-mitigation downside scenario for the following reasons:

- PR19 is a considerably more challenging package than previous controls with step-changes in performance targets on PCs across the board (see Section 8.2.1). The expected outcome from the package is likely to be penalties in the base case. We note that the CMA has recognised the underfunding of expenditure required to achieve the 15% leakage reduction but has not provisionally increased our allowance, which adds to our downside risk, for example; and
- the 1% RoRE penalty assumption is lower than Ofwat's FD19 view of our annual average P10 RoRE impact from ODIs of 1.54%, as well as our revised P10 ODI estimate of 1.64%.[218] Moreover, as illustrated in Figure 13 below, for almost all the companies Ofwat's estimate of the P10 ODI impact is greater than 1% RoRE.

Figure 13: PR19 ODI risk ranges as a percentage of regulated equity



Source: SOC188 Ofwat FD19: Aligning Risk and Return Technical Appendix, Figure 3.6, page 28.

(365) We have assessed the financeability of the PFs package under severe but plausible scenarios based on our company-specific analysis. These are a sub-set of the scenarios we modelled in our SoC but illustrate the scale of the potential exposure:

217 PFs, para. 10.71; 10.91.
218 SOC183 FD19, Table 5.1, p.72

- **NWL P10 ODI:** A penalty equivalent to 1.64% in each year of the price control. This is based on our initial analysis, which has been updated to reflect PF changes to the ODI package.[219] Our analysis was based on Monte Carlo analysis to simulate the financial impacts under our ODI package which considered historical performance and correlations between PCs (the estimate before the Monte Carlo adjustments was 1.89%);
- **Totex overspend:** 10% totex overspend based on Ofwat's prescribed downside on totex. We consider this to be an appropriate scenario given the scale of the remaining totex gap and observed under-performance across AMP 6. Moreover, our P10 totex scenario assumed c.7.5% totex overspend (5% post-mitigations);
- **Opex overspend:** 10% opex overspend, which we consider to be a reasonable scenario. During AMP 6 we overspent our opex allowance in aggregate by 2.1%.[220] At an industry level the overspend was 8.9% on average for WaSCs. Wessex Water was the only WaSC that outperformed on its opex allowance. Four of the ten WaSCs had opex overspends that were 12% or higher. [221] AMP 7 represents a much tougher settlement with significant performance and cost challenges, and therefore a 10% opex overspend is a prudent scenario;
- **NWL combined scenario:** assumes: 1) a 3% ODI penalty in 2020/21; (2) Capex and Opex overspend of 3%; and (3) inflation of 2% RPI and 1% CPIH for each of the five years of the price control;[222] and
- **NWL combined scenario (with Covid inflation assumption):** same as above, except (3) CPIH inflation of -0.5% in 2020 and 2021, and 1% from 2022 onwards.

(366) Table 21 below presents the impact of the downside scenarios under the CMA's PFs based on the notional capital structure. The analysis has been carried out using Ofwat's financial model, but we have also cross-checked the results with the CMA's calculations.

(367) The CMA considered the following ratio thresholds on Moody's AICR and S&P's FFO / Net Debt respectively: (at least) 1.5x and 9% for Baa1, 1.3x and 8% for Baa2 and 1.1x and 6% for Baa3.[223]

(368) Under these severe but plausible scenarios, we are projected to achieve an AICR ranging from 1.12 – 1.23x based on the notional financing structure. This is below the ratio threshold for Baa2, and only slightly above the minimum threshold for a Baa3 rating. This suggests that under plausible downside scenarios there is limited headroom against thresholds for a Baa3 rating. Under the combined downside (with Covid inflation), the investment grade rating would be at risk.

(369) Meanwhile under the notional structure, S&P's FFO / Net Debt is expected to fall in the range 8.2 – 8.5% which is consistent with a Baa2 rating.

(370) The scenarios do not include the additional ODI penalties resulting from asymmetry in the base case modelled in Section 8.2.2 (i.e. the CMA's estimate of 0.1 – 0.2% of RoRE). Including these would exacerbate the impact on ratios, for example by c. 0.03x on AICR.

219 NWL analysis
220 Post Hearing Submission Section 3.1 and Annex 3: AMP 6 Outturn Information
221 Post Hearing Submission Section 3.1 and Annex 3: AMP 6 Outturn Information
222 We have modelled our original combined scenario, but replaced the increase in interest rates, with Ofwat's low inflation scenario.
223 PFs, para. 10.65

Table 21: Projected metrics - implications of downside scenarios under the notional structure

Case Name	AICR (Moody's)	Net debt / RCV (Moody's)	FFO / Net debt (S&P)
Base Case (Ofwat model)	1.53x	59%	9.7%
P10 ODI penalty		61%	
Totex overspend		63%	8.2%
Opex overspend	1.20x	61%	
Combined scenario	1.15x	63%	8.4%
Combined scenario (Covid inflation)	1.12x	64%	8.3%

Source: Analysis of CMA financeability model and Ofwat financial model

(371) This analysis suggests that based on the CMA's point estimate for the WACC in its PFs, the notional company is expected to be resilient to the downside scenarios modelled. However, a number of scenarios imply a Baa3 rating (the lowest investment grade rating).

(372) The scenarios modelled indicate that, based on our risk analysis, the notional company has limited financial resources available for management of risk and corroborates the need for the increases to the cost of capital as applied by the CMA in its PFs to support the minimum required level of financial resilience.

(373) This is particularly the case as: 1) expected losses on costs and ODIs exert further downwards pressure on metrics; and 2) there is a real risk that the toughness of the PR19 settlement combined with external factors, such as Covid-19, will expose us to more severe downside scenarios which could result in projected metrics below thresholds consistent with an investment grade rating.

8.3 CONCLUSIONS ON FINANCEABILITY

(374) We support the CMA's approach to assessing financeability, which is consistent with a market-based approach.

(375) The CMA's approach correctly applies financeability as a binding constraint on the calibration of the price control.

(376) The PFs still represent a very tough settlement under which companies are exposed to material risk. This is not fully reflected in the CMA's downside scenario which under-states realistic but severe downside exposure.

(377) The WACC has been calibrated such that the notional company is just able to achieve a stable Baa1 rating. This falls to a level that is just at the minimum threshold for Baa1 where the expected loss from asymmetry is included in cash flows in the base case.

(378) Reducing any financial uplift that has been carefully embedded in the PFs, whether through WACC or otherwise, will likely compromise the projected stable Baa1 rating and the minimum financial resilience that is needed given the scale of risks implied by the PFs.

(379) The level of risk in the package supports an increase in the allowed totex and greater recognition of the asymmetric risk to ensure that an efficient notional company can earn the allowed return on average.

