

Anglian Water
PR19 CMA Redetermination
Statement of Case
Submitted 2 April 2020

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Chapter A: Executive Summary

1 Introduction

- (1) Anglian Water Services Limited ('**Anglian**' or the '**Company**') is a high-performing company. Anglian has ranked in the top three water and sewerage companies in the industry 13 times in the last 18 years in respect of the annual headline performance measures determined by Ofwat (Overall Performance Assessment or Service Incentive Mechanism). It has been the top performer in seven of the last 18 years. The Company's strong performance was also recently highlighted in Ofwat's Service Delivery Report 2018-19 which ranked Anglian in its top performance category across a range of metrics, including wholesale totex expenditure, customer service, meeting performance commitments ('**PCs**'), leakage, water quality contacts and internal sewer flooding.¹
- (2) The Company has reduced leakage by a third since privatisation and its leakage is half of the national average in terms of water lost per kilometre of pipe, making it the leading performer in the sector. Despite significant population growth in the region, Anglian puts less water into supply now than it did in 1999. Anglian has an excellent water quality performance record as outlined in the Drinking Water Inspectorate ('**DWI**') Chief Inspector's 2019 report. With significant improvement in its Compliance Risk Index score, which is now well below industry average and one of the lowest Event Risk Index scores, Anglian is also in the top 25% for industry performance for water quality contacts.²
- (3) Anglian is also widely recognised as a responsible business, having been awarded the accolade of 'Responsible Business of the Year' by Business in the Community in 2018. Other awards include the 'Queen's Award for Enterprise' in 2015, the UK's highest accolade to celebrate business success, in recognition of the significant contribution the Company has made in setting new national standards for sustainability, and for embedding sustainability throughout its operations;³ the 'Utility company of the Year' at the Utility Week Awards in 2018; 'Water company of the Year' at the Water Industry Awards in 2019; and 'Best Place to Work in the UK' by Glassdoor in 2019. Anglian's ambitious leakage and innovation strategies were also recognised at the International Water Association Awards in 2018.
- (4) The recommendations in 2008's Pitt Review,⁴ which set out actions focused on planning, resilience, mitigation and a clear need for accountability, followed the severe summer floods of 2007, seen at the time as the largest peacetime emergency since 1945. This prompted the Company to benchmark its work standards around risk management and business continuity. Anglian was the first utility company to have fully embraced the business continuity recommendations of the Pitt Review and to be certified by the International Organization for Standardization to the Business Continuity Management Systems standard, ISO 22301. This international standard recognises that the Company has the plans and systems in place to keep its business running and its customers can rely on the Company to be a resilient business.⁵ Prior to the transition to ISO 22301, Anglian was also an early adopter of British

¹ Ofwat's 2018-19 Service Delivery Report, page 5 (SOC265).

² Drinking Water 2019 Q2 Report (SOC266).

³ See <https://www.queensawardsmagazine.com/award/sustainable-development/>.

⁴ The Pitt Review was a comprehensive enquiry into the widespread floods of 2007, in which nearly 500,000 people were left without water, available at: https://webarchive.nationalarchives.gov.uk/20100702215619/http://archive.cabinetoffice.gov.uk/pittreview/thepittreview/final_report.html.

⁵ Other certifications held by Anglian include ISO 45001 (Health & Safety), ISO 9001 (Quality), ISO 14001 (Environmental), ISO 55001 (Asset Management), ISO 27001 (Information Security), BS18477 (Customer Vulnerability) and the first UK company to achieve PAS 2080 (Carbon Management). See Anglian's website available at: <https://www.anglianwater.co.uk/about-us/who-we-are/management-systems/>.

Standard BS 25999 certification for Business Continuity Management, and the first water company to adopt this standard.⁶

- (5) Anglian further confirmed its long-term commitment to being a responsible business in July 2019 when it became the first water company in England and Wales to enshrine public interest in its constitutional documents by amending its articles of association.⁷ Its stated purpose *'to conduct its business and operations for the benefit of members as a whole while delivering long-term value for its customers, the region and the communities it serves and seeking positive outcomes for the environment and society'*⁸ evidences Anglian's long-term commitment to delivering services to a high standard while taking into account wider socio-environmental objectives. Anglian expresses its purpose to its customers and stakeholders as *'creating social and environmental prosperity in the region [it serves] through a commitment to Love Every Drop'*.⁹
- (6) Since privatisation, Anglian's customer bills have increased overall by just 10%, the smallest increase of all companies, compared to an industry average of 46%. Moreover, bills have fallen by c.10% in the last five years, twice the national average.
- (7) Anglian's secure financial structure has been resilient to financial shocks and protected consumers: it has maintained its Baa1 rating for more than 15 years.
- (8) The price review for the five-year period commencing in April 2020 ('**PR19**') has taken place against a backdrop of mounting economic and societal concern about asset health, resilience, and climate change. More recently, in March 2020, the National Audit Office ('**NAO**') published a report into water supply and demand management which urged 'more concerted action now to prevent parts of southern England running out of water within 20 years'. The report concludes that *'rapid progress is now vital for Defra to deliver on its objective of a resilient water supply'*.¹⁰ Throughout the report, the NAO reinforces the need for a twin-track approach to managing demand and enhancing supply, which is exemplified in Anglian's Plan.
- (9) Similar concerns led to the introduction, in 2014, of a new primary statutory duty for Ofwat to secure long-term resilience for both water supply and water recycling services *'as regards environmental pressures, population growth and changes in consumer behaviour'*.¹¹ The resilience duty was reinforced in 2017 when the Government set a strategic priority for Ofwat to *'challenge the water sector to plan, invest and operate to meet the needs of current and future customers, in a way which offers best value for money over the long term'*.¹² A National Infrastructure Commission ('**NIC**') report in 2018¹³ noted that failing to invest in drought resilience is likely to almost double costs for consumers over the next 30 years (to £40 billion).
- (10) The east of England is the driest region in the UK, with a low-lying topography. It also has one of the fastest rates of housing and population growth. When combined with the impacts of climate change, this creates a significant increase in risk to the region's communities from both drought and flood. This

⁶ September 2018 Plan, page 9 (SOC001).

⁷ Anglian's Articles of Association (SOC267).

⁸ Anglian's Articles of Association, Purpose and Nature of the Company (A), page 3 (SOC267). Anglian's directors have a duty to act in the way they consider, in good faith, most likely to promote this purpose, having regard (among other things) to *'the likely consequences of any decision in the long term'* and *'the impact of the company's operations on the community and the environment'* (page 13).

⁹ See Anglian's website available at: <https://www.anglianwater.co.uk/about-us/our-purpose/>.

¹⁰ NAO Water Supply and Demand Management Report (SOC269).

¹¹ Section 22 of the Water Act 2014, available at <http://www.legislation.gov.uk/ukpga/2014/21/contents/enacted>.

¹² Defra's SPS (SOC257).

¹³ NIC Preparing for a Drier Future Report, page 4 (SOC270).

already water-scarce region therefore faces particular exposure to environmental and growth challenges both in the next five years and in the longer term.

- (11) In Autumn 2017, Anglian refreshed its 25-year Strategic Direction Statement ('**SDS**'), first developed in 2007,¹⁴ (Anglian is the only company in the sector continued to use the 25-year SDS to shape its five year business plan and to have refreshed it - after 10 years - as part of this price review). The update followed extensive consultation with customers and other stakeholders on their priorities. It identified four long-term ambitions for the region:
- (i) make the east of England resilient to the risks of drought and flooding;
 - (ii) enable sustainable economic and housing growth in the UK's fastest-growing region;
 - (iii) be a carbon-neutral business by 2050 (since accelerated to 2030); and
 - (iv) work with others to achieve significant improvement in ecological quality across the catchments in Anglian's region.
- (12) The business plan developed by Anglian for the five-year period commencing in April 2020 (AMP7) (the '**Plan**') was prepared with a view to delivering the next phase of Anglian's 25-year plan.
- (13) Anglian submitted an ambitious Plan, with stretching targets both for outputs and for cost reduction. The Plan was created in line with Anglian's understanding of Ofwat's approach, was tested for efficiency, and was co-created with customers through the Company's most detailed and extensive process of engagement yet. When offered the choice, customers overwhelmingly opted in favour of the Company being funded to invest now for better and more resilient services and improved environmental outcomes rather than seeing such investment postponed and bills fall.¹⁵
- (14) The Plan proposed a step change in investment and service level improvements relative to AMP6 (an increase of £1,429 million) while still delivering a real-term reduction in bills of 1.1%. The increase in funding requirement is driven by: (i) a significant enhancement programme to deliver an unprecedented level of environmental obligations; and (ii) growth projections (an increase of £310 million versus AMP6). The Plan provided for base operational expenditure and capital maintenance ('**Botex**') to remain broadly flat (an increase of just 1.9% relative to AMP6), notwithstanding the need to operate, maintain and, in some instances, replace a larger and deteriorating asset base to meet higher service standards.
- (15) The high quality of Anglian's customer engagement (which drew on the views of more than half a million customers and stakeholders), and the extent to which it was reflected in the Plan, was recognised by Ofwat through the sector-leading 'A' rating it awarded Anglian in its Initial Assessment of Plans ('**IAP**').¹⁶ Anglian's independent Customer Engagement Forum ('**CEF**') also recognised that the Company's customer engagement was strong and that the Plan faithfully reflected the preferences expressed by customers.¹⁷
- (16) The Plan, as proposed, exposes Anglian to significant downside risk, should it underperform, but balances this with upside opportunities, in line with sound regulatory principles.

¹⁴ Anglian's SDS (SOC016). The original SDS from 2007 highlighted climate change and population growth as the two biggest challenges facing the company. The updated SDS acknowledges those challenges remain but builds on them, and the responses that the company proposes.

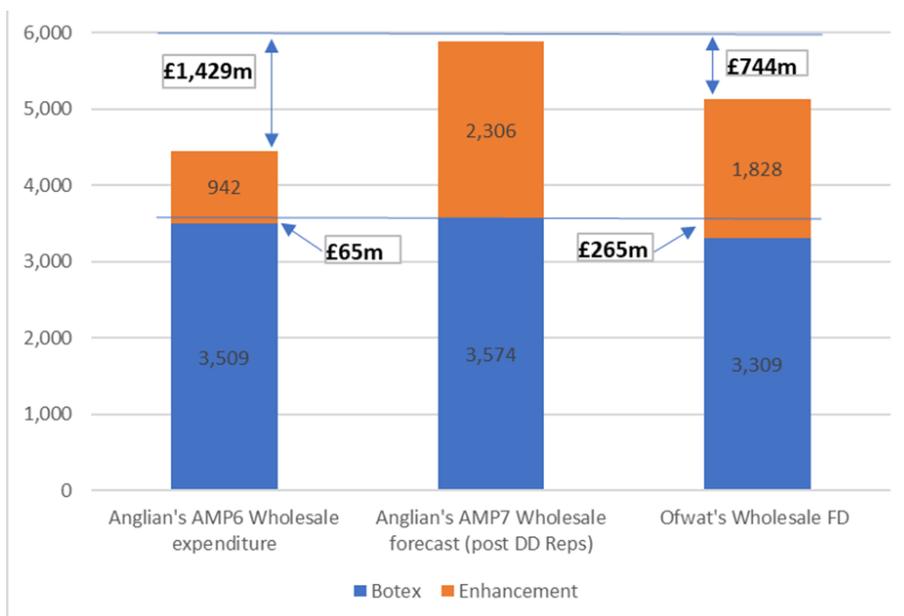
¹⁵ September 2018 Plan (SOC001).

¹⁶ IAP Summary of Test Area Assessment, page 4 (SOC271).

¹⁷ CEF Summary (September 2018) (SOC012). In particular, it was reported that '*The CEF was impressed to see that the company listened to customers carefully as it developed its priorities and plans for PR19 and beyond*' (page 2); '*the CEF was satisfied that Anglian Water can demonstrate strong customer support for its proposed bill increase of 1% over AMP7*' (page 4); '*customer evidence convinced the CEF that customers are clearly in favour of making the necessary investments now to guarantee the resilience of services over the longer term*' (page 4).

- (17) In contrast, Ofwat's Final Determination ('FD') for the Company at PR19 does not provide such balance. Instead, it;
- (i) significantly underfunds Anglian's base requirements (by £265 million), because of a narrow reliance on models that fail to recognise the higher costs the Company faces, including those driven by its high performance, new service obligations and higher capital maintenance needs;
 - (ii) does not adequately fund Anglian's Enhancement plan (a shortfall of £161 million), despite Enhancement expenditure being largely driven by statutory obligations;
 - (iii) ignores important categories of cost which are incurred in relation to new connections, uses an unrealistic growth forecast, and proposes a reconciliation mechanism that will not fully compensate Anglian if growth is higher than Ofwat assumes. In total, there is a major shortfall in funding for growth of £318 million; and
 - (iv) leaves Anglian exposed to significant contingent costs (£190 million) with respect to the Elsham scheme and metaldehyde programme by offering a reconciliation mechanism which has no practical effect.
- (18) Overall, the FD fails to deliver best value for customers compared to Anglian's Plan, a point customers recognised when presented with the option of Anglian's Plan versus Ofwat's Draft Determination ('DD') (which has not changed significantly at FD) and two-thirds preferred Anglian's Plan.
- (19) It is important to consider the FD in terms of operational expenditure ('opex') and capital expenditure ('capex'). While the FD provides an uplift (£678 million)¹⁸ in capex from AMP6, driven largely by Anglian's need to meet unprecedented environmental obligations, this still falls short of what is needed to address the scale of increase in those obligations. Further, the FD simultaneously delivers a lower opex allowance, £91 million less than in AMP6, despite the significantly wider scope of activities and improvements in service required in AMP7. The FD underfunds Anglian's total expenditure programme by £744 million. The comparisons of AMP6 vs AMP7 for all wholesale costs are illustrated by Figure 1 below.

Figure 1 Anglian's AMP7 wholesale plan compared to AMP6



Source: Anglian

¹⁸ This is still £161 million short of what Anglian has evidenced is needed.

- (20) Not every part of a regulatory package will be correct: any price control must be looked at in the round. However, in this case, almost every aspect of Ofwat's FD falls short of providing Anglian with the means to carry out the work necessary to meet the stated preferences of its customers and the requirements set by the quality regulators – the Environment Agency and the Drinking Water Inspectorate – in terms of water quality and environment.
- (21) The underfunding of Anglian's Plan is exacerbated by the 'at risk' elements of the package being strongly skewed towards penalties rather than rewards. The outcome delivery incentive ('ODI') package in the FD is incoherent as it is based on inconsistent company forecasts ignores Anglian's customers' views, and will penalise Anglian even if the Company delivers significant improvements in its performance. The cost-sharing mechanism provides Anglian with only a small proportion (c.35%) of any under-spend while exposing it to the majority of any over-spend (c.65%). This mechanism was imposed on Anglian because it did not, and does not, agree with Ofwat's cost assessment, for the reasons explained throughout this Statement of Case. In short, the ODI and cost-sharing packages do not encourage innovation and the efficient delivery of long-term service improvements.
- (22) Overall, therefore, Ofwat's FD exposes Anglian, the highest-performing company in the sector, to the near-certainty of making a return which is less than Ofwat's assessment of the weighted average cost of capital ('WACC'). Ofwat's assessment of WACC itself is significantly less than Anglian's cost of capital, and that shortfall in allowed returns is exacerbated by the risk imposed by the FD in the round. Rating agencies have already recognised this. Nine water companies have already been downgraded by at least one of the rating agencies.¹⁹ In addition, Northumbrian Water remains on review for possible downgrades. Where Ofwat identified financeability concerns, it advanced revenue into AMP7 from future price controls, achieved through increasing the pay as you go ('PAYG') rate above the natural level. Most companies, including Anglian, did not request such an advancement and Ofwat did not require evidence that their customers supported the resulting bill profiles. Further, the advancements do not help to improve financeability, as rating agencies reverse such '*speed of money*' adjustments in their analysis.
- (23) Ofwat has erred in its cost of debt allowance by ignoring Anglian's actual cost of embedded debt. Efficiently incurred debt has been ignored simply because it was issued more than 15 years ago. Further, the increased risk to the business ultimately translates into increased financing costs. While Ofwat's FD assumes that Anglian (and other companies) would be able to address the funding shortfall by raising equity and debt funding to make necessary investments, the reality is that such funding is only available at a higher cost than estimated by Ofwat as a result of the unprecedented low rate of return set in the FD.
- (24) Ofwat had an opportunity to set companies stretching targets to meet the need for a step change in resilience and performance, as Anglian's customers said they wanted, and to challenge poor performing companies to achieve higher standards while still allowing for some reduction in bills. Instead the FD prioritises large short-term bill reductions which force Anglian to cut back on asset maintenance activity, undertake short-term fixes, and delay service, resilience and environmental improvements. As a result, costs are deferred for future customers to bear, sub-optimal levels of investment means costs will be higher in the long run creating significant intergenerational inequity and poor value for money compared to Anglian's Plan and the overall resilience to cope with shocks is harmed. The near-certain failure of companies across the sector to meet underfunded performance commitments will undermine the reputation of the whole industry and the legitimacy of its regulators.
- (25) Finally, the FD penalises Anglian for its capital structure through the introduction of a mechanism to share the alleged '*outperformance*' arising from gearing above 65%. Ofwat assumes (without providing

¹⁹ Including Welsh Water, Severn Trent, Bristol Water, Wessex Water, SES Water, Anglian Water, United Utilities, Affinity Water and Thames Water.

evidence) that Anglian's structure poses an inherent risk to customers and taxpayers and ignores the countervailing benefits it provides to customers. In particular, Ofwat has ignored the benefits to customers from Anglian's Aligned Debt Programme (increased operational efficiencies, an enhanced ring-fence, credit enhancement etc.) which are particularly relevant during times of severe stress.

- (26) Instead, Ofwat has introduced a penalty to disincentivise such structures. Anglian's equity investors wish to invest in the business on a long-term basis. They have repeatedly demonstrated their commitment to the business (and to customers), including by reinvesting £165 million of outperformance in AMP6 and, in 2009, injecting £115 million of additional equity into the business in the face of a funding shortfall brought about by negative RPI. They are entitled to earn a reasonable return on their investment and exposure to risk in the future.
- (27) Considering the above, and notwithstanding its strong performance, Anglian is confronted with the need to request Ofwat to refer its FD to the Competition and Markets Authority ('**CMA**') for redetermination. This is the only course of action that will allow Anglian to protect the interests of its current and future customers, the resilience of its network and its ability to finance, including through the ability of its shareholders to earn a reasonable return on capital, and the proper performance of its functions. This Statement of Case is Anglian's initial submission in the process and is intended to provide the CMA with the information necessary to undertake its redetermination.

2 Ofwat's duties and priorities for PR19

2.1 Ofwat's duties

- (28) In conducting the price control, Ofwat is bound by five primary duties, including duties to further the consumer objective; to secure that companies are able (in particular, by securing reasonable returns on their capital) to finance the proper carrying out of their functions; and to secure long-term resilience.²⁰ Subordinate to those primary duties, Ofwat is also bound by five secondary duties; including the duty to promote economy and efficiency and the duty to contribute to the achievement of sustainable development.²¹
- (29) Ofwat is also bound by the duty to carry out its determination '*in accordance with*' the Government's SPS.²² The current SPS came into force in November 2017 and identified the following three priorities (with a series of underlying objectives):
- (i) Under the heading of '*Securing long-term resilience*', the Department for Environment, Food & Rural Affairs ('**Defra**') required Ofwat to challenge the water sector to plan, invest and operate to meet the needs of current and future customers, in a way which offers best value for money over the long-term.²³
 - (ii) Ofwat was also asked to challenge the water sector to go further to identify and meet the needs of customers who are struggling to afford their charges.²⁴
 - (iii) Ofwat was tasked with promoting markets to drive innovation and achieve efficiencies in a way that takes account of the need to further: (i) the long-term resilience of water and wastewater systems and services; and /or (ii) the protection of vulnerable customers.²⁵

²⁰ Sections 2(2A) and 2(3), Water Industry Act 1991 ('**WIA91**') available at: <http://www.legislation.gov.uk/ukpga/1991/56/contents>.

²¹ Section 2(3) WIA91.

²² Section 2A(2) WIA91.

²³ Defra's SPS, para.8 (SOC257).

²⁴ Defra's SPS, para.28 (SOC257).

²⁵ Section 2(4) WIA91 and SPS, para. 36 (SOC257).

- (30) Finally, Ofwat, and in turn the CMA, must also have regard to the principles of best regulatory practice, (including the principles under which regulatory activities shall be transparent, accountable, proportionate, consistent and targeted only at cases in which action is necessary).²⁶

2.2 Ofwat's priorities for PR19 are clear from its public statements

- (31) Prior to the publication of its Final Methodology, Ofwat's made clear its specific priorities for PR19 in several public statements, namely to reduce bills and cost of capital significantly and to disincentivise water companies from high gearing.

- (32) At the Ofwat City briefing²⁷ held on 12 July 2017, Jonson Cox, the Chairman of Ofwat made a statement which underlined Ofwat's commitment to a lower cost of capital as a key driver of price reductions for customers:

'Markets show the scope for the cost of capital to be set at a materially lower level. Add to that our expectation of a step change in efficiency, better use of markets and innovation. It all adds up to the headroom for a material reduction in prices to customers together with other customer priorities there may be around resilience and service.'

- (33) The Chairman of Ofwat also spoke at the 2017 Utility Week Congress²⁸ held on 12 October 2017 during which he announced (among other things) that:

- (i) water customers could be at the start of *'the decade of falling bills'*; and
- (ii) the upcoming price review was likely to set *'a new record for the lowest ever regulated cost of capital for water'* and that the returns for companies are likely to be even lower – so, to deliver returns for their shareholders, companies need to achieve even more for their customers.

- (34) Prior to the adoption of a mechanism to share gearing *'outperformance'*, Ofwat indicated that it was going to target highly geared and securitised companies. The Chairman of Ofwat, said in a public letter that Ofwat would adopt measures *'to lead to a progressive reduction of the highly leveraged balance sheets'* and that *'securitisation may well become redundant'*.²⁹

- (35) Absent from these statements is the recognition of the statutory drivers of investment. It was, therefore, apparent from an early stage in the PR19 process that Anglian's need to address the long-term interests of its customers and the environment (driven by statutory obligations such as those set by the Government in the Water Industry National Environment Programme (**'WINEP'**)³⁰ and the Water Resource Management Plan (**'WRMP'**)³¹ was likely to be incompatible with Ofwat's desire to target certain company structures and to deliver a *'material reduction in prices to customers'*.³²

- (36) At this stage in the industry's evolution, particularly given the need to fund growth and resilience in the Anglian region, *'material'* future reductions in bills can only be achieved by plans which demonstrate limited ambition, are driven by limited statutory requirements (arising from WINEP, WRMP and growth) and/or are built around short-term solutions such as reductions in capital maintenance which threaten

²⁶ Section 2(4) WIA91.

²⁷ Ofwat City Briefing Transcript (July 2017) (SOC272).

²⁸ 2017 Utility Week Congress held on 12 October 2017, please see Ofwat Utility Week Congress Press Alert (SOC273).

²⁹ Ofwat Letter to Defra (April 2018) (SOC274).

³⁰ The WINEP represents a set of actions that the Environment Agency have requested all 20 water companies operating in England to complete between 2020 and 2025 in order to meet their environmental obligations. Drivers for investment range from measures for protected areas, improvements to meet river basin management objectives and other local environmental priorities.

³¹ The WRMP sets a statutory obligation on all water companies to secure a long-term approach to balancing supply and demand in light of the social, economic and environmental challenges facing the industry, which has been developed following wide consultation with stakeholders and the public.

³² Ofwat City Briefing Transcript (July 2017) (SOC272).

asset health and create a 'snowball effect', merely postponing (and increasing the cost of) the needed investment for future price control periods as the 2018 National Infrastructure Commission ('NIC') report noted.³³

- (37) While Ofwat has conceded in a couple of instances the need for an increase in investment, for example, in relation to leakage, population growth and Enhancement where some additional funding has been allowed. However, it has not translated this into adequate funding in practice. This is because the higher costs required to achieve an improved level of service (as is the case for Anglian as the frontier performer on leakage, for example) are not fully recognised in Ofwat's approach.

2.3 The FD imposed upon Anglian is incompatible with Ofwat's duties

- (38) Marked changes in Ofwat's approach and methodology during the price review process suggest that an objective assessment of evidence might have been compromised to achieve Ofwat's priority of low bills. While Anglian appreciates that Ofwat has discretion (and needs) to adapt its approach to price controls as appropriate, some of the changes it has made during this process are neither well founded nor reasonable. Anglian does not consider this represents a proper balancing of Ofwat's regulatory duties, particularly regarding financeability and resilience.³⁴
- (39) Rather than applying '*equal weight*' to its primary duties in PR19, as it is required to do by well-established precedent³⁵ and acting in accordance with the Government's SPS for the sector, Ofwat's FD appears heavily weighted towards a narrow and short-term interpretation of the consumer duty in the form of low bills for this price control period.
- (40) This approach is at the expense of wider consumer and environmental interests both now and in the future, long-term operational resilience to growth and climate change, and the ability of companies to finance the proper performance of their functions, including by ensuring existing asset health through capital maintenance and meeting significant investment needs. Ofwat's failure to provide appropriate allowances (e.g. for growth expenditure) also compromises its secondary duty to contribute to the achievement of sustainable development.
- (41) Ofwat has also broadened its interpretation of the resilience duty to include the concept of '*financial resilience*' rather than retaining a focus on operational resilience against climate change and growth which the duty was intended to address. Ofwat has previously recognised that it was stretching its interpretation of the duty: '*We recognise the 'resilience duty' has specific legal meaning as set out above. But we also recognise that resilience thinking ... has a broader application in helping us understand risks to the systems and services that customers rely on.*'³⁶
- (42) Ofwat has claimed that this price review, PR19, '*will remind companies who is their boss: customers. If their plans are not based on customer participation and engagement – they will get what they deserve from Ofwat*'.³⁷ However, Ofwat has compromised its consumer duty by disregarding the preferences which the Company's customers have clearly expressed, not least through allowing insufficient totex for those preferences to be realised.

³³ NIC Preparing for a Drier Future Report (SOC270).

³⁴ For example, in relation to leakage, at IAP, Ofwat accepted that a cost adjustment claim was needed to address the additional costs Anglian will incur in meeting its challenging (continuing) frontier-level performance in leakage reduction. However, Ofwat made a mathematical error in its calculations which resulted in a significant understatement of the correct cost. Instead of the £55 million cost across AMP7, the correct figure, based on the same approach used by Ofwat, after correcting for the mathematical error, would have yielded a cost adjustment claim for leakage of £126 million, a difference of £71 million. At DD, rather than maintaining its approach while correcting for its error, Ofwat reversed course and rejected the claim in full.

³⁵ *Bristol (2015)*, paras. 3.3 and 3.4 (SOC275).

³⁶ Ofwat's Towards Resilience Report (SOC276).

³⁷ 2017 Utility Week Congress held on 12 October 2017, please see Ofwat Utility Week Congress Press Alert (SOC273).

- (43) Ofwat's approach is also incompatible with the Government's SPS as the focus on low bills prevents Anglian from delivering best value solutions in the long-term, taking into account wider environmental and social impacts and customers' stated priorities, in line with the supporting evidence that the Company has provided.
- (44) Finally, Ofwat's approach is in stark contrast to that adopted by the Water Industry Commission for Scotland ('**WICS**') which, in regulating Scottish Water as it faces similar (but in many ways less pressing) challenges to the water industry in England and Wales, has stated that '*It is not about minimising charges in the next regulatory control period and leaving future customers to pay higher prices. This would be inconsistent with the Commission's duty to future customers.*'³⁸
- (45) A more detailed assessment of Ofwat's duties and priorities is set out in **Chapter C: Ofwat's duties in PR19**.

3 Anglian's Plan responded to regulatory incentives for efficiency and high performance

- (46) The regulatory regime, in water as in other privatised sectors, aims to incentivise private companies to act in the public interest. Overall, investors must expect to be able to cover their costs, including a reasonable return to cover the cost of capital. Like businesses in any sector, this return is at risk if a company is poorly managed or takes bad decisions, but equally, higher than expected returns are available for the best performers.
- (47) Regulated companies should be exposed to risk over which they have control, to give them incentives to reduce costs and (increasingly since privatisation) to produce better outcomes, such as quality improvements or environmental benefits. Like any investment project, higher non-diversifiable risks require higher returns. As the obvious way to diversify when faced with a regulatory regime with rewards and penalties is to invest in several companies, an FD that results in expected returns across the sector that cover the cost of capital should provide a sufficient return (and one that does not, will not).
- (48) This basic structure established as '*RPI-X*' in the 1990s has been developed since, by regulators and ultimately the MMC/CC/CMA, but the basic principles remain: companies should be exposed to strong incentives on their controllable costs and activities, but their funding should adjust for uncontrollable factors, such as growth, statutory obligations and the circumstances of their regions. This principle operates across different elements of the price control:
- (i) it implies companies should be exposed to risk on controllable costs but uncontrollable costs such as rates should be passed through; and
 - (ii) the components of the price control should support this principle. For example, if the assessment of cost efficiency takes no account of additional costs of high-quality networks, companies do not face incentives to create such high-quality networks.
- (49) There are many different services a water company can provide; it should be incentivised to focus on those most valuable to customers. In a competitive market, customers signal what they value to companies through their willingness to pay and/or to switch suppliers. In a regulated sector, the regulator determines willingness to pay on their behalf, incentivising or disincentivising different elements in the way the price control is constructed.
- (50) Anglian considers that the mechanisms of the price control should provide for what *customers* want. Accordingly, Anglian developed and tested its plan in close collaboration with its customers, in the most extensive and robust customer engagement the Company has ever conducted, collating more than 500,000 customers' views through more than 30 different channels, for which Ofwat awarded Anglian

³⁸ WICS Strategic Review of Charges, page 4 (SOC277).

the only 'A' rating in the sector for customer engagement. Anglian not only tested willingness to pay in the abstract, it also sought and obtained informed customer views on the risk and reward that Anglian as a provider, should face and constructed its Plan accordingly. It also tested its Plan against Ofwat's DD (which has changed little at FD), with customers expressing strong preference for Anglian's Plan.³⁹

- (51) In summary, the Plan sets out:
- (i) proposals for a step change in investment (30% totex increase) to enhance its network, responding to the challenges of growth and climate change and improving ecological quality and increasing Botex by just 1.9%;
 - (ii) ambitious cost reduction targets so that Anglian could accommodate that increase, while still reducing customer bills by 1.1%; along with
 - (iii) a step change in the level of support offered to customers struggling to pay their bills, or otherwise vulnerable; and
 - (iv) stretching targets through the ODI mechanism, to achieve the outcomes that its customers want and are prepared to pay for.
- (52) The Plan therefore struck a balance between the many competing objectives the Company and Ofwat face, responding to the need for significant investment while nonetheless reducing customer bills overall and increasing support for vulnerable customers.
- (53) A more detailed assessment of how Anglian's Plan responded to regulatory incentives for efficiency and high performance is set out in **Chapter B.3: Anglian's Plan and how it was built**.

4 Ofwat's FD fails to recognise Anglian's efficient costs

- (54) The FD underfunds the programme Anglian needs to carry out, in all major areas. In addition, it perpetuates a confusion between cost increases that are the result of an increased scope of activities, and cost increases that are the result of inefficiency. Ofwat's underfunding stems from a narrow reliance on models that (a) do not capture the uncontrollable cost drivers that Anglian faces but also (b) ignore the costs of controllable decisions to provide high quality service to customers, thus providing perverse incentives to reduce maintenance activity and/or opt for quick-fix solutions that merely store up trouble for the future against the repeatedly expressed wishes of Anglian's customers.
- (55) As illustrated by Figure 1, the increase in expenditure in 2020-2025 compared to the current price control period is almost entirely driven by:
- (i) Enhancement expenditure – that is the costs of providing higher levels of service or meeting statutory requirements through extending the asset base or other means. The FD provides increased funding for Enhancement compared to AMP6 but falls well short of the funding required because of the significantly increased Government WINEP and WRMP obligations faced by Anglian during AMP7 and beyond. Overall, it delivers a significant funding shortfall (£161 million) relative to Anglian's planned Enhancement spend; and
 - (ii) growth expenditure – Anglian's region has historically seen an above average rate of growth. The expected growth rate over AMP7 is above even this level and the region has three of the ten fastest-growing cities, by housing growth, in the UK as classified by the Centre for Cities. These are Cambridge, Peterborough and Milton Keynes.⁴⁰ Despite this, Anglian's growth

³⁹ Accent Acceptability Research Report (SOC190).

⁴⁰ See **Chapter E.2: Growth**, Section 3.1.1.

allowance in AMP7 is even lower than in AMP6 and there is a shortfall of £318 million when compared to Anglian's Plan.

- (56) Anglian's Plan proposed only a modest increase in Botex of 1.9% compared to its expenditure in AMP6. This small uplift was driven by the cost of new service obligations and higher capital maintenance needs flowing from the need for asset replacement, or the increase in the quantum of assets being maintained as a result of changes such as the requirement to adopt private sewers and private pumping stations, with these cost increases partially offset by stretching efficiency improvements which Anglian has targeted.

4.1 Ofwat's FD underfunds Anglian's efficient base expenditure by £265 million

- (57) The Plan proposed a modest (1.9%) increase to Anglian's Botex allowance compared to its AMP6 expenditure. By contrast, the FD imposes a £265 million (7%) shortfall in Botex allowances against Anglian's Plan. This represents a £199 million (6%) decrease against Anglian's Botex spend in AMP6, despite the marked increase in the asset base and asset needs relative to AMP6.
- (58) This Botex shortfall arises from a narrow reliance on flawed models, which fail to capture legitimate differences in companies' costs, relating to service quality and the demographic, economic and topological characteristics of the region Anglian serves. By failing to recognise important cost drivers reflective of the Anglian region, Ofwat misinterprets these differences as '*inefficiency*'. Anglian's position as the sector-leading company on leakage left it particularly exposed to this error. Ofwat conceded at FD that its water models did not capture all drivers of costs, including that there *are* differential costs in maintaining current sector-leading leakage levels and used additional models for a number of alternative cost drivers (including leakage and pumping heads). However, it failed to apply the results robustly or to recognise similar differences in other service areas.
- (59) Another driver of the Botex shortfall is that Ofwat did not assess the drivers of costs of capital maintenance such as asset replacement needs, the amount of maintenance work done and new or transferred assets which were not part of base costs in AMP6. This shortcoming was identified in a report by Dr Harry Bush and John Earwaker which recommended that Ofwat should carry out forward-looking analysis of capital maintenance needs.⁴¹ Anglian submitted this report to Ofwat as part of the PR19 process, but Ofwat failed to take its recommendations on board. This omission penalises responsible companies that replace or refurbish assets when it is prudent to do so and rewards companies that underinvest in capital maintenance, landing future customers with the choice between dramatic bill rises or risks of asset failure. By imposing its cost benchmarks on the industry, Ofwat forces all companies to adopt this behaviour, to the detriment of future generations. This is despite the lessons learned from PR99 where the approach that Ofwat had taken to capital maintenance was considered by a parliamentary committee as '*intellectual neglect*'.⁴²
- (60) By contrast, WICS, the Scottish water regulator, together with other stakeholders in Scotland, such as consumer bodies, quality regulators, Government and communities, is positively engaging with Scottish Water to understand the scale of the asset replacement challenge in the future. In doing so, they recognise that, allowing an increase in expenditure today can ensure that Scottish Water is '*operating, refurbishing and replacing its assets in an economically optimal way*'.⁴³ In its 2020 final decision paper *Prospects for Prices* WICS acknowledged that a trade-off exists between customers' current bills and the interests of future customers who may inherit higher bills, higher levels of debt and a backlog in

⁴¹ Bush & Earwaker Capital Maintenance Report (May 2019) (SOC153).

⁴² Bush & Earwaker Capital Maintenance Report (August 2019), page 8 (SOC191).

⁴³ WICS Strategic Review of Charges, page 10 (SOC277).

asset replacement, a trade-off that Ofwat's determination does not recognise.⁴⁴ Overall, Ofwat has relied exclusively on a narrow range of 'top-down' modelling approaches. Ofwat failed to sense-check the results of its models with bottom-up evidence of each company's actual capital maintenance needs in AMP7.

- (61) Ofwat's addition of growth costs (which Ofwat has historically considered to form part of Enhancement expenditure) to Botex to form 'Botex Plus' at FD exacerbated the problem. It inappropriately aggregated new (predominantly capital) expenditure with models designed to assess existing networks which led to manifestly unreliable results. It also led to insufficient funding for growth and ultimately a misallocation of allowances between opex and capex, further aggravating the impact of reduced opex funding, on both the operations of the business, and on financeability.
- (62) The Botex allowance in the FD is insufficient for Anglian to properly perform its functions, including under the Water Industry Act 1991 ('**WIA91**'). The allowance is less than the Company needs to fulfil the mandate given to it by its customers: take action to minimise the deterioration of its assets, operate and maintain the assets it acquired in AMP6 and continue to deliver sector-leading performance.
- (63) The consequences of insufficient Botex are increased risks of service failures for customers and the environment during AMP7 and a lack of improvement in resilience. Costs to future customers will be higher as the build-up of maintenance backlog and increased resilience risk will need to be paid for (at a higher cost) by future customers.
- (64) The Botex funding gap is therefore incompatible with Ofwat's duties to ensure Anglian can finance the *proper* performance of its functions, promote its customers' interests and secure long-term resilience. The FD fails to challenge Anglian to '*plan, invest and operate to meet the needs of current and future customers, in a way which offers best value for money over the long term*' as Ofwat is required to do under the SPS – in fact it achieves precisely the reverse, as the case studies in the Statement of Case evidence.⁴⁵
- (65) A more detailed assessment of how Ofwat's FD underfunds Anglian's efficient base expenditure is set out in **Chapter E.1: Botex**.

4.2 Ofwat's FD underfunds Anglian's Enhancement programme, driven by statutory obligations, by £161 million

- (66) AMP7 sees large increases in Anglian's statutory requirements from WINEP and WRMP, because of climate change, growth and the need for environmental protection, which are particularly acute for the Anglian region.⁴⁶ This necessitates a step change in the level of Anglian's proposed Enhancement investment for AMP7 including a WRMP that is eight times larger, and a WINEP that has double the number of obligations compared to their equivalents for AMP6.⁴⁷
- (67) The FD delivers a significant funding shortfall for Enhancement investment (£161 million) relative to Anglian's planned Enhancement spend. Ofwat's justifications for this shortfall stem from a series of adjustments applied to Anglian's Enhancement proposals: (i) modelled efficiency; (ii) company-specific efficiency; (iii) investment needs; (iv) investment scope; and (v) a WINEP frontier shift adjustment.

⁴⁴ Similarly, in NIC Preparing for a Drier Future Report, page 4 (SOC270), the NIC set out the economic case for boosting supply resilience, comparing the £40 billion costs of relying on emergency options with the £21 billion cost of building resilience over the next 30 years.

⁴⁵ Defra's SPS, para.8 (SOC257).

⁴⁶ As an illustration, over the next five years, Anglian will move from a regional surplus of 150 MI/d to a deficit of 30 MI/d, with half of its Water Resource Zones in deficit. WRMP 19, page 5 (SOC279).

⁴⁷ Anglian's WINEP obligations have increased from over 1,200 obligations in AMP6 to 2,161 obligations in AMP7.

- (68) The company-specific adjustments are based mainly on Ofwat's conclusion that Anglian is inefficient on Botex, a claim that the Company strongly disputes for the reasons set out in Section 4.1 above, but which is in any case inappropriate for assessing the efficiency of Enhancement expenditure forecasts.
- (69) When considered individually, these components of Ofwat's assessment are flawed and methodologically incorrect. They ignore important cost drivers of Enhancement expenditure, attribute model error to inefficiency, apply a frontier shift efficiency challenge on a forward-looking benchmark resulting in a double count, and make inappropriate challenges on the need for and scope of investments.
- (70) Taken together, they undermine the very aims of the Enhancement proposals to ensure the region can remain resilient to the rapidly growing risks of drought and flooding that are the consequence of the climate emergency. Necessary investments to deliver long-term best value and environmentally sustainable solutions, that had been planned in consultation with Anglian's customers, will be replaced. Costs of meeting these needs are also deferred to future periods and future customers, forcing poorer whole life cost solutions in AMP7.
- (71) The approach to Enhancement in the FD is, therefore, inconsistent with Ofwat's primary duties to long-term resilience, customers (including the principle of intergenerational equity) and the environment, as well as the Government's SPS and the recommendations in the NAO's March 2020 report into water supply and demand management.⁴⁸
- (72) It is also at odds with the approach taken by WICS, with broad support from key stakeholders, which has concluded in its Prospects for Prices paper that significant investment is required for Scottish Water to meet its net zero target by 2040, replenish its asset base and meet its other obligations to customers (resulting in bill increases of between 1 and 2% p.a.)⁴⁹. The challenges facing Anglian's region are even more pressing.
- (73) A more detailed assessment of how Ofwat's FD underfunds Anglian's efficient Enhancement expenditure is set out in **Chapter E.3: Enhancement**.

4.3 Ofwat's FD makes insufficient allowance for the costs of growth, by £318 million, and does not adequately deal with the risks of its forecasts being wrong

- (74) Anglian's Plan included £660 million to meet housing and population growth requirements in its region and £60 million to reduce sewer flooding and low pressure incidence on its network (total £720 million). The FD allows just £402 million, leaving Anglian underfunded by £318 million for growth, reducing sewer flooding and low pressure due to:
- (i) Ofwat's use of Office for National Statistics ('ONS') trend-based projections, which are implausibly low relative to local authority forecasts and current outturn data;
 - (ii) Ofwat's approach to modelling growth costs, which for the sector as a whole, adds around £4.5 billion of growth (and other) expenditure into its unadjusted base costs models. Anglian considers these models unfit for assessing growth expenditure needs: the approach inadequately captures growth drivers and fails to recognise the non-linear, lumpy nature of certain growth-related costs (unlike base costs). The 'allowance' for growth is not directly visible but Anglian's calculations suggest that, looking across the sector, it provides anything from 52% to 164% of companies' business plan expenditure, which seems a wide and unjustified range; and

⁴⁸ NAO Water Supply and Demand Management Report (SOC269).

⁴⁹ WICS Strategic Review of Charges, page 33, (SOC277).

(iii) Ofwat's use of a 'true-up' mechanism to compensate companies in AMP8 if actual growth exceeds Ofwat's AMP7 projections which: (i) only partially captures actual growth costs (and notably excludes lumpy investments such as treatment works, where the Company will carry the risk); and (ii) applies an unrealistic 15% efficiency adjustment.

(75) The combined impact is to leave Anglian significantly underfunded (£318 million) for growth notwithstanding the fact that, in common with all water companies, it has a statutory duty (under the WIA91) to allow new connections to its water network. Anglian must also ensure that it can cope with the additional demands on service from a growing population that is not only expressed through new households, but also through greater demand from people living in existing households. The FD inappropriately places most of the risk associated with accommodating growth on Anglian. This has significant negative consequences for customers of all types, for the environment and for economic and housing growth in Anglian's region and beyond.

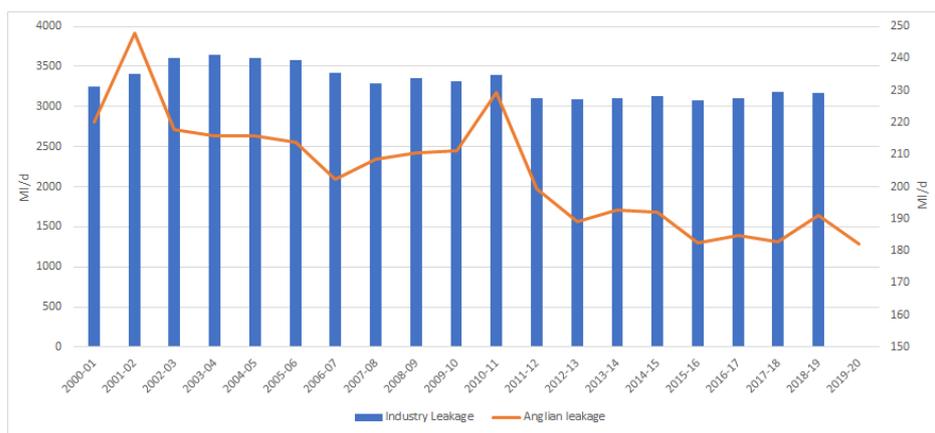
(76) Ofwat's unsatisfactory approach to growth therefore compromises Anglian's ability to meet its statutory obligations and is inconsistent with Ofwat's duties to secure long-term resilience, further the consumer objective, secure that water companies can finance the proper carrying out of their statutory functions, and contribute to the achievement of sustainable development. It is also inconsistent with the Government's SPS to ensure that delivery keeps pace with housebuilding and supports development across the country. While many regions are adversely affected, Anglian is one of the most disadvantaged, given the region's growth requirements.

(77) A more detailed assessment of how Ofwat's FD underfunds Anglian's growth needs is set out in **Chapter E.2: Growth**.

4.4 The funding shortfall across the different components of the FD is clearly exemplified by leakage

(78) Through its rigorous historical focus on finding and fixing leaks, Anglian has reduced leakage by a third since privatisation. It is now at record low levels, as illustrated by Figure 2. In 2017-2018 its leakage was around half the industry's average in terms of l/km/day of water main and around 70% of the industry average when measured as leakage/property/day.⁵⁰

Figure 2 Leakage performance 2000-2001 to 2019-2020



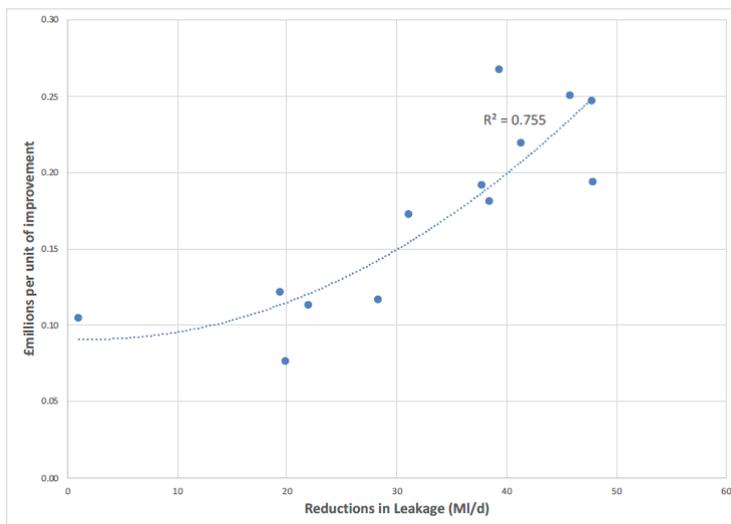
Source: Anglian

(79) Despite significant growth in the region, Anglian puts less water into supply than it did in 1999. Anglian is the frontier performer for reducing leakage, and has shared the benefits of its investments and innovations with the sector as whole.

⁵⁰ DD Leakage CAC, page 2 (SOC173).