9 OTHER ISSUES

In reaching its final determination, the CMA should:

- model taxation using Ofwat's Financial Model as this will capture the consequential impacts on taxation of the CMA re-determination changes;
- make separate revenue and RCV adjustments to give effect to the reversal of the Grants and Contributions error; and
- use Ofwat's Financial Model and Retail Cost model (RR4) to make the consequential changes to the retail price control to reflect the updated inputs arising from the changes made to the wholesale price controls.

9.1 TAXATION

(380) We support the amendment of the Corporation Tax rate from 17% to 19% for 2020-25.[224]

(381) For the CMA's final determination, the taxation calculation will need to be taken from the Ofwat financial model to ensure that all changes the CMA has made with respect to WACC, Totex, etc., are considered when recalculating taxation.

9.2 POTENTIAL GRANTS AND CONTRIBUTIONS ERROR

(382) We agree that the double count of Grants and Contributions (**G&C**) should be reversed.[225] We also agree that an adjustment to PAYG is required.[226]

(383) In response to the CMA's question, our preference is for the adjustments to revenue and RCV to be kept separate, rather than applied as a single adjustment.[227] This would ensure that the re-determined Ofwat Financial Model would have the correct level of G&C income, which is important when we are considering and presenting customer bills and setting tariffs. Provided both changes are made within Ofwat's Financial Model, the consequential adjustments to revenue and RCV should be automatic.

9.3 RETAIL PRICE CONTROL

(384) In our response to RFI017, we identified the importance of using Ofwat's Financial Model for the CMA's final determination.[228] This is a comprehensive financial model used by both Ofwat and the industry to calculate the price controls and assess financeability.

(385) The PFs confirm "*that changes to wholesale allowances may have consequential effects on the residential retail allowances, and this is one of the areas which we intend to reflect in our Final Determination*".[229] We agree this is necessary.

(386) With this in mind, there are two areas where the increased wholesale allowance impacts on the retail control.

- the retail margin is applied to wholesale revenue, so it will increase automatically. The Ofwat financial model does this automatically, so we suggest the CMA simply reset the retail revenue control using the revised financial model retail revenue; and

224 PFs, para. 14.58(b)
225 PFs, para. 11.91.
226 PFs, para. 11.88.
227 PFs, para. 11.92.
228 RFI017 NW Response, Overview
229 PFs, para. 14.62.

- higher wholesale revenue will mean higher household bills, which are a key cost driver in the retail cost model RR4. As part of the retail cost modelling, Ofwat recognised that bill size was a key driver of the expected bad debt cost per customer (the cost of a customer defaulting is correlated to the size of their bill).

(387) If this adjustment is not made, then efficient costs are underestimated. This would erode the margin with which the retail business finances the fixed assets and working capital required for retail.

(388) The RR4 model driver Ln (average bills size) is a key cost driver for 5 of the 7 retail models (reRDC1, reRDC20, reRTC3, reRTC4, reRTC8). These models will need to be re-run using the amended average bills.

(389) The specific changes to the RR4 model will be for the average bills, on this data line:

Inputs Tab, Excel line 32, Cells M-Q32	C_REV_HH_PR19CA009	average bill size (real)

(390) We have supplied a version of RR4 with a simple average bill increase of £12 (per PF 14.64). Note that the Drivers tab Column M values need to be linked to the input tab for the changes to feed into the model.

10 IDENTIFYING SCOPE FOR IMPROVEMENT AT FUTURE PRICE REVIEWS

We would encourage the CMA to include in its final determination some positive statements relating to how future price controls should evolve to maximise the customer benefits, including:

- ensuring that the role and weight that Ofwat will give to customer evidence in the price control is clear, endorsing the benefits of customer evidence in developing business plans and recognising the positive role for customer challenge groups;
- recognising the gaps in the existing regulatory framework to promoting resilience, including the lack of good metrics for assessing asset health, the need for more engagement in price setting on major enhancement investments and the need to ensure five-year controls are set clearly in a longer-term context;
- making positive suggestions to improve the framework for cost assessment including establishing a clear framework for assessing and recognising real price effects following the move to CPIH and ensuring that the cost assessment framework adequately reflects the climate change cost drivers and provides clear pathways to consider resilience investment; and
- recognise and support the merits of incentive-based regulation which has delivered significant benefits for customers over successive price controls.

10.1 CMA PRECEDENT IS IMPORTANT IN MAXIMISING BENEFITS FOR CUSTOMERS

(391) The CMA's review provides an important precedent for the future of regulation in the water sector. Beyond the specific controls of the four appellants, the CMA's final decisions can help to send signals about where and how economic regulation can be improved. This can help to maximise the benefits of the CMA's decisions for a wider group of customers and potentially avoid the need for further regulatory appeals in the future. There are some areas of the CMA's PFs where it has already chosen to send such signals.[230] In this section we comment on some of those areas and make suggestions regarding other improvements to the regulatory framework that we believe the CMA should consider.

(392) We welcome the open and wide-ranging discussions that we are now beginning to have with Ofwat to learn the lessons from the experience of PR19 whilst also looking to the needs of the future. This is a positive step.

10.2 CUSTOMER ENGAGEMENT AND THE WEIGHT PLACED ON CUSTOMER EVIDENCE

(393) The CMA acknowledges the concerns expressed by all Disputing Companies that Ofwat had not fully reflected the views of customers in FD19.[231] Similar concerns were also voiced by third parties in their comments submitted to the CMA.[232]

(394) We agree with the CMA that "*customer views are an important element in informing the price review process*" but are concerned by the comment that "*there may be limits to the weight such evidence should be given when considering all evidence in the round*".[233] The CMA indicates that the weight that should be attached to customer evidence depends on "*the particular context and issues involved as well as the type and quality of research conducted*", and confirms that its view is that "*customer research can be highly informative in relation to*

230 PFs, para. 21: "While we did not consider it would be sensible or practicable to adopt a wholly different regulatory framework within the context of our re-determination, we have noted in our report where consideration should be given to changes to aspects of the regime in the future".
231 PFs, para. 3.12.
232 Reply, Section 8.
233 PFs, para. 3.13.

particular issues, and that there is great potential for development of customer research methodologies and its appropriate application".[234]

(395) We recognise and understand the CMA's views in relation to whether customer evidence can be deterministic. However, as we have set out in previous submissions, we consider that it is important that there is clarity about the role customers, and their views (including customer views sought by other stakeholders for example Ofwat and CCW), will play during a price setting process.[235] We note that CC Water has stated that "*It is important that credible evidence of customers' views and expectations is reflected in the outcomes the price review will deliver, in order to achieve Determinations that customers support, and leading to greater customer satisfaction and trust with the companies*".[236] CC Water recommends that for PR24 companies must clearly explain how customer views have informed their business plans and "*Ofwat should also be transparent in how it has considered the customer view, and to explain this to customers, companies, and stakeholders in its Determinations*".[237]

(396) We understand the CMAs views that customer engagement cannot be deterministic, but we are concerned that some of the CMA's deliberations in relation to the role of customer engagement could be taken to imply that in future price reviews customer engagement should be reduced. In particular we would welcome some positive recognition in the CMAs final determination of the role played by the Customer Challenge Groups in the price review process. From our own experience we are clear that these groups and the challenge that they have brought have not only helped us to develop stronger business plans but more broadly they have helped us to drive a strong customer focussed culture internally.