- (80) Anglian's approach to leakage is rooted in customers' preferences. The majority of customers prefer options that make best use of existing resource and infrastructure, as opposed to options that involve developing new resources. This highlights a clear preference for demand management, particularly leakage reduction. Customers understand that Anglian's leakage performance is industry-leading and that further leakage reductions require significant investments which will be subsequently reflected in customers' bills. Customers would like Anglian to continue pushing the frontier on leakage, which remains a key priority for them⁵¹ and support Anglian receiving rewards for doing so.⁵²
- (81) During PR14, Anglian's owners made the commitment that funding improvements in the level of leakage in AMP6 would be done at the risk of shareholders rather than through customers' bills.⁵³ These costs associated with driving down leakage would only be recovered through customer bills and through the ODI framework on the condition that the leakage PC level was achieved. No other measures for any other company operated on such a basis.⁵⁴
- (82) Anglian's Plan seeks to continue pushing the frontier on leakage in AMP7. However, as industry leader, the costs associated with maintaining current performance **are significantly higher than industry average**. In fact, to maintain leakage at the current industry-leading level requires £137 million, while reducing leakage from Anglian's current level by a further 30MI/d requires an additional £77 million (£214 million in total). Figure 3 below illustrates how marginal cost of leakage increases as leakage performance improves.⁵⁵

Figure 3 Marginal costs of leakage reduction



Source: ICS Report on Ofwat's Overall Stretch Appendix, Figure 3, page 12 (SOC280)

- (83) However, Anglian is unable to deliver on the plans its customers have consistently supported as Ofwat has: (i) allowed a level of base costs that is far below what is required to maintain Anglian's current frontier performance; (ii) compounded the problem by allowing insufficient Enhancement costs to shift the leakage frontier further during AMP7 in line with Anglian's performance commitment level ('PCL'), a task already made impossible by the insufficient level of base costs to maintain current performance; (iii) set an ODI framework that means the Company will face large penalties, even if it is continuing to push the frontier forward, and delivering an absolute level of performance at which all other companies

⁵¹ WRMP 19, page 48 (SOC279).

⁵² See **Chapter B.2: How customers have shaped the Plan** and **Chapter G: ODIs**.

⁵³ PR14 FD Company Specific Appendix for Anglian, page 15 (SOC282).

⁵⁴ PR19 Final Methodology Appendix 2, page 95 (SOC411).

⁵⁵ Other PCs (e.g. interruptions to supply, internal sewer flooding and pollution incidents) are also subject to increasing marginal costs.

would receive rewards; and thus (iv) has created a position which is contrary to the policy aims set out in Ofwat's methodology and the views of Anglian customers.

- (84) By these measures, the FD removes the incentive for enhanced rewards for driving the frontier forward and sharing best practice with the rest of the industry.
- (85) The material shortfall in expenditure for maintaining AMP6 levels of leakage means that Anglian cannot maintain its current performance. This harm is amplified by the shortfall in Ofwat's Enhancement allowance. The net position is a significant reduction in total funding only made worse by the fact that Anglian will incur penalties, even if it continues to push the leakage performance in AMP7 resulting in an expected penalty even if the leakage frontier forward.
- (86) Ofwat's FD compromises Anglian's ability to meet its statutory obligations. It will also have a negative impact on the environment as the reduction in leakage allowance increases Anglian's reliance on other measures to ensure supply meets demand in its region. Coupled with the additional pressures on supply and demand management in the FD (e.g. smart metering and WRMP challenges), Anglian will require more abstraction from the environment than would otherwise be necessary to guarantee supply/demand balance. Ofwat's approach on leakage also **impacts the deliverability of Anglian's customers' preference** for the Company to maintain its leading position on leakage, and therefore diminishes customer satisfaction with Anglian's overall service if the business is no longer perceived to be leading on leakage.⁵⁶ Customers are also concerned that if Anglian is perceived to not 'be doing its bit' to manage demand through reducing leakage, other customers will be less inclined to reduce their own consumption, which will cause further environmental harm.⁵⁷
- (87) A more detailed assessment of leakage is set out in **Chapter H: Leakage**.

4.5 Ofwat has applied an unrealistic frontier shift to wholesale costs

- (88) As noted above, the FD sets an unrealistic future productivity assumption of 1.1% p.a. (applying a poorly justified 0.1% '*special component*' to the '*standard component*' of 1% to reflect assumed greater productivity gains from the PR19 totex and outcomes regime).
- (89) In a late change at FD, Ofwat conceded that its previous productivity assumption at DD of 1.5% was not appropriate and reduced this to 1.1%. However, Ofwat simultaneously extended this to all unmodelled base costs and certain categories of Enhancement costs. As companies had already applied a productivity assumption to these future looking costs, this resulted in a double count. In Anglian's case, it resulted in a productivity growth assumption of 2.1% p.a. for these cost items, with no evidence that this is realistic. Ofwat applied this challenge to cost items outside of management control, such as business rates. This increased future productivity adjustments for Anglian by £39 million.
- (90) Finally, the FD fails to recognise the risks to Anglian from Real Price Effects ('**RPEs**') which results in further underfunding. The flawed framework used to derive RPE forecasts reaches conclusions which are at odds with the well-established methodology which regulators have used over the last decade. In addition, by including an end-of-period true-up for wages, Ofwat has transferred the risk of labour input price changes to customers. However, by not including a similar true-up for other inputs, Ofwat has left risks with companies. Anglian considers that the determination should appropriately account for RPEs on all input costs.

⁵⁶ NAO Water Supply and Demand Management Report, page 34 et seq. (SOC269).

⁵⁷ In the PR14 Willingness to Pay survey, leaks were the second most frequently reported service incident (in the past 5 years) for both household and business respondents. Qualitative research suggests leakage is an 'emblematic issue' for water companies (a sign that the Company is not 'doing their bit'). Customers also regard leaks as wasteful of a precious natural resource. Across evidence streams, some customers also worry that if the Company doesn't mend leaks this may be a disincentive to customers to save water. Customer Research and Engagement (August 2018), 'supply meets demand' Section, page 186 (SOC033).

- (91) A more detailed assessment of Ofwat's approach to frontier shift and the corresponding funding shortfall it creates is set out in **Chapter E.4: Frontier shift**.

4.6 Ofwat's approach is based upon an unrealistic view of the business: denying the existence of a cost / quality trade-off

- (92) Overall, Ofwat's approach to cost allowances and ODIs, as discussed below, exemplifies a position that it has maintained in the teeth of evidence: that there is no trade-off between cost reduction and quality. Ofwat argues that companies can perform well on both, but it has not provided sufficient evidence to demonstrate that this is the case. By adopting this position Ofwat unreasonably benchmarks the quality of high-performing networks against the costs of low-quality networks, and then disallows the additional cost of the former as 'inefficiency'.
- (93) There *is* a trade-off between cost and quality, at the margin. Anglian is a high-performing company and is therefore exposed to this trade-off particularly on leakage, given it is the sector leader in that area. Anglian has had to devote increased resources, both in terms of people and equipment (which carry an increased cost), to leakage in order to achieve the frontier position it enjoys. Similarly, Anglian's plans to further reduce leakage and improve the resilience of the network are not without cost. The Company has provided ample evidence of this to Ofwat.
- (94) However, the point is obvious to anyone looking beyond the narrow range of models on which Ofwat relied that ignore this factor. As a general principle, higher quality – like any valued output – is not free, because companies will increase output to the point at which the marginal cost of increased quality makes further increases uneconomic. The regulatory system contains incentives for leakage reduction and other measures of quality, so, if improvement were costless, it is hard to see why companies would not simply improve them without limit.
- (95) Anglian's position is supported by evidence from sectors across the economy: it costs more to create and maintain a high-performing network than a mediocre one. Moreover, it costs more to push the frontier of what is possible (as Anglian is seeking to do in relation to leakage) than merely to catch up with an industry leader, due to increasing marginal costs. Frontier shift also benefits customers across the country, as it shows what can be achieved and provides a path for others to follow. By not taking into account the cost implications of increased quality, Ofwat's approach not only fails to allow high-performing companies enough funding to properly finance their functions, it also leads to a long-run incentive for mediocre performance.
- (96) A more detailed assessment of Ofwat's cost service disconnect is set out in **Chapter F: Cost service disconnect**.

4.7 Ofwat's unrealistic modelling has led to incentives for inefficient behaviour

- (97) As outlined above, Ofwat's approach to modelling wholesale costs, resulting in a significant shortfall for Anglian, means that Anglian is incentivised to cut back on preventative asset maintenance activity, so reducing lifetime asset value, and to find short-term quick-fix solutions. Anglian is also incentivised to replace elements of its Enhancement plan with short-term solutions which are lower value for money in the long run.
- (98) Incentives are further distorted by Ofwat's approach to allocating totex allowances between opex and capex. Ofwat has used the proportion of opex and capex according to the split in Anglian's Plan. However, the Plan was prepared on the assumption that growth costs (which are largely capital in nature) would be treated as Enhancement expenditure. Ofwat has reduced the totex allowance at FD and a significant amount of the reduction relates to growth expenditure. When calculating the opex/capex split of the 'totex gap', Ofwat failed to account of the predominantly capital nature of growth expenditure (i.e. it disallowed a larger proportion of capex relative to opex). As a result, in Anglian's

case, Ofwat has incorrectly characterised over £150 million (>£30 million/year) of opex as capex, resulting in an additional £157 million opex shortfall in AMP7. The totex framework was intended to remove perverse incentives to favour capital investment over operating solutions. However, Ofwat has imposed a much tougher adjustment for opex than that for capex and so re-introduces a capex bias. This significant opex reduction leads to lower bills in the short term, because capex costs are recovered over time. To the extent this approach distorts investment decisions away from the least-cost whole life solutions, it will increase overall costs to customers.

- (99) A more detailed assessment of how Ofwat's unrealistic modelling creates incentives for inefficient behaviour is set out in **Chapter B.3: Anglian's Plan and how it was built**.

5 Risk and reward mechanisms in Ofwat's FD are skewed towards penalties, further reducing likely returns below the level needed

- (100) The regulatory system for water contains several elements that result in allowed revenue varying within the AMP: the ODI framework to incentivise improvements, the cost-sharing mechanism, and licence mechanisms that allow for certain unexpected and uncontrollable cost developments to be reimbursed in an interim determination. In Ofwat's FD, the first two of these are skewed heavily towards penalties, even though regulatory principles would suggest, in each case, that they should be reasonably balanced between penalty and reward. The last item gives rise to a more specific concern as Ofwat has not put forward a valid reimbursement mechanism for key contingent costs and so exposes Anglian to major unfunded expenditure.

5.1 Ofwat's ODI framework is based on unrealistic inputs, exacerbates the problem of underfunding and will lead to missed targets, not performance improvement

- (101) ODIs comprise underperformance penalties if companies do not deliver their performance commitments for their customers and, in the case of some PCs, outperformance payments for going beyond the stretching PC level and delivering additional value for customers.
- (102) Anglian's proposed ODIs were developed as a coherent overall package, with stretching targets but a reasonable balance of risk and reward. The package, considered of high quality by Ofwat, was underpinned by customers' interests and preferences, as evidenced by extensive customer research, and challenged by the independent Customer Engagement Forum. This process led to several changes to ensure that the package effectively reflects what customers want.
- (103) Instead, Ofwat, in the FD, set aside much of the evidence on customer preferences that the Company had gathered and failed to recognise the interrelationship between the efficient level of costs that a company reasonably incurs and the level of service it provides to customers, the environmental outcomes it delivers and the requirements of quality regulators that it must meet. This creates a cost service disconnect, because Ofwat fails to recognise that, for many PCs, better performance comes at a higher cost.
- (104) In a change from previous approaches, Ofwat calibrated its ODI framework on forecasts of performance proposed by companies rather than actual performance achieved. These forecasts have not been created in a consistent manner. Some are clearly unrealistic, when compared to recent performance. Combined with Ofwat's decision not to reflect customers' priorities, the effect is an incoherent framework that does not provide clear incentives for improved quality.
- (105) High penalties relative to low rewards and unattainable targets translate into a pronounced downside skew (as illustrated by the leakage example set out in Section 4.4 above), where companies are likely to trigger penalties even if improving performance levels. In several cases, companies may prefer simply

to accept a penalty than to strive to meet an unrealistic target. This creates perverse incentives and takes away funding which could be spent in ways which customers value.⁵⁸

- (106) Taken in the round, the ODI package for Anglian is particularly punitive compared to other companies, even though Anglian is one of the best performers (or rather, given Ofwat's methodology of ignoring the cost of quality, *because* it is one of the best performers). Moreover, it fails to promote the interests of customers, compromises the quality of Anglian's service offering, and fails to ensure that Anglian is financed to ensure the proper performance of its functions. It also compromises resilience to long-term challenges. See for example the case study on water supply interruptions below.
- (107) The package is not well designed: for certain PCs, it implies that Anglian has no incentive to meet the target, as the rewards and penalties do not reflect the marginal costs of improvement. Therefore, it also fails to meet the principles of regulatory best practice.

Water supply interruptions

The water supply interruptions PC measures the impact of all supply interruptions over three hours as the average length of time that each customer is without water from such events.

Long supply interruptions remain an important concern for customers, but customers appear less concerned about brief interruptions such as those targeted by Ofwat. Compared to PR14, the customer valuation for this service has reduced by over 50% and customers appear less willing to pay for further improvements. During the PR19 main stage societal valuation study, the majority of customers wanted to '*maintain*' current service for interruptions that last 6 to 12 hours, with low levels of support (19%) for improvements to the level of unplanned interruptions.

During 2010-2015, Anglian's average performance was around 20 minutes. At PR14, Anglian set a PC level of 12 minutes per year, with penalties applicable from year three if it failed to meet the PCL and the opportunity to earn rewards for performance between 12 and 10 minutes.

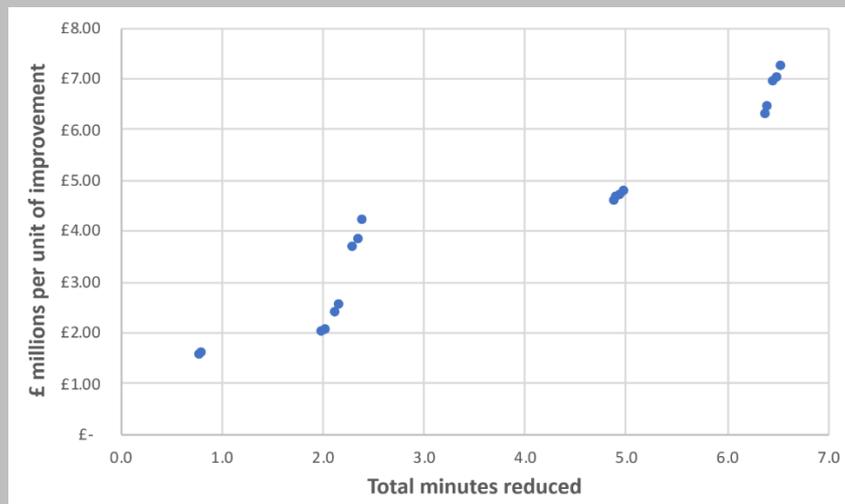
Ofwat's view at PR14 was that improvements could be achieved within current base spending by using existing resources more smartly. Anglian made a huge number of changes to practices and procedures that could improve performance with existing resources. Despite these initiatives, the required improvements in interruptions to supply could only be achieved with an additional investment of £17.9 million. This was used to:

- (i) buy new equipment – including 14 tankers and four additional tractor units ranging from 9,000 to 29,000 litre capacity; 16 line stop kits and trailers (to allow overlanding of pipes to keep supplies on); 33 bowzers. 16 pumped bowser sets, remote pump re-sets, network pressure monitors and generators, and 27 new vans, fully kitted out, and;
- (ii) employ additional people – a dedicated team of 35 Full Time Equivalents focused on supply restoration.

⁵⁸ See **Chapter G: ODIs**.

As illustrated by Figure 4 below, marginal costs of improving interruptions to supply are upwards sloping.

Figure 4 Marginal costs of improving interruptions to supply performance



Source: ICS Report on Ofwat's Overall Stretch Appendix, Figure 3, page 13 (SOC280)

Increasing marginal improvements in supply interruptions cannot be achieved without corresponding increases in costs.

Ofwat's unrealistic proposals in this area are exacerbated by its reliance on optimistic and inconsistent company forecasts of future upper quartile performance, which has led to unrealistic targets compared with PR14 (in which Ofwat used real, historical data to assess upper quartile performance levels).

Although Ofwat adjusted the 2024-2025 target to five minutes, with an amended glidepath in the first four years, this target remains unattainable with the level of funding allowed and is not reflective of customers' stated preferences.

As Anglian is unable to meet the PCL with the funding allowed, the Company is effectively incentivised to target a penalty during AMP7 (estimated to be around £9.4 million), which is lower than the cost that would be required to avoid it by targeting the PCL.

(108) A more detailed assessment of Ofwat's ODIs framework is set out in **Chapter G: ODIs**.

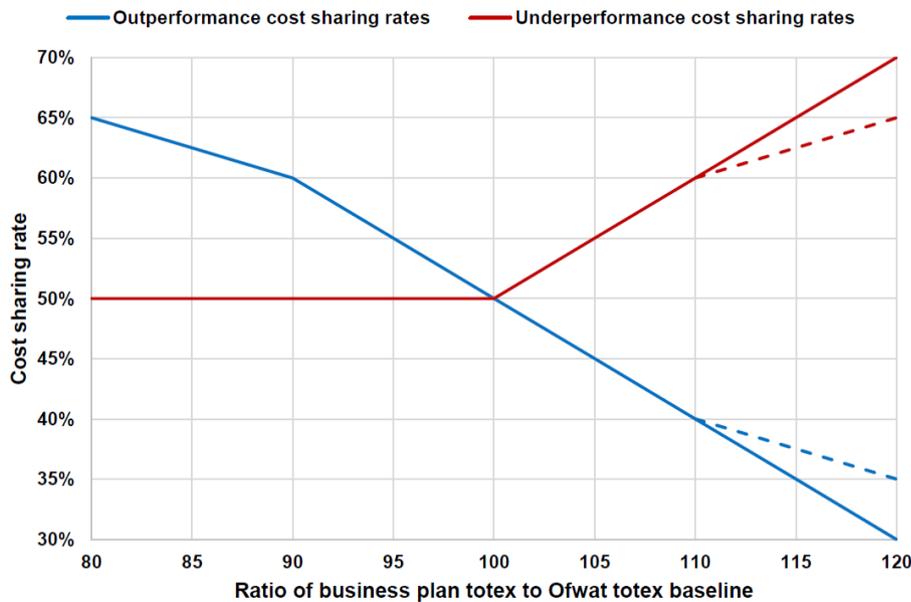
5.2 The cost-sharing mechanism is skewed against Anglian, for no good regulatory reason

(109) The price control contains a mechanism for sharing underspend or overspend between companies and their customers, in accordance with pre-determined cost-sharing rates.

(110) Incentive-based regulation shares the benefits and costs of overperformance or underperformance, respectively, between regulated businesses and their customers. In the original conception of RPI-X, this was achieved by adjusting prices only periodically, exposing a company fully but temporarily to the gains and losses. Like other regulated sectors, the water sector now shares those gains and losses more directly, through a sharing percentage that affects regulated revenues and thus customer bills. A larger proportion of cost variations falling upon the Company increases both incentives and risk.

(111) Ofwat has decided to set cost-sharing rates according to the ratio of each company's business plan totex to Ofwat's view of efficient totex (i.e. the '*totex ratio*'), as illustrated by Figure 5. Each company's view of totex is the average of its September 2018 business plan totex and the revised view submitted in August 2019. Ofwat's view of totex is as at FD. The dotted lines show where the sharing rates schedule was different at DD.

Figure 5 Ofwat's cost-sharing rates



Source: Securing Cost Efficiency Technical Appendix, Figure 4, page 131 (SOC243)

- (112) The cost-sharing schedule is not applicable to companies which were fast-tracked, which have a flat 50% cost-sharing rate for both outperformance and underperformance.
- (113) Ofwat's approach is in contrast to the position in PR14 where cost-sharing rates were constrained within a 44% to 54% range. In PR14, the CMA considered that 'a rate of 50% would already be substantially higher – and imply stronger financial incentives for efficiency and cost control'.⁵⁹
- (114) For Anglian, the FD imposes cost-sharing rates for total revenue controls⁶⁰ that are heavily skewed towards penalties (i.e. to the right in Figure 5). Anglian would receive no more than 35% of the benefits of any outperformance but would pay at least 65% of the costs of any underperformance, against Ofwat's allowances. If, therefore, the outturn position proves to be closer to that proposed in its Plan, compared to the FD, Anglian would be heavily penalised.
- (115) Anglian has two broad concerns with this framework. The first is that it presumes that the regulator is correct in its assessment. Anglian is not incentivised to do what its customers want, nor to focus on those areas where it believes it can achieve the best performance, nor more generally to be creative in finding the frontier-pushing solutions that the Company has achieved in the past. Instead, it is incentivised simply to implement Ofwat's FD in whatever way it can but not to improve upon it - even if to do so it must seek quick fixes, comply minimally with its legal obligations and defer requisite expenditure for future customers to pay. While, historically, the UK's regulatory system has allowed companies to find their own innovative solutions (something which Anglian has been particularly effective in doing), this ability is substantially eroded in Ofwat's FD.

⁵⁹ Bristol (2015), footnote 100 (SOC275).

⁶⁰ That is, water and wastewater network plus controls and in the water resources controls.

- (116) The second concern is that the scheme penalises companies which put forward evidence-based plans, as Anglian did, that Ofwat does not support.⁶¹ Anglian believes that its engagement is appropriate and in the best interest of its customers. Anglian has sought to provide evidence in support of that and to engage with Ofwat to explain it. It has also moved and compromised as a result of that engagement, but has consistently sought to propose the Plan that the customer feedback and technical evidence tells it is the right one. Anglian is now putting that same evidence forward to the CMA. The Company believes that this engagement with Ofwat and with the CMA is the right way to act and is in the interests of consumers. Anglian is concerned that it would be disadvantaged for having maintained a principled disagreement through the process and eventually bringing its case to the CMA as allowed for in the legislation.
- (117) However, Ofwat's approach to cost-sharing does penalise companies that take their case through to the CMA. Anglian believes this is wrong in principle and requests that the CMA consider whether as a matter of policy it wishes to endorse it. At a minimum, however, if the CMA concludes that significant parts of Ofwat's FD need to be over-turned, then it would be perverse to maintain cost-sharing penalties imposed on Anglian because it correctly challenged that FD.
- (118) A more detailed assessment of the shortcomings in Ofwat's approach to cost-sharing is set out in **Chapter D: Risk and return**.

5.3 Ofwat has failed to protect Anglian against uncontrollable risks

- (119) In its FD, Ofwat recognised that Anglian could be exposed to additional costs during AMP7 that would be beyond management control, relating to Elsham treatment works and transfer scheme and the metaldehyde programme. In both cases, there is a strong possibility that Anglian will incur expenditure for reasons entirely outside its control without the ability to recover that expenditure. Such liability is wrong as a matter of regulatory principle: it exposes the Company to unnecessary, uncontrollable and purely downside risk.
- (120) Anglian accepted Ofwat's proposal for the Elsham scheme to be carried out using a direct procurement process. The c.£122 million expenditure for this project was, therefore, removed from Anglian's requested allowance. However, if the in-house solution proves better value for money than any bidder proposal, or if there is no appetite in the market to bid for the Elsham scheme, Anglian will have to construct and pay for the scheme itself. It will have no cost allowance to do so, nor - as explained below - any mechanism for future recovery. In effect, the £122 million would be treated as an '*overspend*' as if it were simply inefficiency, on which the cost-sharing rules would allow Anglian to recover around 32%.⁶²
- (121) Similarly, Anglian agreed to remove £68 million from its Plan that had been earmarked to deal with metaldehyde pesticide, as a result of the Government announcing a ban on the chemical's use from Spring 2020. However, that ban was subsequently over-turned on judicial review, so as of now this expenditure is necessary. The Government has since stated that it intends to re-introduce the ban, but, in the event that this is delayed or the decision reversed, Anglian faces significant expenditure with, again, no allowance or possibility of recovery.
- (122) In brief, Ofwat proposes that the mechanism for recovery of these currently unfunded costs (if incurred) should be by means of an interim determination of K (or '**IdoK**'). However, Anglian's Licence specifies

⁶¹ A clear example is Ofwat's approach to changes in scope. At previous price reviews, such changes were removed from both the company's and Ofwat's view of costs as 'two-sided adjustments'. However, at FD, Ofwat confirmed that scope adjustments would only be subtracted from Ofwat's view of efficient totex (but not from companies' estimates). This further increased the difference between Anglian's cost estimates and Ofwat's, thereby pushing Anglian into even more disadvantageous cost-sharing rates. While Ofwat argued that '*the scope of companies' proposals is part of [its] efficiency assessment of companies' business plans. For companies to remain incentivised to submit efficient scope of work, it is appropriate that it should affect their cost sharing rates*' Securing Cost Efficiency Technical Appendix, page 137 (SOC243). Ofwat's approach effectively penalised ambitious plans.

⁶² Anglian's FD, page 47 (SOC231).

that an IdoK is unavailable unless the value of the claim for additional funding is at least equal to 10% of turnover. Based on Anglian's current turnover, there is no realistic prospect of deploying the IdoK mechanism to recover the costs of either the Elsham treatment and transfer scheme or the metaldehyde programme. Therefore, if these risks materialise, Ofwat will have breached its duty to ensure Anglian is able to finance the proper performance of its functions.

- (123) The obvious way to deal with both of these issues is through a workable reimbursement mechanism. This would be straightforward, as, in each case, there will be an external, verifiable cause determining whether the expenditure should take place.
- (124) A more detailed assessment of the IdoK mechanism, including notified items is set out in **Chapter E.3: Enhancement**.

5.4 Impact on Anglian, its customers and their environment

- (125) As a result of the funding shortfall in the FD, Anglian is having to make a series of sub-optimal choices for its business, assets, customers and the environment. These include forcing Anglian to reduce asset maintenance activity (because of the constrained level of opex) thereby increasing the risk of early asset replacement and reducing the lifetime value of assets for customers (contrary to the 'best value' for customers approach which is promoted in Defra's SPS). This affects for example, pump maintenance, water pipe rehabilitation and sewer maintenance, with reduced pre-emptive activities resulting in increased risk of asset failure, with impacts on customers and the environment (See **Chapter E.1: Botex**). The funding shortfall also has implications for Anglian's compliance with performance standards enforced by the Drinking Water Inspectorate and the Environment Agency ('EA'). For example, reduced capital maintenance investment results in an increased frequency in coliform⁶³ and turbidity⁶⁴ failures at Water Treatment Works relative to Anglian's planned levels of expenditure, with both short- and long-term impacts for customers. These include the risk of supply interruptions, public health risk, illness and inconvenience, as well as higher costs in a future period to restore performance to acceptable levels.
- (126) The FD also significantly undermines Anglian's ability to manage effectively its supply/demand balance in accordance with its WRMP. As explained in this Statement of Case, the WRMP is a statutory plan that has been approved by the Secretary of State, which outlines how Anglian will maintain secure supplies in its region, addressing the combined challenges of population growth, climate change, increased likelihood of future droughts and the needs of the environment.
- (127) Anglian's strategy for delivering the WRMP is a twin-track approach, with a focus on demand management and development of new demand-side capacity. It is critical that both of these strands are successfully delivered as part of WRMP in order to meet long-term water resources challenges.⁶⁵ Security of supply is also a key metric in the Environment Agency's Environmental Performance Assessment: an inability to deliver Anglian's WRMP targets would have a significant impact on wider regulatory performance.
- (128) Ofwat's FD seeks to reduce all of the investment areas that collectively form the WRMP strategy. The combined impact of these reductions is to increase significantly the risk associated with maintaining the security of water resources and providing resilient supplies across the region for AMP7 and beyond. It

⁶³ Coliform failures are the most significant contributor to the DWI's headline measure of Drinking Water Quality – the Compliance Risk Index.

⁶⁴ Turbidity is also a significant contributor to the Compliance Risk Index.

⁶⁵ As set out in the newly published framework by the EA's National Framework (SOC281).

also limits the ability to fully utilise a new reservoir scheme currently being developed through Ofwat's Strategic Regional Solutions programme and assessed via the RAPID⁶⁶ gateway process.

- (129) The FD prioritises short-term cost reduction over the long-term interests of customers and the environment, resulting in a disproportionate future burden of costs for customers and higher costs overall. The combined effects of these impacts are exemplified in the three case studies below. The first describes an urban centre, the second focuses on the specific impact on one of Anglian's key interconnectors in that urban area. The third case study illustrates the impact of Ofwat's FD on an environmentally sensitive rural area.

WRMP Case Study 1: Ipswich and the East Suffolk Water Resource Zone

The East Suffolk Water Resource Zone includes the town of Ipswich, a significant demand centre in the east of region, with a household population of 270,000 customers and experiencing rapid growth. Ipswich is supplied from a combination of a large surface water treatment works ('WTW'), receiving supplies from Anglian's Alton Water reservoir, and groundwater sources abstracting from the Chalk aquifer. Ipswich is a particularly vulnerable town both in terms of water resources pressures and wider supply system resilience.

During the summer of 2019, the supply system in the town came under significant pressure from having received only 71% of average rainfall over the previous 12 months, with reservoir levels dropping below the trigger for a drought permit and groundwater levels at notably low levels similar to those observed during the mid-90s groundwater drought. The reservoir at Alton is also susceptible to algal issues which can cause challenges during peak summer demand events and the reliable output of the reservoir is impacted by climate change.

It is therefore critical that the necessary improved connectivity is delivered into Ipswich, to mitigate both long-term supply demand and resilience risks within AMP7.

Ofwat's capacity reductions undermine the effectiveness of the interconnector programme.

Anglian's supply-side strategy for Ipswich requires a transfer of water from Bury St Edmunds. Ipswich is almost the final point in the strategic grid of interconnectors, with only the South Essex (Colchester) Water Resource Zone being further downstream.

Ofwat's intervention in the interconnector programme includes **reducing the capacity of the connection between Bury and Ipswich from 20 MI/d to 10 MI/d**. This capacity limits Anglian's ability to deliver supply system resilience to Alton WTW which serves 94,907 properties. It also limits Anglian's ability to deploy resources to this area, for example from a new strategic reservoir in future. Accepting Ofwat's capacity reduction, would result in significant residual risk at what is already Anglian's highest-risk site. This approach is inconsistent with Ofwat's resilience duty and inconsistent with the decision to support supply-side resilience investment in other areas of the FD.

Further upstream, Ofwat makes interventions to reduce capacities to other sections of the strategic interconnector grid.⁶⁷ These reductions mean that, even with sufficient capacity between Bury and Ipswich, it would not be possible to transfer the necessary volume of water from areas of surplus in the north of Anglian's region to secure supplies under future drought scenarios. Specifically, **the intervention to reduce capacity between Wisbech and Stoke Ferry from 20 MI/d to 15 MI/d presents a very significant risk**. The reduction results in an incoherent strategy for transferring water across Anglian's region, with smaller capacities upstream than downstream.⁶⁸

⁶⁶ RAPID is the Regulatory Alliance for Progressing Infrastructure Development unit involving Ofwat, the Environment Agency and the Drinking Water Inspectorate.

⁶⁷ Specifically (i) between Peterborough and Wisbech, Ofwat seeks to reduce the capacity from 40 Mld to 35 MI/d; and (ii) between Wisbech and Stoke Ferry, Ofwat seeks to reduce the capacity from 20 MI/d to 15 MI/d.

⁶⁸ Ofwat has assessed the capacities on an individual basis, rather than taking into account the system view by which WRMP19 has been developed.

The capacity interventions Ofwat makes limit the ability to respond to extreme (1 in 500-year return period) drought events, which is set out as a planning criterion for WRMP24 in the newly published Environment Agency National Planning Framework.

Ofwat's approach also limits Anglian's ability to adapt to future climate change, environmental and population growth pressures. The ability to utilise new resources, such as the South Lincolnshire strategic reservoir, will be limited. This will put upward pressure on future investment required to secure supplies, resulting in Anglian having to duplicate mains laid in AMP7 as early as AMP8, with a much higher, and avoidable, total cost for customers resulting.

In order to deliver the future supply capacity that Ipswich needs, all the upstream elements have to be in place for supplies to be secure. As this case study shows, the FD has materially undermined these leaving Ipswich exposed to risk of insufficient supply to meet demand in the face of ongoing climate change pressures and growth, both in AMP7 and beyond.

WRMP Case Study 2: Additional risk created by including the Elsham transfer scheme within Direct Procurement for customers (DPC)

The success of the interconnector programme relies on all components of the strategic grid being delivered on time, to allow sufficient volumes of water to be transferred from areas of surplus to areas of deficit. The intervention Ofwat made at DD to include the Elsham transfer scheme for delivery via DPC, creates a further delivery risk, which affects the whole of the interconnector programme.⁶⁹ Ofwat's intervention to include this within the scope of DPC makes the successful operation of the whole programme dependent on timely completion of the DPC scheme. Previously, temporary operation could have been achieved by utilising surpluses from WTW near Lincoln. However, until the lower section of the Elsham transfer scheme is complete these WTW cannot be connected to the interconnectors and linked into the strategic grid. This is a first of a kind programme with challenging timescales, which Ofwat has recognised.

The DPC element of the scheme will also be required for commissioning the downstream interconnectors, which poses a delivery risk to the interconnector programme. Late delivery would compromise the ability to deploy the downstream interconnectors and could result in delivery penalties for most to the interconnectors.

⁶⁹ The Elsham transfer initially failed the discreteness test for Direct Procurement for Consumers ('DPC') due to the dependency of other parts of the grid on this connection to the new treatment works and to other surpluses in North Lincolnshire.

WRMP Case Study 3: Norfolk Water Resource Zones

This case study focuses on resources zones in Norfolk specifically, Norwich and the Broads, Happisburgh and North Norfolk Rural. This part of Anglian's supply region is particularly environmentally sensitive with a number of groundwater sources either being subject to reduced abstractions or full source closure, in addition to licence volume caps being implemented across the region. The WRMP19 strategy for addressing the pressures of sustainability reductions in areas of Norfolk focuses on a 'demand management first' approach. This means, with the exception of the interconnector scheme from Norwich to Happisburgh included in Anglian's supply-side programme that Anglian assessed it was able to manage the reduction in available water through the roll out of leakage, smart metering and water efficiency demand management programmes.⁷⁰

Ofwat's FD significantly damages all three of these programmes. Specifically, opex efficiency constraints applied to the smart metering and leakage programmes present a significant risk, and the overall opex constraints associated with the FD impact the water efficiency programme. For example, the reductions in funding for smart metering mean Anglian can only roll out smart meters in urban areas where it is most cost-efficient to do so, omitting the highly sensitive environmental areas in the rural parts of Norfolk.

Also, critical to the success of the smart metering programme are water efficiency campaigns. Anglian's ability to direct opex expenditure into these campaigns will be severely limited in light of the overall FD opex constraints, and the misallocation between opex and capex that further reduces the opex allowance.

Similarly, the insufficient funding available for the leakage programme will constrain Anglian's ability to focus on harder to find leaks in rural areas, thus further risking the supply-demand balance. Ofwat's FD reductions in relation to leakage are discussed further in **Chapter H: Leakage**.

Ofwat's reductions to proposed demand management programmes put at risk Anglian's ability to meet security of supply requirements and deliver regulatory obligations in the WINEP. Licence changes are likely to be legally enforced by the EA to ensure compliance with the Habitats and Water Framework Directives, leaving Anglian at risk of non-compliance. Ofwat's FD also restricts Anglian's ability to deliver per capita consumption savings in line with Defra's long-term objective.⁷¹

6 Ofwat's FD does not allow Anglian to meet its cost of capital

- (130) The cost of attracting capital and maintaining investment in Anglian is a key element of Anglian's overall cost base. The cost of capital can be broadly split between the cost of debt (i.e. payments to lenders) and equity (i.e. dividend payments to shareholders and real growth in the RCV).
- (131) Given that financing decision-making takes place over a longer time horizon than each price control period (e.g. debt financing may be 30 years' maturity or longer), the CMA has stressed the need for *'the application of a consistent approach to setting the assumptions which form the basis of the calculation of the cost of capital.'*⁷² As such, it is particularly important that price controls ensure a well-reasoned and consistent approach to the cost of capital, as any negative effects will not only impact the price control concerned but potentially persist into future price controls.

⁷⁰ WRMP 19, page 15 (SOC279).

⁷¹ Defra's 25 Year Plan (SOC284) and EA's National Framework, page 9 (SOC281) which sets a target of 110 litres per person per day by 2050 nationally.

⁷² *Bristol (2015)*, paragraphs 10.6 to 10.7 (SOC275).

- (132) Ofwat's FD estimates a WACC of 1.92% (RPI-real) at the wholesale level. This is lower than the DD estimate by 16 basis points and is the lowest since the sector's privatisation 30 years ago. Anglian recognises that the low estimate of WACC is partly due to changes in the market.
- (133) A material part of the WACC reduction is primarily the result of several fundamental methodological changes (and in Anglian's view, methodological flaws) particularly in respect of Ofwat's estimates of the Total Market Return ('TMR'); and the cost of embedded debt as set out below.
- (134) Additionally, Ofwat has erred in its estimation of:
- (i) the Risk Free Rate ('RFR') by using methodology that is inappropriate for the regulation of a sector dominated by long-life assets;
 - (ii) the estimate of the equity beta, which places too much weight on daily estimates measured over the short-term and does not correctly control for statistical inaccuracies in the estimate; and
 - (iii) the allowance of cost of new debt, which is based on a flawed assumption of outperformance.
- (135) Correcting for these flaws, the true WACC for Anglian is between 2.5 to 2.9% (RPI-real).

6.1 Ofwat has underestimated the TMR which has resulted in an insufficient cost of equity

- (136) Ofwat's estimate of TMR is its view of the return investors expect from being invested in a diversified basket of UK equities. TMR is a key element in estimating the cost of equity. In PR19, Ofwat has estimated TMR to be 6.5% in CPIH⁷³ terms and 5.47% in RPI terms. This represents a reduction of 128 basis points since PR14 when the TMR was estimated to be 6.75% in RPI terms and has nearly a 100 basis points impact on the allowed return on equity.
- (137) The reduction in TMR is primarily a result of changes in Ofwat's methodology (rather than changes in the market):
- (i) Ofwat overestimated the effect of inflation, deflating historical market returns using the unofficial ONS CPI⁷⁴ series based on estimated data before 1989, a series that the ONS confirmed in March 2020 was not intended for official use, was based on subsequently revised CPI modelled data, and which is due to be updated to include new indicative estimates for CPI between 1947 and 1987 (to be produced later this year). This change in methodology has been motivated in part by suggestions from a study into the regulatory cost of equity commissioned by the UK Regulators Network. The series however is upwardly biased and understates the real TMR derived from the data. Estimates of the CPIH-real TMR in PR19 should use the official RPI series to deflate historical data and then add an estimate of the forecast RPI-CPIH wedge.
 - (ii) Ofwat incorrectly averaged historical equity market returns when calculating the TMR and thereby underestimated the average TMR. Ofwat's approach diverges from the averaging approach adopted by the CMA in previous reviews and contradicts the weight of academic evidence which supports the use of an estimate at least as high as the arithmetic average.
 - (iii) Ofwat removed the upward adjustment that should be applied in historical *ex ante* approaches to account for the higher volatility of share prices relative to dividend growth. This removal is based on analysis commissioned by Ofwat which applies to a different time period and on a different definition of dividend growth to those used in the historical *ex ante* studies that Ofwat has relied on. The removal of the upward adjustment is therefore incorrect.

⁷³ Consumer Price Index including owner occupiers' housing costs ('CPIH').

⁷⁴ Consumer price index ('CPI').

- (iv) Ofwat's estimate contradicts evidence from the dividend discount models it has used, which suggest that the expected TMR has not decreased. Furthermore, Ofwat has used an estimate of the TMR that is lower than supported by dividend discount models produced by Ofwat's own consultants.
- (138) Correcting these inflation biases, adopting an arithmetic average, and taking a more balanced view of forward-looking evidence would support a TMR of 6.25% (RPI-real) instead of Ofwat's assumption of 5.47%.

6.2 Ofwat has insufficiently accounted for the cost of debt

- (139) Ofwat's allowance for embedded debt (i.e. the proportion of debt retained from previous price control periods) has the stated aim of covering the efficient cost of debt financing over 2020-2025 for debt issued prior to 2020 and retained on the balance sheet of a company with the notional financial structure.
- (140) Ofwat used two approaches to calculate the cost of embedded debt. A 'benchmark index approach' was used to calculate a point estimate, using a 15-year trailing average of yields on the iBoxx A/BBB non-financials 10yrs+ indices. This was adjusted down by 25 basis points to reflect the sector's ability to outperform the iBoxx A/BBB. A 'balance sheet approach' was then used as a cross-check to consider the appropriateness of the point estimate. This was calculated using company-reported data on debt and other financial instruments. This analysis focused on 'pure debt' i.e. fixed, floating-rate and index-linked instruments, excluding 'non-standard instruments' and swaps.
- (141) Ofwat has, however, set a single cost of embedded debt for the sector and ignores Anglian's actual efficiently-incurred higher embedded cost of debt.
- (142) Ofwat's allowance for embedded debt is too low, for the following reasons:
- (i) It has deducted 25bp from the benchmark iBoxx index on the basis of an outperformance effect. These outperformance effects only exist on the yields of shorter tenor bonds. This is inconsistent with the reason for using the iBoxx index in the first place, which was to reflect the average debt maturity within the sector.
 - (ii) The 15-year trailing average used for the benchmark iBoxx index excludes 25% of Anglian's debt that had been efficiently raised at a time when market interest rates were higher than today.
 - (iii) Ofwat inappropriately excluded all swaps from its cross-check of the cost of embedded debt across the sector. It failed to demonstrate that exclusion of swaps was a good approximation of excluding debt that was inefficiently incurred. It is inconsistent for Ofwat to exclude swaps from the analysis whilst including inflation-linked bonds.

6.3 The required WACC is between 2.5% and 2.9% (RPI-real)

- (143) Anglian submits that the allowed return on capital required to make the Plan financeable will be in the range of 2.5 – 2.9%. If the balance of risk and return is addressed in line with DD representations, Anglian's point estimate of the WACC is 2.5%, as this is the appropriate way to balance the twin objectives of affordability and financeability. At this level, Anglian will be able to meet the minimum credit metrics required for a Baa1/BBB+ rating (i.e. to remain financeable).
- (144) In order to find the right balance between affordable bills for customers and appropriate returns for shareholders, in its DD response Anglian offered to include legacy rewards of c.£36 million from AMP6 (rather than recover the rewards from consumers). Anglian is willing to renew this pledge to ensure the plan is financeable in the round. However, if the balance of risk and return is not addressed, Anglian will require an allowed return higher than 2.5%. The current balance of risk in the FD requires Anglian to target financial metrics above the minimum Baa1/BBB+ thresholds to provide sufficient buffer against

the increase in asymmetric downside risk in the FD. The precise point within the range will depend on the degree to which the balance of risk is improved relative to the FD.

- (145) A more detailed assessment of why Ofwat's FD does not allow Anglian to meet its cost of capital is set out in **Chapter I: Weighted Average Cost of Capital**.

7 The gearing outperformance sharing mechanism is unjustified and incompatible with the regulatory regime

- (146) Ofwat's introduction of a gearing outperformance sharing mechanism (the '**mechanism**') is a significant departure from the longstanding regulatory principle that regulated companies are free to determine their own capital structures. The mechanism penalises companies with higher levels of gearing and imposes an additional unrecoverable cost on Anglian which reduces even further its ability to meet its required cost of capital.
- (147) The mechanism requires regulated companies with gearing above 70% to share half of the alleged 'financial outperformance difference' with customers (calculated as the difference between the notional cost of equity and the actual cost of debt) for all gearing above 65%. This is subject to an introductory glidepath which provides that the trigger point will be 74% in the first year of AMP7 and reduce by 1% every year thereafter, ending at 70%.
- (148) Anglian's capital structure has a gearing of c.78% within a securitised structure. The mechanism is estimated to impose a c.£40 million penalty over AMP7 on Anglian and will adversely impact its financial resilience.
- (149) Ofwat's justification for the introduction of the mechanism rests on the following assumptions:
- (i) regulated companies with gearing above a certain level have lower levels of financial resilience and pose an inherent risk to customers (and potentially taxpayers);
 - (ii) companies with higher levels of gearing do not provide any countervailing benefits to customers; and
 - (iii) shareholders receive a 'financial benefit' from higher levels of gearing.
- (150) As set out below, the mechanism is unjustifiable in principle as none of Ofwat's assumptions hold true. Further, Anglian's real world experience show that these assumptions do not apply to the Company. Finally, the imposition of the mechanism is a sharp divergence from established regulatory practice.

7.1 The mechanism is unjustifiable in principle

7.1.1 Relatively higher gearing *per se* does not inherently impact the financial resilience of the company

- (151) First, Ofwat erred in its assessment that a higher gearing *per se* has a negative impact on the financial resilience of the company; the assessment is based on over-simplistic assumptions and not supported by the evidence:
- (i) The relationship between the level of gearing and financial resilience cannot be assessed in isolation as financial resilience is also driven by important other factors. In particular, Ofwat has failed to distinguish between securitised companies ('**Aligned Companies**') that have debt programmes structured to enhance regulatory protections (and to incorporate widely-recognised credit enhancement and creditor-regulation provisions) ('**Aligned Debt Programmes**') and companies that raise debt on an unsecured, un-enhanced and unregulated corporate basis. A level of gearing which may be perceived as 'high' for a company with unsecured corporate debt may be regarded as 'moderate' for a company with an Aligned Debt Structure.

- (ii) Ofwat has not assessed credit enhancement and resilience mechanisms such as: (a) creditor standstill; (b) standby debt liquidity facilities; (c) dividend lock-up provisions; (b) forward-looking financial ratios; (e) enhanced ring-fencing; (f) contractual cash-management; (g) debt maturity bucket protections; and (h) other mechanisms. These financial resilience enhancements are all present in Aligned Debt Programmes (including Anglian's), and entirely absent from corporate unsecured debt structures.
- (iii) Ofwat's conclusion that gearing above 70% is 'high' and gives rise to unacceptable levels of risk compared to a gearing of 60% is arbitrary and not grounded in any evidence; indeed, Ofwat offers no explanation for why its own notional geared company (60%) does not expose customers and/or taxpayers to unacceptable levels of risk whereas a gearing of 65% is sufficiently problematic to merit intervention.
- (iv) The assumed linear relationship between a regulated company's level of gearing and the associated level of risk (in other words, that an increase in gearing from 65% to 70% or from 70% to 75% leads to a corresponding reduction in the level of financial resilience) is not plausible. This is not to say that gearing could not reach levels where it would affect financial resilience; but as long as companies have sufficient headroom (an issue which Ofwat carefully ensures in its review), limited variation in gearing is unlikely to have a material impact on financial resilience. For example, Anglian's own Aligned Debt Programme contains a distribution lock up if gearing exceeds 85%. In recent times, Anglian has reduced its level of gearing from c.82% (March 2016) to c.78% (March 2020). This change in gearing will have had no noticeable effect on risk from the perspective of Anglian's debt holders (with the same applicable to all interested parties).

7.1.2 Aligned Debt Structures have generated significant customer benefits

- (152) Second, Ofwat ignored the countervailing benefits to customers delivered by Aligned Companies such as Anglian.
- (153) The Aligned Debt Programmes associated with such companies have delivered significant benefits for customers, in particular driving regulatory innovations such as dividend lock-up and enhanced ring-fencing which Ofwat has subsequently replicated in regulated companies' licence provisions.
- (154) Water companies already share with customers the tax benefits that accrue from higher gearing (as the interest payable on debt is tax deductible thereby reducing costs). Ofwat's contention that these benefits are not relevant is not credible given the intended effect of the mechanism is to force companies to reduce their levels of gearing and thereby eliminate a tax benefit for customers.

7.1.3 Relatively higher gearing does not generate a 'financial benefit' for shareholders

- (155) Third, the mechanism rests on the mistaken assumption that there is a 'benefit' from higher levels of gearing which can be 'shared' with customers whereas the practical effect would be to deprive shareholders of part of the allowed return on equity.
- (156) Rather than providing a 'financial benefit', higher gearing reflects a different risk/return choice for shareholders. Aligned Companies' structures do not alter the overall cost of capital but instead operate as a risk transfer mechanism by which the risk is transferred from debt holders and customers to shareholders.
- (157) Ofwat's conclusion cuts across established economic and financial theory (in particular, the Modigliani-Miller theorem) which shows that the overall cost of capital is not affected by the level of gearing. Despite this, Ofwat did not adduce any evidence to demonstrate that the Miller-Modigliani theorem does not hold in the water sector and failed even to address the fact that regulators including the CMA had previously found that Miller-Modigliani was applicable in regulated industries.

7.2 Anglian's 'real world' performance is inconsistent with Ofwat's assumptions

- (158) Anglian's own experience is evidence that the introduction of the mechanism is unjustified. Anglian's financial structure has demonstrated its 'real world' resilience, notably during the financial crisis, where Anglian's Baa1 credit rating and its corporate family credit rating remained stable. Anglian has thus consistently maintained a strong investment grade credit rating.
- (159) Anglian's Aligned Debt Programme has also driven operational performance with Anglian being one of the best-performing companies in the sector. Anglian's shareholders have also shown their long-term commitment to the sector, not least through conservative dividend policy in AMP6 and an AMP7 plan to pay no dividends to shareholders outside the Anglian Water Group.
- (160) Anglian has, in any case, significant headroom within its Aligned Debt Programme to increase its gearing without increasing its risk profile.

7.3 Introduction of the mechanism breaches the principle of maintaining a stable regulatory regime

- (161) Imposition of the mechanism marks a sharp divergence from established regulatory practice. The divergence was insufficiently signposted and undermines the stability of the regulatory regime:
- (i) Ofwat has until PR19 endorsed the established regulatory position that water companies are free to select their own capital structures. By introducing the mechanism, Ofwat has overturned this longstanding regulatory principle – common across the UK regulators – without adhering to the principle that the reversal of regulatory principles must be particularly well-justified and proportionate.
 - (ii) In this regard, the glidepath set out in the FD does not account for the magnitude of the regulatory change imposed. Anglian's gearing is currently c.78% and it will not be able to benefit from the glidepath without having to significantly alter its capital structure in the period 2020-21. The glidepath does not, therefore, provide Anglian with sufficient time to adjust in a proportionate manner to the introduction of the mechanism.
 - (iii) More broadly, Ofwat's approach to introducing the mechanism calls into question the stability of the UK regulatory regime, in turn reducing the attractiveness of the sector for investors (and ultimately raising costs for customers). Moody's has, for example, cited the reduced stability of the regulatory regime as a factor in its downgrading of a number of water companies and putting others on negative watch.
- (162) A more detailed assessment of why Ofwat's gearing outperformance sharing mechanism is unjustified and incompatible with the regulatory regime is set out in **Chapter K: Gearing outperformance sharing mechanism**.

8 The consequence of Ofwat's approach to the FD is that Anglian is not financeable

- (163) Finally, the inevitable consequence of Ofwat's failure to properly balance Anglian's allowed revenues and costs is that the Company is not financeable based on Ofwat's assumed notional capital structure.
- (164) Ofwat must ensure that a company's FD leaves the relevant regulated company financeable, i.e. that the notional company is able to finance the proper carrying out of its functions (in particular, by securing reasonable returns on its capital).⁷⁵ If a price control does not make sufficient allowance for regulated companies to attract capital, they will struggle to meet their financing obligations in the short term and not be able to attract sufficient investment to the sector in the long-term.

⁷⁵ Section 2(2A), WIA91.

- (165) The assessment of financeability from a debt perspective means ensuring that regulated companies can maintain a solid investment grade rating. Credit ratings provide a market benchmark for the terms on which companies can attract financing and are linked to a range of factors including an assessment of the water sector overall as well as any specific features which affect the creditworthiness of each relevant company. These factors influence, in turn, the thresholds at which key credit metrics used by credit rating agencies to assign a credit rating to each regulated company are set.
- (166) In the water sector, the credit rating agencies focus particularly on the adjusted cash interest cover ratio ('AICR') and funds from operations ('FFO/Net Debt') ratios as key credit metrics for evaluating and assigning credit ratings to regulated companies. Both metrics assess the 'headroom' a company has to meet its debt obligations, i.e. the space a company has to deal with unforeseen credit shocks (e.g. the widespread bursting of pipes triggered by the 'Beast from the East' in 2018) without impairing its financeability.

8.1 Ofwat's approach to financeability

- (167) Ofwat's approach to assessing whether the FDs complied with the financeability duty was characterised by three important features:
- (i) Ofwat worked on the basis that regulated companies would have a strong investment grade credit rating for AMP7 (i.e. a Baa1 credit rating or equivalent) on a notional basis. Critically, Ofwat calculated the cost of capital on the assumption that regulated companies would be able to raise new debt financing on the terms available to companies rated Baa1 or higher
 - (ii) Ofwat held that its assessment of the impact of the FD on key credit metrics – notably AICR and FFO/Net Debt – should be assessed 'in the round'; so, falling short on a specific credit metric did not necessarily call into question a company's financeability (notwithstanding the guidance of the credit rating agencies)
 - (iii) Ofwat artificially adjusted the natural rate of PAYG revenues to address financeability concerns. It has 'brought forward' allowed expenditure from future price control periods to ensure that certain regulated companies, including Anglian, had sufficient revenues in AMP7 to be financeable (i.e. to meet the minimum thresholds needed to maintain a Baa1 credit rating under the key credit metrics).
- (168) Notwithstanding Anglian's Board concluding that it was not possible to provide an assurance that Anglian was financeable either on a notional or actual basis based on Ofwat's DD, Ofwat went on to conclude that Anglian was financeable at FD.

8.2 Flaws in Ofwat's financeability assessment

- (169) Ofwat's conclusion that the FD provides for Anglian to be financeable on a notional basis is flawed for two key reasons:
- (170) First, Anglian falls well short of meeting the thresholds to maintain a Baa1 rating under the key credit metrics AICR and FFO/Net Debt on a notional basis. Instead of addressing the allocation of insufficient allowable revenues, Ofwat applied several of artificial and unjustified adjustments and assumptions to conclude that Anglian was financeable on a notional basis:
- (i) Ofwat advanced revenues of £80 million from future price controls to address potential long-term financeability issues (extending into future AMPs) for Anglian. This was effectively applying a short-term solution for a long-term problem – merely storing up problems for future price controls. Further, the advancement of PAYG revenues has not even succeeded on its own terms as the rating agencies have stated that they will discount such adjustments when assessing regulated companies' creditworthiness.

- (ii) In calculating Anglian's AICR for the purpose of the financeability assessment, Ofwat has not accounted for the fact that its FD has misallocated c.£157 million of opex as capex.⁷⁶ In reality, Anglian will therefore have greater opex (and consequently less revenue available) in AMP7 than Ofwat has assumed in its assessment.
 - (iii) Ofwat has underestimated the cost of embedded debt in assessing financeability for various reasons.⁷⁷ The practical effect is that Anglian carried an additional cost which it cannot recoup from customers, and in turn means that Anglian has less revenue to meet its debt obligations.
- (171) Second, even if Ofwat's adjustments and assumptions were correct, there is insufficient headroom in relation to the key credit metrics to conclude that Anglian is financeable on a notional basis given the significant downward skew in Anglian's performance commitments. Even under Ofwat's own calculations, Anglian would have an AICR of only 1.50x (the lowest end of the 1.50x – 1.70x range required for a Baa1 rating) while its FFO/Net Debt of approximately 9.5% is already below the 10% threshold needed for a Baa1 rating. However, the asymmetric downward skew in Anglian's performance commitments means that there is a significant risk of underperformance which would trigger a downgrade (and worsen the terms on which Anglian can borrow). Moreover, it is not credible for Ofwat to assume neither outperformance nor underperformance given where Ofwat has put the bar in the FD.
- (172) Third, Anglian is exposed to material and increasing risks over AMP7, which can be translated into a set of realistic, potential risk scenarios. These plausible, realistic downside scenarios lead to financial difficulty and / or financial distress for Anglian under the notional financial structure given the limited financial headroom available for the management of risk based on the FD. There is therefore a material inconsistency between the company's exposure to downside risks and the financial headroom available to the company under the FD, which means that the company is not financeable.

8.3 Significant gap in financeability

- (173) Stripping out artificial and unjustified assumptions in Ofwat's assessment of the Company's financeability, from the FD Anglian falls significantly below the credit metrics needed to maintain a Baa1 rating:
- (i) Anglian's AICR is approximately 1.06x on a notional basis and thus significantly below the minimum 1.50x indicated by credit rating agencies as necessary to maintain a Baa1 (or equivalent) rating, and also below the 1.30x threshold currently required for a Baa2.
 - (ii) Anglian's FFO/Net Debt ratio is approximately 8% on a notional basis and thus likewise significantly below the minimum 10% indicated by credit rating agencies as necessary to maintain a Baa1 (or equivalent) rating.
- (174) Put practically, the credit metrics show that if Anglian were raising financing as a notional entity, it will not be able to access new debt financing on the terms assumed by Ofwat and will face a significantly higher cost of capital than allowed for under the FD.
- (175) This conclusion is reinforced by the response of the credit rating agencies. Moody's has put the sector on review for downgrade. Wessex Water has been downgraded to BBB by Fitch, Bristol Water, Thames Water and Yorkshire Water have been downgraded by Moody's to Baa2 and remain on negative outlook.

8.4 Remedies

- (176) Finally, in terms of remedies, the fact that Anglian is not financeable on a notional basis under the FD stems from Ofwat's failure to achieve correct balance between allowed revenues and expenditure. To

⁷⁶ As set out in **Chapter E.5: Misallocation of opex and capex.**

⁷⁷ As set out in **Chapter J: WACC.**

address financeability, Anglian therefore requests that the CMA correct the balance i.e. by (a) correcting the WACC which for the wholesale business should be between 2.5% - 2.9% on RPI basis (rather than 1.92% under the FD) for the reasons set out in the **Chapter I: Weighted Average Cost of Capital**; and (b) correcting the allowed expenditure so that the FD provides sufficient revenues to achieve the customer and environmental outcomes needed as set out more fully in its plan (for example, as illustrated by the case studies set out in Section 5.4 above) and in the chapters that follow.

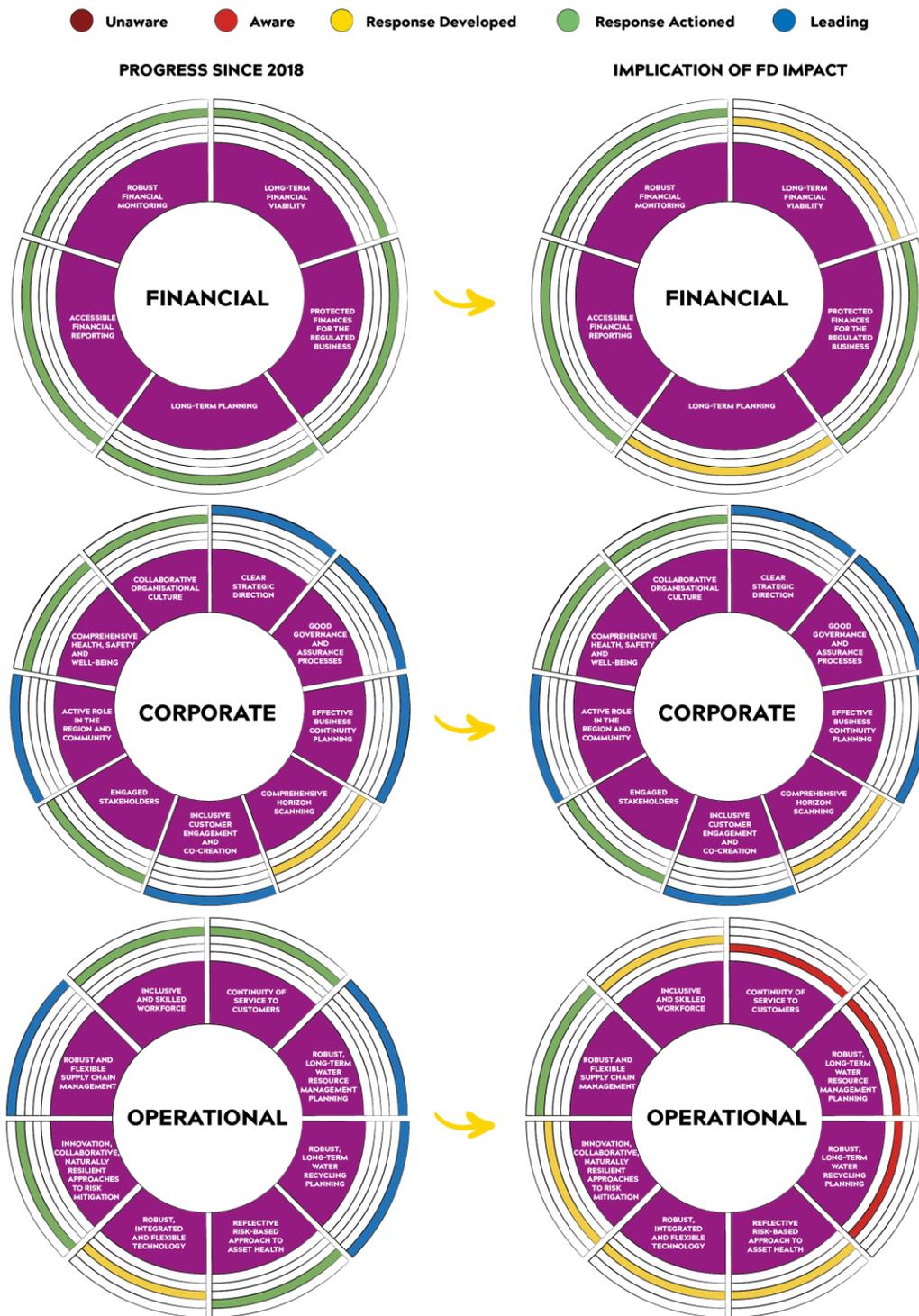
- (177) Solving financeability is thus a question of solving the other elements of the price control. And the financeability assessment will show whether the CMA's re-determination has achieved the correct balance.
- (178) A more detailed assessment of financeability is set out in **Chapter J: Financeability**.

9 Overall, Ofwat's FD is unbalanced: emphasising short-term price reductions at the expense of financeability, resilience and quality

- (179) The settlement implied by Ofwat's FD is not merely risky for the Company, it guarantees underperformance by failing to fund costs that will be incurred and are outside Anglian's control. It is hard to see any regulatory principle under which Anglian should not be able to recover the following costs:
- (i) The interest payments on its embedded debt, an uncontrollable cost of loans efficiently raised almost 20 years ago: interest payments that have been considered recoverable in every periodic review up until this one.
 - (ii) The additional costs of growth which will not be recovered by the application of the Ofwat's Developer Services Revenue Adjustment ('**DSRA**') true-up mechanism which is too narrow in scope and fails to provide adequate insulation against the full costs of high growth.
 - (iii) The costs of self-providing Elsham, should Direct Procurement fail to produce a bid that is more cost-effective: the entire £122 million for building the scheme will be treated as 'inefficient over-spend', for which Anglian would recover just £39 million.
 - (iv) The costs of measures to deal with metaldehyde, similarly, should the ban on metaldehyde be delayed or abandoned, amounting to £68 million of unfunded expenditure, for which Anglian would recover just £22 million.
 - (v) The c.£157 million of opex that has been incorrectly characterised as capex, which results in Anglian being able to recover less revenue through PAYG in AMP7.
 - (vi) The introduction of the gearing outperformance sharing mechanism which effectively penalises Anglian for its current capital structure. It will cost Anglian an estimated c.£40 million over AMP7.
- (180) The FD underfunds Anglian's expenditure programme by £744 million, largely because it fails properly to account for Anglian's efficient provision of high-quality outputs, treating this necessary cost increase flowing from an increased scope of activities as 'inefficiency'. To properly carry out its functions, Anglian must meet statutory obligations arising from the WINEP and WRMP programmes and provide the quality its customers want and are prepared to pay for. Ofwat's FD does not finance this proper carrying out of Anglian's functions.
- (181) Moreover, the FD seeks to impose an unjustified penalty on Anglian's capital structure, that further weakens financeability of the actual company, and misallocates allowed funding between capital and operating expenditure that creates an artificial and significant additional opex pressure that will force the Company to make a series of choices that are driven by this opex shortfall, rather than best value totex choices.

- (182) The need to ensure Anglian's functions can be financed not only requires that this funding gap be closed but also requires reconsidering the overall risk and reward balance of the FD. There are other duties to consider as well, especially that of promoting resilience. For the reasons summarised in this chapter, Anglian believes Ofwat's FD is unbalanced: underfunding all major areas of its work, exposing it to risks heavily skewed towards a downside and setting a path which requires short-term fixes and deferred expenditure, which Anglian believes is not what it should be doing, not what its customers want, not what Government policy requires, and not what the climate emergency demands.
- (183) How that balance should be struck is a matter of judgment but there are metrics that help to illustrate how far Ofwat has gone. Following publication of Ofwat's Resilience in the Round Anglian worked with Arup to co-create a framework for understanding how in practice the Company can track and manage risks over the short term, alongside longer-term trends and less likely (but more extreme) 'long tail' risks. Arup developed this framework for Anglian's and other companies' use in their normal course of business, not for this periodic review.
- (184) Arup used this framework to assess Anglian's maturity in managing risks, shocks and stresses, and scored the Company's current performance as 4 or 5 (where 5 is the maximum) in 17 of 22 areas. They assessed Anglian's AMP7 and beyond performance as 4 or 5 in all 22 areas. Anglian uses the Arup framework extensively in its risk planning.
- (185) Anglian asked Arup to apply this same framework to Anglian assuming it complies with Ofwat's FD. The results are shown in Figure 6 below.

Figure 6 Maturity assessment results



Source: Arup based on interviews and supporting information provided by Anglian

- (186) Particularly at the operational end, where scores are now at 2 or 3 for all but one category, Ofwat's FD pushes Anglian from being a company that is indeed '*resilient in the round*', to use Ofwat's expression, to one that is now heavily exposed to risks which it cannot properly minimise to customers. The Company provides examples throughout this Statement of Case of the real implications for customers and the environment of Ofwat's unbalanced approach.

10 The need for a CMA redetermination

- (187) Anglian's Board concludes that the FD is not in the interests of customers, the environment, the long-term resilience of its network, or its shareholders and does not secure the finance needed to ensure the proper performance of its functions. In addition, the FD is out of kilter with the clearly expressed views of customers that emerged from Anglian's A-rated customer engagement programme. In the round, the FD creates an untenable asymmetry between risk and return and is unfinanceable on a notional and actual basis.
- (188) In short, the FD is incompatible with Ofwat's primary duties (when taken together) and is inconsistent with the Government's SPS, and Ofwat's own long-term strategy published in October 2019. Moreover, it is inconsistent with Ofwat's own policy statements. In particular, Ofwat's 2019 Strategy document 'Time to act together' focuses on the challenges posed by '*a climate crisis, more volatile weather, and population growth*'. The FD is also inconsistent with Anglian's articles of association which have legally enshrined its commitment to ensuring long-term resilience, addressing affordability and delivering wider public interest outcomes for society and the environment.
- (189) This conclusion has been reached with extensive consideration, and regret. Anglian is widely regarded as one of the best-performing companies in the sector. The Board and management of Anglian would rather be putting all of their effort into continuing to deliver an exceptional service to customers and addressing the very significant challenges relating to climate change and growth, than spending time and resources in pursuing a CMA reference.
- (190) However, accepting Ofwat's FD would have been incompatible with Anglian's articles of association and purpose as it would have compromised the company's ability to deliver a high-quality service to customers in AMP7, and created an unsustainable platform for AMP8 and beyond. Necessary investment to combat climate change and enable sustainable growth would not be available. In addition, on base expenditure, funding levels would be too low to maintain or improve service quality for customers and ensure effective maintenance of capital assets, creating problems for future generations to cope with.

Roadmap to the Statement of Case

This Statement of Case is Anglian's initial submission in the process and is intended to provide the CMA with the information necessary to undertake its redetermination. Its structure is as follows:

- (i) This Chapter A provides an overview of Anglian's Plan, Ofwat's FD and the reasons why Anglian is seeking a redetermination.
- (ii) Chapter B provides an overview of Anglian, how customers have shaped the Plan and how the wholesale expenditure plan was devised.
- (iii) Chapter C sets out why Ofwat has failed to discharge its primary and secondary duties, the duty to act in accordance with the Government's Strategic Priorities and Objectives and the duty to have regard to the principles of regulatory best practice.
- (iv) Chapter D discusses the imbalance between risk and return created by the FD.
- (v) Chapter E analyses Ofwat's cost assessment in relation to Botex, growth, Enhancement, and frontier shift along with Ofwat's mis-allocation of opex and capex.
- (vi) Chapter F examines Ofwat's costs / service disconnect.

- (vii) Chapter G considers Ofwat's approach to performance commitments and outcome delivery incentives.
- (viii) Chapter H sets out, through a master case study, how Ofwat's approach to Botex, Enhancement and incentives impacts Anglian's frontier performance on leakage.
- (ix) Chapter I considers Ofwat's approach to weighted average cost of capital.
- (x) Chapter J discusses how Ofwat's FD impacts financeability.
- (xi) Chapter K examines Ofwat's gearing outperformance sharing mechanism.

Chapter B.1: About Anglian

1 Overview

- (i) Anglian is the largest water and wastewater company in England and Wales by geographic area. Anglian serves one of the driest regions in England and Wales, with low rainfall (71% of the UK national average) and high evaporation losses. A quarter of Anglian's region lies below sea level.
- (ii) Anglian's customer base is predominantly residential. Three of the ten fastest-growing cities (Cambridge, Peterborough and Milton Keynes) are in the Anglian region. The region's population is expected to increase by up to a million in the next 25 years.
- (iii) The challenges that Anglian faces from population growth, climate change, resilience to severe drought and sustainability reductions have a significant impact on its supply/demand balance. Without action, 22 out of 28 Water Resource Zones will be in deficit by 2045.
- (iv) Anglian is a purpose-led business rooted in long-term sustainable ambitions. In 2017, Anglian committed to a number of long-term strategic priorities to 2045, including:
 - (a) making the east of England resilient to the risks of drought and flooding;
 - (b) enabling sustainable economic and housing growth in the UK's fastest-growing region;
 - (c) becoming a carbon-neutral business by 2050 (since accelerated to 2030); and
 - (d) working with others to achieve significant improvement in ecological quality across Anglian's catchments.
- (v) In 2019, Anglian changed its articles of association in order to enshrine a commitment to conduct its business and operations for the benefit of members as a whole while delivering long-term value for its customers, the region and the communities that it serves and seeking positive outcomes for the environment and society.
- (vi) Anglian was awarded the accolade of 'Responsible Business of the Year' in 2017 by Business in the Community ('**BITC**'). Since receiving the Award, Anglian has continued to work with BITC to develop a new strategy, building on its experiences in helping to regenerate the Cambridgeshire town of Wisbech.
- (vii) Anglian has also delivered a decade of first-class performance, most notably in leakage reduction and customer service. Its approach – to innovate, learn and share – has seen the Company push the frontier for the whole industry, while enabling the continued growth and prosperity of the region.
- (viii) Anglian puts less water into supply now than it did in 1999; its leakage is half the national average by water lost per kilometre of pipe.
- (ix) This strong all-round performance was recognised by Ofwat in its Service Delivery Report 2018-2019, published in November 2019, which compares performance on measures that matter most to customers between the 17 largest water companies in England and Wales. Anglian was identified as one of only three 'better-performing companies'.
- (x) Anglian was named Utility of the Year at the Utility Week Awards in December 2018. It also achieved two awards in 2019 at the International Water Association Awards, held in Tokyo, in recognition of its ambitious leakage strategy.

(xi) Since privatisation, Anglian's customer bills have increased by just 10%: the smallest increase of all companies, compared to an industry average of 46%. Moreover, bills have fallen by c.10% in the last five years, twice the national average.

(191) The remainder of this chapter is structured as follows: Section 2 sets out Anglian's history, purpose and values, challenges and opportunities; Section 3 outlines Anglian's corporate structure; Section 4 considers Anglian's corporate governance; Section 5 provides an overview of Anglian's employees; Section 6 discusses Anglian's performance; and Section 7 discusses Anglian's statutory and licence obligations.

2 About Anglian

2.1 Historical background

(192) The current structure of the water and wastewater (also referred to as 'sewerage') industry in England and Wales dates from 1989. Before privatisation, there were 10 regional publicly-owned water authorities ('**Water Authorities**') supplying water and sewerage services and 29 privately-owned statutory water companies supplying water services only. At privatisation, the water supply and sewerage functions of the 10 Water Authorities were transferred from public ownership into the hands of the private sector, as appointed 'Water and Sewerage Companies' ('**WASCs**'). The WASCs were all floated as public limited companies on the London Stock Exchange in 1989. In the case of the Company, the business of the Anglian Water Authority was transferred to Anglian Water Services Limited, of which the ultimate holding company was Anglian Water Group Plc, a public limited company listed on the London Stock Exchange.

(193) In 1997, AWG Group Ltd acquired Hartlepool Water plc and, on 1 April 2000, the appointment of Hartlepool Water plc as a water undertaker was merged with that of Anglian.

2.2 Anglian's purpose and values

(194) Anglian's purpose is '*to bring environmental and social prosperity to the region [it] serve[s] through [its] commitment to Love Every Drop*'.⁷⁸ In 2010, Anglian formed its new strategy 'Love Every Drop', which focused on the increased need for water sustainability. Its mission, to '*handle [water] with care and [not] cost the earth*', also supports this strategy. Anglian's mission and purpose are underpinned by three core values, namely: (i) '*Do the Right Thing*'; (ii) '*Build Trust*'; and (iii) '*Always Exploring*', against which it holds itself accountable.⁷⁹

(195) In April 2019, the CEOs of all water companies in England and Wales signed a Public Interest Commitment,⁸⁰ by which they committed to delivering wider benefits to the society, including five goals to tackle leakage, carbon emissions, plastics, affordability and social mobility by 2030.

(196) In July 2019, Anglian became the first water company to make fundamental changes to its articles of association, legally enshrining public interest within the constitutional make-up of its business.⁸¹ As part of its commitment, Anglian will publish non-financial reporting statements assessing its performance against environmental and social matters, including respect for human rights.

⁷⁸ See Anglian's website available at: <https://www.anglianwater.co.uk/about-us/our-purpose/>.

⁷⁹ See Anglian's website available at <https://www.anglianwater.co.uk/about-us/our-purpose/our-values/>.

⁸⁰ Public Interest Commitment (SOC288).

⁸¹ Anglian's Articles of Association (SOC267).

- (197) It's corporate purpose, *'to conduct its business and operations for the benefit of members as a whole while delivering long-term value for its customers, the region and the communities it serves and seeking positive outcomes for the environment and society'*,⁸² evidences Anglian's long-term commitment to delivering services to a high standard, while taking into account wider socio-environmental objectives. Anglian's directors have a duty to act in the way that they consider, in good faith, most likely to promote this purpose, having regard (among other things) to *'the likely consequences of any decision in the long term'* and *'the impact of the company's operations on the community and the environment'*.⁸³ Put simply, public interest now sits alongside Anglian's need to deliver fair returns to its shareholders.
- (198) These changes in its articles of association are also consistent with the strategic priorities for 2020 to 2045, agreed after extensive engagement with customers and stakeholders, set out in Anglian's 2017 Strategic Direction Statement (SDS), which refreshed and updated Anglian's first SDS published as part of the 2009 price review. These are to:⁸⁴
- (i) make the east of England resilient to the risks of drought and flooding;
 - (ii) enable sustainable economic and housing growth in the UK's fastest-growing region;
 - (iii) be a carbon-neutral business by 2050 (since accelerated to 2030); and
 - (iv) work with others to achieve significant improvement in ecological quality across Anglian's catchments.
- (199) Anglian has built its September 2018 Plan around these priorities, which are aligned with the statutory duties to which Ofwat must have regard, as set out in **Chapter C: Ofwat's duties in PR19**.

2.3 Challenges and opportunities

- (200) Climate change, population and housing growth and the need to protect and enhance the natural environment are particularly acute issues in Anglian's region. Anglian services one of the driest regions in England and Wales, with low rainfall (71% of the UK national average) and high evaporation losses, particularly in arable farming areas. The principal land use of Anglian's region is arable farming and Anglian's demand for water must be balanced with the needs of farmers for food supply. The Environment Agency classifies 59 out of the 129 catchments in Anglian's region as already over-abstracted or over-licensed.⁸⁵ An over-abstracted catchment is one where abstractors are taking more water from river and groundwater systems than is considered to be environmentally sustainable to meet Water Framework Directive 'good' ecological status. An over-licensed catchment is where the volume of licences issued is unsustainable to achieve good status, even if not all abstractors take their full licence quantity. Compared to other regions, Anglian has a higher proportion of flat and low-lying areas, including The Fens in Cambridgeshire and the Norfolk Broads, where it faces the threat of more frequent flooding. A quarter of Anglian's region lies below sea level and, given the low number of hills in its region, Anglian is required to use more energy to pump water from place to place.

2.4 Anglian's operating region

- (201) Anglian is the largest water and wastewater company in England and Wales by geographic area. Its main region stretches from the Humber estuary, north of Grimsby, to the Thames estuary, and from Buckinghamshire to Lowestoft on the east coast. Its coastline is around 1,257 kilometres long. Its region also includes the town of Hartlepool on the north-east coast. Within this region Anglian has 112,833 kilometres of water and sewer pipes, which supply and transport water across some 27,500 square

⁸² Anglian's Articles of Association, Purpose and Nature of the Company (A), page 3 (SOC267).

⁸³ Anglian's Articles of Association, Article 84(A) (SOC267).

⁸⁴ Anglian's SDS (SOC016).

⁸⁵ Anglian's SDS, page 12 (SOC016).

kilometres. Anglian employs approximately 4,800 people and supplies water and water recycling services to more than 6 million customers in the east of England and water services to around 90,000 customers in Hartlepool.

- (202) As at May 2019, Anglian was the fourth largest of the 11 regulated water supply and water recycling companies in England and Wales in terms of its regulatory capital value ('**RCV**').⁸⁶ During the year ended 31 March 2019, Anglian delivered (i) an average of 1,159 MI of treated water per day (8% of the total for England and Wales) to approximately 2.2 million properties (8%) in its licence area; and (ii) 45 MI of partially treated water per day (19% of the total for England and Wales) from its non-potable works. In the same period, Anglian installed approximately 25,000 new water connections (11% of the total for England and Wales).⁸⁷
- (203) There are a number of areas (mostly in the south), such as Cambridge, Chelmsford and Basildon, where Anglian provides water recycling services only (for historical reasons). Anglian also holds six 'inset' appointments⁸⁸ to provide water services and one 'inset' appointment⁸⁹ to provide water recycling services in areas outside its principal water supply and recycling licence areas. For completeness, 13 sites have been excluded from its licence area where other water companies have been granted 'inset' appointments to provide water and/or sewerage services.
- (204) Figure 7 below illustrates Anglian's water supply and water recycling licence areas as at the time of privatisation in 1989.

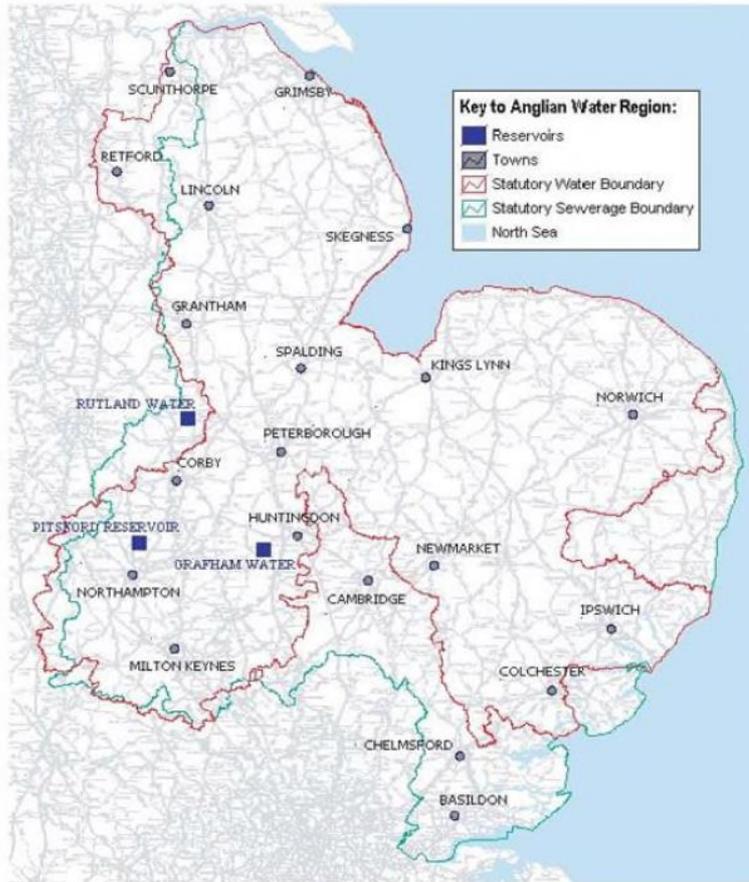
⁸⁶ Ofwat's RCV (SOC291).

⁸⁷ Anglian's 2019 Prospectus, page 109 (SOC293). Please refer to SOC293 for a list of Anglian's assets and bioresources.

⁸⁸ At the following locations: (i) two Sisters Premier Division (formerly Buxted Chicken) in Flixton, Suffolk; (ii)-(iv) Wynyard Park near Wolviston in Cleveland; (v) Woods Meadow, Oulton in Suffolk; and (vi) Northstowe phase 1 in Cambridgeshire.

⁸⁹ At RAF Finninley in South Yorkshire.

Figure 7 Anglian's water supply and water recycling licence areas in 1989



Source: Anglian

(205) The bills of domestic customers can be assessed according to the rateable value of properties or with reference to their measured water consumption. Compared to the industry average, Anglian has a high proportion of meters, with water consumption in more than four in every five households billed on a metered (or measured) basis. Table 1 below contains the actual numbers for the 12 months ended on 31 March 2019.

Table 1 Anglian's residential connections as at 31 March 2019

	Residential unmeasured			
	Water only	Wastewater only	Water and wastewater	Total unmeasured
Household connected (000s)	94.641	245.483	254.362	594.486
	Residential measured			
	Water only	Wastewater only	Water and wastewater	Total measured
Household connected (000s)	141.351	569.715	1,499.124	2,210.190

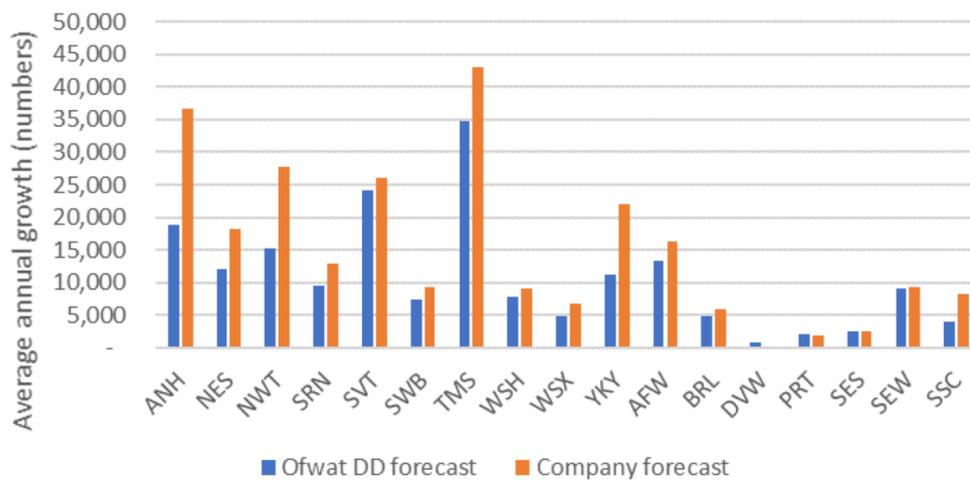
Source: Anglian's 2019 Performance Report, Table 2F (SOC292)

(206) Anglian's customer base is predominantly residential. Anglian's region has historically seen an above average rate of growth. In fact, its housing growth rate in the 2001-2018 period was higher than

London.⁹⁰ The expected growth rate over AMP7 is above even this level and the region has three of the ten fastest-growing cities, by housing growth, in the UK as classified by the Centre for Cities. These are Cambridge, Peterborough and Milton Keynes.⁹¹

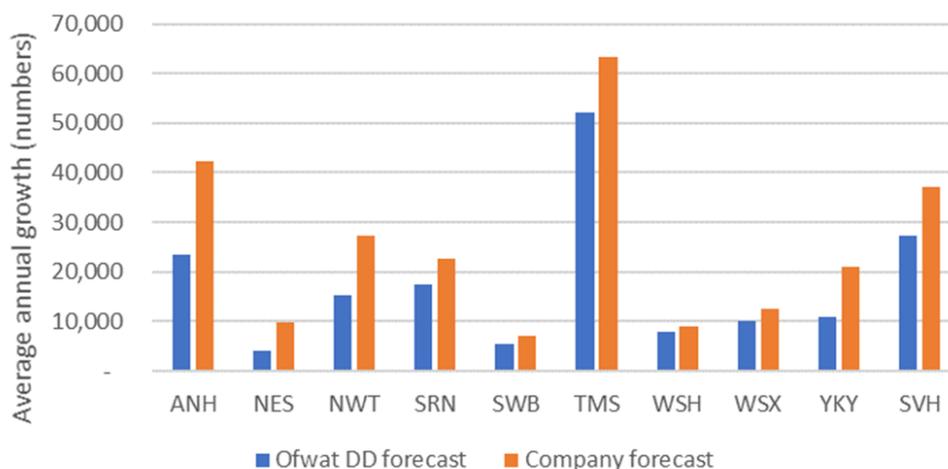
(207) During AMP7, Anglian expects over 170,000 new homes will connect to its sewer network and over 145,000 will connect to its water network. To enable growth, Anglian's Plan included £660m investment to enhance capacity in its sewer network, including Sustainable Drainage Systems, lay water pipes for new homes and enhance capacity at its water recycling treatment centres.⁹² As shown in Figure 8 and Figure 9 below, Anglian is forecasting the highest number of new connections after Thames Water, whose area of appointment includes London.

Figure 8 Forecast growth in the number of connected properties (water)



Source: Reckon Review of Ofwat's Treatment of Growth Expenditure, page 26 (SOC201)

Figure 9 Forecast growth in the number of connected properties (wastewater)



Source: Reckon Review of Ofwat's Treatment of Growth Expenditure, page 26 (SOC201)

(208) A future driver for growth beyond the 170,000 houses in its forecast will be the Oxford-Cambridge (OxCam) Arc. In its response to the National Infrastructure Commission's ('NIC') report on the OxCam

⁹⁰ See Chapter E.2: Growth.

⁹¹ See Chapter E.2: Growth, Section 3.1.1.

⁹² September 2018 Plan (SOC001).

Arc in October 2018,⁹³ and through the joint declaration with local partners in March 2019,⁹⁴ the Government has affirmed its ambition for up to one million new homes between Oxford and Cambridge by 2050. Anglian has engaged with partners, including Local Authorities, to inform this ambition with indicative figures suggesting some 70% of these new homes will be within Anglian's area of operation. The OxCam arc is shown in Figure 10 below. The numbers that Anglian used to forecast property growth for the purpose of its Plan were drawn from Local Authority plans,⁹⁵ which exclude additional homes linked to the projected further increases in housing that may result from the plans for the OxCam arc.

Figure 10 The OxCam arc, two-thirds of which is in the Anglian region



Source: Ministry of Housing OxCam Report, page 9 (SOC295)

3 Corporate structure

- (209) As noted above, Anglian Water Services Limited is the company that is regulated by Ofwat. Anglian Water Services Limited trades as 'Anglian Water'.⁹⁶
- (210) The ultimate holding company of Anglian Water Services Limited is Anglian Water Group Limited ('AWGL'). AWGL is a Jersey registered company which was incorporated on 14 September 2006. AWGL is UK resident, and pays UK tax. AWGL's wholly-owned subsidiary, Osprey Acquisitions Limited, acquired Anglian Water Group Plc (now known as AWG Parent Co Ltd) and its subsidiaries, including Anglian, on 23 November 2006. Anglian has been in private ownership since that date.
- (211) AWGL is owned by a consortium of investors comprising:
- (i) The Canada Pension Plan Investment Board (Hong Kong) Limited (32.9%);

⁹³ Government's OxCam Arc Response (SOC294).

⁹⁴ Ministry of Housing OxCam Report (SOC295).

⁹⁵ These forecasts have since been further refined using Anglian's up-to-date data on actual growth in the last year. See **Chapter E.2: Growth**.

⁹⁶ See Anglian's website at www.anglianwater.co.uk.

- (ii) First Sentier Investors (Australia) RE Ltd and First State Investments Fund Management S.á.r.l. (15.6%), a global asset management business comprising operations across Australia, Asia, Europe and the US, which is ultimately owned by Mitsubishi UFJ Financial Group, Inc;
 - (iii) Global InfraCo (HK) E. Limited, which is controlled by IFM Investors (19.8%), a global asset manager owned by 27 Australian pension funds;
 - (iv) Camulodunum Investments Ltd (15%), a joint investment vehicle for Dalmore Capital and GLIL Infrastructure LLP. Dalmore Capital is an independent fund manager, which has interests in over 90 infrastructure assets. GLIL Infrastructure LLP is a fund that was founded by five local government pension schemes: Greater Manchester Pension Fund, Lancashire County Pension Fund, London Pension Fund Authority, Merseyside Pension Fund and West Yorkshire Pension Fund; and
 - (v) Infinity Investments S.A. (16.7%), an investment vehicle of the Abu Dhabi Investment Authority, the sovereign wealth fund of the United Arab Emirates.
- (212) Anglian Water Services Holdings Limited was incorporated in 2002 when Anglian's ring-fenced debt structure was established. Anglian Water Services UK Parent Co Limited ('**AWS UK Parent Co**') is a second holding company in the ring-fenced structure. Anglian Water Services Financing plc has issued listed debt (bonds) to fund the operation of Anglian's regulated business. Anglian Water Services Financing plc as the Issuer may, from time to time, issue further bonds, subject to a maximum limit of €10billion.

4 Corporate Governance

4.1 The Board of Anglian

- (213) As at 31 March 2020, Anglian's Board comprised: (i) an Independent Chairman, Stephen Billingham CBE; (ii) two Executive Directors (the Chief Executive Officer, Peter Simpson, and the Chief Financial Officer, Steve Buck); (iii) five Independent Non-Executive Directors (John Hirst CBE, Paul Whittaker, Dame Polly Courtice DBE LVO, Natalie Ceeney CBE and Zarin Patel); and (iv) three Non-Executive Directors who represent the three original investors in AWGL (Niall Mills, James Bryce and Duncan Symonds). Anglian is required under the terms of its Licence to ensure that the composition of the Board is such that the Directors are able to act independently of the parent company or controlling shareholder and exclusively in the interests of the Company.⁹⁷ As shown above, Anglian's Board comprises a majority of Independent Non-Executive Directors.

4.2 Principles of Corporate Governance

- (214) It has been a long-standing requirement of Anglian's Licence that the Company should have particular regard to '*the Principles of Good Governance and Code of Best Practice*'⁹⁸ which apply to publicly listed companies. In 2014, Ofwat published a set of minimum standards that it expected water companies to meet for Board leadership, transparency and governance (the '**BLTG Principles**').⁹⁹ In response to these principles, and having regard to the Licence Condition referred to above, Anglian devised the Anglian Water Services 2014 Corporate Governance Code, which was an amalgam of Ofwat's BLTG Principles and those elements of the UK Corporate Governance Code that could sensibly be applied to a company in private ownership. Anglian's Code came into force on 1 April 2014¹⁰⁰ and was revised on

⁹⁷ Anglian's Licence, Condition 126.3 (SOC297).

⁹⁸ Anglian's Licence, Condition 126.7 (SOC297).

⁹⁹ Ofwat's BLTG 2014 (SOC298).

¹⁰⁰ 2014 Code (SOC299).

1 April 2015 (the '**2015 Code**').¹⁰¹ Details of compliance against the 2015 Code for the year ended 31 March 2019 are included in the Annual Integrated Report 2019.¹⁰²

- (215) In February 2015 (following the issue of Ofwat's Final Determinations in relation to AMP6), Ofwat published its initial first assessment of companies pursuant to a newly devised Company Monitoring Framework (the '**Framework**').¹⁰³ One aspect of the Framework focused on compliance with Ofwat's BLTG Principles. Ofwat determined that Anglian had satisfied its requirements, in relation to governance in its assessments in 2015, 2016 and 2017. Ofwat's 2018 assessment did not consider compliance with the BLTG Principles.
- (216) In January 2019, Ofwat issued a revised set of BLTG Principles ('**Revised BLTG Principles**')¹⁰⁴ which consist of four broad objectives and a series of supporting provisions. These were incorporated into Anglian's licence with effect from 1 August 2019. In July 2018, the Financial Reporting Council published the 2018 UK Corporate Governance Code, which applies to accounting periods beginning on or after 1 January 2019. In response to both Ofwat's Revised BLTG Principles and to the wider changes in corporate governance referred to above, Anglian has produced a revised code (the '**2019 Code**')¹⁰⁵ which incorporates Ofwat's Revised BLTG Principles together with most of the provisions of the 2018 UK Corporate Governance Code.¹⁰⁶ The 2019 Code came into effect on 1 April 2019 and Anglian will report in relation to compliance with the 2019 Code for the year ended on 31 March 2020 in its Annual Integrated Report 2020.

5 Anglian's employees

- (217) As at 3 October 2019, Anglian employs around 4,800 employees and 300 temporary employees, making it one of the region's biggest employers.
- (218) Anglian's Management team has 12 members, headed by Peter Simpson, the Managing Director, and comprises:
- (i) Peter Simpson – Chief Executive Officer;
 - (ii) Steve Buck – Chief Financial Officer;
 - (iii) Alex Plant – Strategy and Regulation Director;
 - (iv) Claire Russell – Legal Director;
 - (v) Ciaran Nelson – Director of Brand and Communications;
 - (vi) Iain Fry – Director of Information Services;
 - (vii) Susannah Clements – Group Director of People and Change;
 - (viii) Paul Valleley – Director of Water Services;
 - (ix) Paul Gibbs – Director of Water Recycling Services;
 - (x) Richard Boucher – Group Strategy and Risk Director;

¹⁰¹ 2015 Code (SOC300).

¹⁰² Anglian's 2019 Annual Report (SOC301).

¹⁰³ Ofwat's Monitoring Framework Consultation (SOC302).

¹⁰⁴ Ofwat's BLTG 2019 (SOC303).

¹⁰⁵ 2019 Code (SOC304).

¹⁰⁶ Anglian omitted only those parts of the 2018 UK Corporate Governance Code which cannot be sensibly applied to a company in private ownership.

- (xi) Ian Rule – Director of Customer and Wholesale Services; and
- (xii) Jason Tucker – Director of Strategic Delivery and Commercial Assurance.