(397) Ultimately, if Ofwat remains of the view that customers should be at the heart of the price setting process, which we believe they should, then it must give legitimacy to that proposition through the methodology it adopts. Finally, we have previously discussed with the CMA panel the complexity that has arisen in the regulatory regime. As has been highlighted by CCW in its recent commentary on this topic, improving customer engagement goes hand in hand with the simplification of the process.[238]

10.3 DRIVING GREATER RESILIENCE IN THE WATER SECTOR

(398) Our decision to appeal the FD19 was in part driven by our view that the framework did not support reasonable improvements to enhance the resilience of the sector in the future in line with the new statutory duty imposed on Ofwat. In particular it did not reflect resilience investments that we considered were well evidenced and supported by our customers. But our concerns were broader than our two specific enhancement proposals. We remain of the view that the framework requires considerable improvement to be able to truly consider and support resilience investment in the future.

(399) One area of concern that remains is in relation to asset health. Ofwat has itself recognised that there is a gap in the existing framework in this area in its most recent strategy[239] and we welcome the forthcoming discussions that it has planned to further develop this area. We have accepted the CMA's position on unplanned outage, but we remain of the view that this is not a good measure of resilience.

(400) Asset health is a critical issue in essential infrastructure like ours and even more important when the asset lives are very long and underinvestment could potentially be maintained for

234 PFs, para. 3.13-3.14.
235 Reply, Section 8.
236 PFREP001 CCW PR19 Review, para. 4.21.
237 PFREP001 CCW PR19 Review, para. 4.36.
238 PFREP001 CCW PR19 Review Recommendation 6.
239 Ofwat, 2019, p.30, Time to act together: Ofwat's strategy, https://www.ofwat.gov.uk/wp-content/uploads/2019/10/Time-to-act-together-Ofwats-strategy-1.pdf

many years before service deteriorates. It is essential that as a sector we can move to a more effective regime with better metrics in this area and we would very much welcome the CMA's recognition of the need for these changes.

(401) Reflecting on the experience with our two enhancement investment cases, whilst there are undoubtedly things which we could have done better, we feel that both cases demonstrate that proper time is needed within the price control process to discuss these matters. The iterative process of written submissions and replies was not as effective as early direct engagement and discussion on these projects would have been. This does not in any way reduce Ofwat's ability to challenge, as is its role, but would minimise the occurrence of the significant misunderstandings that have clearly arisen. As we look to the future the sector will need to continue to undertake major investment to address the combined drivers of climate change, growth, environmental improvement and increasing customer preferences.[240] The price review should allow enough time for earlier effective engagement between the company and the regulator on these major investments.

(402) As we have set out in Section 4.2 we consider that the PR19 framework has not enabled companies to bring forward investments to increase the resilience of their wastewater networks to climate change. We consider that there is a cohort of companies in England and Wales that face much more significant challenges arising from higher and more extreme rainfall, differing levels of urban creep and other factors. None of these factors is adequately acknowledged or reflected in either the current cost assessment framework or the service level targets and incentives set through PCs and ODIs. To avoid embedding a framework that would fail to allow these schemes to come forward in the future, to the clear detriment of customers, the CMA should ask that these frameworks be amended.

(403) To do this we believe that the CMA should ask Ofwat to investigate the drivers of sewer flooding across different company operating areas, collect necessary data to ensure that cost assessment at PR24 reflects these drivers and also provide a long-term commitment over at least 2-3 AMPs that the definition of sewer flooding (and indeed any other common PCs that the CMA wants to incentivise long-term improvement against) will not be subject to major change.

(404) We support the CMAs move towards more symmetric cost sharing rates. Whilst we still consider that a 50:50 symmetric rate is most likely to protect customers and we have shown that the Ofwat suggestion that there has been systematic historical outperformance is without factual merit, we accept the CMAs provisional position. Cost sharing rates need to balance protection of customers from overspending whilst also providing strong incentives on companies to shift the efficiency frontier for the benefit of all customers in subsequent price controls. In PR19 Ofwat set cost sharing rates in a way that provided a clear incentive for companies to drop enhancement investments during the PR19 process. In a capital-intensive sector providing such an essential service, it is critical that companies can bring forward enhancement investments without fear of being penalised through cost sharing incentives. We note that other regulators have proposed other cost sharing factors that reflect similarly poor incentive properties. We consider that it would be helpful for the CMA to set out a clear position on this matter in order to establish best practice.

(405) Finally, linked to many of the points previously made, we note that the price controls in the water sector take place in a much longer-term context. The five-yearly price review should be more of a stepping-stone in a longer-term plan rather than a cliff edge.

240 Ibid, pp.28-33 and National Infrastructure Commission, 2018, Preparing for a drier future, https://nic.org.uk/studies-reports/national-infrastructure-assessment/national-infrastructure-assessment-1/preparing-for-a-drier-future/

(406) The water sector has always made long term plans, for example through Water Resource Management Plans (**WRMPs**), and for the first time the sector will soon have Drainage and Wastewater Management Plans (**DWMPs**). The alignment and consistency of these processes with the price review cycle is critical. This was identified as a potential issue by the CMA in the Bristol Water PR14 Determination and has been a positive development during the PR19 cycle).[241] In the 2020-25 period this needs to continue and be combined with DWMPs, which may also help to address some of the concerns we have raised in relation to sewer flooding and wastewater resilience.

(407) We would like the CMA and Ofwat to consider whether there might be benefit in taking a comparable approach in establishing a future framework for the assessment of resilience investment. As evidenced by the consideration of our Essex Resilience Scheme, the need for resilience investment may not always be of the type that neatly falls within existing risk modelling, or cost-benefit analysis techniques. That doesn't mean that the underlying investment is any less worthy, but simply that the nature of future risks which these schemes often seek to address are not always possible to quantify precisely, thus making it harder to put forward a case for investment that passes the traditional milestones and evaluative tests. Given the political focus on resilience and its importance to customers the regulatory framework needs to make it easier to develop robust cases for resilience investment, not harder, so should recognise the need for flexibility.