6 Anglian's Performance

6.1 Anglian's long-term performance record

(219) Anglian has delivered a decade of first-class performance, most notably in leakage reduction and customer service. Its approach – to innovate, learn and share – has seen the Company push the frontier for the whole industry, while enabling the continued growth and prosperity of the region.

(220) In particular, Anglian has already:

- (i) reduced leakage by a third since privatisation to reach industry-leading levels, with the water lost per kilometre of pipe at half the national average;¹⁰⁷
- (ii) kept the amount of water supplied every day at 1989 levels, despite supplying an extra 600,000 properties, which is the equivalent of saving 200 million litres per day;¹⁰⁸
- (iii) cut its capital carbon emissions by 58% on 2010 levels and reduced operational carbon emissions by 29% in comparison to the 2014/15 baseline. This has driven innovation and efficiencies that feed into lower bills;¹⁰⁹ and
- (iv) had the lowest increase in bills of any company since privatisation: its average bills have gone up just 10%, against an industry average of 46%. Anglian also reduced its average bills by more than twice the industry average in PR14 (the largest reduction in bills in the sector).

(221) Anglian has consistently complied with relevant legislation, regulations and other needs, including requirements and standards of:

- (i) ISO 45001 Health and Safety;
- (ii) ISO 9001 Quality;
- (iii) ISO 14001 Environment;
- (iv) ISO 55001/PAS 55 Asset Management;
- (v) ISO 37001 Anti Bribery;
- (vi) ISO 27001 Information Security;
- (vii) BS 18477 Customer Vulnerability;
- (viii) PAS 2080 Carbon Management; and
- (ix) ISO 22301 Business Continuity.¹¹⁰

(222) The recommendations set out in 2008's Pitt Review,¹¹¹ which set out actions focused on planning, resilience, mitigation and a clear need for accountability, followed the severe summer floods of 2007,

¹⁰⁷ Anglian's 2019 Annual Report, page 5 (SOC301).

¹⁰⁸ *Ibid.*

¹⁰⁹ *Ibid.*

¹¹⁰ Anglian's Management System Framework Policy (SOC306).

¹¹¹ The Pitt Review was a comprehensive inquiry into the widespread floods of 2007, in which nearly 500,000 people were left without water, available at: https://webarchive.nationalarchives.gov.uk/20100702215619/http://archive.cabinetoffice.gov.uk/pittreview/thepittreview/final_report.html.

seen at the time as the largest peacetime emergency since 1945. This also prompted the Company to benchmark its work standards around risk management and business continuity. Anglian was the first utility to have fully embraced the business continuity recommendations of the Pitt Review and to be certified by the International Organization for Standardization to the Business Continuity Management Systems standard, ISO 22301. This international standard recognises that the Company has the plans and systems in place to keep its business running and its customers can rely on the Company to be a resilient business.¹¹² Prior to the transition to ISO 22301, Anglian was also an early adopter of British Standard BS 25999 certification for Business Continuity Management, and the first water company to adopt this standard.¹¹³

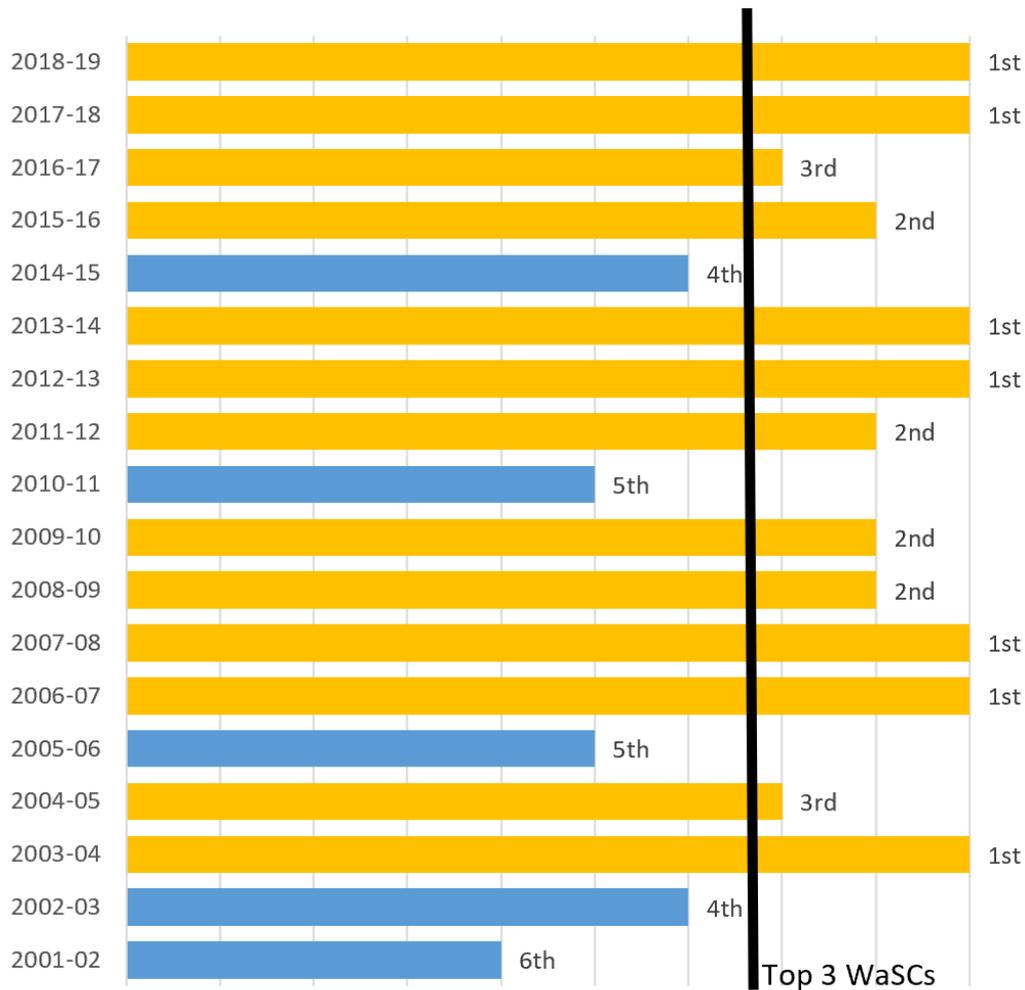
- (223) Anglian's strong performance was recognised in Ofwat's Overall Performance Assessment (OPA), Ofwat's headline performance measure until 2010. Ofwat combined companies' performance against a basket of water quality, environmental and customer service measures into a single score. OPA scores were used to inform stakeholders about industry performance and to adjust price limits at PR99, PR04 and PR09.
- (224) From 2010, the OPA was replaced by the Service Incentive Mechanism ('**SIM**'), in which the quality of service provided by companies was assessed by means of customer survey and measures of customer dissatisfaction.¹¹⁴ SIM scores were used to adjust price limits at PR14 and PR19.
- (225) Since 2001, Anglian has ranked in the top three companies in the industry 13 times in respect of the annual headline performance measures determined by Ofwat (OPA or SIM). Anglian has been the top performer in seven of the 18 years.
- (226) Figure 11 below shows Anglian's ranking among the 10 WASCs against the two headline performance measures that Ofwat has used over this period: the OPA and SIM.

¹¹² Other certifications held by Anglian include ISO 45001 (Health & Safety), ISO 9001 (Quality), ISO 14001 (Environmental), ISO 55001 (Asset Management), ISO 27001 (Information Security), BS18477 (Customer Vulnerability) and the first UK company to achieve PAS 2080 (Carbon Management). See: <https://www.anglianwater.co.uk/about-us/who-we-are/management-systems/>.

¹¹³ September 2018 Plan, page 9 (SOC001).

¹¹⁴ Ofwat's SIM (SOC307).

Figure 11 Anglian's ranking among WASCs on Ofwat's overall performance assessment and service incentive mechanism 2001-2002 to 2018-2019



Source: Anglian based on Ofwat's OPA and SIM reports¹¹⁵

(227) Anglian's strong performance on a range of measures was also recently highlighted in Ofwat's Service Delivery Report 2018-2019, published in November 2019, which compares performance on measures that matter most to customers among the 17 largest water companies in England and Wales.¹¹⁶ Figure 12 below shows Ofwat's overall assessment of efficiency and effectiveness of delivery services of these water companies.

¹¹⁵ Anglian's Performance Record (SOC308).

¹¹⁶ Ofwat's 2018-19 Service Delivery Report (SOC265).

Figure 12 Ofwat's Service Delivery Report 2018-2019

Overall assessment of efficiency and effectiveness of service delivery

	Total expenditure		Outcomes							
	Wholesale	Retail	Customer service	Meeting performance commitments	Earning financial incentives	Leakage	Supply interruptions	Water quality contacts	Internal sewer flooding	Pollution incidents
Better performance										
Anglian Water	▼	▼	▲	▲	▼	▼	▼	▲	▲	▲
Wessex Water	▼	▼	▲	▲	▼	▲	▲	▲	▼	▼
Portsmouth Water	▼	▲	▲	▲	▼	▲	▲	▲	-	-
Marginal performance – better/average										
South West Water	▼	▲	▲	▲	▲	▲	▲	▲	▲	▲
Average performance										
Dŵr Cymru	▼	▼	▲	▼	▲	▲	▲	▼	▲	▲
Northumbrian Water	▼	▼	▲	▼	▼	▲	▼	▲	▼	▲
Severn Trent Water ¹										2
Southern Water	▼	▲	▲	▲	▼	▼	▲	▲	▲	▼
United Utilities	▲	▼	▲	▲	▲	▲	▲	▲	▲	▼
Yorkshire Water	▼	▼	▲	▲	▼	▲	▼	▼	▲	▼
Affinity Water	▼	▲	▲	▲	▼	▼	▲	▲	▲	▼
Bristol Water	▼	▲	▲	▲	▼	▲	▲	▲	▲	▼
South East Water	▼	▲	▲	▼	▲	▲	▲	▲	▲	▼
South Staffs Water	▼	▲	▲	▲	▲	▲	▲	▲	▲	▼
SES Water	▼	▼	▲	▼	▼	▲	▼	▲	▲	▼
Poorer performance										
Hafren Dyfrdwy ¹										3
Thames Water	▼	▼	▼	▼	▼	▲	▲	▲	▲	▲

1. Severn Trent and Hafren Dyfrdwy were formed on 1 July 2018 following the realignment of the geographical boundaries of the legacy companies Dee Valley Water and Severn Trent Water. A comparison with 2017-18 performance is not provided for these companies.
 2. The legacy company Dee Valley Water provided water services only and therefore the figures presented are representative of the legacy company Severn Trent Water.

Source: Ofwat's 2018-19 Service Delivery Report, page 5 (SOC265)

- (228) Anglian hit the top 25% in seven measures: Wholesale expenditure efficiency; Customer Service; Meeting Performance Commitments; Earning Financial Incentives; Leakage; Water Quality Contacts; and Internal Sewer Flooding. Anglian also hit the top 50% in three further measures: Retail expenditure efficiency; Supply Interruptions; and Pollution Incidents.

6.2 Customer service

- (229) Anglian was named number one for customer service based on Ofwat's qualitative measures in the SIM for water companies for the year ended 31 March 2019.¹¹⁷ This builds on almost two decades of consistent upper quartile service performance and marks Anglian's second successive year as number one.

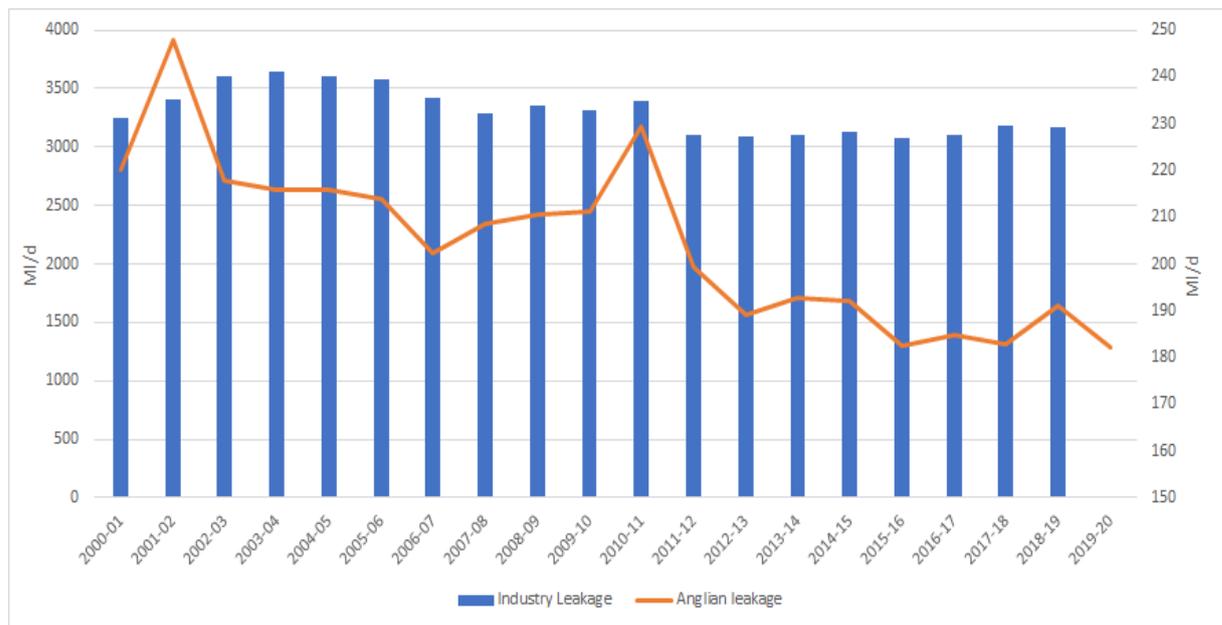
6.3 Leakage

- (230) Reducing leakage is a priority for Anglian's customers. Anglian has cut leakage by more than a third since privatisation in 1989. It is now at record low levels – around half of the national average based on the amount of water lost per kilometre of main. Anglian's performance commitments (PCs) are linked to outcome delivery incentives (ODIs), which reward or penalise the Company for overdelivering or underdelivering its targets. In its September 2018 Plan, Anglian proposed to set the ambitious PC level for leakage of 166 MI/d by 2024/2025.¹¹⁸ The long-term goal for Anglian is to meet the target set in its Water Resource Management Plan ('WRMP') to reduce leakage by 42% by 2045 from 2015/16 and its ambition in its 2017 Strategic Direction Statement to reduce leakage by 50% by 2050. Anglian's leakage performance compared to the rest of the industry over time is illustrated in Figure 13 below.

¹¹⁷ See Ofwat Customer Service Report Press Alert (SOC309).

¹¹⁸ September 2018 Plan, page 193 (SOC001).

Figure 13 Anglian's leakage performance compared to the industry average from 2000/01 to 2019/20



Source: Ofwat's Overall Stretch Appendix, Figure 4 (SOC229) combined with Anglian's data (Reported leakage from annual performance reports)

6.4 Performance commitment levels (PCLs)

(231) PCLs were set for 14 of Anglian's PCs in financial year 2018/19. Anglian has met 13 of these, with the only shortfall being against mean zonal compliance (i.e. a measure of the quality of drinking water), where the performance commitment level is 100% (and, therefore, extremely hard to achieve).

6.5 Reaching beyond regulatory compliance and performance targets

(232) Anglian's strong performance goes beyond regulatory compliance and performance targets. Anglian is a purpose-led business rooted in long-term sustainable ambitions, continually examining its impact on the communities that it serves.

(233) Anglian has led this approach across the industry, and in 2019 was instrumental in the creation of the water industry's Public Interest Commitments,¹¹⁹ which saw the industry joining forces to set new standards for a social contract with customers and stakeholders with the goal of delivering wider benefits to society, above and beyond the provision of clean, fresh drinking water.

(234) Anglian was also awarded the Queen's Award for Enterprise in 2015, the UK's highest accolade to celebrate business success, in recognition of the significant contribution that the Company has made in setting new national standards for sustainability, and for embedding sustainability throughout its operations.¹²⁰

(235) Since being awarded 'Responsible Business of the Year' in 2018 by BITC (Business in the Community),¹²¹ Anglian has continued to work with BITC to develop a new strategy, building on its experiences in helping to regenerate the Cambridgeshire town of Wisbech and BITC's work across the

¹¹⁹ Public Interest Commitment (SOC288).

¹²⁰ See <https://www.queensawardsmagazine.com/award/sustainable-development/>.

¹²¹ 2017 Business of the Year (SOC310).

country. A national 'Place Leadership Team'¹²² has been established and a strategy has been developed which has encouraged three businesses to commit to driving community regeneration in three new locations.¹²³

6.6 Recognition for strong all-round performance in 2018/19

- (236) Anglian relies on the dedication of its employees to continually deliver customer services to the highest standard and works hard to create a culture where colleagues feel supported and valued. In 2019, the Company was named the best place to work in the UK by Glassdoor.
- (237) The safety and wellbeing of Anglian's employees is of paramount importance. In 2019, Anglian's approach was recognised by the Royal Society for the Prevention of Accidents ('RoSPA') with a Gold 2018 Health and Safety award. Anglian was also the first UK water company to be awarded the ISO 45001 standard for health and safety.
- (238) In summary, Anglian's all-round strong performance in 2018/19 has been recognised by a variety of third-parties, with the Company receiving a number of accolades:
- (i) named Utility company of the Year at the Utility Week Awards in December 2018;
 - (ii) named Water company of the Year at the Water Industry Awards in 2019;
 - (iii) invited to join Leading Utilities of the World, the gold standard of utility performance;
 - (iv) received two awards in 2019 at the International Water Association Awards, held in Tokyo, in recognition of its ambitious leakage and innovation strategies;
 - (v) named by Glassdoor as the Best Place to Work in the UK in 2019 in recognition of its culture of inclusion;
 - (vi) retained the RoSPA Gold Award for Safety for the 15th consecutive year; and
 - (vii) was the first water company in England and Wales to be awarded the ISO 45001 standard for health and safety.

7 Anglian's statutory and licence obligations

- (239) The Water Industry Act 1991 (WIA91) sets out a number of obligations which apply to all water and sewerage companies (including Anglian). A list of the relevant obligations appears in **Chapter C: Ofwat's duties in PR19**. The WIA91 is supplemented by other legislation relating, in particular, to the protection of the environment and human health as administered primarily by the Drinking Water Inspectorate (DWI), the Environment Agency (EA) and Natural England. These laws establish, among other things, quality standards for drinking water, abstraction, the discharge of wastewater and other polluting discharges into the environment, and procedures governing operational development. Levels and timings of abstractions are controlled by abstraction licences from the Environment Agency (EA) and are potentially subject to restriction at times of drought. These laws have been generally influenced by developments at a European level in relation to water quality and the environment.

¹²² BITC Place Leadership Team (SOC311).

¹²³ Blackpool, Rochdale and Bradford.

(240) Anglian's Instrument of Appointment (i.e. Anglian's licence) sets out a wide range of obligations.¹²⁴ The debt programme under its securitised structure has been structured so as to align with the regulatory regime. It requires Anglian to comply with its licence obligations and, in some cases (notably the ring-fence provisions), contains enhanced protections.¹²⁵

7.1 Water Industry National Environment Programme (WINEP)

(241) In June 2019, the EA issued a fourth version of WINEP3 to water companies.¹²⁶ This sets out the measures that the EA and Natural England expect all water companies to deliver for the period 2020-2025.¹²⁷

7.2 Water Resources Management Plan (WRMP)

(242) The Water Act 2003 introduced a statutory requirement for all water companies to have a long-term plan for managing water resources in their area of operation – the WRMP.¹²⁸ Anglian's WRMP sets out its 25-year approach to balancing supply and demand in light of the social, economic and environmental challenges facing the industry.¹²⁹

(243) Defra, along with the EA and Ofwat, has set out guidelines and statutory directions for addressing long-term supply/demand balance issues through WRMPs, including the Water Resources Planning Guidelines issued in May 2016. The principles behind WRMP guidance are to '*ensure water companies lead the way in taking action to ensure that [they] can meet the needs of a growing population and economy as well as valuing the environment and meeting the challenges of climate change*'.¹³⁰

¹²⁴ See Anglian's Licence (SOC297). Matters covered by the licence include the framework for price limits; accounts and the provision of accounting information; charges schemes; codes of practice for customers on disconnection and on leakage; levels of service and service targets; ring-fencing of assets and restrictions on disposal of land; asset management plans; provision of information to Ofwat; provision of combined and wholesale water supplies; and payments to customers for supply interruptions because of drought. The conditions are modified either by mutual agreement of Ofwat and the water company under s. 13 WIA 91 or by reference to the CMA under s.14 WIA 91.

¹²⁵ Further details set out in **Chapter K: Gearing outperformance sharing mechanism**.

¹²⁶ WINEP (SOC312).

¹²⁷ For further details on the WINEP programme, see **Chapter E.3: Enhancement**.

¹²⁸ Section 37 WIA91. The legal requirements for the WRMP are defined in the Water Resource Management Plan Regulations 2007 (SI 2007/727). The WRMP sets out the Company's 25-year approach to balancing supply and demand in light of the social, economic and environmental challenges facing the industry and mandates wide consultation with customers and stakeholders. The process is overseen by the EA with the final WRMP being approved by Defra.

¹²⁹ For further details on the WINEP programme, see **Chapter E.3: Enhancement**.

¹³⁰ Defra's Guiding Principles (SOC313).

Chapter B.2: How customers have shaped the Plan

1 Overview

- (i) Anglian's September 2018 Plan faithfully reflects its customers' stated preferences. The majority of customers found the September 2018 Plan and Anglian's Draft Determination Representation both acceptable and affordable and with appropriate measures to help customers with affordability issues. Indeed, Anglian's Plan proposes to deliver the outcomes that customers value at *less* than they were willing to pay.
- (ii) The Plan is the result of an iterative process reflecting the widest and deepest customer and stakeholder engagement exercise Anglian has ever undertaken. It involved more than half a million interactions with customers using 38 different channels over two and a half years. Anglian designed its Plan, including changing aspects of it as it developed, in response to the results of this engagement. The Plan responds to:
 - (a) Customers' stated preferences on key aspects of service along with the trade-offs to be made between: (a) investing now to mitigate the impacts of climate change and population growth and to protect the environment; or (b) deferring those investments.
 - (b) Customers' preferences for maintaining a high quality of service and seeing the Company continue to drive forward the frontier performance in areas that matter most to them.
 - (c) The relative importance that customers placed on levels of performance improvement and how these should be incentivised through outcome delivery incentives (ODIs).
- (iii) The results of four different channels (i.e. acceptability research, engagement with the online community, the innovative 'Be the Boss' game and focus groups), involving more than 7,000 customers, consistently showed that customers want Anglian to:
 - (a) invest now (not defer) to protect against climate change;
 - (b) support sustainable growth;
 - (c) enhance the environment; and
 - (d) improve resilience.
- (iv) Customers are prepared to see bills increase by up to 5% in return for investment to address these risks. Customers want the Company to prioritise improvements in leakage, water quality and pollution over areas such as interruptions to supply. They feel that incentives should align with these priorities and they support enhanced rewards for stretching performance, such as moving the leakage frontier.
- (v) Customers were clear about the impact on bills, including the effects of inflation, and said that they value the service they receive. They indicated they wanted a lower-risk service and they were willing to support a bill increase to deliver this.
- (vi) Even though Anglian's customers are prepared to support bill increases, Anglian's response to the Draft Determination proposed bill reductions of around 1.1% during AMP7, whilst preserving critical investments to address key challenges. This is despite the fact that Anglian's bill reductions at PR14 were already the largest in the sector, so a comparison over the last decade would show a greater level of reduction in absolute and comparative terms.

- (vii) The high quality of Anglian's customer engagement, and the extent to which it was reflected in the Plan, was recognised by Ofwat through the sector-leading 'A' rating that it awarded the Company. Anglian's independent Customer Engagement Forum (CEF) also recognised customer engagement as being strong, and that the Plan faithfully reflected the preferences expressed by customers. Anglian's translation of customers' feedback into its proposed suite of Performance Commitments and ODIs was considered a high-quality approach to customer research and triangulation to support robust estimation of marginal benefits.
- (viii) By contrast, and as explained elsewhere in this Statement of Case, Ofwat has set aside evidence on what Anglian's customers *actually* value in favour of its own view as to what they *ought* to value.

Request to the CMA
- (ix) Anglian strongly recommends that the CMA takes account of the views of customers as gathered in this extensive engagement exercise. The CMA will wish to reassure itself that this was not a rubber-stamping exercise: Anglian can demonstrate that customers had the information and ability to make informed choices. The CMA is of course also welcome to seek the views of the Customer Engagement Forum (CEF) directly.

(244) This remainder of the chapter is structured as follows: Section 2 provides an overview of Ofwat's Final Methodology regarding customer engagement and Anglian's approach; Section 3 sets out Anglian's approach to customer engagement in relation to key building blocks of PR19; Section 4 explains how Anglian tested its September 2018 Plan and Draft Determination (DD) Representation and the resulting bill levels with customers for both acceptability and affordability and describes customers' preferences as regards investment time horizon.

2 Introduction

2.1 Ofwat Final Methodology

(245) There are many different services that a water company can provide; it should be incentivised to focus on the most valuable. In a competitive market, customers signal what they value to companies through their willingness to pay. In a regulated sector, the regulator determines willingness to pay on their behalf (based on the evidence), incentivising or disincentivising different elements in the way that the price control is constructed.

(246) Anglian considers that the mechanisms of the price control should provide for what customers *want*. Ofwat appeared to take the same approach, stressing the importance of customer engagement in its Final Methodology for PR19,¹³¹ stating that:

'Companies need to understand their customers' preferences and priorities and deliver the outcomes that matter to them over the long term. This includes all customers, including those in circumstances that might make them vulnerable and those that are hard to reach.'

Customer challenge groups (CCGs) will provide independent challenge to companies and provide independent assurance to us on the quality of a company's customer engagement; and the degree to which this is reflected in its business plan.'

¹³¹ PR19 Final Methodology, page 22 (SOC314).

We are expecting a step change in customer engagement at PR19, with companies using a wider range of techniques to address our principles of good customer engagement.

Customer engagement will be central to our assessment of companies' business plans at PR19, as part of the initial assessment of business plans process.

Customer engagement will provide essential evidence for companies' proposals in their business plans, such as their performance commitments to customers.'

- (247) Anglian's Plan is the product of the widest and deepest customer engagement exercise that it has ever undertaken, an approach recognised as sector-leading by Ofwat. Details of Anglian's approach are set out in the Sections that follow.

2.2 Anglian's approach

- (248) Anglian co-created its September 2018 Plan with its customers. This has been carried out through an extensive programme of events, research, face-to-face contact, the development of an online community of customers, gamification techniques and analysis of operational and 'business as usual' interactions with customers. Ofwat recognised Anglian's industry-leading approach to customer engagement, awarding the Company the only 'A' grade in this category at the Initial Assessment of Business Plans (IAP) in January 2019. Ofwat concluded that the Plan *'provides a wide range of convincing evidence to demonstrate an overall high quality, ambitious and innovative approach to customer engagement and participation. It also provides convincing evidence of how customer engagement has been reflected in the business plan and in ongoing business operations'*.¹³²
- (249) Anglian's CEF agreed with Ofwat that the approach taken by Anglian for customer engagement was *'exemplary'* and *'provided a firm bedrock for the company's revised business plan'*.¹³³
- (250) All of the insights gained from continuously engaging with customers during both PR14 and PR19 are set out in Anglian's synthesis report, which was enclosed as Annex 12c to its September 2018 Plan.¹³⁴ Anglian has built on the strong position that it developed as part of its PR14 Business Plan and moved its customer engagement to an ongoing two-way conversation about what its customers expect from the Company. In particular, Anglian has had more than 500,000 interactions through 38 channels in the two years leading up to the submission of its September 2018 Plan, to ensure its proposals were driven by, and responded to, its customers' priorities. This engagement has created a very large, detailed and comprehensive picture of what its customers want, both where there is a consensus of opinion, and where different customer segments have differing views.
- (251) Anglian consulted with customers and stakeholders on its new draft Strategic Direction Statement in Spring 2017, when it set out four long-term ambitions, namely: (i) enabling sustainable economic growth for its region; (ii) making the region resilient to the risks of climate change and flooding; (iii) becoming carbon neutral by 2050; and (iv) driving digital transformation of its business to better serve its customers. In this draft Strategic Direction Statement, Anglian also asked its customers for their views on the ten outcomes developed for PR14. While customers agreed that these outcomes still reflected their priorities, and that three of the four ambitions set out in the draft Strategic Direction Statement were relevant, they did not think that driving digital transformation should be regarded as a long-term ambition, but rather was something the Company should already be doing now.¹³⁵ In direct alignment with customers' increasing support for protecting the environment particularly, a new ecological long-term

¹³² IAP Summary of Test Area Assessment, IABP (SOC271).

¹³³ CEF Report IAP Response, page 1 (SOC316).

¹³⁴ Customer Research and Engagement (August 2018) (SOC033).

¹³⁵ Accent Acceptability Testing SDS, page 45 (SOC317).

ambition (focused on improving ecological status across catchments) was proposed to replace its previous digital ambition.

- (252) These changes were supported by consumers and were included in Anglian's final Strategic Direction Statement, published in November 2017.¹³⁶
- (253) The September 2018 Plan sets out how, for each investment, customer views have informed decision-making, and how Anglian's proposals have changed as a result. Below, Anglian sets out some of the key areas where customer views have driven the composition of its Plan in relation to its WRMP (Water Resources Management Plan), leakage, smart meters, the WINEP (Water Industry National Environment Programme), bills and affordability.

3 Customer engagement through the main building blocks

3.1 WRMP

- (254) Anglian's WRMP¹³⁷ has been driven by customers' expectations and preferences as well as statutory obligations. As part of its ongoing conversation, customers have consistently indicated that receiving a reliable supply of safe, clean water is their top priority and Anglian worked on that basis when developing its WRMP.
- (255) In August 2017, Anglian held a week-long water festival in Norwich to create opportunities to engage with customers on options for maintaining the supply/demand balance and on resilience to drought. Customers told Anglian that leakage and other demand-side measures should be at the top of the list when seeking to reduce any deficit.¹³⁸ Anglian also enquired about the balance between what the Company should do, and what customers themselves would be prepared to do, to help balance supply and demand. 53% of customers preferred to reduce their water use (with Anglian's help), 6% wanted more investment in new supplies and 39% wanted both help to reduce their water use and more investment in new supplies. Just 1% supported neither option and were happy to live with an increased risk to supplies.¹³⁹
- (256) The key draft WRMP decisions that were informed by customer engagement were whether to:
- (i) prioritise demand management and the development of Anglian's ambitious demand management strategy;
 - (ii) invest in drought resilience and reduce the risk of severe restrictions in the water supply;
 - (iii) maximise use of existing infrastructure and resources before developing new ones; and
 - (iv) ensure that Anglian's WRMP would be affordable.
- (257) At the festival, and also in willingness to pay surveys, customers told Anglian that they wanted more resilience to drought in the future, and that restrictions in the form of water standpipes and rota cuts were no longer acceptable options.¹⁴⁰ As a result, Anglian changed its service level for emergency drought orders from one in 100 years to one in 200 years, and this was set out in its draft WRMP for consultation.
- (258) Anglian also consulted on the WRMP both as part of its PR19 business plan consultation, and as a separate activity in March 2018 with its online community. In the WRMP-specific consultation, Anglian

¹³⁶ Anglian's SDS (SOC016).

¹³⁷ Further details on the statutory requirement for water companies to have a WRMP are provided in **Chapter B.1: About Anglian**.

¹³⁸ Anglian H2OMG Report, page 14 (SOC318).

¹³⁹ Anglian H2OMG Report, page 11 (SOC318). See also September 2018 Plan, page 27 (SOC001).

¹⁴⁰ ICS Valuation Completion Report, Section on water restrictions (SOC038).

set out a series of choices for customers that built on each other, from a base position that simply met legal requirements, through to a set of investments that would provide drought resilience, mitigation to climate change risk and some element of future proofing against factors such as lower than anticipated savings from Anglian's water efficiency programmes, extreme drought events, alternative climate change scenarios and longer term impacts, beyond the statutory 25-year planning period. Customers largely chose the full package with 71% voting for the most comprehensive investment option.¹⁴¹ They did this knowing that there would be an associated yearly bill impact of around £10.¹⁴²

- (259) In April 2018, Anglian consulted on its Outline Plan¹⁴³ which included the investment needed for the WRMP, using its 'Be the Boss' digital engagement tool, which allowed customers to act as Anglian's management for a day to decide which investments they would like to undertake. At that stage Anglian was able to give the full yearly bill impact in the context of all the investment options, which was up to £21.¹⁴⁴ This encompassed not only the impact of the various WRMP options but also the remainder of the water and the water recycling services (i.e. including WINEP). A key question in the consultation was whether to invest now or later to mitigate climate change risk, and 64% of customers wanted Anglian to invest now.¹⁴⁵ As a result, Anglian's final WRMP, and its September 2018 Plan includes bringing forward climate change mitigation investment to meet its customers' expectations.

3.2 Leakage

- (260) Leakage remains a critical issue for customers, representing a waste of both natural resources and money. It is always cited as the highest priority issue that customers want Anglian to tackle. As set out in Section 3.1 above, it is customers' first choice when considering how to balance supply and demand. Customers recognised Anglian's frontier position in tackling leakage, but they want the Company to go even further than its historic performance. Anglian asked customers whether it should continue to drive leakage down or remain at current levels. 78% of customers voted to continue to reduce leakage and supported the prospect of enhanced outperformance payments for Anglian for shifting the industry frontier.¹⁴⁶ On affordability choices and trade-offs, customers wanted Anglian to invest now to drive down leakage to even lower levels – shifting the frontier further. Anglian's online community felt that its Anglian's commitment to leakage clearly demonstrates that Anglian values their water and helps to make appeals to the public to reduce consumption more credible.

3.3 Smart meters

- (261) Prioritising demand side measures in line with its customers' expectations has led Anglian to investigate the use of smart meters to help customers manage consumption. Customers, particularly the more technologically inclined segments, told Anglian they would like the option of using more technology to manage their usage and accounts. At its Water Festival in Norwich Anglian asked customers if they wanted a smart meter. 72% said yes and 16% said no, while the remaining 12% were not sure. Concerns were articulated over security and use of the data generated. Customer support might increase with more assurance on those issues.¹⁴⁷
- (262) To further investigate how customers might benefit from smart metering, Anglian has been running two large scale, long-term trials in its region. Anglian has installed over 6,000 smart meters in its Shop Window in Newmarket, and 10,000 smart meters in and around Norwich. Both groups of customers (i)

¹⁴¹ Incling Water Resource Management Report, page 21 (SOC319).

¹⁴² Incling Water Resource Management Report, pages 21 to 26 (SOC319).

¹⁴³ Outline Plan 2020-2025 Consultation (SOC032).

¹⁴⁴ Outline Plan 2020-2025 Consultation, page 29 (SOC032).

¹⁴⁵ Anglian Be the Boss Consultation (SOC320). See also September 2018 Plan, page 27 (SOC001).

¹⁴⁶ Anglian Be the Boss Consultation (SOC320), See also September 2018 Plan, page 28 (SOC001).

¹⁴⁷ Anglian H2OMG Report, page 21 (SOC318). See also September 2018 Plan, page 28 (SOC001).

have access to a secure website where they can see their usage and (ii) receive tailored tips on water saving based on answers to questions such as whether they have a garden or not, and what type of shower they use.

- (263) These trials have shown that customers with smart meters feel very positive about them, because they enable them to save money, not just through reducing wasteful use but, more importantly, through being able to identify leaks on their own property. Anglian has completed nearly 1,000 leak investigation visits to customers' homes based on the data collected.
- (264) In its longer running trial in Newmarket, Anglian has seen an average reduction in use of 17 litres per property per day as a result. An interaction with a segment of its online community living in Newmarket showed that customers value the peace of mind a smart meter can give in keeping track of daily usage and identifying leaks on their property quickly. Customers felt that smart meters should be accessible to all customers and are no longer a futuristic gadget but are necessary to help reduce misuse of water resources. Given the expectation that smart meters will be the norm in future, and the options they open up for supporting behaviour change and demand management, Anglian has included an extensive smart metering programme in its September 2018 Plan and DD Representation, which includes near-universal roll out of smart meters over the next two AMPs.

3.4 WINEP

- (265) The unique nature of Anglian's region means that a significant proportion of WINEP¹⁴⁸ will be delivered there. Anglian included the latest version of the WINEP in its Outline Plan¹⁴⁹ for consultation and through its 'Be the Boss' digital engagement channel. 74% of customers voted for high investment in protecting the environment.¹⁵⁰
- (266) There is the potential to deliver a significant proportion of the WINEP through natural capital solutions, rather than processes and treatments which create embodied carbon and increase operational carbon. In the consultation on its SDS, customers indicated the need to deliver Anglian's long-term ambition of becoming carbon neutral well before 2050. In fact, in an activity with the online community to gain views on how these environmental obligations should be met, Anglian proposed using more natural capital solutions such as wetlands and reed beds. This was universally supported, with customers recognising the multiple benefits of such solutions, including the potential amenity value to local communities.¹⁵¹ Accordingly, Anglian negotiated with the Environmental Agency to include these solutions where possible in its September 2018 Plan.

3.5 Performance Commitments

- (267) Anglian's proposed Performance Commitments for AMP7 have been materially shaped by its customers and stakeholders, the CEF and its sub-panels. This includes seeking customers' views on which Performance Commitments Anglian should have, how these should be defined, the type and scale of incentives, and the level of stretch.
- (268) This has resulted in a number of changes to its overall suite of measures. For example, its customers told Anglian that bathing waters and external sewer flooding remain priorities and should form part of its

¹⁴⁸ Further details on the unique nature of Anglian's region and the Water Industry National Environmental Programme (WINEP) are provided in **Chapter B.1: About Anglian**.

¹⁴⁹ Outline Plan 2020-2025 Summary (SOC031); and Outline Plan 2020-2025 Consultation (SOC032).

¹⁵⁰ September 2018 Plan, page 28 (SOC001).

¹⁵¹ Incling WINEP Natural Capital Report (SOC321).

suite of measures.¹⁵² Whereas for interruptions to supply, customers were less supportive, relative to other priorities.

- (269) Customers also told Anglian the balance of incentives they expect to see between service measures and asset health measures. The September 2018 Plan is based on these preferences.
- (270) For leakage, Anglian explicitly sought views from customers on the level of stretch and the proposal for enhanced rewards. 70% of customers in Anglian's targeted ODIs research supported enhanced rewards to reward for further additional leakage reductions.¹⁵³
- (271) Anglian's translation of customers' feedback into its proposed suite of performance commitments (PCs) and ODIs was considered a high-quality approach to customer research and triangulation to support robust estimation of marginal benefits.¹⁵⁴

3.6 Supporting vulnerable customers

- (272) Anglian's vulnerability strategy was co-created with its customers. This goes beyond simply seeking views on the September 2018 Plan but ensuring customers have shaped the solutions. Its programme has specifically targeted deep engagement with vulnerable customers. This has helped to increase understanding of the range of drivers and perceptions of vulnerability. The Company has also reviewed the support available and sought customers' views on priorities for vulnerability. Anglian's approach was challenged and informed by the Affordability and Vulnerability sub-panel of its CEF.
- (273) Customers told Anglian that the Company excels in providing support to vulnerable customers but needs to go further in raising awareness of the support available. This was most relevant to the Priority Services Register and its target to have over 380,000 households on the register by 2024-2025. It also extends to the range of services such as its successful benefits maximisation programme and its 'Debt free in two years' campaign.
- (274) Direct engagement with vulnerable customers has also shaped the proposed qualitative and quantitative vulnerability Performance Commitments measures in terms of both the scale and quality of its support. For example, customers supported the proposal to ring-fence any rewards for vulnerability measures to provide further support to those in need.¹⁵⁵

4 Bills, affordability and acceptability

- (275) Anglian developed its September 2018 Plan to respond to its regional challenges¹⁵⁶ and tested these components and the resulting bill levels with customers for both acceptability and affordability. It set out three scenarios corresponding to differing levels of investment to protect against climate change risk and increase environmental protection:
 - (i) bills before inflation remain flat over the five-year period (2020-2025);
 - (ii) bills before inflation increase by 2.5% over the five-year period (2020-2025); and
 - (iii) bills before inflation increase by 5% over the five-year period (2020-2025).

¹⁵² Accent Acceptability Testing PCs / ODIs, page 18 (SOC046).

¹⁵³ Anglian Be the Boss Consultation, page 7 (SOC320).

¹⁵⁴ ICS PC Marginal Benefit Mapping (SOC043).

¹⁵⁵ Incling Vulnerability ODI Report, slide 8 (SOC322).

¹⁵⁶ Anglian's regional challenges include the fact that: (i) Anglian has one of the fastest-growing in the UK; (ii) is most at risk from the impacts of climate change, given its low-lying topography, long coastline and already lower than average rainfall; (iii) is required to deliver a disproportionate amount of the total environmental improvements needed from the WINEP; and (iv) is largest agricultural region in the UK in terms of output.

4.1 Customer bills and acceptability

- (276) Through several channels, the largest segment of customers consistently chose the highest bill profile, as this was seen as good value for money. In Anglian's online community, 63% of customers voted for the +5% profile, and 25% voted for the +2.5% profile.¹⁵⁷ Customers indicated that this package offered a lot of protection against future risk, for not very much additional money. Even when given the option to switch to another profile, as in Anglian's 'Be the Boss game', 48% of post-switching customers voted for the highest profile (+5%) and 34% for the middle profile (+2.5%).¹⁵⁸
- (277) In all quantitative channels, more than 80% of participants selected an investment package that led to bills increasing by at least 2.5%. Anglian's acceptability research, as indicated below, tested acceptability and affordability of the highest bill profile, with 94% of informed customers saying its September 2018 Plan was acceptable, and 87% of informed customers saying its September 2018 Plan was affordable.¹⁵⁹
- (278) Notwithstanding customers' acceptance of a small increase in bills to support it, Anglian continued to challenge its costs, scope and timing of its investment plans. In particular, the September 2018 Plan sets out the key investments Anglian's customers want the Company to make to protect against climate change, support sustainable growth and enhance the environment. These amount to a 30% increase in investment, which Anglian's Plan proposed to deliver while also delivering a small reduction in bills. This means Anglian is delivering all the investments its customers want, at a lower price than they were willing to pay. This outcome is indicative of the way Anglian focuses on affordability, challenging costs while sharing the benefit with customers.

4.2 Customer bills and affordability

- (279) Although Anglian has very high levels of support for its September 2018 Plan and DD Representation, it recognises that there will be some customers who struggle to pay their bills. The vast majority of customers want to pay their bills, but sometimes a minority have difficulty in finding the money at the right time. For some customers, the issue is budgeting; Anglian is therefore offering more flexible payment methods and dates, and more help to manage customers' consumption to put them in control of their water bills. For some others, the issue is that their household income is not sufficient to pay all required bills. The level of water bills will not be the deciding factor which tips the household into difficulties, and its customers have told Anglian that they view water as a 'medium priority to pay' along with other utilities and after housing costs. Anglian offers three tariffs to help customers with very low income and its customers have told the Company that they think this is the right thing to do, given the very low level of cross-subsidy from other parts of its customer base.

4.3 Acceptability research

- (280) Anglian started this work in 2017 by setting out the principles of good acceptability research. At the outset of PR19, Anglian envisaged a five-stage approach taking the Company through the key development milestones of its Plan. Accent, a leading market research consultant, was appointed to carry out all five phases on Anglian's behalf.
- (281) Customers have consistently told the Company through many different channels that they want a low risk, high quality service, rather than reduced bills at the expense of service. At each stage, the acceptability research showed that a large majority of customers supported Anglian's Plan, agreed that it was based on their priorities, and found it affordable. In areas where this was not the case, Anglian

¹⁵⁷ Incling PR19 Consultation Feedback (SOC323).

¹⁵⁸ Anglian Be the Boss Consultation, page 7 (SOC320).

¹⁵⁹ September 2018 Plan, page 29 (SOC001).

changed its plans as a result of the acceptability research to ensure it delivered on its customers' stated preferences.¹⁶⁰

4.4 Stage 1 – May 2017 – SDS

(282) Anglian tested the challenges it faced, and the long-term goals set out in its draft SDS with customers and stakeholders. 87% of customers found the key challenges relevant, and 79% thought they closely reflected their views.¹⁶¹ With regards to its four long-term goals within its draft SDS, 83% of customers expressed their acceptability; however, nearly half of those thought at least one goal should not be included (i.e. mostly the digital goal).¹⁶² As a result, as mentioned in Section 1 above, Anglian replaced the digital goal with a new one focusing on improving ecological status within catchments, which had emerged as a priority for stakeholders.

4.5 Stage 2 – January 2018 – ODI development

(283) The next stage of Anglian's Plan was to develop its view of the acceptability of the ODIs suite, which was based on the willingness to pay surveys¹⁶³ carried out during 2017.

(284) Each of the common ODIs was tested and three-quarters of customers found all ODIs clear and easy to understand, and 94% found at least some of the suite easy to understand.¹⁶⁴ Similar results were gained for the bespoke suite (74% found all were clear, 94% found some or all clear) and 77% of participants thought Anglian should be measured against all the ODIs within the suite.¹⁶⁵ Anglian also asked about deadbands, caps and collars; 69% supported deadbands and 74% supported caps and collars in principle.¹⁶⁶

4.6 Stage 3 – April 2018 – Outline Plan testing

(285) Anglian then tested its draft plan using several different engagement channels, including acceptability research. Acceptability was 88% on an 'uninformed' basis (i.e. when customers were presented with basic information about the bill profile), which rose to 93% on an 'informed' basis (i.e. when customers also considered key service improvements in the package) for household customers, and 88% rising to 94% once informed for non-household customers. Affordability was equally high, at 81% rising to 89% once informed for household customers and 87% rising to 93% for non-household customers. Bill profiles were tested including inflation with more than 95% of participants confirming they understood the impact of inflation on bills.¹⁶⁷

(286) Anglian also tested the PCs and asked whether participants thought they were sufficiently stretching. A total of 28 measures were tested, with a range of responses from 56% to 83% saying they understood the measure and felt each was sufficiently stretching.¹⁶⁸

¹⁶⁰ Anglian Acceptability Research Report (SOC190).

¹⁶¹ Accent Acceptability Testing SDS, pages 8 and 9 (SOC317).

¹⁶² Accent Acceptability Testing SDS (SOC317).

¹⁶³ Willingness to pay surveys included a range of societal valuation techniques including both traditional stated preference surveys and more innovative techniques such as subjective wellbeing. See **Chapter G: ODIs**.

¹⁶⁴ Accent Acceptability Testing PCs / ODIs, page 9 (SOC046).

¹⁶⁵ Accent Acceptability Testing PCs / ODIs, page 23 (SOC046).

¹⁶⁶ Accent Acceptability Testing PCs / ODIs, page 27 (SOC046).

¹⁶⁷ Accent Acceptability Testing Outline Business Plan (SOC324).

¹⁶⁸ Accent Acceptability Testing Outline Business Plan, pages 32, 24 and 36 (SOC324).

4.7 Stage 4 – March 2019 – IAP bill profile

(287) Anglian made minor revisions to its Plan in response to the IAP and tested the resulting bill profile with customers. Acceptability increased marginally to 90% 'uninformed' and 91% 'informed' and affordability to 85%.¹⁶⁹

4.8 Stage 5 – August 2019 –DD Representation

(288) Anglian made further revisions to its Plan in response to the DD. Anglian decided to test both the revised plan and the DD with customers to assess what their preference was. Two-thirds of customers said they favour ensuring that investment can be delivered in the next five years to address the priorities identified, instead of a larger bill reduction.¹⁷⁰

4.9 Investment time horizon

(289) Customers indicated that they value a reliable, good quality service, and that they want that service to be resilient to both growth and climate change. Anglian asked customers both at a conceptual level, and with practical examples, how quickly the Company should be delivering that resilience, and when it should be paid for. Customers indicated that the Company should invest now rather than later, and that they were prepared to see a slight increase in bills to pay for that investment. In particular, Anglian:

- (i) asked customers about how they should set the RCV run off rate. Customers clearly indicated that they expected to pay for the assets they used, at the time they used them, with 91% supporting rates that would either see current customers pay more, or current and future customers fairly sharing the cost. Only 9% supported pushing forwards that cost onto future customers;¹⁷¹
- (ii) consulted on the WRMP by giving customers four options to protect long-term supplies (i.e. (i) do nothing; (ii) protect against drought; (iii) protect against drought and climate change; and (iv) protect against drought and climate change and provide an element of future proofing against factors such as lower than anticipated savings from Anglian's water efficiency programmes, extreme drought events, alternative climate change scenarios and longer term impacts, beyond the statutory 25-year planning period). 71% of participants chose the option that included future proofing;¹⁷²
- (iii) provided three bill options based partly on whether customers wanted to invest now or later in protecting against climate change. 85% of online community participants and 82% of the 'Be the Boss' participants voted for the higher (+2.5% and +5%) bill profiles, which were provided within the context of the potential 2030 bill, so that customers were aware that bills would rise in the short term and flatten out over the longer term;¹⁷³ and
- (iv) asked customers in the 'Be the Boss' game whether Anglian should invest now or later to protect against climate change, 64% indicated that they wanted the Company to invest now.¹⁷⁴

4.10 Request to the CMA

(290) Anglian strongly recommends that the CMA takes account of the views of customers as gathered in this engagement exercise. The CMA will wish to reassure itself that this was not a rubber-stamping exercise:

¹⁶⁹ Accent IAP Bill Profile (SOC325).

¹⁷⁰ Accent DD Bill Preferences (SOC326). See also Accent Acceptability Research Report (SOC190).

¹⁷¹ Incling PR19 Consultation Feedback, page 56 (SOC323).

¹⁷² Incling Water Resource Management Report (SOC319).

¹⁷³ Anglian Be the Boss Consultation, page 7 (SOC320).

¹⁷⁴ *Ibid.*

Anglian can demonstrate that customers had the information and ability to make informed choices. The CMA is of course also welcome to seek the views of the CEF directly.

Chapter B.3: Anglian's Plan and how it was built

1 Overview

- (i) Anglian's Plan includes a significant increase in expenditure needs relative to AMP6 expenditure (of approximately £1,429 million). This increase is almost entirely in relation to its enhancement programme.
- (ii) The increase in Botex relative to AMP6 is modest (£65 million or a 1.9% increase). It is justified by the need to maintain service while assets deteriorate, operate and maintain a larger asset base and maintain and raise standards of service.
- (iii) Anglian's enhancement programme is substantially bigger than in AMP6. This is driven by a significant increase in the number of statutory obligations within the WINEP, delivery of the Company's WRMP and investment to meet the high level of expected growth in its region.
 - (a) Anglian has worked closely and extensively with the Environment Agency in the development of its WINEP. It has also engaged extensively to explore options for natural capital solutions and to re-phase schemes beyond AMP7. Even after these measures to reduce it, Anglian's WINEP contains 19% of the total national obligations and the number of obligations in its plan for AMP7 is double the number in its AMP6 programme.
 - (b) Anglian's WRMP reflects the investment Anglian needs to make to address the water supply challenges in its region from population growth, abstraction reduction, climate change and drought resilience. Without action, over the next five years Anglian will move from a regional surplus of 150 MI/d to a deficit of 30 MI/d. Anglian's WRMP investment programme is eight times larger than at PR14.
 - (c) The third major driver of Anglian's enhancement programme is growth. Anglian has based its plans on Local Authority forecasts of housing growth and projections of population and occupancy.
- (iv) Anglian built its investment plans using the planning tools it uses in the ordinary course of business. Its rigorous investment planning approach ensures that Anglian delivers efficient outcomes for customers. Anglian benchmarked its plan against its historical expenditure, cost efficiency models for Botex and independently sourced third-party evidence for much of its enhancement programme.
- (v) As noted earlier, the Plan responds to the priorities expressed by Anglian's customers. They made clear that they want Anglian to invest now to continue reducing leakage, to enable sustainable growth, to increase resilience to drought and floods and to enhance the natural environment.

Request to the CMA
- (vi) Anglian requests that, in assessing costs for PR19, the CMA recognises, and appropriately accounts for, the key drivers of Anglian's efficient Botex expenditure needs and enhancement programme for AMP7, based on the specific challenges the Company faces.

2 Overview of Anglian's wholesale expenditure plan

2.1 Introduction

- (291) In its September 2018 Plan Anglian set out its assessment of the expenditure required over the period 2020-2025 for it efficiently to perform its functions. More specifically, the September 2018 Plan

comprised the Company's best view of how much money it needed to meet its statutory and licence obligations and deliver against its customers' priorities.

- (292) In response to new information and Ofwat's representations, the detail of Anglian's expenditure plan evolved between its September 2018 Plan, its Initial Assessment of Business Plans (IAP) Response and its Draft Determination (DD) Representation. This chapter provides an overview of the final plan as set out in Anglian's DD Representation (unless otherwise stated).
- (293) Anglian's September 2018 Plan and its DD Representation provide all the evidence to support Anglian's proposed scope of activities in AMP7, the outcomes those would deliver for customers and the environment, and the costs needed to deliver them. Anglian does not reprise those here, however this chapter provides an overview of the key elements

2.2 Price controls and expenditure types

2.2.1 Water / Water Recycling

- (294) Anglian's statutory duties cover both the supply of water (collecting water from rivers and underground aquifers to put it into supply) and water recycling services (treating water which comes back into the system through Anglian's sewerage network to return it to the environment (also known as wastewater or sewerage services)). Water services are covered by the Water Resources and Water Network Plus price controls and Water Recycling services are covered by the Wastewater Network Plus and Bioresources price controls.

2.2.2 Base operating expenditure and capital maintenance (Botex)

- (295) Base operating expenditure (opex) is the recurrent opex incurred to operate the existing asset base and deliver current service standards. Capital maintenance expenditure (capex) is the capital expenditure incurred to maintain the existing asset base. Botex comprises the sum of base opex and capital maintenance. It does not include Enhancement opex (described below). Changes in capitalisation accounting policies mean that comparisons between base opex and capital maintenance between companies and between different time periods can be unreliable.

2.2.3 Enhancement

- (296) Enhancement costs are those incurred to deliver improvements to the current base service. Traditionally those improvements have been regarded in three categories: **quality** (improvements to drinking water quality or the quality of the environment), **supply-demand** (to meet the needs of new customers or increases in the demands of existing customers) and **enhanced services** (for example to reduce the number of customers at risk of sewer flooding or receiving low water pressure). Enhancements are mainly delivered through capital expenditure to extend the asset base but they also include solutions which incur enhancement operating expenditure.
- (297) Enhancement operating expenditure comprises two types:
- (i) The incremental increase in opex associated with the ongoing operation of new plants installed as part of any enhancement scheme (e.g. the power, chemicals and labour cost of operating a new water treatment process or running a new sewage pumping station to service a new development); and
 - (ii) Opex solutions delivering outcomes that had previously been met by capital solutions. Traditionally, enhancement problems were often solved by creating new assets. However, in PR14, Ofwat introduced the 'totex' (total expenditure) regime, whereby companies were incentivised to select the solution with the lowest whole life cost, which may involve a non-capex

solution.¹⁷⁵ For example, Anglian might pay farmers not to use pesticides (an opex solution) whereas previously it would have installed pesticide-removal technology at water treatment works (a capex solution).

(298) As a result of Ofwat's introduction of totex thinking, the second type of enhancement opex is a much larger component of Anglian's AMP7 expenditure plan than in previous AMPs.

2.2.4 Botex Plus

(299) Botex Plus is a concept introduced by Ofwat during the course of its PR19 assessment process. It involves moving expenditure incurred to achieve certain service enhancements from Enhancement, where they have traditionally been categorised, and adding them to Botex. The enhancements in question primarily relate to customer growth but also include costs to address sewer flooding, low pressure and the costs of managing those sewers and pumping stations which were transferred to water companies under government regulations in 2011 and 2016.¹⁷⁶ Except where required, Anglian does not use Botex Plus for cost classification but uses Botex and Enhancement.

2.3 Anglian's expenditure plan in context

(300) Figure 14 below shows Anglian's proposed expenditure for AMP7 in the context of its historical expenditure. It compares Anglian's proposed total wholesale expenditure for AMP7 with (i) Anglian's actual AMP6 spend (left hand column), and (ii) with the cost allowances that Ofwat has determined for Anglian in its Final Determination (FD) (right hand column).

Figure 14 Anglian's AMP7 wholesale plan compared to AMP6¹⁷⁷



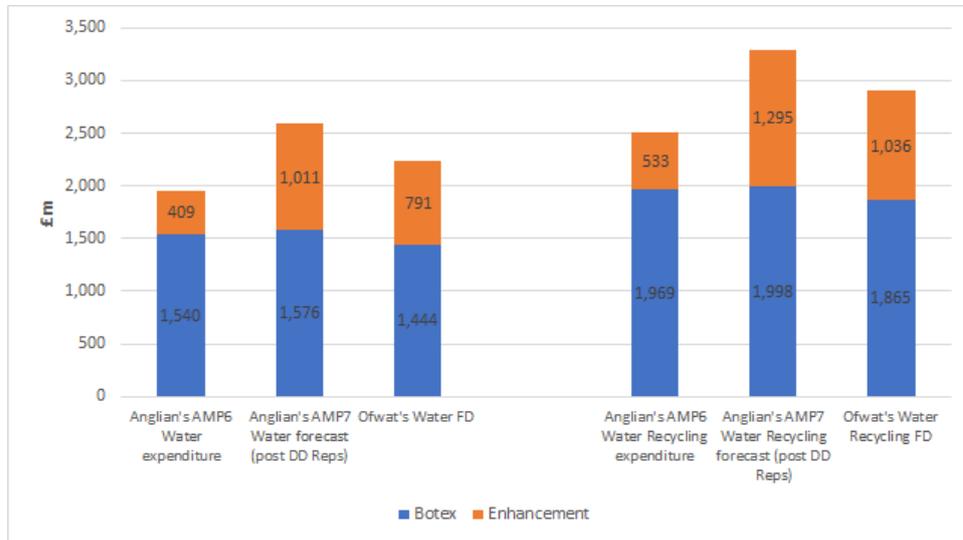
¹⁷⁵ 'Our move to assessing costs on a total expenditure ('totex') basis removes any undesirable incentives for companies to seek capital expenditure-intensive solutions where there may be better alternatives'. PR14 Outcomes technical appendix (SOC327).

¹⁷⁶ The Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011, available at: <https://www.legislation.gov.uk/ukdsi/2011/9780111510933/contents>.

¹⁷⁷ For the avoidance of doubt, in Figure 14, growth-related expenditure is covered in Enhancement, rather than Botex. This is in line with Anglian's accounting approach and enables a like-for-like comparison with AMP6 spend. In AMP6, Ofwat recognised growth-related expenditure as part of Enhancement (rather than part of Botex Plus: the new Ofwat approach for PR19).

(301) Figure 15 below provides the same comparison separately for Water Services and Water Recycling Services.

Figure 15 Anglian's AMP7 expenditure plan compared to AMP6



Source: Anglian: Figures exclude costs for third-party services and pension deficit repair

(302) Figures are provided for Water and Water Recycling Services separately as well as on a total wholesale basis. Costs are split by (i) Botex (further divided by opex and capital maintenance (CM) and (ii) Enhancement. All figures are in 2017-2018 prices and Anglian has inflated historical expenditure to this price base using year average values for CPIH.¹⁷⁸

Table 2 Anglian's AMP7 expenditure plan compared to AMP6¹⁷⁹ (2017/18 prices)

	Anglian's actual spend for 2015-2020 (AMP6) (£m)					Anglian's planned expenditure in 2020-2025 (AMP7)(£m)				
	Opex	CM	Botex	Enh't	Totex	Opex	CM	Botex	Enh't	Totex
Water	1,115	426	1,540	409	1,949	1,169	407	1,576	1,011	2,587
Water Recycling	1,308	660	1,969	533	2,502	1,352	646	1,998	1,295	3,293
Total Wholesale	2,423	1,086	3,509	942	4,451	2,520	1,054	3,574	2,306	5,880
Variance (£m)						98	-32	65	1,364	1,429
Variance (%)						4.0	-3.0	1.9	144.7	32.1

Source: Anglian. CM = Capital Maintenance, Enh't = Enhancement

(303) It is clear from the above that Anglian plans a significant increase in expenditure in 2020-2025 in both Water and Water Recycling compared to the current price control period. It is also clear that this increase

¹⁷⁸ The Consumer Price Index including owner occupiers' housing costs (CPIH).

¹⁷⁹ Figures in both AMP6 and AMP7 exclude costs for third-party services and Pension Deficit Repair Costs; Botex is base opex plus capital maintenance. For the avoidance of doubt, Botex does not include growth; Enhancement covers all elements of Enhancement capex and Enhancement opex, including growth.

is almost entirely driven by a significant increase in Enhancement expenditure (that is, as explained above, the costs of meeting additional statutory obligations or providing higher levels of service, through extending the asset base or other means). The following Sections explain the reasons for these increases.

3 Key drivers of Botex expenditure needs in AMP7

(304) On base expenditure (Botex), Anglian's planned expenditure is £65 million (1.9%) higher than its level in the current period. This increase is the net effect of various changes including Anglian's inclusion of substantial productivity improvements. This Section sets out the key drivers for this uplift.

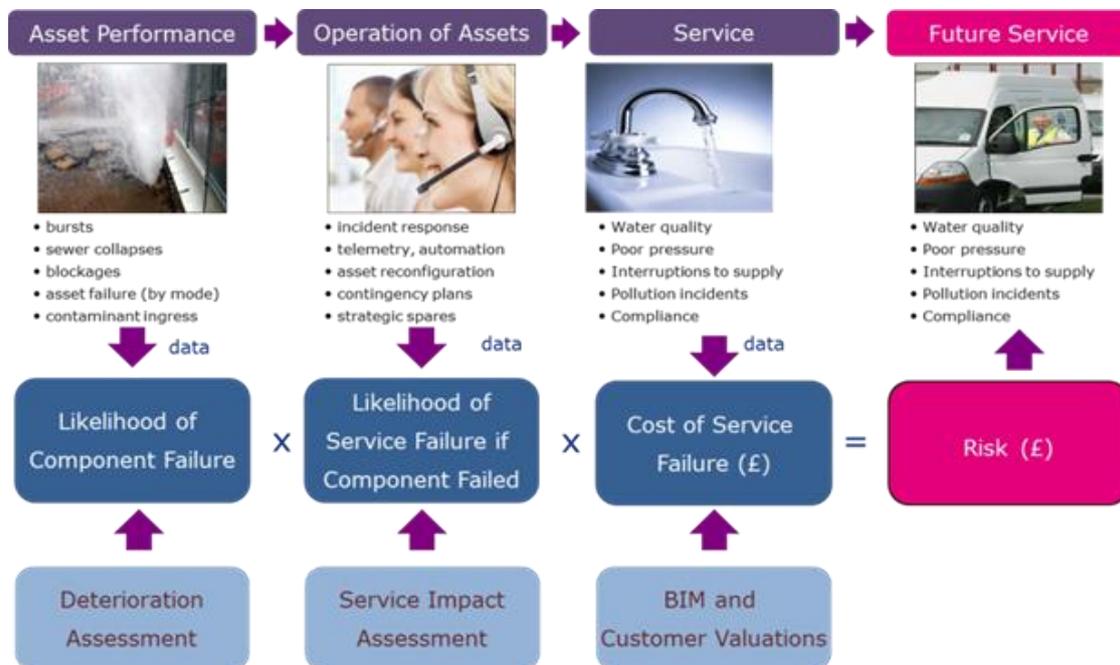
3.1 Maintaining service while assets deteriorate

(305) Anglian's asset and investment planning approach has developed over the last 15 years. It is forward-looking, risk-based and aligns to '*Capital Maintenance Planning: A Common Framework*' which was developed by the water industry to address criticism of Ofwat's cost assessment approach at PR99.¹⁸⁰ Anglian's asset management system is certified to ISO 55001, the standard for a structured, best practice framework for managing the lifecycle of assets.

(306) Anglian's approach is grounded in the principle of balancing risk, service and cost along with the many and various interests of its stakeholders and statutory objectives. It uses cost-benefit analysis to define the least cost programme of activities which will most efficiently deliver outcomes in line with customers' preferences and priorities.

(307) The elements of Anglian's risk-based investment planning approach are detailed in Figure 16 below:

Figure 16 Anglian's risk-based investment planning approach



Source: Anglian

(308) Detailed analysis informs Anglian of the probability of asset failure over time, the cost of the service delivery failures associated with those asset failures and the cost of the solution needed to prevent the service failure. The three elements of risk, service cost and solution cost are brought together to produce an optimised investment plan.

¹⁸⁰ UKWIR Capital Maintenance Planning (SOC328).

- (309) Anglian runs multi-constraint scenarios within its investment optimisation system, setting ceilings on investment, performance, activity levels or other parameters. At PR19, had Anglian constrained its programme to historical investment levels, service failures would have risen because of the natural deterioration of the Company's assets. This would have increased resilience risk and ignored the preferences of Anglian's customers who expressed a willingness for the Company to maintain and improve on current service levels.¹⁸¹ Anglian generally therefore constrained the programme to maintaining current levels of asset performance and service performance rather than expenditure, recognising that for many asset classes this would generate a programme that was slightly more expensive than Anglian's AMP6 equivalent.
- (310) The examples below show where the risk-service-cost optimisation process has led to increases in maintenance requirements:
- (i) It is a requirement of the WRMP, supported by Anglian's customers, who told the Company that they considered it a high priority, for the Company to improve its capacity to deal with drought. As a result, Anglian changed its service level for emergency drought orders from one in 100 years to one in 200 years as part of its Water Resource Management Plan.¹⁸² This change necessitates greater investment in maintenance of boreholes to sustain yield and maintenance of its largest river abstraction pumps.
 - (ii) In 2005, Anglian embarked on a major two-AMP programme of investment in advanced anaerobic sludge digestion with energy generation using combined heat and power. Data about the deterioration of the assets used for this process, combined with knowledge of their importance in meeting its customers' priorities on carbon reduction, demands an increase in their maintenance.
 - (iii) The available spare capacity within the Company's sludge digesters has reduced significantly during AMP6, increasing the risk of insufficient capacity to treat AMP7 sludge. Anglian has therefore increased its AMP7 digester maintenance plans to mitigate this risk and to increase digester utilisation, deferring extensions until AMP8.

3.2 Operating and maintaining a larger asset base

- (311) During the course of each AMP, Anglian extends its asset base to serve its growing customer base, which typically increases at around 1% per year. Anglian serves around 600,000 additional properties since privatisation, an increase of c.53%.¹⁸³ Each AMP, Anglian also delivers higher levels of service and meets more stringent quality standards (which it accounts for as Enhancement costs). New assets acquired in the previous period then require operation and maintenance in the next period (effectively becoming additional base costs in that period). For example, during AMP6 the Company has installed screens at 19 river intakes to prevent the entrainment of eels; these assets will require operation and maintenance going forward. These costs are considered Enhancement during the AMP they are incurred before subsequently adding to base expenditure requirements in the next AMP period and beyond.
- (312) A significant extension during AMP6 occurred due to the transfer of private wastewater pumping stations under The Water Industry (Schemes for Adopting of Private Sewers) Regulations 2011 (the '**2011 Regulations**'). The second part of the 2011 Regulations came into force on 1 October 2016, as a result of which Anglian was required to adopt over 1,200 wastewater pumping stations, which it estimates to

¹⁸¹ September 2018 Plan, page 27 (SOC001).

¹⁸² *Ibid.*

¹⁸³ Anglian's 2019 Annual Report, page 5 (SOC301)

be 16% of the England and Wales total. These assets represent 25% of its pre-transfer stock of wastewater pumping stations.¹⁸⁴

(313) Under the first part of the 2011 Regulations (which came into force on 1 October 2011), Anglian adopted around 31,200km of transferred private sewers. These represent 13% of the total length of transferred sewer in England and Wales and 70% of its pre-transfer sewer stock.¹⁸⁵

(314) Anglian's expenditure on these transferred assets during the first four years of AMP6 was £126 million, as follows:

Table 3 Anglian expenditure on transferred assets years 1-4 of AMP6

AMP6 years 1-4	Base Opex (£m)	<u>Enhancement</u> Capex (£m)
Transferred sewers	48.8	49.7
Transferred pumping stations	3.5	23.7
Total	52.4	73.4

Source: Anglian

(315) Anglian's AMP7 base expenditure (Botex) plans include a similar level of opex for these transferred assets as in AMP6 (and this opex was always reported as part of base opex during AMP6). However, the plans also include £19 million of capital maintenance, as set out below. This represents an uplift on Anglian's AMP6 Botex spend because in AMP6, as required by Ofwat, Anglian reported all capex on transferred assets as *Enhancement expenditure*. These figures are set out in Table 4 below.

Table 4 Anglian planned expenditure on transferred assets in AMP7 (including capex spend that would previously have been accounted for as enhancement)

AMP7 plan	<u>Base</u> Capex (£m)
Transferred sewers	13.3
Transferred pumping stations	5.6
Total	18.9

Source: Anglian

3.3 The need to maintain and raise standards of service

(316) In its PR19 methodology, Ofwat set out its expectation that companies could achieve future (2024-2025) upper quartile service performance at current Botex funding levels. Anglian challenges this assertion in **Chapter F: Cost service disconnect**.

(317) Anglian built a comprehensive plan which recognised the true costs of achieving the service standards demanded by customers. The cost of improving service in one period (an Enhancement cost) will form part of Base costs for maintaining that level of service in the next period. Costs associated with delivering improved service standards for leakage and supply interruptions contribute materially to the uplift in Botex for AMP7 relative to AMP6 as a result of enhancement investments on leakage and supply interruptions during AMP6. This is illustrated in the leakage case study below (and explained in further details in **Chapter H: Leakage**).

¹⁸⁴ Anglian analysis based on data in companies' Information Request submissions in 2017 and PR19 business plan tables.

¹⁸⁵ *Ibid.*

Leakage case study

Anglian's average leakage over the course of AMP6 is 185MI/d. It expects to outturn in 2019-2020 at 184 MI/d. Anglian therefore regards 184 MI/d as its base leakage performance for AMP7 and includes the cost of maintaining at this level entirely within Botex (reducing leakage further from this position is an enhancement cost and not part of this comparison).

Leakage expenditure within Anglian's AMP6 Botex was the share of overall leakage expenditure required to maintain Anglian's AMP5 leakage position (2014/15 leakage was 192 MI/d). The AMP7 Botex cost of maintaining leakage at 184 MI/d is therefore higher than the Botex that was incurred in AMP6 because of the increasing marginal cost of leakage control as leakage fails.

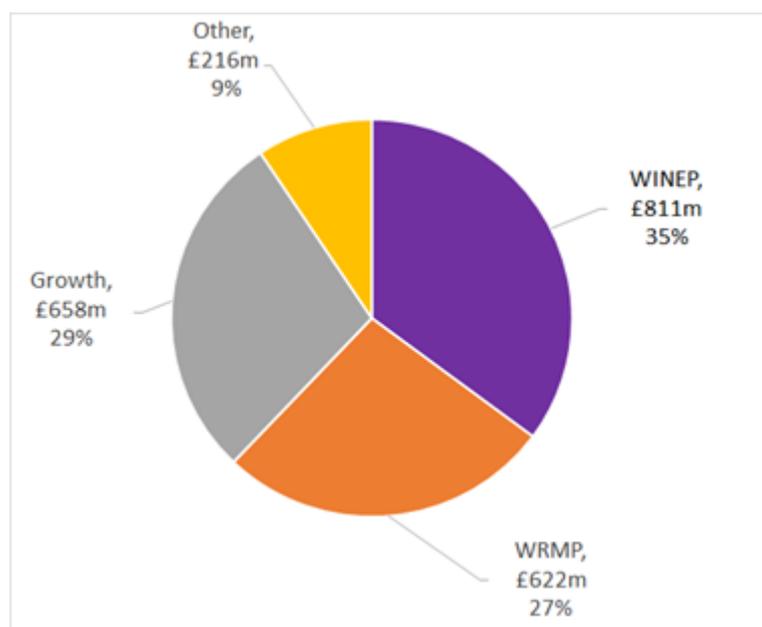
- (318) Anglian has set itself stretching performance targets in supply interruptions. Anglian's average performance against this measure over AMP6 was around 11 minutes but, based on the priority customers attach to this measure, set itself a target of improving to 5 minutes 34 seconds by 2024-2025.¹⁸⁶ Anglian recognises the considerable investment (£30 million) which will be required to achieve this target. In previous price reviews, Ofwat would have recognised this as a service enhancement and treated the cost of achieving it under Enhancement, however its policy at PR19 is that such enhancements can be achieved from current base spending. Anglian challenges this policy and therefore included this sum in its Botex plan, where it represents an additional component of the uplift between AMP6 spend and Anglian's AMP7 expenditure plan.

4 Anglian's Enhancement programme for AMP7

- (319) As Figure 14 above illustrates, the key driver of the increase between past and future spend is Enhancement rather than Botex. In contrast to Botex, the scale of Enhancement expenditure can be more variable across time because the scope of the Company's enhancement programme will change dependent on drivers such as legislation, customer preferences and growth. Previous expenditure is therefore a less reliable benchmark for future Enhancement spend than it is for Botex.
- (320) Table 2 above shows that Enhancement expenditure for AMP7 is expected to increase by 145% (£1,364 million) compared to AMP6. As explored further below and in the **Chapter E.3: Enhancement**, Anglian's enhancement needs are very largely driven by statutory and licence obligations. These are in turn responding to the specific challenges facing Anglian's region (from climate change, population growth and the need for environmental enhancement and the restoration of sustainable levels of abstraction), which are also reflected in the priorities of its customers.
- (321) Figure 17 below shows the key high-level drivers of Anglian's Enhancement expenditure in its Plan. Statutory obligations under WINEP are the most important drivers of enhancement costs (35%), followed growth (29%) and WRMP (27%).

Figure 17 Anglian's Enhancement plan by key driver (£ million and % total)

¹⁸⁶ September 2018 Plan, page 159 (SOC001); Customer Research and Engagement (August 2018), page 151 (SOC033).



Source: Anglian

5 Key drivers of Enhancement expenditure needs in AMP7

(322) This Section explains the development of Anglian's WINEP and summarises its WRMP in more detail. It also describes the other key driver, growth, and how Anglian developed this part of its programme.

5.1 WINEP

(323) The Water Industry Strategic Environmental Requirements ('**WISER**') was issued jointly by the Environmental Agency (EA) and Natural England. It provides the strategic steer for water companies in England on the environmental, resilience and flood risk obligations that must be considered when developing their business plans. It highlights the statutory obligations and regulators' expectations that apply, to help companies to embed them in the outcomes, performance commitments and investment decisions that underpin business plans. Anglian shared a report with the Environment Agency (EA) in August 2018 setting out how its business plan delivers WISER in the Anglian region¹⁸⁷. WISER supports and provides the strategic steer on the WINEP which sets out specific obligations for each company to deliver in its business plan.

(324) The WINEP is the single most significant driver (35%) of Anglian's Enhancement expenditure. The below Section summarises what WINEP is, how it links with wider environmental policy in the UK, how it has been developed and how Anglian has worked with the EA to influence its development.

5.1.1 WINEP development

(325) The WINEP sets out specific schemes that companies need to deliver in order to meet statutory requirements relating to the environment.

(326) It is developed by the EA working with NE and water companies and includes actions to manage abstractions and improve water quality to meet river basin management objectives, reduce pollution, and manage protected areas. It identifies investments that need to be included in companies' plans and promotes the use of catchment-based approaches.

¹⁸⁷ Anglian's WISER Report (SOC329).

- (327) The WINEP has been developed in phases alongside the PR19 process. However ministerial sign-off of the River Basin Management Plans ('**RBMP**'), which WINEP ultimately helps to deliver, is not expected until significantly after the completion of the PR19 process in December 2021. The WINEP and Anglian's September 2018 Plan therefore take account of uncertainty in relation to the schemes that need to be delivered before final ministerial sign-off of the RBMP.
- (328) To reflect this uncertainty, the EA applied a traffic light system in its WINEP releases. Each scheme has been assigned a traffic light colour (red, amber and green) to reflect the different levels of uncertainty associated with the development of measures, economic appraisal and ministerial decisions. Green schemes have the highest level of certainty and the red has the lowest. The traffic light system applies under all drivers in the WINEP.
- (329) This approach is intended to be dynamic with schemes expected to move from red to green as the uncertainty reduces towards ministerial sign-off. The EA set a clear expectation that cost allowances in WASCs' business plans should be made for those measures in the WINEP associated with green and amber traffic lights. With each publication of WINEP, measures are expected to move from amber (indicative) to green (certain/confirmed) as planning progresses and decisions are made.
- (330) The EA issued three official releases of the WINEP before companies published their business plans in September 2018:
- (i) WINEP1 (March 2017): First release, primarily focused on ensuring water companies have information on water resources sustainability changes to include in their draft WRMP. It includes water quality and information on other expenditure drivers where available.
 - (ii) WINEP2 (September 2017): Second release, providing a provisional WINEP programme for companies to use in preparing their business plans.
 - (iii) WINEP3 (March 2018): Final release to inform business plans.
 - (iv) WINEP3 (June 2019): Anglian's DD Representation reflects this latest WINEP publication updated in June 2019. For example, a sustainability scheme at East Ruston was added to Anglian's Plan at DD Representation which was included in WINEP3 but had not been included in previous versions of WINEP.

5.1.2 Anglian's engagement with the EA

- (331) Anglian worked closely and extensively with the EA through the WISER and the WINEP to inform the final Ministerial decision on what was required for AMP7.
- (332) Anglian has maintained a close dialogue with the EA at each stage of the development of WINEP to help shape the programme and ensure the best outcomes for the environment, whilst ensuring costs are at a level which ensures affordable bills for customers, as highlighted in the two examples below.

(i) Natural capital

- (333) Anglian engaged extensively with the Government and Ofwat to explore options for delivering natural capital and 'no build' solutions as a means of meeting the environmental obligations within the WINEP over a seven-year period (rather than five) and in a way that could be more environmentally beneficial and/or help with challenges of affordability and deliverability. As a result of this engagement Anglian's Plan would enable it to pursue a much greater number of natural capital schemes as an alternative to engineering and chemical dosing solutions to address water quality.

(ii) Phasing of storm tanks and flow to full treatment schemes

- (334) Anglian also worked with the EA to develop selection criteria to identify U_IMP5 (technical design standards for Water Recycling Centres) and U_IMP6 (technical design standards for storm tanks and

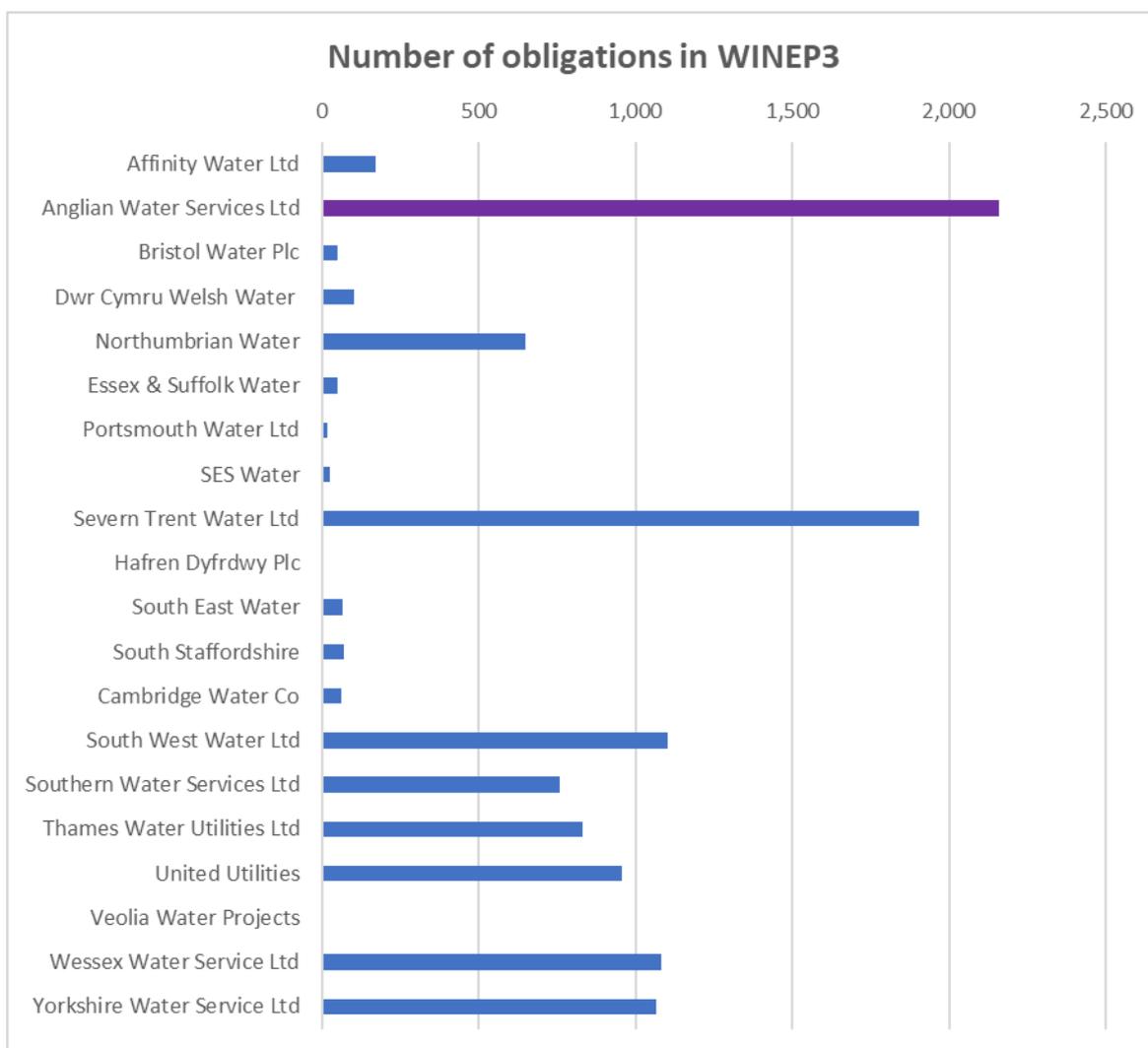
flows to receive full secondary treatment) obligations which can be phased into AMP8 thus removing costs from AMP7.

- (335) Through this process the EA agreed to phase 14 flow to full treatment (U_IMP5) and 40 storm tanks (U_IMP6) schemes to AMP8 with a total cost saving of £25.85 million and £44.48 million respectively. The phasing of U_IMP5 and U_IMP6 schemes will also limit the strain on construction resource over an AMP period where demand for such skills will face significant competition from major projects in the transport, energy, communication and environmental sectors (as highlighted in HM Treasury's National Infrastructure Plan for Skills¹⁸⁸).
- (336) By working closely with the EA during the development of its September 2018 Plan, Anglian has helped to ensure the need for affordable bills and a positive impact on the environment are reflected in the WINEP. Customers rank environmental enhancement highly, and Anglian developed a programme which meets these obligations in the most environmentally beneficial and cost-effective way, utilising natural capital solutions where possible.
- (337) The topography and economy of Anglian's region, made up of slow-moving rivers, rapid housing growth and intensive agriculture, means its WINEP is significantly larger in AMP7 than in AMP6. In particular, slow-moving rivers are more susceptible to eutrophication (i.e. having an excessive enrichment of mineral and nutrients, which can cause a dense growth of plant life such as algae) and are therefore not be able to offer their full potential of enjoyment to customers and water users. This has a direct impact on the investment needed to ensure a sustainable environment in Anglian's region, including through WINEP. The sites Anglian is investing in through the WINEP have been proven to have the biggest impact on the river status. The region will benefit from the investment as cleaner rivers bring benefits to customers, water users more generally and the environment.
- (338) All of this means that Anglian's WINEP contains 19% of the total national obligations. However, Anglian has just 10% of the nation's customers so the cost pressures are significant. Anglian's WINEP obligations have increased from more than 1,200 obligations in AMP6 to 2,161 obligations in AMP7.¹⁸⁹ Figure 18 below shows the number of obligations for Anglian versus other companies.

¹⁸⁸ HMT NI Skills Plan (SOC330).

¹⁸⁹ See Anglian's WINEP (SOC312).

Figure 18 Number of Anglian WINEP obligations versus those of other companies



Source: Anglian

5.2 WRMP

(339) Another significant driver of cost increases in Enhancement derives from the obligations in Anglian's WRMP. This is a statutory requirement¹⁹⁰ that water companies produce and publish every five years. A company's WRMP should demonstrate that it has long-term plans in place to accommodate the impacts of population growth, drought, environmental obligations and climate change uncertainty in order to balance supply and demand. A WRMP consists of several elements, including:

- (i) a 25-year demand forecast: this describes how much water the water company thinks its customers will need in the future, considering factors such as population growth and climate change;
- (ii) a 25-year supply forecast: this illustrates how much water is available for use by the water company now and how this may change in the future. It considers the impact of climate change and potential reductions in the volume of water available to the water company (e.g. from rivers and/or ground water); and

¹⁹⁰ Section 37 WIA91. The legal requirements for the WRMP are defined in the Water Resource Management Plan Regulations 2007 (SI 2007/727), available at: <http://www.legislation.gov.uk/ukSI/2007/727/contents/made>.

- (iii) an assessment of the water company's options to meet demand, including leakage reduction and sustainable abstraction driven by WINEP.
- (340) Customer and stakeholder input are fundamental to the development of Anglian's WRMP. Indeed, the legislation mandates wide consultation with customers and stakeholders, on both a pre-draft WRMP and on a draft WRMP. The process is overseen by the EA with the final WRMP being approved by Defra. See **Chapter B.2: How customers have shaped the Plan** for details on Anglian's customer engagement on WRMP.
- (341) Defra, along with the EA and Ofwat, has set out guidelines and statutory directions for addressing long-term supply/demand balance issues through WRMPs, including the Water Resources Planning Guidelines issued in May 2016. The principles behind WRMP guidance are to *'ensure water companies lead the way in taking action to ensure that [they] can meet the needs of a growing population and economy as well as valuing the environment and meeting the challenges of climate change'*.¹⁹¹
- (342) In its September 2018 Plan, Anglian adopted growth forecasts in accordance with guidance for WRMPs, i.e. using Local Authority Planning data, to ensure alignment between Anglian's long-term plans for Water Resources, Water Recycling and Drainage and its plan for AMP7.
- (343) The challenges that Anglian faces from population growth, climate change, resilience to severe drought, and sustainability reductions result in a combined impact on its supply/demand balance of 294 MI/d by 2045, equivalent to 26% of the average daily distribution input in 2017/18.¹⁹² These impacts, however, are not distributed evenly; some areas are affected more than others. Anglian estimates that, out of a total of 28 Water Resources Zones,¹⁹³ 22 will be in deficit by 2045.¹⁹⁴
- (344) Figure 19 below illustrates the impact of Anglian's supply-demand challenge as broken down into the key areas described above.

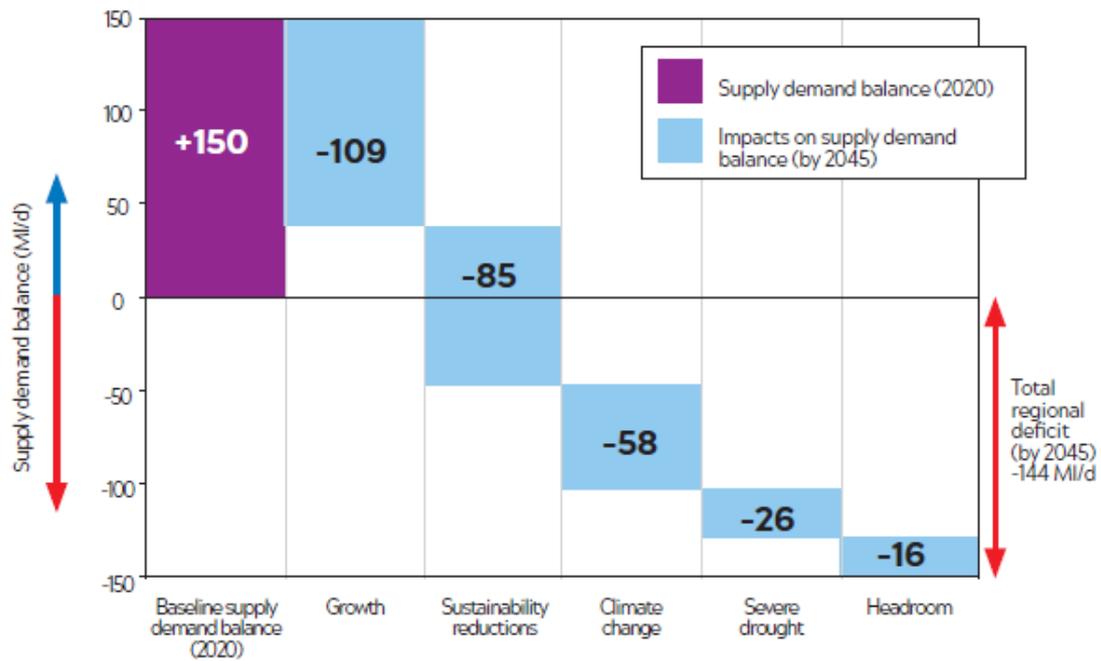
¹⁹¹ Defra's Guiding Principles (SOC313).

¹⁹² WRMP 19, page 5 (SOC279).

¹⁹³ UK Water Industry Research /EA definition of a Water Resources Zone is *'[t]he largest possible zone in which all resources, including external transfers, can be shared and, hence, the zone in which all customers will experience the same risk of supply failure from a resource shortfall.'* UKWIR / EA WRMP19 Methods Supplementary Report, last page before page 1 (SOC331).

¹⁹⁴ September 2018 Plan, page 58 (SOC001).

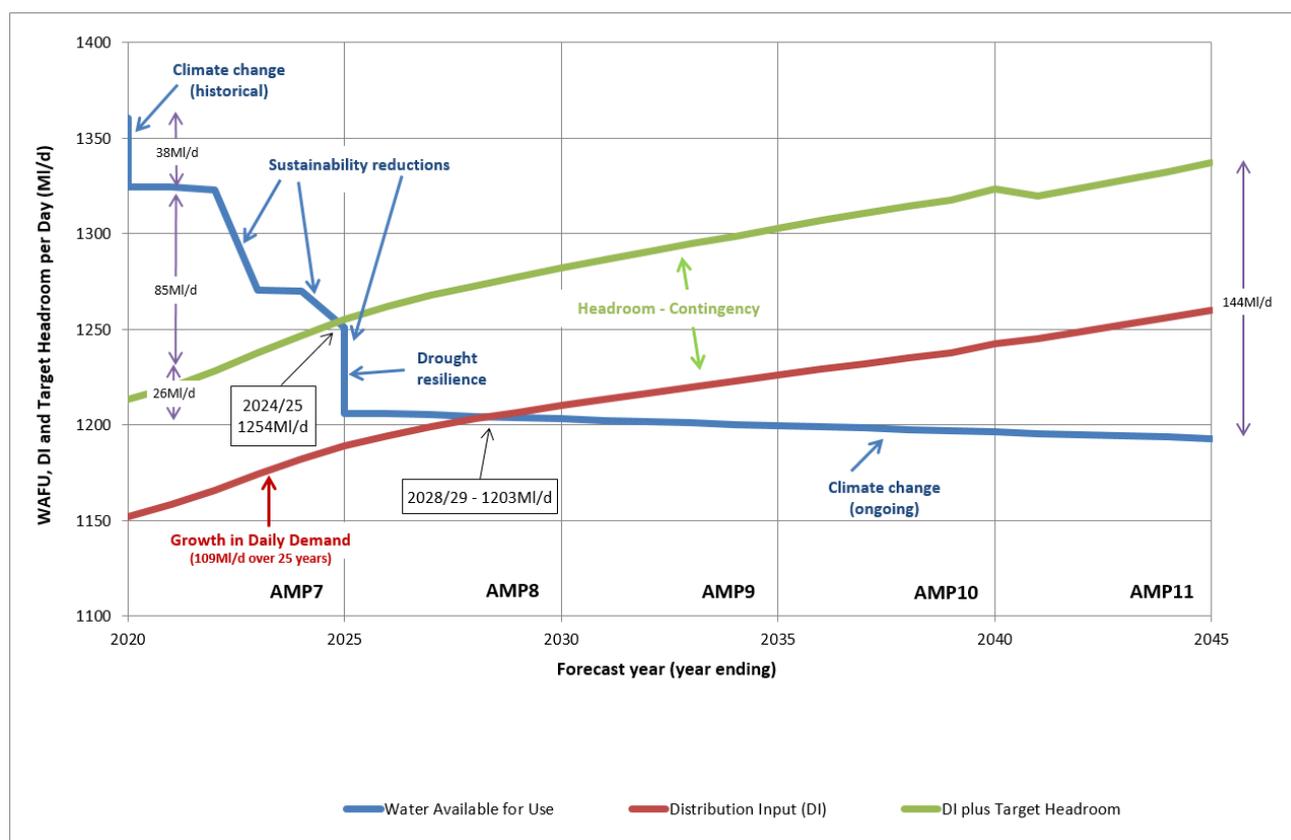
Figure 19 Pressures on Anglian's supply-demand balance



Source: Anglian

(345) As shown in Figure 20 below, a significant proportion (60%) of the impact on Anglian's supply-demand balance is experienced by 2025. Beyond this, population growth and climate change cause the supply-demand deficit to increase. There are also additional uncertainties not included in this figure such as further sustainability reductions, higher climate change and extreme droughts.