10.4 FURTHER IMPROVEMENTS TO OFWAT'S COST ASSESSMENT PROCESS

(408) We agree with the CMA that there are many positive aspects of Ofwat's PR19 cost assessment process. Nevertheless, we highlight some areas where potential improvements are needed for PR24 and beyond.

(409) As we have set out above the cost assessment framework needs to be amended to reflect long-term resilience investments and be more of a stepping-stone towards longer-term objectives. The framework also needs to better reflect the drivers of sewer flooding performance that are outside of management control.

(410) At PR19 Ofwat moved to a new measure of inflation, CPIH. This means that company revenues will now be indexed to a measure of inflation that has historically tracked about 100bps below the previous measure of inflation, RPI. This means that in isolation companies' revenues will grow at a lower rate reflecting that inflation. This has placed greater focus on the consideration of cases for RPEs as some cost areas which previously would have grown in line with RPI will now be growing above CPIH. We have raised some concerns with Ofwat's RPE framework, which departs from a longer and more established approach in some key respects. We have also highlighted the difficulties of seeking an RPE for chemical costs under that framework even in situations where companies may legitimately be facing cost rises above inflation and outside of management control. It would be helpful if the CMA could send a signal that this is also an area that needs further work in the future, including investigation into the development of a sector index for chemicals as a major input cost.

(411) Regarding the application of frontier shift to enhancement costs the CMA notes that "*there may be benefit in clarifying the basis for the reporting of these figures more explicitly, in order to avoid factual disputes of this nature (such as double counting)*".[242] We agree with the CMA's recommendation for there to be clearer guidance in this area for future price reviews.

241 SOC336 Bristol Water PR14 CMA Decision paras. 6.166-6.167.
242 PFs, para. 5.520.

(412) The CMA has largely accepted the service and investment package that Ofwat set out in FD19, including that base cost allowances should be used to deliver the common performance commitments. However, it has recognised in its assessment of leakage that where service improvement rates are different from the past, additional investment may be required. We believe that it is important that the CMA sets out a clear position on this issue and that the determination is not read as either: a) suggesting that there is no instance where additional investment may be required to deliver a service improvement; or that b) the only area where additional investment can be sought is on leakage or that leakage is a singular special case. Indeed, we have shown that the CMA's reasoning for allowing additional investment for leakage could equally be applied to sewer flooding and the approach in the PFs to these two areas is inconsistent.

10.5 FINANCEABILITY AND THE ALLOWED RETURN

(413) We set out in Section 8 on Financeability our support for many aspects of the CMA's PFs. In particular, we support the work that the CMA has undertaken in this area including:

- applying financeability as a meaningful and binding cross-check on the calibration of the package;
- relying on rating agency methodologies and their approach to calculating ratios;
- acknowledging that financeability is irrevocably tied to the WACC - when WACC is set appropriately adjustments to regulatory levers such as PAYG rates are unnecessary and should be reversed;
- assessing the level of asymmetric risk in the package and recognising the need to price this in to ensure that price control is a 'fair bet'; and
- assessing the ability to maintain an investment grade rating under reasonable downside scenario analysis.

(414) In our SoC we set out a series of concerns with Ofwat's approach to setting the allowed return in its FD19. Key amongst those concerns was the effect of embedding an approach which would place significant weight on short term market movements and provide substantial regulatory discretion in setting the allowed return in a sector where the investment horizon is very long term spanning multiple controls and the asset lives even longer. This could increase systematic risk in the sector and put investment at risk. This would not be in the long-term interest of customers. In this context we support many aspects of the approach taken by the CMA in setting the allowed return including: the examination of a wide range of evidence in setting each of the parameters; the recognition of the need for substantial investment in the future; and the need to properly examine the levels of asymmetric risk in the package.

(415) The CMA has rightly recognised that we must ensure the sector remains financially sustainable. It has done so in both a practical and theoretical way by recognising the important role that the independent rating agencies play. In an asset intensive sector like ours the customer interest is best served by companies being able to maintain strong investment grade credit ratings and access to long term capital. The greatest harm for consumers will come from underinvestment in the essential services we provide. As we face a significant economic recession brought on by the pandemic, this has never been more important.

10.6 THE MERITS OF INCENTIVE BASED REGULATION

(416) Within its PFs the CMA has rejected Ofwat's proposals for a Gearing Outperformance Sharing Mechanism and sought to bring cost sharing rates to a more symmetrical position.

This removes two aspects of the price control framework which we considered were not in the long-term interests of customers. These interventions appeared to be driven at least in part by a concern about returns and a desire to regulate profits rather than service and revenues and follow a period when the ownership model of the sector was widely debated.

(417) During the CMA redetermination process there has been little discussion of the wider successes of the regulatory model in the water sector. This model has delivered significant benefits to customers and the environment.[243] A key aspect of this success has been the incentive framework that underpins it and the ability of companies to earn reputational, financial and procedural rewards and incur similar penalties where they out or underperform against the determination. As we highlighted in our SoC, these incentives have delivered very material benefits for customers.[244] In our own case outperformance of our wastewater cost allowances during 2015-20, whilst also delivering high levels of service, including for example sector leading levels of pollution incidents, meant that cost allowances at PR19 were around £403m lower at a sector level than they would have been if our performance had been more in line with other companies. The nature of these incentives seek to mimic the effects that we would expect to see in a competitive market in line with the statutory duty of Ofwat to protect consumers, wherever appropriate, by promoting competition. The extent to which benchmark and frontier companies can continue to set tougher standards for the rest is critical to customers enjoying longer term benefits over multiple control periods and we have shown that the strength of incentives do matter in the achievement of this.[245]

(418) As we have noted in Section 5.3 above we accept the CMA's provisional decision to remove the enhanced ODIs for the common leakage PC. Nevertheless, we share the CMA's view that enhanced ODIs are "*appropriate as a policy tool*". We consider that, in relation to the broader package of PCs and ODIs, appropriately calibrated enhanced incentives remain a valuable tool for driving improvements in frontier service levels over time. In turn this improves upper quartile performance benchmarks and hence ultimately via the repeated regulatory cycle drives service improvements for customers across the industry. We consider that the use of enhanced incentives as a policy tool should be retained and strengthened at PR24 and would welcome comments from CMA in support of this in its final determination.