Figure 20 Impact of various factors on Anglian's supply-demand balance throughout AMP cycles



Source: Anglian

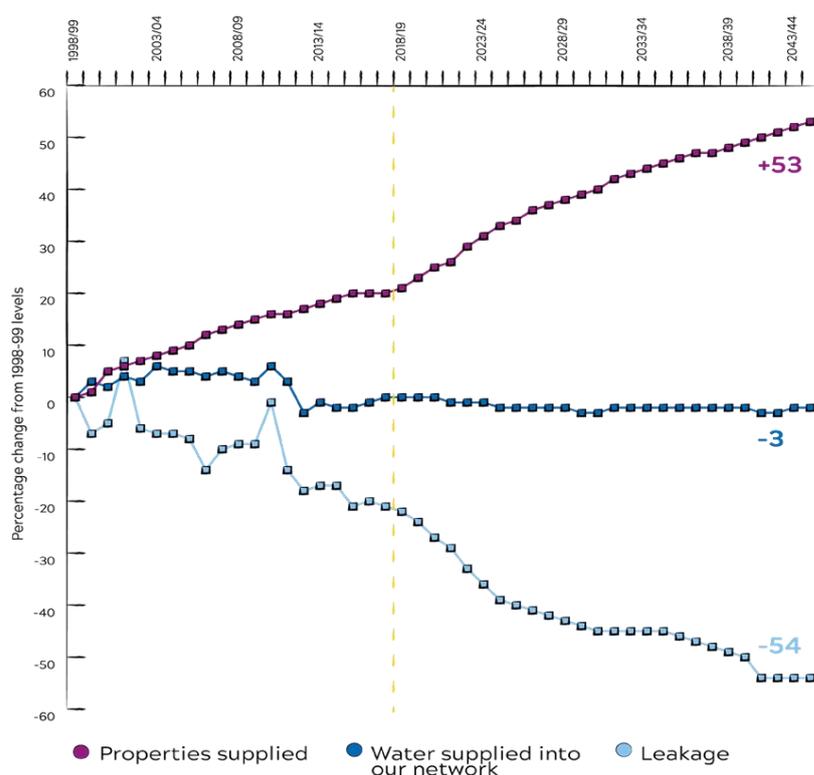
- (346) Anglian's WRMP sets out how Anglian will manage the water supplies in its region to meet current and future needs over a minimum of 25 years. Anglian's current WRMP was published in 2019 and covers the period from 2020-2045.¹⁹⁵ The significant and increasing pressures on the region's supply/demand balance due to population growth, reductions in abstraction required by the EA to protect the environment, climate change adaptation and drought resilience results in a WRMP expenditure programme which is nearly eight times larger than at PR14. As an illustration, over the next five years, Anglian will move from a regional surplus of 150 MI/d to a deficit of 30 MI/d, with half of its Water Resources Zones in deficit.¹⁹⁶ Furthermore, it is a requirement of the WRMP (which Anglian's customer support) that the service level requirements for emergency drought orders increase from one in 100 years to one in 200 years.
- (347) Managing growth in demand (along with reducing leakage) is a priority for Anglian and its customers.¹⁹⁷ As illustrated by the below graph, Anglian's demand management strategy under WRMP for PR19 will enable Anglian to meet the water demands of its growing customer base without requiring an increase in the water it puts into supply. It shows how Anglian's September 2018 Plan proposes to completely offset the higher demand for water from population growth through water efficiency strategies including better leakage control and installation of one million smart meters (which help customers to manage their demand and also detect leaks). This is a core element of the supply demand balance strategy, aligning to the views of customers and the Government.

¹⁹⁵ WRMP 19 (SOC279).

¹⁹⁶ WRMP 19, page 5 (SOC279).

¹⁹⁷ WRMP 19, page 28 (SOC279).

Figure 21 Demand management: past achievements and future ambitions



Source: Anglian¹⁹⁸

- (348) Anglian also needs to invest in supply-side schemes to maintain security of supply and resilience. Anglian's licensed area presents specific features which significantly constrain supply-side management possibilities. Firstly, it is a very large supply area and raw resources are highly disparate, often with limited connectivity at present. Secondly, there are very few opportunities for new abstractions. Much of the region is classified by the EA as over-licensed and/or over-abstracted and all groundwater sources are being capped in the near future. Consequently, Anglian's primary solution for AMP7, supported by customers, is to make the best use of available water surpluses, and transfer these to areas of deficit using interconnectors and to improve resilience to drought. For instance, the September 2018 Plan provides for a transfer between North Fenland with water surplus and South Fenland with water deficit. This strategy is consistent with the findings of the recently published National Audit Office report on water supply and demand management.¹⁹⁹ The report states: '*Connecting regions with surplus to regions of deficit and storing water in reservoirs during times of the year when water is more plentiful are effective ways to boost resilience without increasing total supply.*' The report also recognises the complex and costly nature of developing new sources such as desalination.
- (349) Anglian published its draft Water Resource Management Plan ('dWRMP'), which covers the 25-year period from 2020 to 2045, for public consultation between March and June 2018. Anglian received responses from a range of consultees, including Ofwat, and prepared a revised dWRMP and Statement of Response in September 2018. The investment proposals included in the Plan submission in September 2018 were fully aligned to the dWRMP. In November 2019 Anglian received approval from Defra to publish its September 2018 Plan.

¹⁹⁸ WRMP 19, page 11 (SOC279) (similar although less detailed graph).

¹⁹⁹ NAO Water Supply and Demand Management Report (SOC269).

- (350) When developing its September 2018 Plan and, specifically, the methodology to select the capacities for each of its relevant schemes, Anglian took into account future pressures relating to its supply demand balance. This is because Anglian knows, based on work already undertaken by the EA as part of the National Planning Framework, that further water resources changes will need to be addressed above those identified in the WRMP19 planning process.²⁰⁰
- (351) Anglian's capacity selections considered the utilisation of a future strategic reservoir scheme, which is currently in development as part of Ofwat's Strategic Regional Solutions programme. The scheme is progressing through the RAPID gateways²⁰¹ with the aim of being ready for development within AMP8.
- (352) The September 2018 Plan built on its WRMP and included what is needed during those five years to contribute to the long-term statutory (and some non-statutory) objectives of the WRMP. Key investments within the September 2018 Plan include:
- (i) A range of infrastructure investments (including new treatment and transfer (interconnector) capacity) to create new resources and improve Anglian's ability to move water from areas of surplus to areas of scarcity;
 - (ii) Installation of smart water meters to half of the household customers across its region to support their water efficiency behaviours and improve the Company's ability to identify leakage;
 - (iii) Continued leakage reduction to save another 30 MI/d of water by 2025;²⁰² and
 - (iv) Various initiatives to promote and enable the efficient use of water by customers.

6 Growth drivers in AMP7

- (353) The third major driver of Anglian's Enhancement programme is growth. This Section provides further detail on how Anglian established its growth investment needs for AMP7. In short, Anglian's approach is to:
- (i) seek to understand its future demand and map that demand to specific geographic locations;
 - (ii) establish asset investment needs, where existing assets are unable to accommodate growing demand; and
 - (iii) assess options, select a solution and adapt its plans over time.

6.1 Anglian's approach to determining its growth investment needs, solutions and costs

- (354) Anglian's September 2018 Plan takes forward the first five years of investments within its 25-year WRMP and Water Recycling Long-Term Plan (WRLTP).²⁰³ The development of Anglian's investment requirements for growth, as for other elements, involved establishing need, optioneering and then cost assessment.²⁰⁴ These investment cases were presented as part of Anglian's September 2018 Plan and

²⁰⁰ For instance, considering additional pressure on supply-demand balance, the EA's new Water Resources National Planning Framework sets out the need to be resilient to a 1 in 500-year drought event as a new planning criterion. Further details are set out in **Chapter E.3: Enhancement**.

²⁰¹ RAPID refers to the Regulatory Alliance for Progressing Infrastructure Development, an alliance of three water industry regulators: Ofwat, the Environment Agency and Drinking Water Inspectorate to support and oversee the development of regional water resource solutions.

²⁰² WRMP 19, page 11 (SOC279).

²⁰³ WRLTP Overview (SOC212). Anglian is the first company in the industry to publish a long-term plan for water recycling, for managing the supply of water recycling services to meet the demands of a growing population. The approach Anglian has taken to develop its WRLTP is aligned with aspirations of the Drainage and Wastewater Management Plans that will be a requirement ahead of PR24

²⁰⁴ Examples of this process in practice for a number of development sites can be seen in AECOM Growth Case Studies (SOC333).

again in its IAP Response. The enhancement cases Anglian wrote to support these can be seen in the commentary documents that supported its September 2018 Plan.²⁰⁵

6.1.1 Forecasting future demand

- (355) In its September 2018 Plan, Anglian adopted forecasts in accordance with guidance for WRMPs,²⁰⁶ i.e. using Local Authority Planning data, which was independently assessed by external demographic consultants (Edge Analytics).²⁰⁷ This approach ensured alignment between Anglian's long-term plans for water resources, wastewater and drainage and its Plan for AMP7.
- (356) Anglian has subsequently updated the forecast to reflect current levels of housing growth activity, the latest Local Authority projections and Local Authority progress towards delivering their plans. For the updated forecast, Anglian has used latest Local Authority Planning data (collated by Edge Analytics) on growth in its region. Additionally, using information compiled and assessed by Edge Analytics, Anglian has adjusted each Local Authority projection. The adjustments accounts for:
- (i) Local Authority recent delivery against its plan from 2015-2016 to 2017-2018 (the housing delivery test),
 - (ii) The degree to which a step-up is required from recent Local Authority delivery of homes to meet the future plan projections (the plan completions uplift),
 - (iii) Whether there is sufficient supply of housing land for delivery of local plans (deliverable capacity).
- (357) Each Local Authority area has been assessed and a percentage probability factor determined (note that these factors can indicate both where delivery fails to achieve planning objectives and where recent development exceeds planning requirements; for example Cambridge has over recent years delivered 388% of the homes in its plan in the period reviewed). Anglian has capped the factor at 100% (such that the revised forecasts, at a maximum reflect the Local Authority's Plan projections). The factors are combined to create a single adjustment factor for each Local Authorities plan. These factors are applied to the Local Authority plans in Anglian's water supply region to derive the forecast of connections. More detail of the derivation and application of these tests is provided in the Edge Analytics New Housing Developments Report.²⁰⁸
- (358) The updated forecast of **connections** is 81% and 84% of the figures originally in Anglian's September 2018 Plan for water and water recycling respectively. Local Authority plans have not changed significantly since the September 2018 Plan was created; the reduction largely reflects areas where growth has not yet materialised in specific areas of its region.
- (359) Anglian has also reviewed the latest data on **population** in its region. Population is a more important driver of off-site and treatment growth costs than the volume of connections. This remains similar to Anglian's September 2018 Plan. Population estimates are derived using Anglian's data on the number of properties it bills and household occupancy rates.
- (360) Anglian derives **household occupancy** rates in its region from ONS statistics of population and households (ONS dataset 406). The latest ONS data on population and household growth suggests higher occupancy rates in Anglian's region than was the case when Anglian developed its September

²⁰⁵ For Water, see IAP Water Data Tables Commentary, Housing growth section, pages 131 to 135 (SOC107). For Water Recycling, see IAP Wastewater Data Tables Commentary, New Development and Growth section, pages 92 to 97 (SOC106), and Growth at Water Recycling Centres, pages 98 to 103 (SOC106).

²⁰⁶ 'For companies supplying customers wholly or mainly in England you will need to base your forecast population and property figures on local plans published by the local council or unitary authority.' EA Planning Guideline Interim Update, Section 5.3, page 26 (SOC371).

²⁰⁷ September 2018 Plan (SOC001).

²⁰⁸ Edge Analytics New Housing Report (SOC152).

2018 Plan, largely reflecting the decrease in historical and forecast ONS household figures. When applied to Anglian's billing property totals this increases the historical and current population estimate by approximately 100,000 compared to when the September 2018 Plan was developed in 2018/19. This figure has been reported in Anglian's annual reporting to Ofwat.

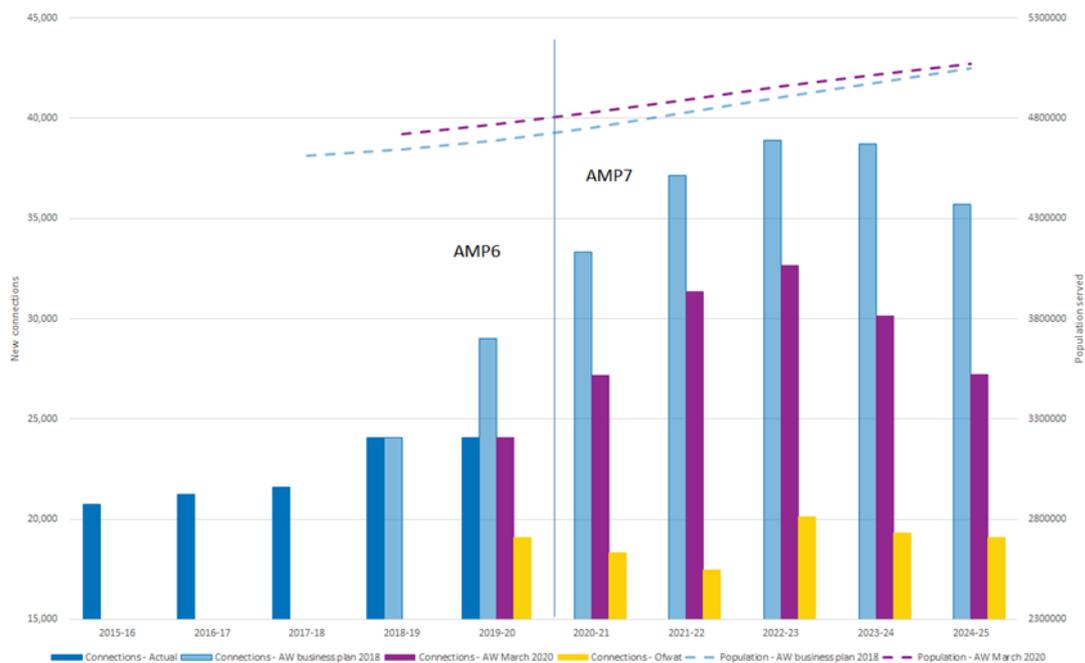
- (361) Anglian's latest forecast for growth is shown in Table 5. These latest figures are significantly higher than the assumptions used by Ofwat.

Table 5 Ofwat and Anglian's forecast for new connections

Service	Anglian AMP7 Plan forecast 2018	Anglian AMP7 forecast March 2020	Ofwat AMP7 forecast (based on ONS)	Reduction from Anglian's March 2020 forecast to Ofwat's
Water connections	183,810	148,537	94,275	37%
Wastewater connection	211,808	177,912	118,035	34%
Population served for water in 2024-25	5,047,007	5,070,442		
Population served for wastewater in 2024-25	6,513,458	6,576,340		

Source: Anglian

Figure 22 Water connections (primary Y axis) and population forecasts (secondary Y axis)

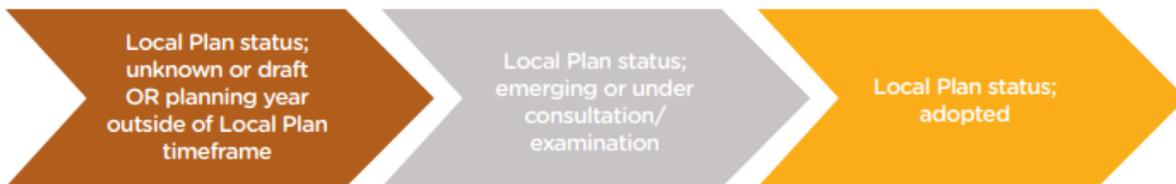


Source: Anglian

6.1.2 Investment need

- (362) Forecast demand is geographically mapped to allow an assessment of whether future demand can be accommodated by existing assets.
- (363) For Water Resources, Anglian has taken a twin-track approach to supply/demand balance, in line with the views of its customers, and as promoted by the NIC is its Preparing for a Drier Future Report.²⁰⁹ Anglian's September 2018 Plan focuses on delivering ambitious leakage reductions, and rolling out smart meters which will help customers to reduce their personal consumption and help it to identify leaks. Anglian's September 2018 Plan therefore does not include any investment in new water treatment works or capacity specifically to accommodate growth in demand, but does include investment to reinforce treated water distribution networks.
- (364) For network reinforcement and water recycling treatment, Anglian has undertaken a risk-based assessment of need. Anglian's investment plans are focused on the sites where it has the highest confidence of the development plan, with more detailed analysis where the Local Authorities plan has been adopted (gold) and less detail where the status of the plan is unknown or draft (bronze).

Figure 23 Categorisation of Local Plans to Bronze, Silver, Gold



Source: WRLTP Overview, page 14 (SOC212)

- (365) The way in which this process was applied to wastewater is shown in Figure 24 below.

Figure 24 Application of Bronze, Silver, Gold assessment to water recycling assets (top line) and sewer network assets (bottom line)



Source: WRLTP Overview, page 4 (SOC212)

6.1.3 Optioneering and solution selection

- (366) Sites which are identified for investment go through Anglian's site-specific optioneering process in which potential solutions to meet the investment need are assessed. The generic solution hierarchy for water recycling is shown below. The less capital-intensive solutions are at the top of the hierarchy and must be rejected for specific reasons, such as not creating sufficient capacity, before the next level of the hierarchy is considered. Many of the options Anglian considers are optimisation (e.g. real-time control of pumping stations), rather than constructing new assets.

²⁰⁹ NIC Preparing for a Drier Future (SOC270).

- (367) As with other areas of cost assessment, for growth-related investment, Anglian has taken a totex approach: prioritising reusing existing assets, using no-build solutions or building less. Where construction is required, the focus is on making use of standard rather than bespoke products. Anglian has developed digital models that allow it to test possible options in a virtual environment rather than on site. All these approaches ensure Anglian reduces both costs and carbon in building new infrastructure.
- (368) Anglian's solution hierarchy for sewer networks and Water Recycling Centres is illustrated in Figure 25 below.

Figure 25 Anglian's solution hierarchy for sewer networks and water recycling centres

SOLUTION STRATEGY HIERARCHY Sewer catchment	SOLUTION STRATEGY HIERARCHY Water recycling centres
Investigate, monitor and model impacts of catchment key indicators – flow and growth intelligence	Investigate, monitor and model WRC key indicators – incoming flow and load, final effluent flow, and quality and growth intelligence
Partnership – Surface Water Management	Demand management: reduce catchment flows (surface water, misconnections and infiltration) in partnership
Anglian Water only – Surface Water Management	Demand management: reduce catchment flows (surface water, misconnections and infiltration)
Optimise existing assets in catchment e.g. real time control of pumping stations	Optimise existing assets at WRC
Relining – address infiltration	Extend process units (flow) – existing permit
Disconnection – address misconnections	Extend process units (load) – existing permit
Extend existing	Extend process units (flow) – new permit
Reroute existing	Extend process units (load) – new permit
Storage	Convert WRC to PS
Address intermittent discharges	Create 'Super' WRCs (new or existing), close small WRCs
New strategic sewer	New or relocated WRC

Source: WRLTP Overview, page 33 (SOC212)

- (369) Of the solutions that resolve the need, the best options that are highest up the hierarchy and represent least cost are assessed through full cost-benefit analysis. This analysis is conducted using Anglian's investment optimisation tool, C55.

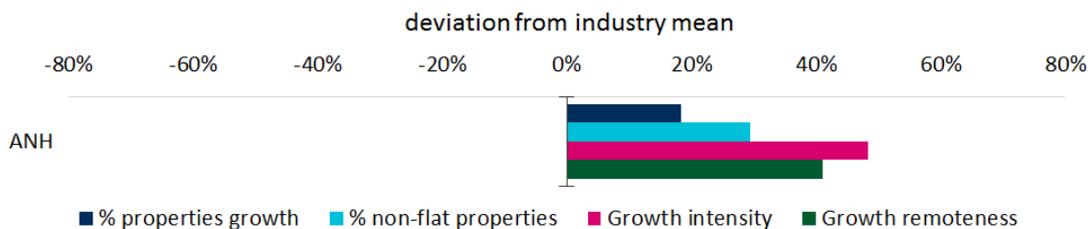
6.1.4 Cost efficiency

- (370) There are three main types of activity associated with accommodating growth: Development site-specific activity (often called 'on-site'), network reinforcement to upgrade local water main and sewer assets and strategic assets such as water recycling treatment centres. These activities have very different cost drivers. The types of activity and cost drivers for those activities are described in more detail in **Chapter E.2: Growth**.

- (371) The costs in Anglian's September 2018 Plan are based on a comprehensive historical record of scheme costs, contained within its investment optimisation tool, C55. Anglian has applied its efficiency and ongoing productivity assumptions to its costs for growth, in line with all the other costs in its September 2018 Plan.
- (372) To assist Ofwat to assess cost efficiency, Anglian worked with Vivid Economics as part of its DD Representation to Ofwat. This was captured in the document 'DD Growth Expenditure Deep Dive' annex to Anglian's DD Representation.²¹⁰ This explored 'complexity drivers' for growth costs, particularly the intensity of growth and its remoteness from existing assets, as drivers for off-site and strategic asset costs.
- (i) An important driver of growth costs is **intensity**. Reinforcement costs are more likely to be needed where the local rate of growth is high relative to the existing population for which the assets were designed.
 - (ii) The second complexity driver is **remoteness**. Off-site reinforcement costs are higher when development sites are located further away from existing infrastructure. This can also be considered as growth occurring in sparsely populated areas. The likelihood of new assets being required is higher, and even when existing assets can be reinforced, longer sections often require reinforcement. These drivers were used to triangulate the proposed investment costs, as well as drive econometric models.
 - (iii) The third complexity driver is the **type of property** being connected. Developments with more flats have significantly shorter length of communication pipes compared to developments with primarily detached properties.

(373) Anglian is materially different from the industry mean on all three measures. This is demonstrated in Figure 26 below. Others may experience remote but less intense growth or intense but less remote growth meaning cross-industry comparison is more relevant for their costs. This means that Anglian's costs to enable growth are different from the rest of the industry, but still efficient.

Figure 26 Comparison of complexity drivers of growth expenditure for water, deviation above the mean



Source: Anglian's extract from DD Growth Expenditure Deep Dive

(374) For this redetermination, and due to the approach adopted by Ofwat in the FD to modelling growth cost allowances, Anglian commissioned Vivid Economics to explore alternative approaches, accounting for a wider set of drivers. Their analysis shows there are statistically robust relationships between remoteness or sparsity and intensity complexity drivers and costs.²¹¹ This work is discussed in **Chapter E.2: Growth**.²¹²

²¹⁰ DD Growth Expenditure Deep Dive, section 1.2 for descriptions of the drivers and section 1.5 for how these drivers help explain Anglian's investment costs (SOC171).

²¹¹ This modelling did not find a statistically significant relationship with type of property.

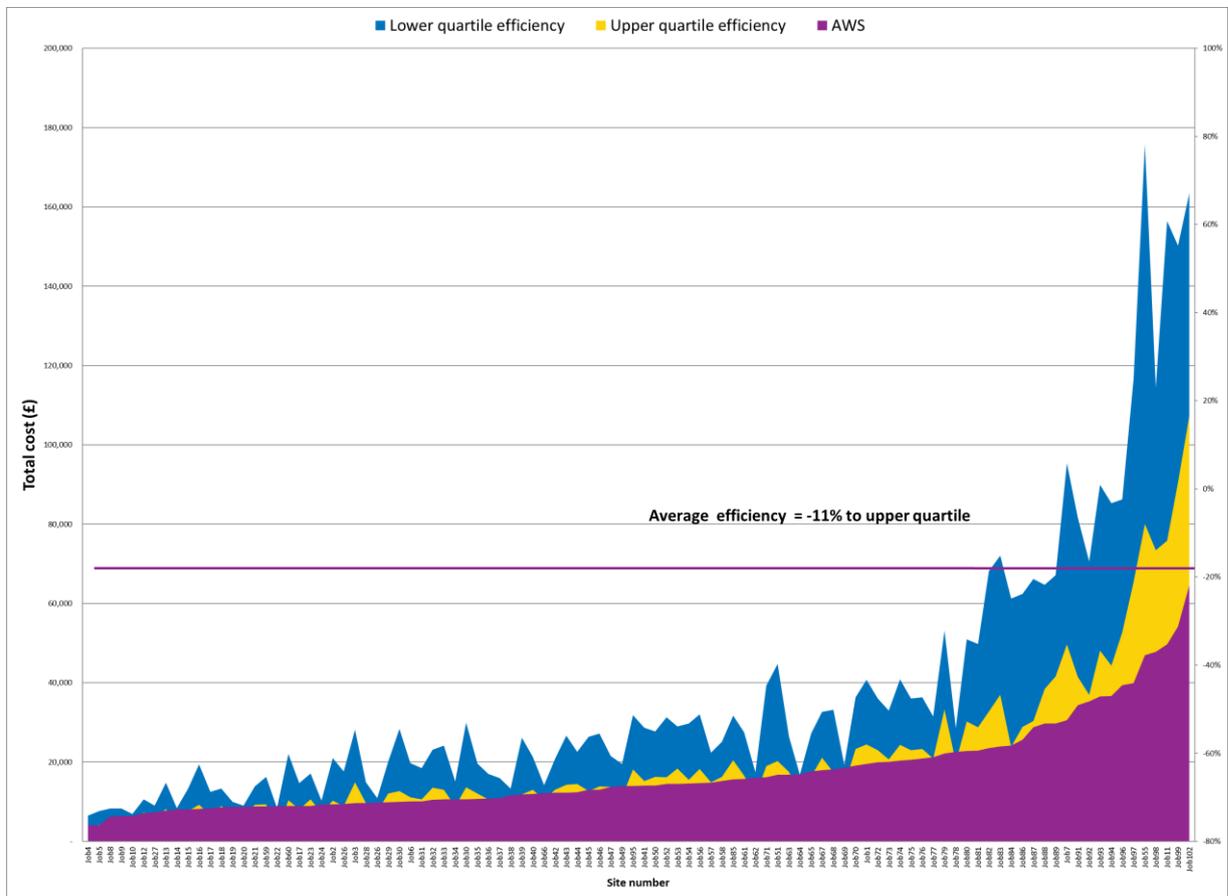
²¹² DD Growth Expenditure Deep Dive (SOC171).

(i) Site-specific costs

(375) For site-specific costs, Anglian has used the baseline of its achieved outturn unit rates per connection based on AMP6 costs. Thus, efficiencies already achieved form the baseline for Anglian's future costs estimates, and these costs were checked through benchmarking (see below). Anglian then applied future productivity and efficiency assumptions to these unit rates.

(376) As part of its DD Representation, Anglian benchmarked its costs for site-specific infrastructure using published water company charges for 2019-2020 and a representative sample of development sites in Anglian's region. As the charges are taken from published company charging arrangements, before the application of any discounts, the results are comparable and replicable. This found that for the type and size of development typical in its region, in a sample of over 100 sites, Anglian is 11% more efficient than the upper quartile, as illustrated by Figure 27 below. This benchmarking is explained in further detail in pages 26 and 27 of Anglian's DD Growth Expenditure Deep Dive document.²¹³

Figure 27 Anglian benchmarking of published developer charges, applied to typical Anglian developments



Source: Anglian's analysis of 11 water company published charges

(377) As part of its DD Representation, Anglian revised its forecast for site-specific costs to remove £50.4 million associated with asset payments to self-lay providers. This reflected changing rules for charging for new infrastructure prohibiting these payments.

²¹³ DD Growth Expenditure Deep Dive, pages 26 and 27 (SOC171).

(ii) Network reinforcement

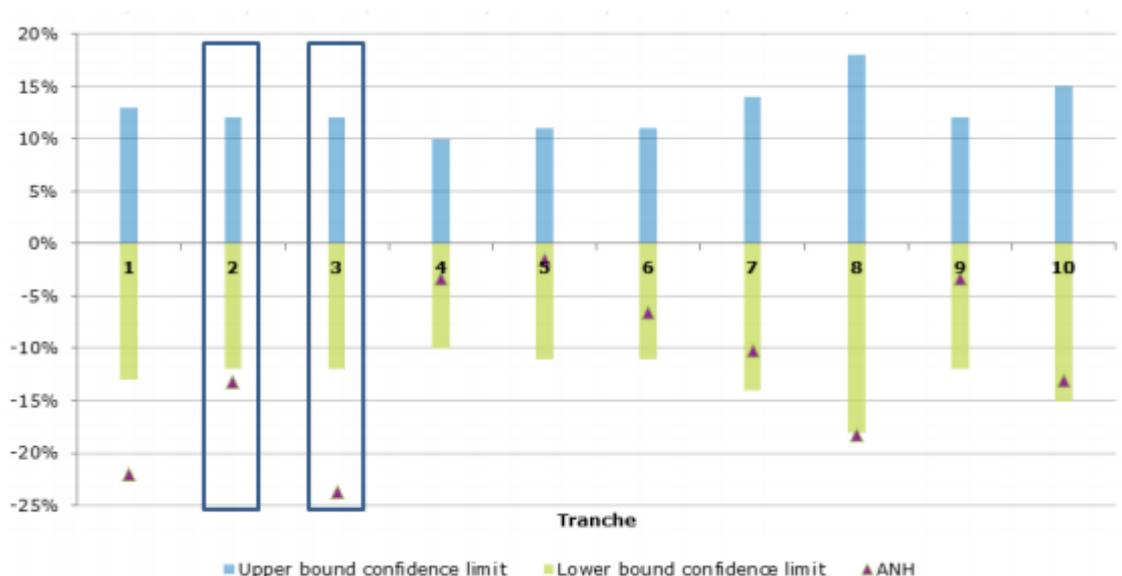
- (378) Network reinforcement involves the provision of new infrastructure network assets to the network (such as additional pumping stations), or enhanced capacity in existing assets, which are needed to deal with increased demand from new customers (including as a result of new connections and/or new developments). The cost implications of network reinforcement are complex. They are dealt with on a site-by-site basis, driven by many factors which include existing headroom in networks, population growth and changes in peak use. Anglian also designs the capacity of the reinforcement works to accommodate connections which are planned to occur beyond the five-year regulatory period depending on the build-out rate of the developments.
- (379) Anglian's network reinforcement costs are based on cost models in C55 of historical schemes. Anglian uses these to understand cost inputs for site-specific schemes (e.g. the cost per metre of a type of water main). These historical costs have Anglian's future productivity and efficiency assumptions applied to these unit rates, in line with all of Anglian's cost projections. This high-level modelling provided an initial understanding of the risk versus cost. Prioritising the highest-risk sites (through the Gold, Silver, Bronze assessment), Anglian has undertaken detailed modelling to carry out a more granular cost analysis for those sites where network reinforcement will be necessary to supply water to a new development or to protect existing customers from an unacceptable deterioration in service.

(iii) Water Recycling Treatment

- (380) Anglian will deliver any built solutions using a modular technology that uses standard solutions rather than bespoke solutions, where possible. By 'designing once and building many', it is possible to increase productivity and efficiency whilst reducing embodied carbon and time on site, reducing cost. Further cost efficiencies from this approach are possible from the reduced costs of design, commissioning (and decommissioning) and procurement.
- (381) The costs in Anglian's September 2018 Plan were externally reviewed and benchmarked by Mott MacDonald against other water companies' costs for PR19, before submission and were found to be efficient, as illustrated by Figure 28 below.²¹⁴ For both sets of costs associated with growth at treatment centres, Anglian is more efficient than the industry average, its outperformance lying outside the confidence range.

²¹⁴ Anglian Water Benchmarking, Section 3.2 and 3.3 (SOC025).

Figure 28 Mott MacDonald benchmarking of Anglian's Water Recycling Treatment costs highlighted by blue boxes



Source: Anglian Benchmarking Report (SOC025); September 2018 Plan, page 101 (SOC001)

(382) As part of its DD Representation, Anglian identified programme-level efficiencies in its Water Recycling Treatment centres. This resulted in removing £2.4 million in programme management expenditure due to programme efficiencies and re-profiling the investments.

6.2 Investment programme

(383) The output of the steps described above is Anglian's proposed investment programme for growth. The investment programme for Anglian's Plan is shown in Table 6 below.

Table 6 Anglian's investment programme for growth in AMP7

Service	Description (PR19 business case name)	Description	Totex, Anglian's Plan (£m, 2017/18 price base)
Water	Water network reinforcement (Supply-side enhancements, treated water distribution)	Reinforcing the water distribution network to accommodate growth	58.1
	Site-specific mains (Housing growth - new developments)	Site-specific mains, often known as Housing and Estate Mains	74.7
	New connections (Housing growth - new connections element of new developments)	Connections, metering etc.	94.3
Wastewater	Wastewater network reinforcement and site-specific (New development and growth)	Reinforcing the sewerage network to accommodate growth and on-site supervision	259.1
	Growth at water recycling centres (excluding sludge)	Enhancing capacity at treatment works to accommodate growth	171.7
Total			657.8

Source: Anglian

7 How Anglian derived its wholesale expenditure requirements

- (384) Anglian set out in detail how it built its AMP7 expenditure plan in Chapter 10 of its September 2018 Plan (September 2018).²¹⁵ It does not replicate that chapter in this Statement of Case but invites the CMA to read that chapter for a full description of Anglian's approach.
- (385) Section 3 above provided an overview of Anglian's general approach to investment planning. Below is a summary of the three-step process Anglian followed to derive and test its expenditure requirements for AMP7.

7.1 The plan was built using 'business as usual' planning tools

- (386) For opex, Anglian's assessment was based on its knowledge of the costs of running the business and based on its internal business plan. The Company made a series of adjustments to its run-rate where it knew costs for particular cost types were in future going to be lower or higher. It also reflected likely transfers from capital maintenance to opex (in particular the trend towards cloud computing and buying a service rather than IT assets) and changes between price controls for the use of assets costed to the business unit of principal use.²¹⁶
- (387) For capital maintenance, Anglian used its standard asset management process which combines information about the risk, service and cost of candidate investments to produce an optimised portfolio of investments (see Section 3.1 and Figure 29 below).
- (388) For its enhancement programme (including growth) Anglian again followed its standard approach, identifying needs, developing alternative solutions (optioneering) and producing an optimised portfolio of projects which gives greatest cost-benefit.

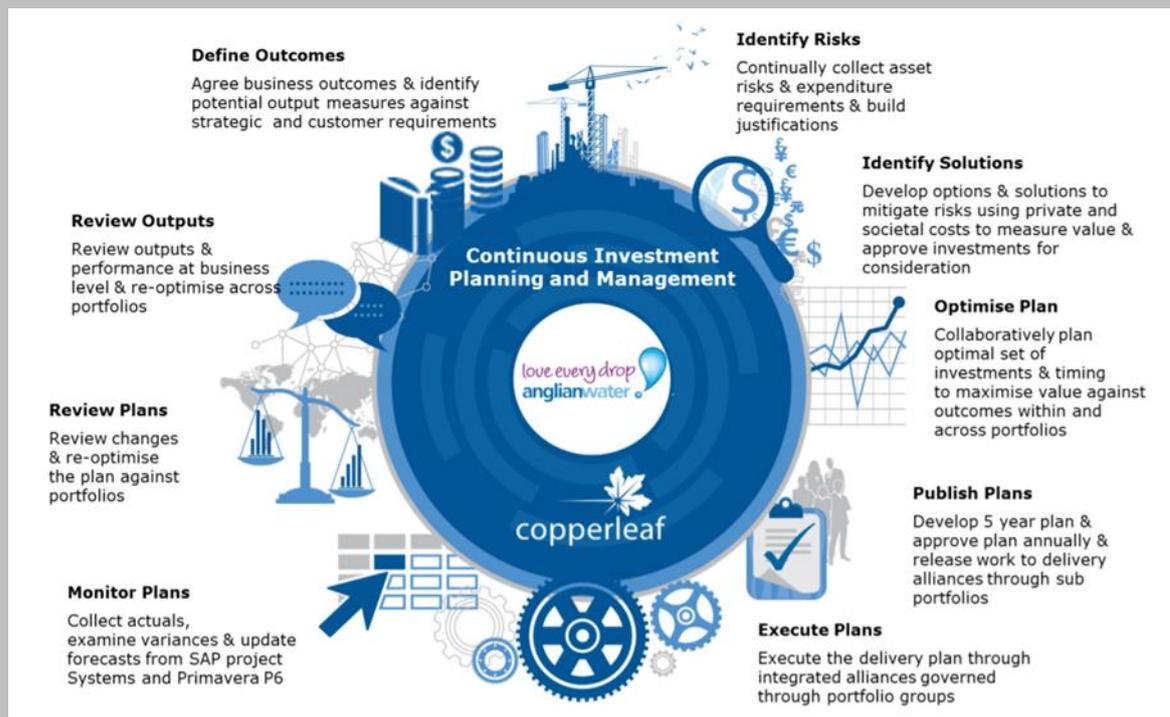
Anglian's investment planning approach

Anglian's investment planning approach is based on continuous planning and management of assets and investments, supported by its Copperleaf C55 system, which ensures that Anglian delivers efficient outcomes for customers. This is used to test all investment proposals. The key features of this approach are set out below.

²¹⁵ September 2018 Plan, Chapter 10 (SOC001).

²¹⁶ While the charges net to nil across the Price Controls, they individually impact opex in each Price Control: increasing costs in Water Resources, Water Network Plus, Bioresources and Retail, whilst reducing opex in Wastewater Network Plus. Consequently, Plan numbers for 2017/18 and 2018/19 do not exactly match the published number in the Annual Performance Report which Anglian submitted to Ofwat for those years.

Figure 29 Anglian's asset management approach



Source: Anglian

Step 1: Anglian challenges investment need

In challenging the need for expenditure, Anglian assesses, and places a value on, the consequences of asset and service failure. To do so Anglian uses:

- (i) Deterioration and Service impact models, developed over the past 15 years, which forecast the likely rate of decline in the performance of Anglian's assets and the associated impact. They are used in particular to determine maintenance plans.
- (ii) Data on the value to customers, society and the environment of service improvements arising from investment. This includes triangulated data captured as part of Anglian's broader customer engagement, which is linked to a Service Measure Framework.²¹⁷ Anglian uses a range of techniques, including a subjective wellbeing study, to determine customer values.²¹⁸
- (iii) Data on the costs Anglian would incur from failure to invest, using business impact matrices. These record the costs associated with specific aspects of service, such as events like sewer flooding incidents. They have been built bottom-up and capture individual cost components associated with specific activities (e.g. labour costs).
- (iv) Evidence from the field. Feedback on asset performance from field-based teams who are closest to the asset is also used to inform investment plans.

Step 2: Anglian selects the most appropriate and innovative solution

In the detailed analysis phase Anglian follows the Treasury Green Book approach. First it draws up a list of potential solutions to address the need identified in Step 1. Each option has costs derived from the extensive database of units costs and models (see below), and benefits defined by the avoided cost of failure at both at a Company level (i.e. the cost of restoring service) and a societal level (assessed through a variety of societal valuation techniques, to derive customers' willingness to pay to avoid such service impacts).

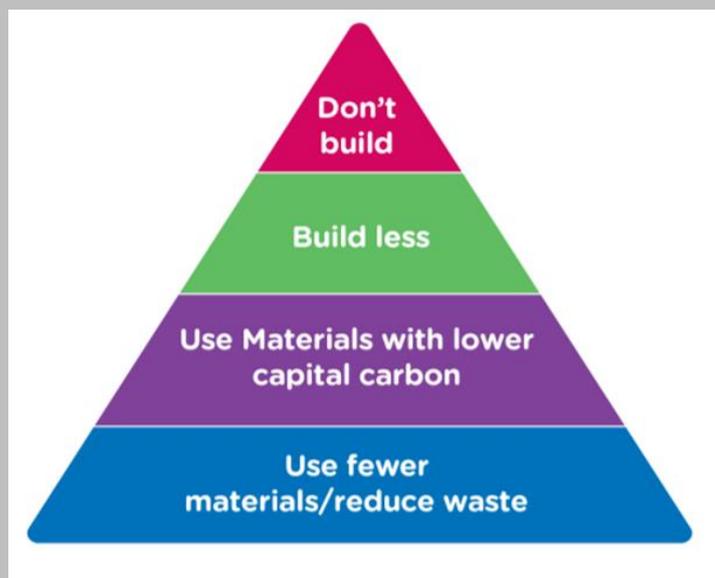
Options are filtered and selected using cost-benefit analysis. All investment options have a consequence of failure linked to a probability, which can be monetised. This means there is a

common currency of risk throughout the business, both pre- and post-implementation of any project, which varies over time to enable the optimal point of delivery to be chosen.

Anglian is therefore able to compare different solutions with different costs and benefits over the full lifecycle of the solution. The results are presented in the form of Equivalent Annualised Value (EAV). This is calculated by determining Equivalent Annualised Benefit (EAB) and subtracting from it Equivalent Annualised Cost (EAC).

Figure 30 below illustrates Anglian's approach to selecting solutions to address need.

Figure 30 Anglian's approach to selecting solutions to address need



Source: Anglian

As Figure 30 above illustrates, Anglian's approach is to prioritise no-build solutions where possible, reducing both capital cost and carbon. By doing so, Anglian also reduces unnecessary material costs. If new infrastructure is needed, Anglian ensures the materials required are minimised, and that they are low carbon. For example, Anglian uses innovative zero cement concrete to reduce carbon in the base slab of its assets by 60%.²¹⁹

Anglian's cost database

Anglian uses a comprehensive system for capturing the widest and most recent set of private, societal and environmental costs and benefits to determine the optimal level of investment:

Since 2003, Anglian has captured the outturn costs of 22,500 completed capital projects at equipment and plant group level comprising over 120,000 assets. Both the scale and level of granularity of this database is unrivalled in the water industry, with nearly one million records.

Anglian's cost database captures project costs at a granular, sub-systems level (e.g. civil costs of rapid gravity filters) and assesses and categorises indirect costs. New technologies are validated, and estimates provided by third-parties are challenged. Where possible, cost estimates are based on confirmed contract costs for a project or on costs for very similar work (e.g. schedule of rates, framework agreements, fixed price contracts). Customers benefit from this evidence-based approach, which ensures Anglian uses the most efficient costs and latest innovations captured in its cost database.

²¹⁷ Anglian's Service Measure Framework (SMF) is the suite of service measures that captures the impact of its activities. For PR19, this builds on the previous SMFs from PR09 and PR14 and is a comprehensive list of over 120 measures which covers all aspects of the totex plan, representing those measures which are important to Anglian's customers and our business

²¹⁸ Developing a Societal Valuation Strategy (SOC035). Further details on the wellbeing valuation method are set out in **Chapter G: ODIs**.

²¹⁹ September 2018 Plan, page 108 (SOC001).

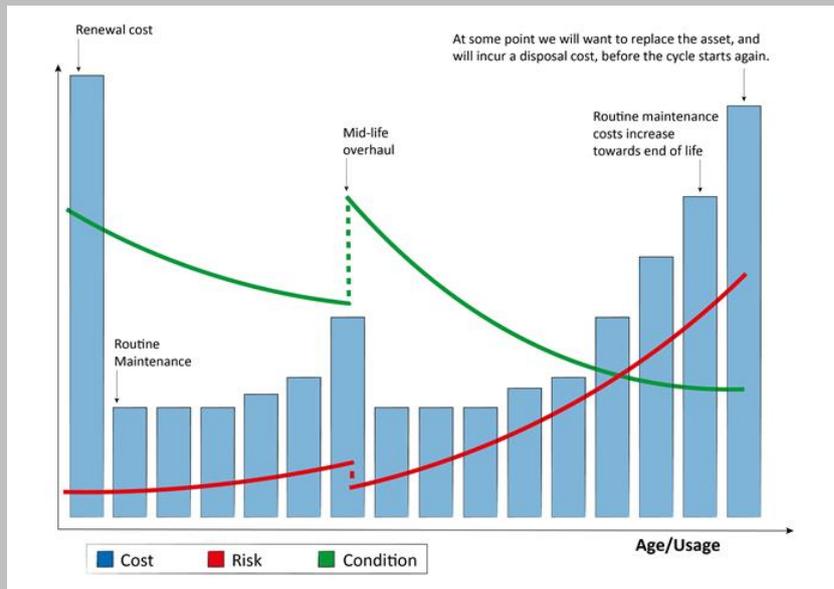
Step 3: Anglian ensures solutions selected are cost-efficient and informed by a comprehensive evidence base

Anglian runs multi-constraint scenarios within its investment optimisation system, setting ceilings on investment, performance, activities, or other parameters.

The investment optimisation process allows for a range of scenarios to be compared in order to produce the optimal set of projects against business constraints on a whole life cost-benefit basis.

The outputs are then validated and further iterations undertaken to create the best value plan.

Figure 31 Asset Lifecycle Planning



Source: Anglian

7.2 Anglian cross-checked its plan for efficiency and against other benchmarks

- (389) For Botex, Anglian developed and used a suite of econometric models to provide the first cross-check to its bottom-up assessment. These were developed in two phases in conjunction with academic econometricians from Loughborough University and fully documented in two published reports (Sept 2017 and Mar 2018). For most price controls Anglian cross-checked its Botex plan against the upper quartile efficiency company found by these models. For Water Resources, Anglian used the median company as its efficiency benchmark because the Company considered model error was likely to be higher due to greater inconsistency between companies in the allocation of costs to this particular Price Control. Water Resources accounts for only 3% of total industry expenditure.
- (390) As well as its econometric models, Anglian cross-checked its Botex plan against two other relevant benchmarks - its historical Botex levels and industry unit costs.
- (391) To assess the efficiency of its Enhancement programme, Anglian commissioned an assessment from an independent firm of construction cost consultants, Mott MacDonald, who focused on a sample of projects across ten programmes of Anglian's PR19 capital programme. Comparator benchmarks were derived from data provided by five different England and Wales water companies, making use of Mott MacDonald's extensive cost database.²²⁰ The Report concluded across the whole sample that Anglian's cost was 14% less than the adjusted industry average. The findings of this exercise were set out in

²²⁰ September 2018 Plan, Chapter 10 (SOC001), and Anglian Water Benchmarking (SOC025). See also Figure 28 above which sets out Mott MacDonald benchmarking of Anglian's Water Recycling Treatment costs.

Chapter 10 of the September 2018 Plan.²²¹ The results of Mott MacDonald's analysis for Water Recycling Centres is described in Section 6.1.4(iii) above.

7.3 Anglian applied adjustments to reflect future Real Price Effects (RPEs) and productivity improvements (collectively, Frontier Shift).

(392) Finally, Anglian applied adjustments to its estimates to reflect its view of future RPEs for labour, energy, equipment and materials as well as a 1.0% pa future productivity improvement. **Chapter E.4: Frontier shift** provides full details and how this compares with Ofwat's approach at FD.

7.4 Anglian is confident that its cost plan is efficient

(393) In summary, Anglian is confident its cost plan is efficient because:

- (i) it has been built up from its current costs and therefore 'bakes in' all the efficiencies achieved in the last AMP;
- (ii) Anglian has compared its plan against independent benchmarks. For Botex the benchmarks are derived from its industry cost models while for Enhancement they are revealed by the costs incurred by a range of other service providers;
- (iii) the variance between Anglian's AMP7 plan and the expenditure it made in AMP6 is attributable, for Botex, to the need to maintain and raise standards of service while assets deteriorate and to maintain a larger asset base. For Enhancement it is attributable to the significant increase in the number of statutory obligations and growth.
- (iv) Anglian has incorporated a productivity challenge that is substantially in excess of what has been achieved in both the water sector and the wider UK economy over the last decade.

7.5 Customers support Anglian's enhancement priorities

(394) The clear view from Anglian's customers is that they do not want to delay investment in making the region more resilient. Anglian's September 2018 Plan includes investment to ensure long-term supply demand resilience, to provide resilience to drought, climate change, population growth and the needs of the environment.

(395) Anglian has also taken a long-term view of customer needs in relation to water recycling, producing a Water Recycling Long-Term Plan (WRLTP) as a partner to the WRMP. It takes a 25-year view, ensuring the Company plans ahead on water recycling in a similarly adaptive way to the approach to Water Resources.²²²

(396) In order to ensure that its September 2018 Plan reflected customers' stated interests and priorities, Anglian tested its proposed enhancements and the resulting bill levels with customers for both acceptability and affordability. In particular, Anglian's 'Be the boss' survey presented three options within the outline plan, with three associated bill profiles.²²³ Each option was based on varying amounts of investment in two key areas: mitigating climate change risk (articulated in detail in Anglian's WRMP) and environmental protection (set out in Anglian's WINEP). The three options represented low, medium and high investment in these areas, and the associated bill profiles were flat, +2.5% and +5% over five years to 2024-2025. Through several channels and using a mix of methods to avoid any biases, Anglian asked customers for their preferred investment profile, initially without disclosing the bill impact, and the largest group of customers selected the highest investment profile.

²²¹ September 2018 Plan, Chapter 10 (SOC001).

²²² WRLTP (SOC332).

²²³ Anglian Be the Boss Consultation (SOC320).