(419) We are concerned that the merits of incentive-based regulation are being lost in wider concerns about returns and that there could be a detriment to customers from a misguided weakening of that incentive regime. It would be helpful if the CMA could give some views on the merits or otherwise of incentive-based regulation and the role of incentives in the future regulation of the sector.

243 https://www.working4water.org.uk; Water UK 'Working for Water – a briefing on the record and future plans of water companies, July 2018 (https://www.working4water.org.uk/wp-content/uploads/2018/12/Briefing-paper-TYPESET-paper-181129.pdf); SOC351 Productivity Improvement in the Water and Sewerage Industry in England

244 SoC, Section 2.6.3.

245 SoC Section 2.6.4 and Figure 6; Reply Section 5.3.2.2, paras. 388-392.

ANNEXES

ANNEX 1: WORKED EXAMPLE: LABOUR RPES

(420) As discussed in Section 3.5.3.1, this annex presents a worked example of how the use of the **ASHE Manufacturing Index** (**ASHE MI**) for the labour RPE true-up mechanism could result in a substantial under-recovery of efficient costs, even when the index only has a 'short-term fluctuation'.

(421) The alternative index we suggest in order to represent the actual wage growth of an efficient water company is the **AWE Electricity, Gas and Water Supply Index** (**AWE EGWI**).

(422) Note that both the ASHE MI and the AWE EGWI had a very similar wage growth rate to the ASHE Water and Sewerage Index over the last 5 years.[246] However, ASHE MI has a higher exposure to COVID and Brexit-caused downward pressure on wages due to the dynamics of the manufacturing industry which are very different from the utilities sector.[247] In this worked example, we assume that:

- Both indices will have 2.8% wage growth in all years except FY2020-21 to demonstrate the effect of only a short-term fluctuation due to COVID (2.8% is the annualised wage growth of AWE EGWI between 2015-2019);
- AWE EGWI growth rate in FY20/21, which we propose as the appropriate proxy for the wage growth at an efficient water company, will be 0.1% (actual average of year-on-year monthly growth rates so far);
- ASHE MI growth rate in FY20/21, which the CMA PFs propose to use, will be -3.8% (based on the April 2020 year-on-year monthly growth of AWE Manufacturing Index, which is the closest proxy to ASHE MI. ASHE MI 2020 is sampled in April 2020 and will be based on a single month, but it has not been published yet).

(423) As shown in Table 22, the true-up mechanism based on AWE EGWI would apply a -3.87% average adjustment for frontier shift and RPEs on the CMA's final determination at the end of the period.

Table 22: AMP 7 outturn labour RPE scenario- efficient water wage growth

Year	Frontier shift	Actual water wage growth proxied by AWE utilities index	Actual CPIH growth	Real wage growth	Real input price inflation	FS and real inflation difference	Compound Net Change
	[A]	[B]	[C]	[D] =[B]-[C]	[E] =39%*[D]	[F]= [E]-[A]	[G] = [F] compounded
2019-20	1.00%	2.7%	2.00%	0.66%	0.25%	-0.75%	-0.75%
2020-21	1.00%	**0.1%**	1.90%	-1.79%	-0.69%	-1.69%	-2.43%
2021-22	1.00%	2.7%	2.00%	0.66%	0.25%	-0.75%	-3.15%
2022-23	1.00%	2.7%	2.00%	0.66%	0.25%	-0.75%	-3.87%
2023-24	1.00%	2.7%	2.00%	0.66%	0.25%	-0.75%	-4.59%
2024-25	1.00%	2.7%	2.00%	0.66%	0.25%	-0.75%	-5.30%
Average (AMP7)							**-3.87%**

Source: See footnote[248]

(424) However, if ASHE Manufacturing Index were to be used with the assumptions discussed above, the COVID-related fall in FY2020-21 would result in a much larger reduction leading

[246] *As shown in Figure 5 in section 3.5.3.1.*
[247] *As detailed in section 3.5.3.1.*
[248] *Column [A] data and Column [E] methodology are from CMA's workbook accompanying RFI 017 titled "CMA Revenue Calculations_Provisional Findings.xlsx", tab "Efficiency Calcs". In column [B], 2.7% is the AWE EGWI annualised growth rate in 2015 - 2019; 0.1% is the AWE EGWI average of year-on-year single-month growth rates in Apr 2020 - Aug 2020 (last available month); and -3.8% is the AWE Manufacturing Index year-on-year single month growth rate in Apr 2020 (to proxy the sampling month of ASHE MI). Column [C] and [D] are based on Ofwat (2020) "Securing cost efficiency: Technical Appendix", Table A3.10.*

to an under-recovery of efficient costs. The overall allowance would be trued-up by -5.35%, instead of only -3.87%.

Table 23: AMP 7 outturn labour RPE scenario- true-up with depressed 2020 wage growth

Year	Frontier shift	Actual water wage growth proxied by ASHE Manufacturing Index	Actual CPIH growth	Real wage growth	Real input price inflation	FS and real inflation difference	Compound Net Change
	[A]	[B]	[C]	[D] =[B]-[C]	[E] =39%*[D]	[F]= [E]-[A]	[G] = [F] compounded
2019-20	1.00%	2.7%	2.00%	0.66%	0.25%	-0.75%	-0.75%
2020-21	1.00%	**-3.8%**	1.90%	-5.71%	-2.20%	-3.20%	-3.93%
2021-22	1.00%	2.7%	2.00%	0.66%	0.25%	-0.75%	-4.64%
2022-23	1.00%	2.7%	2.00%	0.66%	0.25%	-0.75%	-5.35%
2023-24	1.00%	2.7%	2.00%	0.66%	0.25%	-0.75%	-6.06%
2024-25	1.00%	2.7%	2.00%	0.66%	0.25%	-0.75%	-6.76%
Average (AMP7)							**-5.35%**

Source: See footnote 248

(425) Since our total totex in the PFs is £2,651m, the short-term fluctuation in this example would result in a c.£39m under-recovery of efficient costs. This shows that the issue is material and that short-term fluctuations in an index resulting from the method of its calculation (reliance on April 2020 data) and from its divergence from the wage pressures in the water sector can invalidate the use of the ASHE manufacturing index.

ANNEX 2: HISTORICAL APPROACH TO MEASUREMENT OF SEWER FLOODING PERFORMANCE

1 INTRODUCTION

(426) This annex sets out a detailed overview of the historical approach to measuring performance with respect to sewer flooding. For each company, we set out in a chronological format for each AMP (5 year control period) the applicable definitions, the Final Determination (FD) targets and allowances and the actual spending on sewer flooding.

(427) To place our performance into context, in addition to presenting data for all WASCs we have highlighted the information relating to ourselves and the two best sewer flooding performers, Anglian Water and Wessex Water as well as the overall sectoral average or industry position.

(428) We demonstrate that over the period 2010 to 2025 we received the most stretching targets for sewer flooding reductions, delivered these reductions and spent more per property/sewer length than any other company. We also demonstrate that our expenditure is relatively efficient on a unit cost comparison basis.

1.1 AMP 5: 2010-15

1.1.1 The AMP 5 definition

(429) Sewer flooding in PR09 (setting the controls for 2010-15) was defined in terms of the number properties on the DG5 Risk Register, defined in the 2011 June Return guidance as:

DG5 - Properties on the flooding register

*These lines **cover properties which have flooded** and are deemed to still be at risk of flooding more frequently than once in twenty years and once or twice in ten years, the problem status of the properties on the register, and annual changes to the register. The flooding register was formerly known as the 'at risk' register and references to the 'at risk register' should now be treated as a reference to the flooding register. [Emphasis added]*

(430) There was no mention of the number of sewer flooding incidents within the DG5 definition as it pre-dated Ofwat's move to outcomes based regulation and Outcome Delivery Incentives. The DG5 approach had been in place in the sector since prior to privatisation (where similar registers were retained by local authorities).

1.1.2 The AMP 5 targets

(431) The target outputs for sewer flooding reduction for AMP 5 covered:

- removing properties at risk of internal sewer flooding at least once in 10 years;
- removing properties at risk of internal sewer flooding at least once in 20 years;
- solving external sewer flooding problems; and
- providing sewer flooding mitigation for properties.

(432) Only properties falling within the first category ('internal 1 in 10') were deemed to be on the DG5 register.

(433) Specifically, for the DG5 internal 1 in 10 category, we were given a number of funded solutions. These had to be delivered or we faced penalties at the end of the period. We had the second highest number of funded solutions to deliver in the sector.

Table 24: FD09 Assessment of proposals to reduce risk of sewer flooding 2010-15

Company	DG5 Register position in 2010	Company requested additions	Ofwat calculated additions	Total number of funded solutions	Net reduction in the high risk registers
Anglian	**300**	**88**	**88**	**190**	**102**
Dwr Cymru	219	180	180	219	39
Northumbrian	**768**	**700**	**700**	**1,135**	**435**
Severn Trent	540	585	445	511	66
Southern	213	105	105	146	44
South West	52	70	70	87	17
Thames	1,620	1,848	1,210	1,707	487
United Utilities	975	456	456	565	109
Wessex	**110**	**200**	**200**	**200**	**0**
Yorkshire	212	525	458	517	59
Industry total	**5,009**	**4,757**	**3,912**	**5,277**	**1,368**

Source FD09 Table 15[249]

1.1.3 AMP 5 Funding

(434) During AMP 5 (and preceding AMPs) funding allowances for DG5 performance were set on a unit rate basis. Each company was given a different funding allowance corresponding to their target number of outputs.

Table 25: FD09 Sewer flooding expenditure

Company	Company proposal Expenditure to reduce the risk of flooding internally at least once in 10 years £m	Expenditure on other sewer flooding outputs £m	Total £m	Final determinations Expenditure to reduce the risk of flooding internally at least once in 10 years £m	Expenditure on other sewer flooding outputs £m	Total £m
Anglian	**66.7**	**11.4**	**78.0**	**45.3**	**10.1**	**55.5**
Dwr Cymru	29.1	46.3	75.4	29.0	46.3	75.3
Northumbrian	**124.0**	**2.0**	**126.0**	**119.3**	**0.9**	**120.1**
Severn Trent	124.1	79.0	203.1	113.0	44.5	157.5
South West	17.8	6.1	24.0	19.4	6.5	25.9
Southern	44.5	140.0	184.4	21.0	58.1	79.1
Thames	367.8	87.4	455.2	257.5	67.8	325.4
United Utilities	98.2	57.2	155.4	93.2	33.7	126.9
Wessex	**16.4**	**32.3**	**48.7**	**17.4**	**33.1**	**50.5**
Yorkshire	78.3	84.4	162.7	73.6	67.1	140.7
Industry total	**966.9**	**546.0**	**1,512.9**	**788.6**	**368.2**	**1,156.8**

Source: FD09 Table 36[250]

(435) We summarise these AMP 5 targets and costs in Table 26 below. We had the highest number of properties removed in relation to size, but at the second lowest level of unit funding. In terms of actual results for AMP 5 we delivered 1,142 DG5 solutions. This exceeded our PR09 target. Ofwat subsequently confirmed that the target was delivered in full.[251]

249 https://webarchive.nationalarchives.gov.uk/20150603195714/http://www.ofwat.gov.uk/pricereview/pr09phase3/det_pr09_finalfull.pdf
250 https://webarchive.nationalarchives.gov.uk/20150603195714/http://www.ofwat.gov.uk/pricereview/pr09phase3/det_pr09_finalfull.pdf
251 2010-15 final reconciliation: company-specific appendix – Northumbrian Water, p. 16.

Table 26: AMP 5 DG5 Sewer Flooding Targets & Unit Costs

Sewer Flooding DG5 Internal 1 in 10 Properties					
PR09 FD AMP 5 (10-15) Company	**Total number of target DG5 Solutions (FD Table 15)**	**Total Properties '000 (JR09)**	**Props removed per '000 props**	**Sewer flooding expenditure FD £m (FD Table 36)**	**Expenditure per property £'000**
Anglian	**190**	**2,499**	**0.076**	**45**	**238**
Dŵr Cymru	219	1,330	0.165	29	132
Northumbrian	**1,135**	**1,153**	**0.985**	**119**	**105**
Severn Trent	511	3,723	0.137	113	221
Southern	146	1,792	0.081	19	133
South West	87	673	0.129	21	241
Thames	1,707	5,372	0.318	258	151
United Utilities	565	2,971	0.190	93	165
Wessex	**200**	**1,125**	**0.178**	**17**	**87**
Yorkshire	517	2,061	0.251	74	142
Industry	**5,277**	**22,701**	**0.232**	**789**	**149**

Source: FD09

1.2 AMP 6: 2015-20

1.2.1 AMP 6 Definition

(436) In PR14, setting the sewer flooding targets for AMP 6 2015-20 was generally based on the outcome of sewer flooding incidents. The DG5 register was effectively abolished.

1.2.2 AMP 6 Targets

(437) The metrics and improvement rates for each company are shown in Table 27 below. Companies were encouraged to draw up their own metrics and targets for sewer flooding. This resulted in a complex mix of conventional and bespoke outcomes.