- (397) Customers were then asked about the underlying investment drivers, shown the resulting bill profile and given the ability to switch to another profile. Only 13% of customers switched, with 9% switching to a lower cost profile, and 4% switching to a higher cost profile. Similar results were gained through all channels.²²⁴ Customers were also asked why they had chosen the option they had, and the sentiment most often recorded was that the highest investment plan seemed to offer a lot in terms of reducing risk to supplies, and protecting the environment, for not very much money. It was seen as good value for money.²²⁵
- (398) Customers made it clear that they want Anglian to invest now to continue reducing leakage, to enable sustainable growth, to increase resilience to drought and floods and to enhance the natural environment. Customers do not want to delay investment in making their region more resilient. Examples of how Anglian adapted its September 2018 Plan to include customers' feedback include using natural capital solutions to comply with WINEP obligations. Although obligations under WINEP are statutory, they are defined through a consultative process and Anglian has engaged in detailed discussions with the EA to obtain that 34 WINEP schemes will be considered for natural capital delivery between 2020 and 2027. These schemes will be more affordable in the long run, reduce the use of carbon, as well as enhancing Anglian's natural environment, as demanded by customers, and providing amenity benefits for communities.

7.6 Conclusion

- (399) To conclude, Anglian's planned expenditure responds to the specific challenges the Company faces. Proposed costs are subject to robust controls to ensure that they are the most cost-efficient solutions. Anglian has ensured that the correct needs are addressed with the best value solutions and that the costs it proposes are robust and efficient.

²²⁴ Anglian Be the Boss Consultation, page 7 (SOC320).

²²⁵ Anglian Be the Boss Consultation, page 2 (SOC320). For further details on customer engagement, please refer to **Chapter B.2: How customers have shaped the Plan**; Customer Engagement Channels and Questions (SOC034) and Customer Research and Engagement (August 2018) (SOC033).

Chapter C: Ofwat's duties in PR19

1 Overview

- (i) Ofwat has a range of primary and secondary duties which it is required to balance when setting price controls for regulated Water and Sewerage companies. PR19 is the first price review to be conducted since the introduction of a new primary resilience duty.
 - (ii) Following criticism of its approach to setting prices for AMP 6 (made by the Public Accounts Committee in 2016), Ofwat embarked on the PR19 price review process with a clear priority of delivering a 'decade of falling bills' and to 'set a new record for the lowest ever regulated cost of capital for water'.²²⁶
 - (iii) Ofwat's PR19 Final Methodology claimed alignment with its statutory duties and Ofwat published a report (as it is required to do) with its Final Determinations explaining how PR19 had met the government's strategic priorities and objectives. However, in practice, Anglian is unable to reconcile the Final Determination with a reasonable and proportionate application of these duties and strategic priorities or with the principles of best regulatory practice.
 - (iv) Anglian considers that, in the pursuit of its desire to deliver low bills for customers, rather than applying 'equal weight' to its primary duties in PR19, in line with well-established precedent, Ofwat has placed too much weight on a narrow construction of the consumer duty which requires it to '*protect the interests of [existing and future] consumers*'. It has also misapplied its (secondary) 'efficiency duty' by misinterpreting differences between Anglian's costs and Ofwat's benchmark as inefficiency (rather than recognising legitimate increases in scope). The result of Ofwat's disproportionate focus on keeping bills low for current customers is that it has rejected solutions which deliver 'best value' for customers over the long-term (contrary to the direction given to Ofwat by Defra in its 2017 Strategic Priority Statement).
 - (v) Ofwat also has a primary duty to secure that Anglian is able (in particular, by securing reasonable returns on its capital) to finance the proper carrying out of its functions. Ofwat has failed to discharge this duty by, inter alia: (i) underfunding Anglian's base and enhancement cost requirements; and (ii) setting a cost of capital which is too low and relying on PAYG advancements (i.e. moving revenue forward from a future regulatory period) to ensure the financeability of the notional company (see **Chapter I: Weighted Average Cost of Capital** and **Chapter J: Financeability** for further detail).
 - (vi) Ofwat's approach has a knock-on impact on Anglian's asset health and resilience plans, cutting across Ofwat's resilience duty: Ofwat's short-termist approach is in stark contrast to that adopted by other regulators such as the Water Industry Commission for Scotland.
 - (vii) Finally, Ofwat's marked departures in PR19 from the methodology applied in previous price controls and by other regulators (a notable example is the gearing outperformance sharing mechanism) are at odds with the principles under which regulatory activities should be transparent, consistent, proportionate and targeted.
- Request to the CMA**
- (viii) The CMA is asked to consider the full range of duties to which is Ofwat is subject (including, but not limited to the Resilience Duty) in the round and to apply equal weight to these duties.

²²⁶ Ofwat Utility Week Congress Press Alert (SOC273).

(400) The remainder of this chapter is structured as follows: Section 2 considers the backdrop to PR19; Section 3 sets out the duties that Ofwat, and in turn the CMA, must apply in making the determination; and Section 4 outlines why Anglian considers the Final Determination (FD) to be inconsistent with a reasonable and proportionate application of these.

2 The backdrop to PR19

- (401) The FD delivers dramatic bill reductions in AMP7, at the expense of wider existing and future consumer interests, and compromises Anglian's ability to perform its functions, support sustainable development and ensure the long-term resilience of the network in a region where pressures from population growth and climate change are particularly acute. At times, Ofwat has effectively replaced customers' views with Ofwat's own narrow understanding of what customers *ought* to want (i.e. low bills). While bills are obviously important to customers, their interests are far broader, given the specific challenges for the region and concerns about wider environmental and social impacts. Anglian's customers have sent a clear message that they preferred to see investments in infrastructure and services now to help tackle climate change, population growth and other challenges – and that they are willing to pay slightly more for such investment through their bills (see **Chapter B.2: How customers have shaped the Plan**). In fact, Anglian's Draft Determination (DD) Representation would have delivered over a 30% (totex) increase in investment to strengthen resilience, while simultaneously delivering a bill reduction of just over 1%.
- (402) Ofwat was under unprecedented pressure and scrutiny during this price control, following the 2015 National Audit Office Report²²⁷ and the subsequent Public Accounts Committee Report which found that Ofwat's approach to setting price limits for water companies in England and Wales had *'not resulted in the best possible deal for customers'* and that *'by consistently overestimating'* financing costs, Ofwat had *'allowed companies to make windfall gains which have not been shared in a structured way to ensure customers get a fair deal'*.²²⁸
- (403) Against this backdrop, Ofwat embarked, in 2017, on a strategy to deliver a *'decade of falling bills'* and to *'set a new record for the lowest ever regulated cost of capital for water'*.²²⁹ This resulted in a number of marked departures in PR19 from the methodology applied in previous price controls, including a 'gearing outperformance' sharing mechanism (introduced just two months before the submission of final business plans), calling into question the long-established regulatory principle that capital structures are for companies' management and shareholders to determine. While Ofwat has discretion (and indeed needs) to adapt its approach to price controls, as appropriate, such departures must nonetheless be consistent with the principles under which regulatory activities should be transparent, consistent, proportionate and targeted only at cases where action is needed. Some of the material departures from regulatory precedent in PR19 are inconsistent with these regulatory principles.

3 Statutory Framework

- (404) The CMA must make its redetermination of PR19 for Anglian (**'Redetermination'**) in accordance with the same statutory provisions and duties that applied to Ofwat when it made the disputed determination.²³⁰ Those general statutory duties are set out in Sections 2 and 2A of the WIA91 (Water Industry Act 1991) and are summarised below.

²²⁷ NAO Economic Regulation of Water Sector (SOC336).

²²⁸ Public Accounts Committee Report on Ofwat, page 3 (SOC337).

²²⁹ Ofwat Utility Week Congress Press Alert (SOC273).

²³⁰ Section 12(3)(b) WIA91.

3.1 Primary and Secondary Duties

- (405) Ofwat, and in turn the CMA, has a duty under the WIA91 to set the price control in a manner which it considers best calculated to:²³¹
- (i) further the consumer objective, which is to protect the interests of (existing and future)²³² consumers, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the supply of water and sewerage services ('**Consumer Duty**');²³³
 - (ii) secure that the company's functions under the WIA91 are properly carried out ('**Functions Duty**');
 - (iii) secure that the company is able (in particular, by securing reasonable returns on its capital) to finance the proper carrying out of its functions ('**Financeability Duty**');
 - (iv) secure that licensees properly carry out their activities and functions; and
 - (v) further the resilience objective to secure the long-term resilience of the company's water supply and wastewater systems, and to secure that they take steps to enable them, in the long-term, to meet the need for water supplies and water recycling services (the '**Resilience Duty**').
- (406) Subject to these primary duties,²³⁴ the CMA is required to set the price control in the manner which it considers best calculated to, among other things: (i) promote economy and efficiency on the part of licensees ('**Efficiency Duty**'); and (ii) contribute to the achievement of sustainable development ('**Sustainability Duty**').
- (407) The primary and secondary duties must be balanced and applied in the round: the CMA has previously observed that the duties are *'intended to complement, not conflict with, each other, and the principal duties should each be given equal weight'*. Individual duties *'(whether principal or secondary duties)'* need to be applied *'in the round'* in accordance with their *'statutory wording'* and not *'in isolation'*.²³⁵

3.2 Government's Strategic Priorities and Objectives Statement ('SPS')²³⁶

- (408) The Water Act 2014 introduced an additional duty for Ofwat, and in turn the CMA, to carry out the determination in accordance with Defra's SPS.²³⁷ The current SPS came into force in November 2017 and identified three key priorities (with a series of underlying objectives), intended to complement Ofwat's other duties:²³⁸
- (i) Under the heading of 'Securing long-term resilience' Defra required Ofwat to challenge the water sector to plan, invest and operate to meet the needs of current and future customers, in a way which offers best value for money over the long-term.²³⁹
 - (ii) Ofwat should challenge the water sector to go further to identify and meet the needs of customers who are struggling to afford their charges.²⁴⁰

²³¹ Section 2(2A) and Section 2(3) WIA91.

²³² Section 2(5A) WIA91.

²³³ Section 2(2B) WIA91.

²³⁴ Section 2(3) WIA91.

²³⁵ *Bristol (2015)*, paras. 3.3 and 3.4 (SOC275).

²³⁶ Section 2A(2) and (9) WIA91.

²³⁷ Section 2A(2) WIA91.

²³⁸ Defra's SPS (SOC257).

²³⁹ Defra's SPS, para. 8 (SOC257).

²⁴⁰ Defra's SPS, para. 28 (SOC257).

- (iii) Ofwat should promote markets to drive innovation and achieve efficiencies in a way that takes account of the need to further: (a) the long-term resilience of water and wastewater systems and services; and / or (b) the protection of vulnerable customers.²⁴¹

(409) The SPS requires Ofwat to explain clearly how major decisions, such as final determinations for price reviews, support the achievement of strategic priorities.²⁴²

(410) These priorities and objectives are closely aligned with Anglian's own strategic priorities, which were devised in consultation with customers, and constituted the key drivers for Anglian's business plan.²⁴³

3.3 Principles of best regulatory practice

(411) Ofwat, and in turn the CMA, must also have regard to the principles of best regulatory practice, (including the principles under which regulatory activities shall be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed).²⁴⁴

4 Application of the duties in PR19

(412) Anglian considers the FD to be inconsistent with the duties outlined above. In particular, the FD delivers a significant bill reduction in the short-term (via unrealistic and poorly justified cost allowances, efficiency assumptions and performance targets and a WACC which has been set too low) at a time when the long-term challenges facing Anglian's region require significant investment to secure future resilience at the best long-term value to customers (who expressed themselves willing to pay for better services and to see Anglian rewarded for doing so).

(413) In combination with the low WACC, the FD does not enable the financeability of the notional or actual company without artificial PAYG adjustments. This is to the detriment of wider consumer priorities and resilience and sustainable development objectives, directly cutting across both the primary duties and Defra's SPS. Key errors in properly applying the statutory framework permeate the FD in a number of areas. The relevant background on the key duties in this context is set out below.

4.1 Securing long-term resilience

(414) The Resilience Duty requires Ofwat, and in turn, the CMA to conduct the price control in a manner that it considers is best calculated to further the resilience objective, that is:

- (i) to secure the long-term resilience of water undertakers' supply systems and sewerage undertakers' sewerage systems ... as regards environmental pressures, population growth and changes in consumer behaviour, and
- (ii) to secure that undertakers take steps for the purposes of enabling them to meet, in the long-term, the need for the supply of water and the provision of sewerage services to consumers, including by promoting –
 - (a) *appropriate long-term planning and investment by companies, and*
 - (b) *the taking by them of a range of measures to manage water resources in sustainable ways and to increase efficiency in the use of water [e.g. by reducing leakage] and reduce*

²⁴¹ Defra's SPS, para. 36 (SOC257).

²⁴² Defra's SPS, para. 6 (SOC257). See Ofwat's Report on its Application of Defra's SPS (SOC227).

²⁴³ Anglian's strategic priorities are discussed in **Chapter B.3: Anglian's Plan and how it was built**.

²⁴⁴ Section 2(4) WIA91.

demand for water [e.g. through the use of smart meters]²⁴⁵ so as to reduce pressure on water resources.²⁴⁶

- (415) The introduction of the Resilience Duty to the WIA91 in 2014 was driven by greater concerns regarding threats to resilience. This followed the summer 2007 floods which led to 55,000 properties being flooded (and which prompted the Pitt Review, which called for a more systematic approach to resilience in critical infrastructure), and the extreme weather in 2012 when one in every five days saw flooding and one in four days were in drought. At the time, Defra concluded that *'[b]y the 2080s, without significant action to reduce demand for water and to increase supplies, almost the whole UK population may be living in areas affected by a supply-demand deficit.'*²⁴⁷

4.1.1 The Resilience Duty seeks to address the 'institutionalise[d] short-term thinking'²⁴⁸ which had traditionally discouraged much needed investment

- (416) It was recognised that specific action was required to *'move the horizon from the short-term view of the next five years to a sustainable long-term focus'²⁴⁹ to provide 'long-term solutions ... rather than moving from price review period to price review period'²⁵⁰ and a 'stronger focus on longer-term planning and investment'.²⁵¹*
- (417) The short-term fallacy was also highlighted by the Government. Defra, for example, observed that *'the price review cycle discouraged investment in longer-term approaches and disadvantage[d] schemes with environmental or consumer benefits as they typically have a longer-term payback. The new resilience duty has been specifically designed to address this issue'.²⁵²*

4.1.2 The Resilience Duty seeks to encourage investments to withstand long-term operational challenges

- (418) At its inception, the focus of the duty was on addressing operational challenges to managing the supply/demand balance with operational solutions. *'The new resilience duty encourages investment in additional water storage. It pushes the sector to tackle unsustainable abstraction. It places the focus squarely on the responsible management of water resources. Importantly, it promotes the reduction of pressure on water resources, and reducing demand for water'.²⁵³*

4.1.3 The Resilience Duty has particular read-across to other duties, in particular, the Consumer Duty

- (419) The Resilience Duty *'has particular read-across to the duties focused on protecting the interests of current and future consumers, securing that the companies properly carry out and can finance their functions, promoting economy and efficiency; and contributing to sustainable development'.²⁵⁴*

²⁴⁵ Wording in square brackets is added and does not appear in the original text.

²⁴⁶ Section 2DA, WIA91.

²⁴⁷ Defra Updating General Duties, para. 1.1 (SOC338).

²⁴⁸ Defra Updating General Duties, para. 1.2 (SOC338).

²⁴⁹ House of Commons (March 2014) (SOC339).

²⁵⁰ House of Commons (November 2013), Dan Rogerson (SOC340).

²⁵¹ House of Commons (November 2013), Owen Paterson (SOC340).

²⁵² Defra Sustainable Development and Resilience Duties (SOC341).

²⁵³ House of Commons (March 2014) (SOC339).

²⁵⁴ Defra Updating General Duties, para. 5.2 (SOC338).

- (420) In particular, in relation to the Consumer Duty, Defra considered that *'encouraging companies to engage with their customers and consider the 'outcomes' customers want, potentially spanning price review periods, will increase the sector's capacity to take a long-term view.'*²⁵⁵
- (421) The House of Lords noted at the time that the Resilience Duty *'protects both current and future consumers and will help to keep bills fair for the long term'*.²⁵⁶

4.1.4 Defra's SPS reinforces these themes, with a focus on solutions which offer the best value for money in the long-term

- (422) The SPS sets out a priority for Ofwat to *'challenge the water sector to plan, invest and operate to meet the needs of current and future customers, in a way which offers the best value for money over the long term ... (i.e. 'considering the wider costs and benefits to the economy, society and the environment').*²⁵⁷
- (423) More specifically, the SPS sets out the following objectives for Ofwat:
- (i) further a reduction in the long-term risk to water supply resilience from drought and other factors, including through new supply solutions, demand management and increased water trading;
 - (ii) challenge companies to improve planning and investment to meet the wastewater needs of current and future customers;
 - (iii) challenge water companies to ensure that they assess resilience against the full range of potential hazards that could impact service provision, including flooding and other infrastructure failures, and take proportionate steps to improve resilience where required;²⁵⁸ and
 - (iv) challenge companies to further the resilience of ecosystems that underpin water and wastewater systems, by encouraging the sustainable use of natural capital and by encouraging companies to have appropriate regard to the wider costs and benefits to economy, society and the environment.
- (424) Given the particular exposure of the east of England to the challenges from both drought and flood, aligned with the pressures from a rapidly growing population, combined with clear endorsement from Anglian's customers, it may be expected that the application of the Resilience Duty and the guidance from the SPS would lead to recognition by Ofwat of the need for the kind of step change in resilience investment and long-term planning set out in Anglian's September 2018 Plan (as updated in its DD Representation). That is not what Ofwat has done, as Section 4.2 below explains.

4.2 Ofwat's approach to resilience

- (425) The PR19 Final Methodology states that *'resilience should be at the core of how the sector plans to deliver its services to customers'*.²⁵⁹ Anglian's plans to secure resilience for its region provide the best value for money in the long-term, taking into account wider environmental and social impacts and customers' stated priorities. The plans are also adaptive. For instance, in response to inherent uncertainty around the scale of the challenge at WRMP24, particularly around future sustainability reductions and timing of water resources planning methodological changes, Anglian proposed a flexible planning approach, where options are developed in parallel until the WRMP24 supply/demand balance and options appraisal processes have been completed.²⁶⁰

²⁵⁵ Defra Updating General Duties (SOC338).

²⁵⁶ House of Lords (January 2014) (SOC342).

²⁵⁷ Defra's SPS, paras. 8-9 (SOC257).

²⁵⁸ Defra's SPS, para. 19 (SOC257).

²⁵⁹ Ofwat Resilience in the Round (SOC343).

²⁶⁰ DD Representation, pages 204 and 205 (SOC168). Further details set out in **Chapter E.3: Enhancement**.

- (426) However, the FD does not allow the efficient investment required to ensure that the region remains resilient in the long-term. Ofwat has, therefore, failed to correctly apply the Resilience Duty and the SPS resilience priority.
- (427) Ofwat's shift, in 2014, to setting a totex allowance (rather than separately funding opex (operating expenditure) and capex (capital expenditure)) marked a step towards addressing the short-term focus of the regime, by removing the perceived capex bias and encouraging companies to explore opex solutions to address resilience risks. However, Ofwat's misallocation of opex and capex at FD, combined with the overall cost challenge, undermines the totex framework. The opex reduction, which is a feature of the FD, incentivises the Company to favour capex solutions over (better-value) opex solutions. For example, it will lead to a reduction in ongoing maintenance activities (which extend asset life), and will, instead, drive earlier asset replacement (and therefore lower lifetime value) than would otherwise be the case. The build-up of a maintenance backlog is contrary to the Resilience Duty, as well as the Consumer Duty as it increases operational risk which will need to be paid for (at a higher cost) by future customers.²⁶¹
- (428) Ofwat's approach to resilience in PR19 has also been underpinned by the concept of 'Resilience in the Round' which focuses on the importance of robust governance structures and financial resilience as important supporting elements of operational resilience.
- (429) Ofwat has previously recognised that it was stretching its interpretation of the duty: *'We recognise the 'resilience duty' has specific legal meaning as set out above. But we also recognise that resilience thinking – for example, in the Cabinet Office guidance, 'Keeping the country running' – has a broader application in helping us understand risks to the systems and services that customers rely on. As such, we see the broader concept of resilience as providing useful insights into how we deliver our strategy and move towards our shared vision of trust and confidence.'*²⁶² This follows Government's guidance which envisages resilience as *'Keeping the Country Running'* through *'the ability of assets, networks and systems to anticipate, absorb, adapt to and/or rapidly recover from a disruptive event'*.²⁶³
- (430) Anglian recognises the importance of governance and financial resilience in this context. However, by imposing measures in the FD to address a perceived threat to financial resilience, in particular through its gearing outperformance sharing mechanism, Ofwat has incorrectly applied the Resilience Duty which was introduced to promote long-term operational resilience. Specifically, Ofwat has not adequately reasoned or evidenced that Anglian's financial structure poses a material resilience risk relative to lower-g geared companies. Further, it has ignored the countervailing benefits of Anglian's Aligned Debt Programme to customers. The mechanism also increases the risks to equity investors without allowing commensurate returns. This cuts across the Financeability Duty and does not further the Consumer Objective. It also goes against the principles of good regulation.
- (431) It is notable that Ofwat's approach to economic regulation is in stark contrast to that adopted by the WICS (Water Industry Commission for Scotland) which has stated, with broad support from key stakeholders, in a Decision Paper that outlines its views on the key elements of the Strategic Review of Charges for 2021-2027, that *'It is not about minimising charges in the next regulatory control period and leaving future customers to pay higher prices. This would be inconsistent with the Commission's duty to future customers ... [Scottish Water] will have to plan and act for the long-term. It can no longer count on the certainty of six year programmes of investment – it will have to be much more flexible – but it can count on the resources being available to make the right investment decisions for the longer term.'*²⁶⁴

²⁶¹ Bush & Earwaker Capital Maintenance Report (May 2019) (SOC153), submitted as Annex 4A to Ofwat with Anglian's September 2018 Plan (SOC001). The report illustrates the potential consequences for customers and the environment should insufficient funding be allowed to maintain assets.

²⁶² Ofwat's Towards Resilience Report (SOC276).

²⁶³ Ofwat Role on Resilience Consultation (SOC344).

²⁶⁴ WICS Strategic Review of Charges, pages 4-5 (SOC277).

(432) The WICS placed considerable emphasis on *'future proofing'* levels of service via either increased maintenance expenditure or financial provisions for higher maintenance expenditure in the medium-term along with increased allowances to tackle climate change, growth and maintain performance levels. This is despite the fact that its statutory duties are not as comprehensive as those of Ofwat, and the impacts of climate change are less acute in Scotland than in the east of England.

(433) The Scottish regulator has emphasised that:

- (i) *'[It] is very conscious of its statutory duty to have regard to the interests of future customers – in addition to those of current customers';*
- (ii) *'[f]uture generations should not be left with poorer assets and higher charges to allow for the lower charges that are being enjoyed by customers at the current time';*
- (iii) *'[its] focus is now on how and why the money is spent – and that the interests of the current and future generations are protected'*
- (iv) *'[t]he Scottish Government would wish for an appropriate balance to be struck between the financial impact of increased charges on current customers and on future generations.'*²⁶⁵

4.3 Protecting the interests of existing and future consumers

(434) The Consumer Duty requires Ofwat to *'protect the interests of [existing and future] consumers ... in relation to the supply of water and sewerage services, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, those services'*.²⁶⁶

(435) Ofwat must have particular regard to the interests of individuals who are disabled or chronically sick; of pensionable age; with low incomes; residing in rural areas; and customers whose premises are not eligible to be supplied by a licensed water supplier (although not to the exclusion of the interests of other consumers).

(436) The consumer priorities and objectives set out in the SPS also focus on the vulnerable and those less able to pay, rather than a mandate or expectation that bills should significantly decrease across the board in the next AMP. The SPS requires Ofwat to challenge the water sector to: (i) go further to identify and meet the needs of consumers who were struggling to afford their charges;²⁶⁷ (ii) improve the availability, quality, promotion and uptake of support to low-income and other vulnerable customers; and (iii) enhance their focus on small business customers that may struggle to access the best deals.²⁶⁸ The SPS also focuses on a *'fair deal'* and *'value for money over the long term'*, noting that *'the predictability of bills is important for many customers and Ofwat should have regard to bill volatility as its regulatory approach evolves'*.²⁶⁹ The SPS notes that Ofwat *'must uphold the principle of intergenerational equity'* requiring the industry to demonstrate *'an excellent understanding of future investment needs ... so that costs are not unduly transferred to future generations of customers'*.²⁷⁰ In *Bristol (2010)*, the Competition Commission ('CC') noted the issue of intergenerational equity that arises in capital schemes where current customers pay for investments that benefit future, possibly different, customers. However, the CC agreed that this was reasonable since it *'spread the costs of investment and that costs and benefits should balance in the longer term for customers'*.²⁷¹

²⁶⁵ WICS Strategic Review of Charges, pages 8; 20 and 40 (SOC277).

²⁶⁶ Section 2(2B) WIA91.

²⁶⁷ Defra's SPS, para. 28 (SOC257).

²⁶⁸ Defra's SPS, para. 34 (SOC257).

²⁶⁹ SPS, para. 28 (SOC257).

²⁷⁰ Defra's SPS, para. 31 and 33 (SOC257).

²⁷¹ *Bristol*, para. 3.70 (SOC345).

- (437) Customer engagement was a core building block of the PR19 Final Methodology.²⁷² Anglian has co-created its Plan with its customers. This has been done through an extensive programme of events, research, face-to-face contact and analysis of operational and 'business as usual' interactions with customers. Anglian consulted with over 500,000 customers to identify their priorities, develop those into outcomes and translate those outcomes into a programme. The September 2018 Plan was the result of an iterative process where feedback from customers translated into numerous changes throughout the process.²⁷³ It is only through this iterative process that Anglian is able to understand what its customers' priorities are and their willingness to pay for delivering on those priorities.
- (438) Ofwat recognised Anglian's industry-leading approach, awarding it the only 'A' grade for customer engagement at its Initial Assessment of Business Plans (IAP), and noted the clear line of sight from Anglian's customer engagement to its September 2018 Plan.²⁷⁴
- (439) However, Ofwat has failed to adhere to the same standards and the FD does not reflect customers' interests in a number of key areas, including for enhancement expenditure and performance targets. Ofwat has effectively replaced customers' views with its own narrow view of what customers *ought* to want, and applied unrealistic cost allowances and efficiency challenges. While lower bills are obviously important to customers, their interests are far broader, given the specific challenges for the region and concerns about wider environmental and social impacts. Customers sent a clear message that they preferred to see investments in services and infrastructure now to help tackle climate change, population growth and other challenges – and that they were willing to pay slightly more for those enhancements through their bills, as long as affordability, and other challenges faced by customers in vulnerable circumstances, were being met.²⁷⁵
- (440) The FD reflects a narrow and short-termist construction of the Consumer Duty. There is significant investment required to further resilience and sustainability objectives in the region. By deferring the investment to future price controls, Ofwat does not adequately account for the interests of future customers (as required by the Consumer Duty), and neither does it uphold the principles of intergenerational equity outlined in the SPS.

4.4 Securing that Anglian is able to finance the proper carrying out of its functions

- (441) Ofwat, and in turn the CMA, must exercise and perform its powers and duties under the WIA91 in a manner that it considers is best calculated to secure that the Company is able (in particular, by securing reasonable returns on its capital) to finance the proper carrying out of its functions. The allowed revenues should also be sufficient to enable companies to raise finance on 'reasonable' terms.
- (442) For returns on capital to be considered 'reasonable', the allowed return on capital should be at least equal to the cost of capital. The CC has previously noted that *'[a] return below the cost of capital would not be consistent with [the Financeability Duty]*.²⁷⁶
- (443) Ofwat has assumed a WACC of 1.92% (RPI-real) at the appointee level – the lowest since the sector's privatisation 30 years ago. This is primarily the result of several underlying methodological issues that are set out in in **Chapter I: Weighted Average Cost of Capital**. One of the issues is that the cost of embedded debt is insufficiently and incorrectly calculated. While using notional debt costs across the industry as its starting point for determining whether the cost of debt is met, the CMA has previously recognised the need to adjust those costs down to reflect the actual cost of debt in order to avoid setting

²⁷² PR19 Final Methodology, page 22 (SOC314). The CMA has also previously noted that *'customers' willingness to pay should be a relevant concern'* Bristol (2015), para. 9.59 (SOC275).

²⁷³ See **Chapter E.3: Enhancement**; **Chapter G: ODIs**; and **Chapter H: Leakage**.

²⁷⁴ IAP Company Categorisation, pages 2 to 4 (SOC346).

²⁷⁵ CEF Response to DD (SOC187).

²⁷⁶ Bristol (2010) Appendices, Appendix N, para. 2 (SOC347).

the cost of debt higher than necessary to fulfil its Financeability Duty. In this case, even if the CMA were to agree with Ofwat's WACC assumptions in the FD, a reverse adjustment would be required to reflect Anglian's higher debt costs, in respect of debt incurred efficiently in the past, in order to avoid breaching this duty. The CMA has stated that its Financeability Duty '*would indicate caution against setting the cost of capital too low, and in particular potentially excluding costs actually incurred*'.²⁷⁷

- (444) Ofwat has noted that its Financeability Duty includes assessing whether allowed revenues (relative to efficient costs) are sufficient for the Company to finance its investment on reasonable terms and to deliver its activities in the long-term, while protecting the interests of existing and future customers.²⁷⁸ The Company's revenues, profits and cashflow should also enable it to raise finance on reasonable terms in the market, while complying with its licence obligation to maintain an issuer credit rating which is an investment grade rating.²⁷⁹
- (445) By underfunding base costs (by some £265 million) and enhancement expenditure (by £161 million), Ofwat has not met its Financeability Duty.
- (446) In order to assess whether companies are able to access capital markets on 'reasonable terms', Ofwat has previously considered whether a company can secure a comfortable/solid investment grade rating. At PR19, Ofwat used two notches above investment grade (Baa1) as the basis of the financeability assessment. However, at FD, Ofwat has wrongly relied on PAYG advancements (i.e. moving revenue forward from a future regulatory period) to be able to conclude that the notional company is financeable. Such an advancement is usually considered appropriate only when there is a short-term spike in capital expenditure²⁸⁰ and there is demonstrable customer support for the measure. Further, rating agencies reverse such 'speed of money' adjustments in their financeability analysis.²⁸¹
- (447) Anglian considers Ofwat's approach to cost allowance, WACC and the financeability assessment to be a clear breach of the Financeability Duty. This implicitly also, therefore, cuts across the Consumer Functions and Resilience Duties.

4.5 Securing that licensees properly carry out their licensed activities and functions

- (448) Ofwat, and in turn the CMA, must exercise and perform its powers and duties under the WIA91 in a manner that it considers is best calculated to secure that the Company's functions as a water and sewerage undertaker (and licensed activities as a water supplier and related statutory functions) are *properly* carried out.
- (449) Anglian has a number of duties which it must comply with as well as those set down by Ofwat, including as set out in Table 7 below.

Table 7 Anglian's statutory obligations under the WIA91

Item	Key Obligation	WIA Section Number
General Duties for water		
1	Develop and maintain water supply system to meet all demand obligations	Section 37
2	Prepare and develop water resources management plan (WRMP) and review annually	Section 37A

²⁷⁷ *Bristol (2015)*, para. 10.151 (SOC275).

²⁷⁸ PR19 Final Methodology, page 187 (SOC314).

²⁷⁹ Condition F6A.6 of Anglian's Licence (SOC297); *Bristol (2010)*, para. 10.9 (SOC345).

²⁸⁰ *Bristol (2010)* Appendices, Appendix O, page. 16 (SOC347).

²⁸¹ Fitch Ofwat Price Review Intensifies Pressure (SOC348); Moody's Ofwat Tightens the Screws Further (SOC349).

3	Prepare and maintain drought plan	Section 39B
Supply Duties		
4	Comply with mains requisitions for domestic supplies	Section 41
5	Domestic supply connections	Section 45
6	Self-lay mains adoption	Section 51A
7	Domestic supply duty	Section 52
8	Non-domestic supply duty	Section 55
9	Pressure and constancy of supply for domestic purposes and hydrants	Section 65
Quality and sufficiency of supply		
10	Wholesomeness of water (without deterioration from source) for domestic use and food production including compliance with Water Supply (Water Quality) Regulations 2016 (as amended)	Sections 67, 68, 69 and 213
Customer Service		
11	Establish and promote customer complaints procedure	Section 86A
12	Promote customers' efficient use of water	Sections 93A and 93B
Information provisions		
13	Keep register relating to consents to discharge	Section 197 (in relation to s166)
14	Keep and maintain access to Waterworks map	Section 198
15	Keep and maintain access to sewer maps	Section 199
Miscellaneous		
16	Exchange metering information between undertakers	Section 205
17	Comply with national security or civil emergency directions	Section 208
General duties sewerage services		
18	General duty to provide sewerage system	Section 94
19	Duty to comply with sewer requisition	Section 98
20	Adoption of sewers	Section 102-105C

(450) Section 45 WIA sets out a requirement for all water companies to comply with a request to connect domestic premises to a company's water network. It follows that companies such as Anglian have an explicit obligation to deal with the growth in demand which arises as a result of new housing developments.²⁸²

²⁸² For Anglian's WINEP (Water Industry National Environment Programme) and 7.2 WRMP (Water Resources Management Plan) obligations, see **Chapter B.1: About Anglian**.

4.6 Promoting economy and efficiency

- (451) As a secondary duty, which is subject to, and so subordinate to the primary duties, Ofwat, and in turn the CMA, must exercise and perform its powers and duties under the WIA91 in a manner that it considers is best calculated to promote economy and efficiency on the part of the Company in the carrying out of its functions.
- (452) By failing to recognise important cost drivers in its base models, Ofwat misinterprets differences in Anglian's costs relative to its benchmark as inefficiency (as opposed to a legitimate increase in the scope of activity) and uses this to apply unjustified and unrealistic efficiency targets for future performance.
- (453) In addition, Anglian considers other efficiency assumptions and targets which Ofwat has imposed in the FD to be poorly reasoned and unrealistic. In particular, Ofwat's 'double count' future productivity assumption of 2.1% p.a., disallowance of appropriate RPE adjustments, inappropriate allowances for growth, and above upper quartile performance requirements, without the corresponding additional cost allowances, have created unrealistic and unattainable targets, which compromise Anglian's ability to carry out and finance its activities and functions, to the detriment of consumers.
- (454) Ofwat has therefore incorrectly applied the Efficiency Duty, with consequential impact on the Financeability, Functions and Consumer objectives as well as Resilience and Sustainable Development.

4.7 Contributing to the achievement of sustainable development

- (455) Ofwat, and in turn the CMA, must exercise and perform its powers and duties under the WIA91 in a manner that it considers is best calculated to contribute to the achievement of sustainable development.
- (456) However, Ofwat has derived unrealistically low costs from its modelling, imposed a growth forecast that is demonstrably too low and then designed a true-up mechanism that only applies to a subset of the relevant costs and does not compensate for these unrealistic assumptions.
- (457) Anglian's growth costs are different to (and higher than) the wider industry average but still efficient when appropriate consideration is given to the drivers of costs, such as the intensity of growth and the location, nature and scale of developments (houses versus flats, and growth remoteness). Ofwat's failure to provide appropriate allowances for growth expenditure cuts across the Sustainability Duty.

4.8 Best regulatory practice

- (458) Finally, in conducting the determination, Ofwat, and in turn, the CMA, must *'have regard to the principles of best regulatory practice (including the principles under which regulatory activities shall be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed).'*²⁸³
- (459) Further colour on ensuring best regulatory practice is provided in the publication of the Department for Business, Energy & Industrial Strategy ('BEIS') *'Principles for Economic Regulation' (2011)* and the Better Regulation Executive's *'Better Regulation Framework: Guidance' (2018)*.²⁸⁴
- (460) The BEIS Principles for Economic Regulation highlight, in particular, the importance of predictability and stability in economic regulation, stating that the framework for economic regulation: *'should provide a stable and objective environment enabling all those affected to anticipate the context for future decisions and to make long-term investment decisions with confidence'; and 'should not unreasonably unravel past decisions and should allow efficient and necessary investments to receive a reasonable return, subject to the normal risks inherent in markets.'*²⁸⁵

²⁸³ Section 2(4) WIA91.

²⁸⁴ Defra Better Regulation (SOC350); BIS Principles for Economic Regulation (SOC351).

²⁸⁵ BIS Principles for Economic Regulation, page 5 (SOC351).

- (461) In *Bristol Water (2010)*, the CC found that significant changes to the regulatory framework or approach require greater justification, observing that '*differences that arise due to change in approach need to be particularly well justified, as there are benefits to a stable and well understood regulatory framework*'.²⁸⁶ Separately in *Phoenix Gas (2012)* the CC found that decisions with retrospective effects on previous regulatory determinations '*should be: well-reasoned, properly signalled, subject to fair and effective consultation, clear and understood, and, normally, forward-looking*'.²⁸⁷
- (462) In light of the above, Anglian considers that Ofwat's FD has insufficient regard to the regulatory principles, most notably with respect to the introduction of the gearing outperformance sharing mechanism. The mechanism marked a significant departure from the principle that companies should remain free to determine their own capital structures. Moreover, it was improperly signalled (being introduced only after publication of the PR19 Methodology and two months before the deadline for submission of business plans). Ofwat's contention that the policy only affects certain companies and thus does not '*impact on systemic risk*' ignored the fact that this signals the overall unpredictability of the regulatory regime. In response to Ofwat's FDs, the key rating agencies' have downgraded some companies and put others on negative outlook/review for downgrade.²⁸⁸
- (463) Finally, the mechanism also has potentially retrospective effects as it penalises companies for decisions – i.e. on capital structure and levels of gearing – taken prior to the introduction of the mechanism and which are difficult, slow and expensive to reverse.
- (464) There are a number of other elements of PR19 where Ofwat has departed from the previous price control approach or made significant changes to its approach between its IAP, DD and FD assessments without adequate justification and therefore in breach of the regulatory principles. These include its approach to WACC assumptions, assessment of cost allowances (including its assessment of leakage, growth and future productivity), efficiency assumptions and ODIs.
- (465) The above provides a brief overview of the key issues. Further details of why Anglian's FD is incompatible with Ofwat's duties, and the principles of best regulatory practice are provided in the chapters which follow.

²⁸⁶ *Bristol Water (2010)*, para. 9.21 (SOC275).

²⁸⁷ *Phoenix Gas (2012)* price control, paras. 32 and 9.112 (SOC352).

²⁸⁸ See **Chapter K: Gearing outperformance sharing mechanism**.

Chapter D: Risk and return

1 Overview

- (i) Ofwat's Final Determination provides an unacceptable balance of risk and return, that will not allow Anglian properly to finance its functions, yet also does not provide effective incentives to improve service for customers. The details are set out in other chapters, but the overall effect must also be considered in the round. Almost every aspect of Ofwat's Final Determination falls short of providing Anglian with the means to carry out the necessary work to meet the needs of its customers and the environment.
- (ii) Anglian fully supports the regulatory principle of companies accepting risks to their returns, including penalties and rewards. It believes that since privatisation, it has responded to this framework more effectively than any other company in the sector. The Final Determination departs from this established and successful regulatory framework.
- (iii) Ofwat's Final Determination does not fund Anglian even to cover costs over which it has no control as it:
 - (a) significantly underfunds Anglian's base requirements (by £265 million), because of a narrow reliance on models that fail to recognise the costs Anglian faces, including those driven by its high performance, new service obligations and higher capital maintenance needs;
 - (b) does not adequately fund Anglian's enhancement plan (a shortfall of £161 million), even though enhancement expenditure is largely driven by statutory obligations;
 - (c) fails to reflect the costs caused by population and housing growth in the Anglian region and proposes a reconciliation mechanism that will not fully compensate Anglian in the event that growth costs are higher than Ofwat assumes. In total, the shortfall in funding for growth is £318 million; and
 - (d) leaves Anglian exposed to significant risks of incurring unavoidable costs (£190 million) with respect to its Elsham scheme and metaldehyde programme, without a practical mechanism to compensate for these risks.
- (iv) Furthermore, the Final Determination is skewed towards penalties, with few or unattainable rewards:
 - (a) The outcome delivery incentives (ODIs) package is not coherent (being based on inconsistent company forecasts and ignoring customer views) and will penalise Anglian even if the Company delivers significant improvements in performance.
 - (b) The cost-sharing mechanism provides Anglian with only a small proportion (35%) of any under-spend while exposing it to the majority of any over-spend (65%). This mechanism was imposed on Anglian because it did not, and does not, agree with Ofwat's cost assessment, for the reasons explained throughout this Statement of Case. It creates no incentives for efficiency.
- (v) Overall, therefore, Ofwat's Final Determination exposes Anglian, a top performing company in the sector,²⁸⁹ to the near certainty of making a return less than Ofwat's assessment of the

²⁸⁹ For example, 'Anglian Water is currently delivering above average levels of performance in the sector. It is the best performing company on the service incentive mechanism in 2018-19, delivered UQ performance on leakage, water quality contacts and internal sewer flooding, and achieved a higher proportion of its performance commitments in 2018-19 than any other company' Ofwat's Third CMA Teach In (SOC353).

weighted average cost of capital ('WACC'). Ofwat's assessment of the WACC itself is significantly less than Anglian's cost of capital, and that shortfall in allowed returns is exacerbated by the risk imposed by the Final Determination as a whole. Rating agencies have already recognised this: nine water companies have already been downgraded by at least one of the rating agencies and Northumbrian remains on review for a possible downgrade.

- (vi) Ofwat had an opportunity to set companies stretching targets to meet the need for a step change in investment and performance, as Anglian's customers said they wanted, and to challenge poor performing companies to meet the high standards of better performers whilst still allowing for some reduction in bills. Anglian's Plan provided such a balanced programme.
- (vii) In contrast, the Final Determination prioritises large short-term bill reductions over all other objectives, forcing Anglian to cut back on asset maintenance activity, undertake short-term fixes, delay service improvements, resilience and environmental improvements and to defer costs for future customers to bear.

Request to the CMA

- (viii) Anglian believes that a fair assessment of all of the evidence put forward by the Company from its business, cross-industry studies and Anglian's extensive customer engagement would lead to a very different Final Determination from that put forward by Ofwat. Anglian requests that the CMA re-evaluates how cost of capital, cost allowances, performance targets and penalty/reward mechanisms should be set, in line with sound regulatory principles, to meet the needs of its customers.

(466) The remainder of this chapter is structured as follows: Section 2 sets out how Anglian's Plan responded to regulatory incentives for efficiency and high performance; Section 3 explains why Ofwat's Final Determination (FD) failed to recognise Anglian's efficient costs; Section 4 describes how the risk and reward mechanisms in Ofwat's FD are skewed towards penalties, further reducing likely returns below the level needed; Section 5 considers why Ofwat's FD does not allow Anglian even to earn Ofwat's own WACC; Section 6 explains that Ofwat's WACC does not properly reflect the cost of capital; Section 7 sets out why, overall, Ofwat's FD is unbalanced; and Section 8 indicates Anglian's request to the CMA.

2 Anglian's Plan responded to regulatory incentives for efficiency and high performance

(467) The regulatory regime, in water as in other privatised sectors, aims to incentivise private companies to act in the public interest. Overall, investors must expect to be able to cover their costs, including a reasonable return to cover the cost of capital. Like businesses in any sector, this return is at risk if a company is poorly managed or takes bad decisions, but equally, higher than expected returns are available for the best performers.

(468) Regulated companies should be exposed to risk over which they have control, to give them incentives to reduce costs and (increasingly since privatisation) to produce better outcomes, such as quality improvements or environmental benefits. Like any investment project, higher non-diversifiable risks require higher returns. As the obvious way to diversify when faced with a regulatory regime with rewards and penalties is to invest in several companies, an FD that results in expected returns across the sector that cover the cost of capital should provide a sufficient return (and one that does not will not).

(469) This basic structure established as 'RPI-X' in the 1990s has been developed since, by regulators and ultimately the MMC/CC/CMA but the basic principles remain: companies should be exposed to strong incentives on their controllable costs and activities, but their funding should adjust for uncontrollable

factors, such as growth, statutory obligations and the circumstances of their regions.²⁹⁰ This principle operates across different elements of the price control:

- (i) it implies companies should be exposed to risk on controllable costs but uncontrollable costs such as rates should be passed through; and
- (ii) the components of the price control should support this principle. For example, if the assessment of cost efficiency takes no account of additional costs of high-quality networks, companies do not face incentives to create such high-quality networks.

(470) There are many different services that a water company can provide; it should be incentivised to focus on those most valuable to customers. In a competitive market, customers signal what they value to companies through their willingness to pay and/or to switch suppliers. In a regulated sector, the regulator determines willingness to pay on their behalf, incentivising or disincentivising different elements in the way that the price control is constructed.

(471) Anglian considers that the mechanisms of the price control should provide for what *customers* want. Accordingly, Anglian developed and tested its plan in close collaboration with its customers, in the most extensive and robust customer engagement the Company has ever conducted, collating more than 500,000 customers' views through more than 30 different channels, for which Ofwat awarded Anglian the only 'A' rating in the sector for customer engagement.²⁹¹ Anglian not only tested willingness to pay in the abstract, it also sought and obtained informed customer views on the risk and reward that Anglian as a provider should face and constructed its Plan accordingly.²⁹² It also tested its Plan against Ofwat's Draft Determination (DD) (which has changed little at FD), with customers expressing a strong preference for Anglian's Plan.²⁹³

(472) The Plan is described in detail elsewhere in this Statement of Case. In summary, it sets out:

- (i) proposals for a step change in investment (30% totex increase) to enhance its network, responding to the challenges of growth and climate change and improving ecological quality and increasing Botex by just 1.9%;
- (ii) ambitious cost-reduction targets so that Anglian could accommodate that increase, while still reducing customer bills by 1.1%; along with
- (iii) a step change in the level of support offered to customers struggling to pay their bills, or otherwise vulnerable; and
- (iv) stretching targets through the ODI mechanism, to achieve the outcomes that its customers want and are prepared to pay for.

(473) The Plan therefore struck a balance between the many competing objectives the Company and Ofwat face, responding to the need for significant investment while nonetheless reducing customer bills overall and increasing support for vulnerable customers.

3 Ofwat's FD fails to recognise Anglian's efficient costs

(474) In contrast, the FD strikes no such balance. Instead, it underfunds the programme Anglian needs to carry out, in all major areas. It also perpetuates a confusion between cost increases that are the result of an increased scope of activities, and cost increases that are the result of inefficiency. Ofwat's underfunding stems from a narrow reliance on models that (i) do not capture the uncontrollable cost

²⁹⁰ Ofwat's Price Control Discussion Paper (2015), page 11 (SOC354).

²⁹¹ IAP Company Categorisation, pages 2 to 4 (SOC346).

²⁹² For instance on leakage, please see Customer Engagement Channels and Questions, page 10 (SOC034).

²⁹³ DD Representation, pages 3, 4 and 16 (SOC168); Accent Acceptability Research Report, page 4 (SOC190).

drivers that Anglian faces but also (ii) ignore the costs of controllable decisions to provide high quality service to customers, thus providing perverse incentives to reduce maintenance activity and/or opt for quick-fix solutions that merely store up trouble for the future against the repeatedly expressed wishes of Anglian's customers.