Table 27: AMP 6 2015-20 Performance Commitments

Company	Outcome Performance Commitment	Starting 2014-15	Actual 2019-20	Reduction from 14-15 to 19-20
ANH	**No. of properties flooded internally (reduction)**	**486**	**298**	**-39%**
ANH	**No. of properties flooded externally (reduction)**	**N/A**	**2,550**	**-**
NES	**No. of properties per year - external**	**1,318**	**1,001**	**-24%**
NES	**No. of properties flooded internally per year**	**300**	**139**	**-54%**
NES	**Repeat sewer flooding**	**496**	**58**	**-88%**
NES	**No. of properties per year – transferred ds internal**	**228**	**205**	**-10%**
NES	**No. of properties per year – transferred ds external**	**2,931**	**3,102**	**6%**
SRN	No. of internal sewer flooding incidents	551	453	-18%
SRN	No. of external sewer flooding incidents	9,694	9,386	-3%
SVT	No. of internal sewer flooding incidents	1,031	926	-10%
SVT	No. of external sewer flooding incidents	7,714	5,120	-34%
SWT	No. of internal sewer flooding incidents	157	160	2%
SWT	No. of external sewer flooding incidents	3,500	2,897	-17%
TMS	No. properties protected from flooding due to rainfall	N/A	394	-
TMS	No. of internal sewer flooding (other causes) incidents	1,209	1,058	-12%
UU	No. of properties at risk	16,568	16,369	-1%
UU	Sewer flooding index (UU bespoke)	102	80	-21%
WSH	No. of properties subjected to internal sewer flooding	313	216	-31%
WSX	**No. of internal sewer flooding incidents / 10,000 properties**	**2**	**1**	**-34%**
WSX	**Flooding risk as measured by sewer flooding risk grid**	**50,000**	**52,262**	**5%**
YKY	No. of internal sewer flooding incidents	1,857	1,602	-14%
YKY	No. of external sewer flooding incidents	10,125	9,139	-10%

Source: Table 3A, 2020 June Returns

(438) Direct comparisons are difficult, but we note that if transferred drains and sewers are included in our numbers for comparability, we had the second highest percentage reduction (35%) in internal sewer flooding incidents.

1.2.3 AMP 6 Funding

(439) We have taken the values from PR14 Unit Cost modelling for sewer flooding from the Ofwat PR14 cost assessment models. We then applied the 12% Upper Quartile efficiency challenge per those models to arrive at FD14 allowance for sewer flooding.[252]

(440) If we review the PR14 funding our unit costs sit in the middle of the range.[253] As shown in Table 28 below Severn Trent and South West Water have mainly delivered external sewer flooding reductions which tend to be lower cost than internal sewer flooding activities.

(441) This data, along with the low unit costs in Table 26 for AMP 5 confirm that, although we have spent considerably on sewer flooding reduction, this is not due to inefficiency as we spent 7% less than the FD allowance in AMP6 whilst earning delivery rewards.[254] Our actual performance for AMP 6 was better than FD14. As a result, we earned £2.9m of rewards for reductions in internal sewer flooding delivered during the period.

Table 28: AMP 6 Unit cost funding

	PR14 Funding £m Unit Cost Model	Internal reduction 14-20	External reduction 14-20	Total Reduction Int & Ext	£k/ prop
ANH	**95**	**188**		**188**	
NES	**41**	**184**	**146**	**330**	**124**
SRN	71	98	308	406	176
SVT	139	105	2,594	2,699	51
SWT	27	-3	603	600	45
TMS	233	151		151	
UU	109	199		199	
WSH	49	97		97	
WSX	**45**	**38**		**38**	
YKY	75	255	986	1,241	61
Total	**884**				

Source: PR14 FD Unit cost models[255]

1.3 AMP 7: 2020-25

1.3.1 AMP 7 Definition

(442) For PR19 (AMP7: 2020-25), internal sewer flooding incidents were standardised and normalised as common performance commitments.

1.3.2 AMP 7 Targets

(443) In Table 29 we have compared the 2019-20 actual performance against the performance commitment expectations for 2024-25.

252 See databook: PR14 AMP6 Sewer flooding allowance from unit cost model: https://webarchive.nationalarchives.gov.uk/20150603214121/http://www.ofwat.gov.uk/pricereview/pr14/prs_web1408ddfeederbasiccostpop
253 See PR14 FD unit cost model PR14 FD Sewer flooding pap_tec1405feederbasiccostsnes, in the databook and the 2014-15 to 2019-20 reductions.
254 AMP5&6 Sewer flooding historical spend comparisons for PF response, Actual V FD spending AMP5&6 tab
255 https://webarchive.nationalarchives.gov.uk/20150603214121/http://www.ofwat.gov.uk/pricereview/pr14/prs_web1408ddfeederbasiccostpop

Table 29: AMP 7 Performance Commitments

	2019-20 Actual Internal incidents	PC in 24/25	Reduction	% reduction
ANH	**298**	**376**	**78**	**26%**
HDY	10	4	-6	-60%
NES	**472**	**177**	**-295**	**-63%**
SRN	455	284	-171	-38%
SVT	933	570	-363	-39%
SWB	160	107	-53	-33%
TMS	1208	847	-361	-30%
UU	1469	466	-1003	-68%
WSH	256	203	-53	-21%
WSX	**148**	**177**	**29**	**20%**
YRK	1123	323	-800	-71%
INDUSTRY	**6532**	**3534**	**-2998**	**-46%**

Source: PR19 Final Determinations

(444) We are required to reduce incidents by 63%. This is higher than the industry average and the third highest in the industry. In contrast Anglian Water and Wessex Water need to make no improvement.

1.3.3 AMP 7 Funding

(445) Ofwat's cost assessment models for PR19 give only an 'implicit' view of the cost allowances for sewer flooding, so it has not been possible to quantify the allowance. We set out the value and comment on the appropriateness of this 'implicit allowance' calculation in our SoC.[256]

1.4 ACTUAL SPEND AMP 5-AMP 6

(446) Finally, as a cross check, we reviewed the actual spending for AMP 5 and AMP 6 by company. It confirms that over the period 2010-19, we spent more than double the amount per property or km of sewer than the next highest spending company.

Table 30: Actual spend by company on sewer flooding AMP 5 and AMP 6

	Actual £m Totex on sewer flooding (outturn)		Total £/km sewer pa	Total £/property pa	
	AMP 5	AMP 6	Total	AMP 5-6	AMP 5-6
ANH	**56**	**21**	**77**	**0.10**	**2.82**
NES	**157**	**42**	**200**	**0.67**	**15.99**
NWT	130	66	**196**	0.25	6.00
SRN	58	13	**71**	0.18	3.67
SVT	105	164	**268**	0.29	6.65
SWT	11	17	**27**	0.16	3.74
TMS	185	153	**338**	0.31	5.89
WSH	45	42	**87**	0.24	6.10
WSX	**36**	**38**	**74**	**0.21**	**3.71**
YKY	113	37	**150**	0.29	6.66
Industry	**896**	**593**	**1,489**	**0.26**	**5.87**

Data source: WWWS1

(447) A cross check of actual expenditure compared to FD allowances for AMP 5 and AMP 6 confirms that we were the only company to spend more than the FD allowance for sewer flooding.[257] This is due to delivering more outputs than the FD assumed for both AMP 5 and AMP 6.

256 SoC section 7.5.3.4
257 AMP 5 and AMP 6 Sewer flooding historical spend comparisons for PF response, Actual V FD spending AMP5&6 tab

ANNEX 3: RECONCILIATION BETWEEN PFS AND SOC TOTEX REQUESTS

(448) In this annex, we present a reconciliation between our SoC and PF response totex requests which shows that our requests overall across water and waste remain consistent. In our SoC we showed a totex gap of £85m (excluding enhancement scheme spend and changes related to new information for unmodelled costs).[258] We re-present this table from our SoC below in Table 31.

Table 31: Total impact on Northumbrian Water's Total Expenditure (Totex) allowance

	Total impact (£m)	
Area	**Water**	**Wastewater**
Moving the upper-quartile efficiency benchmark challenge to the 4th (water) or 3rd (wastewater) most efficient company	8.5	7.5
Removal of frontier shift on unmodelled costs	0.0	0.0
Include RPE adjustment for power	3.7	2.8
Include RPE adjustment for chemicals	2.5	3.3
Remove downward adjustment for growth	7.6	24.7
WINEP (excl. P-removals adjustment)	0.0	14.6
WINEP (P-removals adjustment)	0.0	9.7
Total Totex claim	**22.3**	**62.4**

Source: NWL SoC, table 30

(449) Based on the PFs, our base and enhancement requests amount to £56m based on the same issues we stated in our SoC as shown in Table 32 below. This request increases to £83m when adding the new issues arising from the PFs.

Table 32: Summary of NWL's Totex position in the PFs versus SoC

	Total request Gap (£m)	
Issue	**SoC**	**PF Response**
Bast cost issues in our SoC		
Catch-up efficiency	16	NA
RPEs: chemicals	6	6
RPEs: energy	7	7
Growth adjustment	32	42
Enhancement issues in our SoC		
WINEP efficiency Challenge	15	NA
P-removal	10	1
SoC total	**85**	**56**
New base cost issues arising from PFs		
SWC1 model	NA	12
Removal of frontier shift from business rates and abstraction charges	NA	9
New enhancement issues arising from PFs		
Deep dive efficiency challenge	NA	7
Total including new PF issues	**85**	**83**

Source: NWL analysis

(450) Table 33 below reconciles the £83m in Table 32 above to our original £85m. Overall decisions made by CMA in the PFs reduced our base modelled and enhancement costs by £14m, (excluding the Essex Resilience Scheme which not included in Table 31). Therefore, relative to the position at the SoC our request is equivalent to £69m. This gives a £15m difference from the SoC request position (rounding means numbers do not sum) which is equivalent to the £15m we are no longer requesting on the WINEP efficiency challenge. This shows that whilst the composition of our ask has evolved in response to the PFs we have identified an

258 SoC, Table 30

equivalent totex gap to the position at our SoC after acknowledging the removal of the WINEP efficiency challenge issue.

Table 33: Reconciliation of NWL's PF and SoC requests

	Total request Gap (£m)	
Issue	**SoC**	**PF Response**
Total including new PF issues	**85**	**83**
Tightening of PF base modelled costs and enhancement allowances (excl. Essex scheme)	NA	-14
Total after adjustment (comparable basis compared to SoC)	**85**	**69**
Difference between SoC and PF position	**15**	

Source: NWL analysis

ANNEX 4: INDEX OF SUPPORTING DOCUMENTS

PFREP reference no.	Short name	Full title
PFREP001	CCW PR19 Review	CCWater Lessons Learned from the 2019 price review, 9 October 2020
PFREP002	Oxera Report on 19/20 data	On the use of 2019/20 APR data in econometric modelling, Oxera, 23 October 2020.
PFREP002a	Databook for Oxera Report on 19/20 data	Databook for Oxera Report on 19/20 data
PFREP003	Report on PFs Beta	'A Response to The CMA's Provisional Findings on Water and the Estimation of Beta', October 2020 Gregory, A., Harris, R., and Tharyan, R.
PFREP003a	Extension data for Report on PFs Beta	Extension data for Report on PFs Beta
PFREP003b	Fama-French and Carhart: Alternative models	Constructing and Testing Alternative Versions of the Fama–French and Carhart Models in the UK, Alan Gregory, Rajesh Tharyan and Angela Christidis, 2013
PFREP004	Aqua Letter 22.10.20	Letter from Aqua Consultants to Northumbrian Water Limited dated 22.10.20
PFREP005	S&P View on PFs	S&P Global Ratings, 'U.K. Water Utilities: Was Appealing Ofwat's Determination Worth it?', October 2020
PFREP006	Moody's View on PFs	Moody's, 'CMA appeals give higher returns', September 2020
PFREP007	Malik & Maldrum 2014	'Evaluating the robustness of UK term structure decompositions using linear regression methods', Malik, S., and Maldrum, A. Bank of England Working Paper No. 518, December 2014
PFREP008	Retail Margin Working Capital Analysis	Retail Margin Working Capital Analysis
PFREP009	CEPA Cost of Debt	'Alternative approaches to setting the cost of debt for PR19 and H7 for Ofwat and the Civil Aviation Authority', CEPA (2016)
PFREP010	River Lee Order 2020	The British Transport Commission Act 1949 The River Lee (Increase of Payments) Order 2020, 23 March 2020
PFREP011	DWI Information Letter 06/20	Information Letter 06/20 from DWI to all water companies, 11 September 2020
PFREP012	WaterUK Covid-19 Manual	WaterUK Covid-19 Incident Management Manual, April 2020
PFREP013	Cornwall Insight Forecast 22.10.20	Northumbrian Water Group Forecast of GB electricity costs: 2020-21 to 2024-25 (CI Code 20-4107), Cornwall Insight, 22.10.20
PFREP014	Appendix to Cornwall Insight Forecast 22.10.20	Appendix to Cornwall Insight Forecast 22.10.20

ANNEX 5: LIST OF TABLES

ANNEX 6: LIST OF FIGURES

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