3.1 Ofwat's FD underfunds Anglian's efficient base expenditure by £265 million

- (475) As set out in detail in **Chapter E.1: Botex**, Anglian's Plan proposed only a modest increase in Botex of 1.9% compared to its expenditure in AMP6.²⁹⁴ This small uplift was driven by the cost of new service obligations and higher capital maintenance needs²⁹⁵ flowing from the need for asset replacement, or the increase in the quantum of assets being maintained as a result of changes such as the requirement to adopt private sewers and private pumping stations, with these cost increases partially offset by stretching efficiency improvements which Anglian has targeted. By contrast, the FD imposes a £265 million (7%) shortfall in Botex allowances against Anglian's Plan.²⁹⁶ This represents a £199 million (6%) decrease against Anglian's Botex spend in AMP6, despite the increase in obligations and needs relative to AMP6.
- (476) This Botex shortfall arises from a narrow reliance on flawed models, which fail to capture legitimate differences in companies' costs, relating to service quality and the demographic, economic and topological characteristics of the region Anglian serves. By failing to recognise important cost drivers reflective of the Anglian region, Ofwat misinterprets these differences as '*inefficiency*'. Anglian's position as the sector-leading company on leakage left it particularly exposed to this error. Ofwat conceded at FD that its water models did not capture all drivers of cost, including that there *are* differential costs in maintaining current sector-leading leakage levels and used additional models for a number of alternative cost drivers (including leakage and pumping heads). However, it failed to apply the results robustly or to recognise similar differences in other service areas.
- (477) Another driver of the Botex shortfall is that Ofwat did not assess the drivers of costs of capital maintenance such as asset replacement needs, the amount of maintenance work done and new or transferred assets which were not part of base costs in AMP6. This shortcoming was identified in a report by Dr Harry Bush and John Earwaker which recommended that Ofwat should carry out forward-looking analysis of capital maintenance needs. Anglian submitted this report to Ofwat as part of the PR19 process, but Ofwat failed to take its recommendations on board. This omission penalises responsible companies that replace or refurbish assets when it is prudent to do so and rewards companies that underinvest in capital maintenance, landing future customers with the choice between dramatic bill rises or risks of asset failure. By imposing its cost benchmarks on the industry, Ofwat forces all companies to adopt this behaviour, to the detriment of future generations. This is despite the lessons learned from PR99 where the approach that Ofwat had taken to capital maintenance was considered by a parliamentary committee as '*intellectual neglect*'.²⁹⁷
- (478) By contrast, WICS, the Scottish water regulator, together with other stakeholders in Scotland, such as consumer bodies, quality regulators, Government and communities, is positively engaging with Scottish Water to understand the scale of the asset replacement challenge in the future. In doing so, they recognise that, allowing an increase in expenditure today can ensure that Scottish Water is '*operating, refurbishing and replacing its assets in an economically optimal way*'. In its 2020 final decision paper

²⁹⁴ Please refer to Table 2 of **Chapter B.3: Anglian's Plan and how it was built**.

²⁹⁵ To cope with increased challenges from drought and flood, deliver lower leakage levels, ensuring asset health and maintaining inherited assets, such as sewers and pumping stations.

²⁹⁶ Anglian assessed its Botex needs to be £3,574 million in its DD response. Ofwat allowed £3,309 million in its FD, representing a gap of £265 million, or 7%, against Anglian's needs (please refer to Figure 34 of **Chapter E.1: Botex**).

²⁹⁷ Bush & Earwaker Capital Maintenance Report (May 2019), page 8 (SOC153).

Prospects for Prices,²⁹⁸ WICS acknowledged that a trade-off exists between customers' current bills and the interests of future customers who may inherit higher bills, higher levels of debt and a backlog in asset replacement, a trade-off that Ofwat's determination does not recognise.²⁹⁹ Overall, Ofwat has relied exclusively on a narrow range of 'top-down' modelling approaches. Ofwat failed to sense-check the results of its models with bottom-up evidence of each company's actual capital maintenance needs in AMP7.

- (479) Ofwat's addition of growth costs (which Ofwat has historically considered to form part of Enhancement expenditure) to Botex to form 'Botex Plus' at FD exacerbated the problem. It inappropriately aggregated new (predominantly capital) expenditure with models designed to assess existing networks which led to manifestly unreliable results. It also led to insufficient funding for growth and ultimately a misallocation of allowances between opex and capex, further aggravating the impact of reduced opex funding, on both the operations of the business, and on financeability. Ofwat set an unrealistic future productivity assumption of 1.1% (0.1% higher than Anglian's own view, based on regulatory precedent). In a late change, Ofwat extended this to unmodelled costs, to which Anglian had already applied a productivity assumption of 1% resulting in double counting and an effective productivity growth assumption of 2.1% p.a. for these cost items, with no evidential basis that this is realistic.
- (480) Finally, the FD underfunds and fails to recognise the risks to Anglian from Real Price Effects. Ofwat's late inclusion of labour costs is insufficient and it recognises no other cost pressures on the sector, despite ample evidence of cost inflation that exceeds CPI.

3.2 Ofwat's FD makes insufficient allowance for the costs of growth, by £318 million, and does not adequately deal with the risks of its forecasts being wrong

- (481) Anglian's Plan included £660 million to meet housing and population growth requirements in its region and £60 million to reduce sewer flooding and low pressure incidence on its network (total £720 million). The FD allows just £402 million, leaving Anglian underfunded by £318 million for growth, reducing sewer flooding and low pressure due to:
- (i) Ofwat's use of Office for National Statistics (ONS) trend-based projections, which are implausibly low relative to local authority forecasts and current outturn data;
 - (ii) Ofwat's approach to modelling growth costs, which for the sector as a whole, adds around £4.5 billion of growth (and other) expenditure into its unadjusted base costs models. Anglian considers these models unfit for assessing growth expenditure needs: the approach inadequately captures growth drivers and fails to recognise the non-linear, lumpy nature of certain growth-related costs (unlike base costs). The 'allowance' for growth is not directly visible but Anglian's calculations suggest that, looking across the sector, it provides anything from 52% to 164% of companies' business plan expenditure, which seems a wide and unjustified range; and
 - (iii) Ofwat's use of a 'true-up' mechanism to compensate companies in AMP8 if actual growth exceeds Ofwat's AMP7 projections which: (a) only partially captures actual growth costs (and notably excludes lumpy investments such as treatment works, where the Company will carry the risk); and (b) applies an unrealistic 15% efficiency adjustment.
- (482) The combined impact is to leave Anglian significantly underfunded (£318 million) for growth notwithstanding the fact that, in common with all water companies, it has a statutory duty (under the WIA91) to allow new connections to its water network. Anglian must also ensure that it can cope with

²⁹⁸ WICS Strategic Review of Charges, Prospects for Prices, page 10 (SOC277).

²⁹⁹ Similarly, in NIC Preparing for a Drier Future Report, page 4 (SOC270), the NIC set out the economic case for boosting supply resilience, comparing the £40 billion costs of relying on emergency options with the £21 billion cost of building resilience over the next 30 years.

the additional demands on service from a growing population that is not only expressed through new households, but also through greater demand from people living in existing households. The FD inappropriately places most of the risk associated with accommodating growth on Anglian. This has significant negative consequences for customers of all types, for the environment and for economic and housing growth in Anglian's region and beyond.

- (483) Ofwat's unsatisfactory approach to growth therefore compromises Anglian's ability to meet its statutory obligations and is inconsistent with Ofwat's duties to secure long-term resilience, further the consumer objective, secure that water companies can finance the proper carrying out of their statutory functions, and contribute to the achievement of sustainable development. It is also inconsistent with the Government's SPS to ensure that delivery keeps pace with housebuilding and supports development across the country. While many regions are adversely affected, Anglian is one of the most disadvantaged, given the region's growth requirements.

3.3 Ofwat's FD underfunds Anglian's enhancement programme, driven by statutory obligations, by £161 million

- (484) As set out in detail in **Chapter E.3: Enhancement**, AMP7 sees large increases in Anglian's statutory requirements from WINEP and WRMP, because of climate change, growth and the need for environmental protection, which are particularly acute for the Anglian region.³⁰⁰ This necessitates a step change in the level of Anglian's proposed Enhancement investment for AMP7 including a WRMP that is eight times larger, and a WINEP that has double the number of obligations compared to their equivalents for AMP6.³⁰¹
- (485) The FD delivers a significant funding shortfall for Enhancement investment (£161 million) relative to Anglian's planned Enhancement spend. Ofwat's justifications for this shortfall stem from a series of adjustments applied to Anglian's Enhancement proposals: (i) modelled efficiency; (ii) company-specific efficiency; (iii) investment needs; (iv) investment scope; and (v) a WINEP frontier shift adjustment.
- (486) The company-specific adjustments are based mainly on Ofwat's conclusion that Anglian is inefficient on Botex, a claim that the Company strongly disputes for the reasons set out in Section 3.1 above, but which is in any case inappropriate for assessing the efficiency of Enhancement expenditure forecasts.
- (487) When considered individually, these components of Ofwat's assessment are flawed and methodologically incorrect. They ignore important cost drivers of Enhancement expenditure, attribute model error to inefficiency, apply a frontier shift efficiency challenge on a forward-looking benchmark resulting in a double count, and make inappropriate challenges on the need for and scope of investments.
- (488) Taken together, they undermine the very aims of the Enhancement proposals to ensure that the region can remain resilient to the rapidly growing risks of drought and flooding that are the consequence of the climate emergency. Necessary investments to deliver long-term best value and environmentally sustainable solutions, which had been planned in consultation with Anglian's customers, will be replaced. Costs of meeting these needs are also deferred to future periods and future customers, forcing poorer whole life cost solutions in AMP7.
- (489) The approach to Enhancement in the FD is, therefore, inconsistent with Ofwat's primary duties to long-term resilience, customers (including the principle of intergenerational equity) and the environment, as

³⁰⁰ As an illustration, over the next five years, Anglian will move from a regional surplus of 150 Ml/d to a deficit of 30 Ml/d, with half of its Water Resource Zones in deficit. WRMP 19, page 5 (SOC279).

³⁰¹ Anglian's WINEP obligations have increased from over 1,200 obligations in AMP6 to 2,161 obligations in AMP7. For example, the costs to deliver the WRMP have increased from £74 million (in 2017/18 prices) in AMP6 to £622 million in AMP7.

well as the Government's SPS and the recommendations in the NAO's March 2020 report into water supply and demand management.³⁰²

- (490) It is also at odds with the approach taken by WICS, with broad support from key stakeholders, which has concluded in its Prospects for Prices paper that significant investment is required for Scottish Water to meet its net zero target by 2040, replenish its asset base and meet its other obligations to customers (resulting in bill increases of between 1 and 2% p.a.). The challenges facing Anglian's region are even more pressing.

3.4 Ofwat's unrealistic modelling has led to incentives for inefficient behaviour

- (491) Ofwat's approach to modelling wholesale costs, resulting in a significant shortfall for Anglian, means that Anglian is incentivised to cut back on preventative asset maintenance activity, so reducing lifetime asset value, and to find short-term quick-fix solutions. Anglian is also incentivised to replace elements of its Enhancement plan with short-term solutions which are lower value for money in the long run.
- (492) Incentives are further distorted by Ofwat's approach to allocating totex allowances between opex and capex. Ofwat has used the proportion of opex and capex according to the split in Anglian's Plan. However, the Plan was prepared on the assumption that growth costs (which are largely capital in nature) would be treated as Enhancement expenditure. Ofwat has reduced the totex allowance at FD and a significant amount of the reduction relates to growth expenditure. When calculating the opex/capex split of the 'totex gap', Ofwat failed to account of the predominantly capital nature of growth expenditure (i.e. it disallowed a larger proportion of capex relative to opex). As a result, in Anglian's case, Ofwat has incorrectly characterised over £150 million (>£30 million/year) of opex as capex, resulting in an additional opex shortfall of more than £150 million in AMP7. The totex framework was intended to remove perverse incentives to favour capital investment over operating solutions. However, Ofwat has imposed a much tougher adjustment for opex than that for capex and so re-introduces a capex bias. This significant opex reduction leads to lower bills in the short term, because capex costs are recovered over time. To the extent this approach distorts investment decisions away from the least-cost whole life solutions, it will increase overall costs to customers.

3.5 Ofwat's approach is based upon an unrealistic view of the business: denying the existence of a cost/quality trade-off

- (493) Overall, Ofwat's approach to cost allowances and ODIs, as discussed below, exemplifies a position that it has maintained in the teeth of evidence: that there is no trade-off between cost reduction and quality. Ofwat argues that companies can perform well on both, but it has not provided sufficient evidence to demonstrate that this is the case. By adopting this position Ofwat unreasonably benchmarks the quality of high-performing networks against the costs of low-quality networks, and then disallows the additional cost of the former as 'inefficiency'.
- (494) There *is* a trade-off between cost and quality, at the margin. Anglian is a high-performing company and is therefore exposed to this trade-off particularly on leakage, given it is the sector leader in that area. Anglian has had to devote increased resources, both in terms of people and equipment (which carry an increased cost), to leakage in order to achieve the frontier position that it enjoys. Similarly, Anglian's plans to further reduce leakage and improve the resilience of the network are not without cost. The Company has provided ample evidence of this to Ofwat.
- (495) However, the point is obvious to anyone looking beyond the narrow range of models on which Ofwat relied that ignore this factor. As a general principle, higher quality – like any valued output – is not free, because companies will increase output to the point at which the marginal cost of increased quality

³⁰² NAO Water Supply and Demand Management Report (SOC269).

makes further increases uneconomic. The regulatory system contains incentives for leakage reduction and other measures of quality, so, if improvement were costless, it is hard to see why companies would not simply improve them without limit.

- (496) Anglian's position is supported by evidence from sectors across the economy: it costs more to create and maintain a high-performing network than a mediocre one. Moreover, it costs more to push the frontier of what is possible (as Anglian is seeking to do in relation to leakage) than merely to catch up with an industry leader, due to increasing marginal costs. Frontier shift also benefits customers across the country, as it shows what can be achieved and provides a path for others to follow. By not taking into account the cost implications of increased quality, Ofwat's approach not only fails to allow high-performing companies enough funding to properly finance their functions, it also leads to a long-run incentive for mediocre performance.

4 Risk and reward mechanisms in Ofwat's FD are skewed towards penalties, further reducing likely returns below the level needed

- (497) The regulatory system for water contains several elements that result in allowed revenue varying within the AMP: the ODI framework to incentivise improvements, the cost-sharing mechanism, and licence mechanisms that allow for certain unexpected and uncontrollable cost developments to be reimbursed in an interim determination. In Ofwat's FD, the first two of these are skewed heavily towards penalties, even though regulatory principles would suggest, in each case, that they should be reasonably balanced between penalty and reward. The last item gives rise to a more specific concern as Ofwat has not put forward a valid reimbursement mechanism for key contingent costs and so exposes Anglian to major unfunded expenditure.

4.1 Ofwat's ODI framework is based on unrealistic inputs, exacerbates the problem of underfunding and will lead to missed targets, not performance improvement

- (498) As set out in detail in **Chapter G: ODIs**, Anglian's proposed ODIs were developed as a coherent overall package, with stretching targets but a reasonable balance of risk and reward. The package, which was considered of high quality by Ofwat, was underpinned by customers' interests and preferences, as evidenced by extensive customer research, and challenged by the independent Customer Engagement Forum (CEF). This process led to several changes to ensure that the package effectively reflects what customers want.
- (499) Instead, Ofwat, in the FD, set aside much of the evidence on customer preferences that the Company had gathered and failed to recognise the interrelationship between the efficient level of costs that a company reasonably incurs and the level of service it provides to customers, the environmental outcomes it delivers and the requirements of quality regulators that it must meet. This creates a cost service disconnect, because Ofwat fails to recognise that, for many performance commitments (PCs), better performance comes at a higher cost.
- (500) In a change from previous approaches, Ofwat calibrated its ODI framework on forecasts of performance proposed by companies rather than actual performance achieved. These forecasts have not been created in a consistent manner. Some are clearly unrealistic, when compared to recent performance. Combined with Ofwat's decision not to reflect customers' priorities, the effect is an incoherent framework that does not provide clear incentives for improved quality.
- (501) High penalties relative to low rewards and unattainable targets translate into a pronounced downside skew (as illustrated by the leakage example set out in Section 4.4 above), where companies are likely to trigger penalties even if improving performance levels. In several cases, companies may prefer simply to accept a penalty rather than to strive to meet an unrealistic target. This creates perverse incentives

and takes away funding which could be spent in ways that customers value.³⁰³ This clearly fails the principles of regulatory best practice.

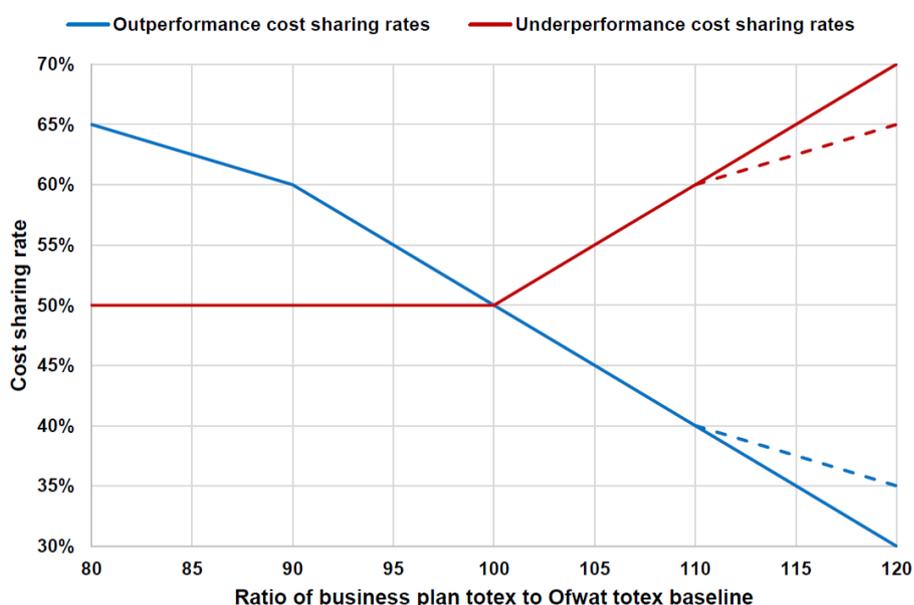
(502) Taken in the round, the ODI package for Anglian is particularly punitive compared to other companies, even though Anglian is one of the best performers (or rather, given Ofwat's methodology of ignoring the cost of quality, *because* it is one of the best performers). Moreover, it fails to promote the interests of customers, compromises the quality of Anglian's service offering, and fails to ensure that Anglian is financed to ensure the proper performance of its functions. It also compromises resilience to long-term challenges. See for example the case study on water supply interruptions below.

4.2 The cost-sharing mechanism is skewed against Anglian, for no good regulatory reason

(503) Incentive-based regulation shares the benefits and costs of overperformance or underperformance, respectively, between regulated businesses and their customers. In the original conception of RPI-X, this was achieved by adjusting prices only periodically, exposing a company fully but temporarily to the gains and losses. Like other regulated sectors, the water sector now shares those gains and losses more directly, through a sharing percentage that affects regulated revenues and thus customer bills. A larger proportion of cost variations falling upon the Company increases both incentives and risk.

(504) Ofwat has decided to set cost-sharing rates according to the ratio of each company's business plan totex to Ofwat's view of efficient totex (i.e. the 'totex ratio'),³⁰⁴ as illustrated by Figure 32 below. Each company's view of totex is the average of its September 2018 business plan totex and the revised view submitted in August 2019. Ofwat's view of totex is as at FD. The dotted lines show where the sharing rates schedule was different at DD.

Figure 32 Ofwat's cost-sharing rates



Source: Securing Cost Efficiency Technical Appendix, Figure 4, page 131 (SOC243)

(505) The cost-sharing schedule is not applicable to companies which were fast-tracked, which have a flat 50% cost-sharing rate for both outperformance and underperformance.

³⁰³ See **Chapter G: ODIs**.

³⁰⁴ PR19 Final methodology, page 139 (SOC314).

- (506) Ofwat's approach is in contrast to the position in PR14 where cost-sharing rates were constrained within a 44% to 54% range. In PR14, the CMA considered that '*a rate of 50% would already be substantially higher – and imply stronger financial incentives for efficiency and cost control*'.³⁰⁵
- (507) For Anglian, the FD imposes cost-sharing rates for total revenue controls³⁰⁶ that are heavily skewed towards penalties (i.e. to the right in Figure 32 above). Anglian would receive no more than 35% of the benefits of any outperformance but would pay at least 65% of the costs of any underperformance, against Ofwat's allowances.³⁰⁷ If, therefore, the outturn position proves to be closer to that proposed in its Plan, compared to the FD, Anglian would be heavily penalised.
- (508) Anglian has two broad concerns with this framework. The first is that it presumes that the regulator is correct in its assessment. Anglian is not incentivised to do what its customers want, nor to focus on those areas where it believes that it can achieve the best performance, nor more generally to be creative in finding the frontier-pushing solutions that the Company has achieved in the past. Instead, it is incentivised simply to implement Ofwat's FD in whatever way it can but not to improve upon it - even if to do so it must seek quick fixes, comply minimally with its legal obligations and defer requisite expenditure for future customers to pay. While, historically, the UK's regulatory system has allowed companies to find their own innovative solutions (something which Anglian has been particularly effective in doing), this ability is substantially eroded in Ofwat's FD.
- (509) The second concern is that the scheme penalises companies which put forward evidence-based plans, as Anglian did, that Ofwat does not support.³⁰⁸ Anglian believes that its engagement is appropriate and in the best interest of its customers. Anglian has sought to provide evidence in support of that and to engage with Ofwat to explain it. It has also moved and compromised as a result of that engagement but has consistently sought to propose the Plan that the customer feedback and technical evidence tells it is the right one. Anglian is now putting that same evidence forward to the CMA. The Company believes that this engagement with Ofwat and with the CMA is the right way to act and is in the interests of consumers. Anglian is concerned that it would be disadvantaged for having maintained a principled disagreement through the process and eventually bringing its case to the CMA as allowed for in the legislation.
- (510) However, Ofwat's approach to cost-sharing does penalise companies that take their case through to the CMA. Anglian believes that this is wrong in principle and requests that the CMA consider whether as a matter of policy it wishes to endorse it. At a minimum, however, if the CMA concludes that significant parts of Ofwat's FD need to be over-turned, then it would be perverse to maintain cost-sharing penalties imposed on Anglian because it correctly challenged that FD.

4.3 Ofwat has failed to protect Anglian against uncontrollable risks

- (511) In its FD, Ofwat recognised that Anglian could be exposed to additional costs during AMP7 that would be beyond management control, relating to Elsham treatment works and transfer scheme and the metaldehyde programme. In both cases, there is a strong possibility that Anglian will incur expenditure for reasons entirely outside its control without the ability to recover that expenditure. Such liability is

³⁰⁵ *Bristol (2015)*, footnote 100 (SOC275).

³⁰⁶ That is, water and wastewater network plus controls and the water resources controls.

³⁰⁷ Anglian's FD, page 47 (SOC231).

³⁰⁸ A clear example is Ofwat's approach to changes in scope. At previous price reviews, such changes were removed from both the company's and Ofwat's view of costs as 'two-sided adjustments'. However, at FD, Ofwat confirmed that scope adjustments would only be subtracted from Ofwat's view of efficient totex (but not from companies' estimates). This further increased the difference between Anglian's cost estimates and Ofwat's, thereby pushing Anglian into even more disadvantageous cost-sharing rates. While Ofwat argued that '*the scope of companies' proposals is part of [its] efficiency assessment of companies' business plans. For companies to remain incentivised to submit efficient scope of work, it is appropriate that it should affect their cost sharing rates*' (Securing Cost Efficiency Technical Appendix, page 137 (SOC243)), Ofwat's approach effectively penalised ambitious plans.

wrong as a matter of regulatory principle: it exposes the Company to unnecessary, uncontrollable and purely downside risk.

- (512) Anglian accepted Ofwat's proposal for the Elsham scheme to be carried out using a direct procurement process. The c.£122 million expenditure for this project was, therefore, removed from Anglian's requested allowance. However, if the in-house solution proves better value for money than any bidder proposal, or if there is no appetite in the market to bid for the Elsham scheme, Anglian will have to construct and pay for the scheme itself. It will have no cost allowance to do so, nor - as explained below - any mechanism for future recovery. In effect, the £122 million would be treated as an '*overspend*' as if it were simply inefficiency, on which the cost-sharing rules would allow Anglian to recover around 32%.³⁰⁹
- (513) Similarly, Anglian agreed to remove £68 million from its Plan that had been earmarked to deal with metaldehyde pesticide, as a result of the Government announcing a ban on the chemical's use from Spring 2020. However, that ban was subsequently overturned on judicial review, so as of now this expenditure is necessary. The Government has since stated that it intends to reintroduce the ban, but, in the event that this is delayed or the decision reversed, Anglian faces significant expenditure with, again, no allowance or possibility of recovery.
- (514) In brief, Ofwat proposes that the mechanism for recovery of these currently unfunded costs (if incurred) should be by means of an interim determination of K (IdoK). However, Anglian's Licence specifies that an IdoK is unavailable unless the value of the claim for additional funding is at least equal to 10% of turnover. Based on Anglian's current turnover, there is no realistic prospect of deploying the IdoK mechanism to recover the costs of either the Elsham treatment and transfer scheme or the metaldehyde programme. Therefore, if these risks materialise, Ofwat will have breached its duty to ensure that Anglian is able to finance the proper performance of its functions.
- (515) The obvious way to deal with both of these issues is through a workable reimbursement mechanism. This would be straightforward, as, in each case, there will be an external, verifiable cause determining whether the expenditure should take place.

5 Ofwat's FD does not allow Anglian to recover its own estimate of WACC

- (516) The gaps in allowed expenditure resulting from Ofwat's unrealistic approach to assessing efficiency, both of the existing cost base and future additions driven by statutory requirements and growth. Together the ODI framework, the cost-sharing ratios skewed towards penalties and Ofwat's unwillingness to fund uncontrollable risks on expenditure combine to create, the result is a funding gap that Anglian does not expect to be able to close. Elsewhere in this Statement of Case, Anglian has set out how it will be forced to select quick-fix solutions of lower quality than its Plan, increase risk and defer costs to future customers.³¹⁰
- (517) However, even with such a programme, Anglian does not expect to make a return equal to Ofwat's assessment of a wholesale WACC of 1.92% (which itself is too low, as discussed below). On current estimates, Anglian expects to make an overall return of 1.68% over AMP7, £20 million per annum below the total returns required to meet Ofwat's estimate. This is well below the levels of return required by investors and Anglian expects to pay out no dividends to shareholders during this AMP, despite (on these projections) very substantially reducing costs to attempt to meet Ofwat's targets, with all the negative consequences that entails. This does not represent a reasonable – or a sustainable – balance of risk and return.

³⁰⁹ Anglian's FD, page 47 (SOC231).

³¹⁰ See **Chapters E.1: Botex, Chapter E.3: Enhancement and Chapter E.5: Misallocation of opex and capex.**

6 Ofwat's WACC does not properly reflect the cost of capital

- (518) As set out in detail in **Chapter I: Weighted Average Cost of Capital**, Ofwat has erred in its estimate of the WACC. Anglian does not here reprise the evidence on which it bases this conclusion, but notes that a material part of the WACC reduction is the result of several fundamental methodological flaws.
- (519) Ofwat's approach to financing is skewed towards identifying a lower WACC in several ways, among which the most obviously unjustified are:
- (i) Ofwat has chosen to base its assessment of the Risk Free Rate, a key component of the WACC, on a spot measure from a single day on which this measure was almost uniquely low.
 - (ii) The cost of debt calculations assume that companies will be able to raise financing on terms available to a company with the upper end of Baa1 rating, but Ofwat's FD has resulted in several companies being assigned lower credit ratings. At a lower rating, the cost of debt is higher, so Ofwat's approach is not even internally consistent.
 - (iii) Ofwat has refused to consider the historical costs of embedded debt actually paid by Anglian, after having allowed the costs of these same financial instruments at each of the last three price reviews. Disregarding these actual costs now, at a time when there is no possibility to avoid them, is pure regulatory opportunism.
- (520) Having imposed an FD which is insufficient for the financeability of even the notional company, Ofwat has advanced revenues of £80 million from future price controls, achieved through increasing the PAYG rate above the natural level. However, this financial engineering will do nothing to help companies preserve their Baa1 credit ratings, as the rating agencies have explicitly said that they will look through such adjustments (which merely shift revenue between AMPs).
- (521) In short, Ofwat's WACC and approach to financing more generally would be inadequate even to fund a notional company expecting to perform within the FD allowances. On top of that, however, the overall effect of the FD has increased risk for the sector, adding to the cost of capital. Ratings agencies have recognised this. Nine water companies have already been downgraded by at least one of the rating agencies.³¹¹ In addition, Northumbrian Water remains on review for possible downgrades.

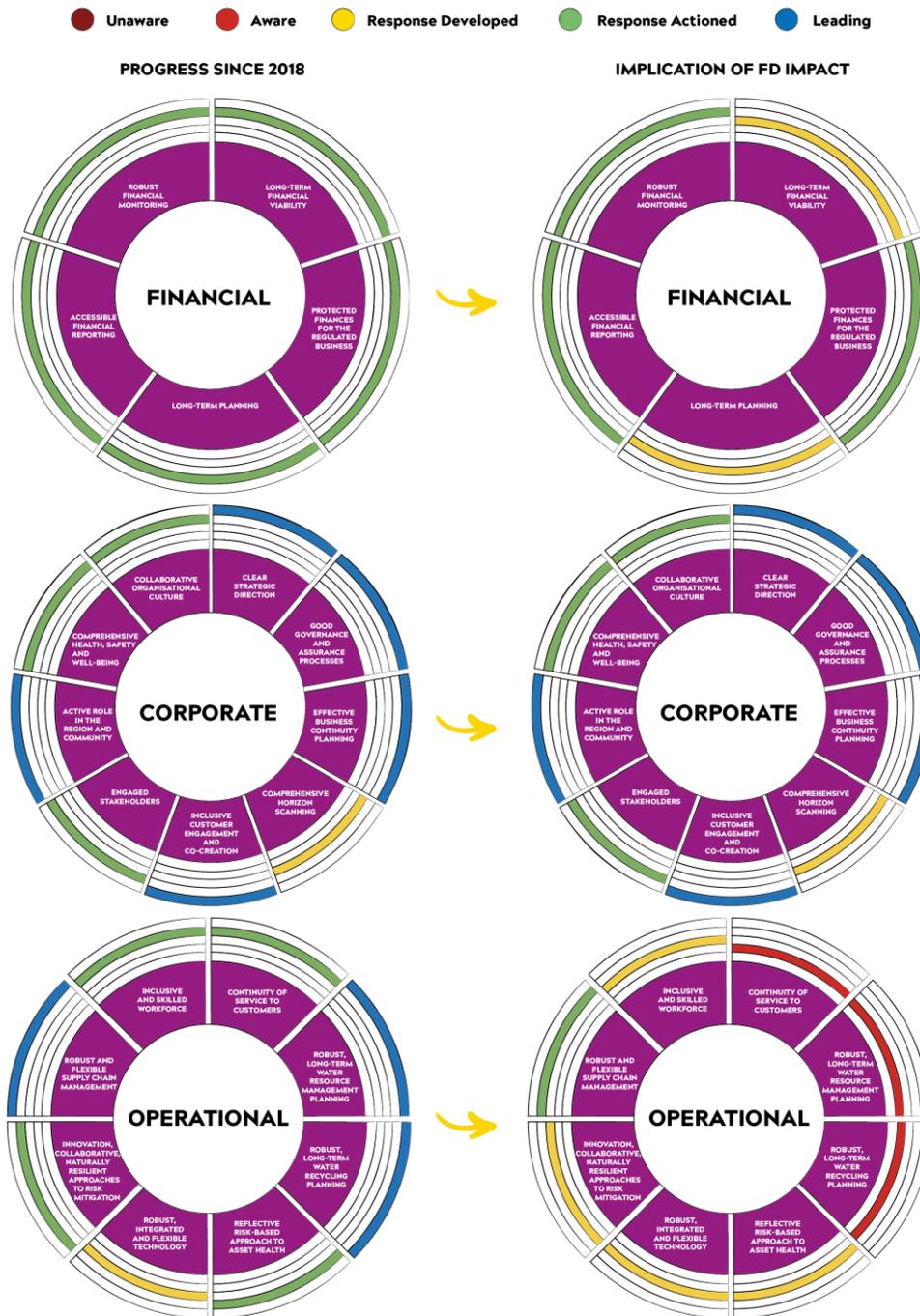
7 Overall, Ofwat's FD is unbalanced: emphasising short-term price reductions at the expense of financeability, resilience and quality

- (522) The settlement implied by Ofwat's FD is not merely risky for the Company, it guarantees underperformance by failing to fund costs that will be incurred and are outside Anglian's control. It is hard to see any regulatory principle under which Anglian should not be able to recover the following costs:
- (i) The interest payments on its embedded debt, an uncontrollable cost of loans efficiently raised almost 20 years ago: interest payments that have been considered recoverable in every periodic review up until this one.
 - (ii) The additional costs of growth which will not be recovered by the application of the Ofwat's Developer Services Revenue Adjustment (DSRA) true-up mechanism which is too narrow in scope and fails to provide adequate insulation against the full costs of high growth.

³¹¹ Including Welsh Water, Severn Trent, Bristol Water, Wessex Water, SES Water, Anglian Water, United Utilities, Affinity Water and Thames Water.

- (iii) The costs of self-providing Elsham, should Direct Procurement fail to produce a bid that is more cost-effective: the entire £122 million for building the scheme will be treated as 'inefficient over-spend', for which Anglian would recover just £39 million.
 - (iv) The costs of measures to deal with metaldehyde, similarly, should the ban on metaldehyde be delayed or abandoned, amounting to c.£68 million of unfunded expenditure, for which Anglian would recover just £22 million.
 - (v) The c.£157 million of opex that has been incorrectly characterised as capex, which results in Anglian being able to recover less revenue through PAYG in AMP7.
 - (vi) The introduction of the gearing outperformance sharing mechanism which effectively penalises Anglian for its current capital structure. It will cost Anglian an estimated c.£40 million over AMP7.
- (523) The FD underfunds Anglian's expenditure programme by £744 million, largely because it fails properly to account for Anglian's efficient provision of high-quality outputs, treating this necessary cost increase flowing from an increased scope of activities as 'inefficiency'. To properly carry out its functions, Anglian must meet statutory obligations arising from the WINEP and WRMP programmes and provide the quality its customers want and are prepared to pay for. Ofwat's FD does not finance this proper carrying out of Anglian's functions.
- (524) Moreover, the FD seeks to impose an unjustified penalty on Anglian's capital structure, that further weakens financeability of the actual company, and misallocates allowed funding between capital and operating expenditure that creates an artificial and significant additional opex pressure that will force the Company to make a series of choices that are driven by this opex shortfall, rather than best value totex choices.
- (525) The need to ensure that Anglian's functions can be financed not only requires that this funding gap be closed but also requires reconsidering the overall risk and reward balance of the FD. There are other duties to consider as well, especially that of promoting resilience. For the reasons summarised in this chapter, Anglian believes Ofwat's FD is unbalanced: underfunding all major areas of its work, exposing it to risks heavily skewed towards a downside and setting a path which requires short-term fixes and deferred expenditure, which Anglian believes is not what it should be doing, not what its customers want, not what Government policy requires, and not what the climate emergency demands.
- (526) How that balance should be struck is a matter of judgment but there are metrics that help to illustrate how far Ofwat has gone. Following publication of Ofwat's *Resilience in the Round* Anglian worked with Arup to co-create a framework for understanding how in practice the Company can track and manage risks over the short term, alongside longer-term trends and less likely (but more extreme) 'long tail' risks. Arup developed this framework for Anglian's and other companies' use in their normal course of business, not for this periodic review.
- (527) Arup used this framework to assess Anglian's maturity in managing risks, shocks and stresses, and scored the Company's current performance as 4 or 5 (where 5 is the maximum) in 17 of 22 areas. They assessed Anglian's AMP7 and beyond performance as 4 or 5 in all 22 areas. Anglian uses the Arup framework extensively in its risk planning.
- (528) Anglian asked Arup to apply this same framework to Anglian assuming it complies with Ofwat's FD. The results are shown in Figure 33 below.

Figure 33 Maturity assessment results



Source: Arup based on interviews and supporting information provided by Anglian

(529) Particularly at the operational end, where scores are now at 2 and 3 for all but one measure, Ofwat's FD pushes Anglian from being a company that is indeed 'resilient in the round', to use Ofwat's expression, to one that is now heavily exposed to risks which it cannot properly minimise to customers. The Company provides examples throughout this Statement of Case of the real implications for customers and the environment of Ofwat's unbalanced approach.

8 Request to the CMA

- (530) Anglian believes that a fair assessment of all of the evidence put forward by the Company from its business, from cross-industry studies and from Anglian's extensive customer engagement would lead to a very different FD from that put forward by Ofwat. Anglian requests that the CMA re-evaluate how cost allowances, performance targets and penalty/reward mechanisms should be set, in line with sound regulatory principles, to meet the needs of its customers.

Chapter E.1: Botex

1 Overview

Flaws in Ofwat's assessment of wholesale Botex

- (i) Ofwat's Final Determination delivers a £265 million (7%) shortfall in Botex allowances against Anglian's Plan. The Plan proposed a modest (1.9%) increase in Botex allowance compared to AMP6, driven by the cost of new service obligations and higher capital maintenance needs partially offset by efficiency improvements. Ofwat's Final Determination therefore represents a £199 million (6%) decrease against Anglian's Botex spend in AMP6, despite Anglian's new service obligations and higher capital maintenance needs relative to AMP6.
- (ii) The Botex shortfall arises from:
- (a) Ofwat's failure to account for legitimate cost differences between companies in its models:
- Ofwat's models fail to account for the atypical characteristics of the region Anglian serves (e.g. the topography of its region and the quality of raw water/required complexity of treatment);
 - Ofwat's models fail to account for the sector-leading quality of service that Anglian provides (including, but not limited to, leakage);
 - By failing to recognise these important cost drivers, Ofwat misinterprets the impact of omitting these variables as 'inefficiency'; and
 - In the Final Determination, Ofwat concedes that its core models are inadequate but its attempted remedies (i) allow an insufficient uplift to address the costs of flatness and leakage and (ii) fail to recognise the impact of other factors.
- (b) virtually no account being taken of the legitimate cost increases in AMP7 relative to AMP6. These include, but are not limited to, new service obligations and higher capital maintenance needs. Ofwat's modelling only attempts to provide an initial base prediction for companies in a business as usual state, but, by construction, cannot account for legitimate increases in spend.
- (c) a failure to sense-check the results of its models. Ofwat did not cross-check these results with bottom-up evidence of each company's actual capital maintenance needs in the next AMP. This undermines the significant advances companies have made to improve asset and investment planning. More generally, Ofwat relies on too narrow an evidence base. It neither triangulates between clearly different economic models³¹² nor, in the case of wastewater, between a disaggregated and an aggregate model.
- (d) inadequate treatment of growth, by adding growth costs (which Ofwat had historically considered Enhancement) to Botex to form Botex Plus. These models do not properly reflect the drivers of growth-related costs (see **Chapter E.2: Growth**).
- (e) An unsupported choice of efficiency benchmark. At Final Determination, Ofwat raised its benchmark to the third or fourth company, having previously used upper quartile at Initial Assessment of Plans and Draft Determination. This decision is unjustified given the confidence intervals around the cost predictions and is inconsistent with previous

³¹² Ofwat's core suite of models are very similar to each other and, as such, do not really provide an alternative view.

decisions made by other regulators and the CMA. Furthermore, the companies judged most efficient by Ofwat have actually shown lower levels of Capital Maintenance over the modelling period, so rather than 'upper quartile efficiency' Ofwat might merely be identifying lower quartile delivery (see **Chapter F: Cost service disconnect**).

- (f) The models contain several material statistical shortcomings, resulting in an under-estimation of Anglian's efficient cost level.

Impact on Anglian, its customers and the environment

- (iii) The Botex allowance in the Final Determination is insufficient for Anglian to properly perform its functions. The allowance is less than the Company needs to fulfil the mandate given to it by its customers: to keep up with the deterioration of its assets, operate and maintain the assets it acquired in AMP6 and continue to deliver sector-leading performance. This impact is further exacerbated by the fact that Ofwat has incorrectly allocated over £150 million of opex to capex (as explained in detail in **Chapter E.5: Misallocation of opex and capex**).
- (iv) This has the perverse and unintended consequence of incentivising Anglian to replace opex solutions with capex alternatives. This means reducing ongoing maintenance activities (which extend asset life) with earlier asset replacement (and therefore lower lifetime value) than would otherwise be the case.
- (v) The consequences are increased risks of service failures for customers and the environment during AMP7 and a lack of improvement in resilience, as well as the certainty that costs to future customers will be higher as the build-up of maintenance backlog and increased resilience risk will need to be paid for by them.
- (vi) The Botex funding gap is therefore incompatible with Ofwat's duties to ensure Anglian can finance the *proper* performance of its functions, promote its customers' interests and secure long-term resilience. The Final Determination fails to challenge Anglian to '*plan, invest and operate to meet the needs of current and future customers, in a way which offers best value for money over the long term*'³¹³ as Ofwat is required to do under the SPS – in fact it achieves precisely the reverse.

Request to the CMA

- (vii) Anglian requests that the CMA allows £265 million additional Botex funding to address the gap between Anglian's Plan and Ofwat Final Determination. In particular, Anglian requests that the CMA:
 - (a) adjusts Ofwat's Botex models to reflect factors such as service quality and topography which drive Anglian's Botex costs (or overlay cost adjustments to account for these factors);
 - (a) adjusts Ofwat's Botex models to reflect drivers of increased expenditure (such as new service obligations and higher capital maintenance needs);
 - (b) triangulates the results of Ofwat's Botex Plus models (after adjustments) with other evidence including historical trends and industry costs
 - (c) provides sufficient funding for the acute growth challenges that Anglian must meet;
 - (d) reviews the benchmarks Ofwat used for setting catch-up factors, considering the uncertainties and limitations of its, or even revised, models; and

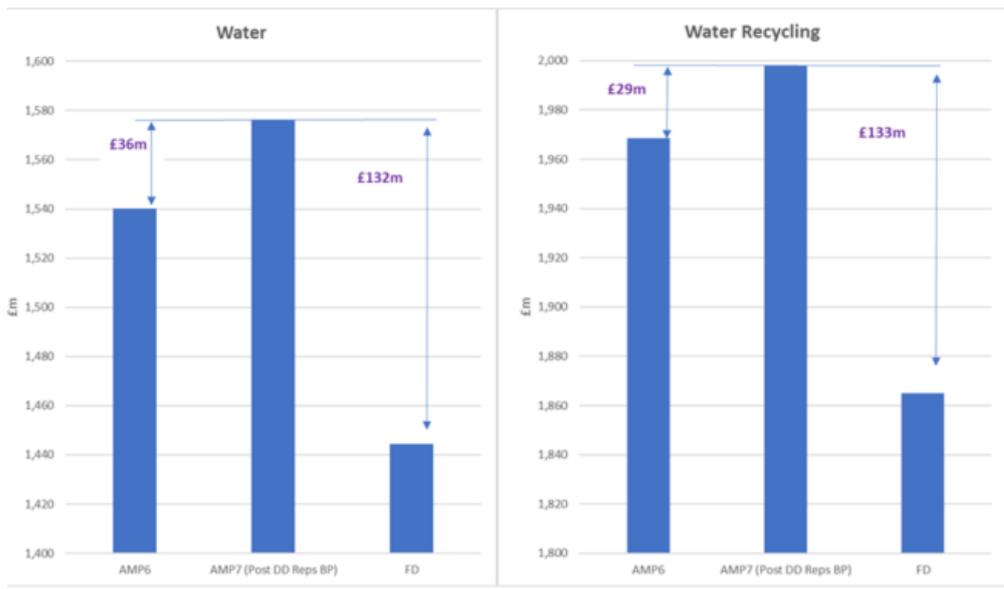
³¹³ Defra's SPS, page 3 (SOC257).

(e) remedies the statistical shortcomings of Ofwat's models.

2 Overview of the Botex shortfall in the FD versus Anglian's Plan

- (531) Anglian assessed its Botex needs to be £3,574 million in its Draft Determination (DD) Representation. Ofwat allowed £3,309 million in its Final Determination (FD), representing a gap of £265 million, or 7%, against Anglian's needs. For an explanation of the increase in required spend in AMP7 in comparison to AMP6 see **Chapter B.3: Anglian's Plan and how it was built**.
- (532) Figure 34 below illustrates the comparison of Anglian's AMP7 expenditure needs with the previous AMP, and the scale of the funding gap in Ofwat's FD.

Figure 34 Ofwat's Botex allowance vs Anglian's AMP6 Botex spend and AMP7 Botex needs



Source: Anglian analysis using Ofwat data and growth estimates

- (533) To derive the Botex estimate in the above, Anglian has subtracted from its Botex Plus allowance a sum that is intended to represent its Growth allowance based on information provided by Ofwat on its derivation of growth allowances.³¹⁴ For this purpose, Anglian used the growth allowance figure of £402 million. All numbers exclude Enhancement opex. Historical numbers have been inflated at CPIH.
- (534) Ofwat has allowed less than Anglian's AMP6 Botex spend, (a reduction of £199 million (6%)), notwithstanding the significant service improvements that the Company is required to make and its need to maintain a growing asset base to remain resilient to future challenges.
- (535) Later in this chapter, the impact of any reductions on service and risk at price control level is described.

3 Ofwat's approach to determining Botex allowances

3.1 Overview of approach

3.1.1 Scope of Botex Plus

- (536) Ofwat's concept of Botex Plus is new for PR19 and was introduced at Draft Determinations stage of the Price Review. It covers Botex costs (base opex plus capital maintenance) together with costs driven by

³¹⁴ Ofwat's email to Anglian on growth allowances (SOC355). See **Chapter E.2: Growth** for full details.

population growth (which have historically been assessed as Enhancement expenditure). It also includes costs driven by addressing low pressure, reducing flooding risk, transferred pumping stations and sewers.³¹⁵ Table 8 below lists the components of expenditure which Ofwat moved from Enhancement to Botex Plus for Water and Water Recycling.

Table 8 Components of expenditure which Ofwat moved from Enhancement to Botex Plus

Water	Water Recycling
New developments	New development and growth
New connections	Growth at Water Recycling Centres
Addressing low pressure	Reduce flooding risk for properties
	Transferred sewers and pumping stations

Source: Anglian's FD (SOC231)

(537) Ofwat assessed Anglian's Botex Plus requirements from the following building blocks:³¹⁶

- (i) An assessment of modelled costs derived from a suite of econometric models;
- (ii) An assessment of unmodelled and other costs; and
- (iii) Allowances for cost adjustments.

3.1.2 Cost models

(538) The bulk of Ofwat's assessment was derived from the econometric modelling.

(i) Wholesale water models

(539) For Water, Ofwat used five models: two for Water Resources Plus (water resources plus raw water distribution plus water treatment), one for Treated Water Distribution and two aggregate models for the whole of water service. The results from each of these models were combined and weighted to derive an overall view of base costs.³¹⁷

(540) Ofwat supplemented these models at FD with five alternative specification models covering (i) number of new connections; (ii) average pumping head;³¹⁸ (iii) percentage of mains renewed or relined; and (iv) leakage performance (two models, taking into account respectively each company's distance from 2024-2025 and 2019-2020 leakage targets).

(541) Ofwat included only six explanatory variables in its wholesale water models at FD: (i) connected properties; (ii) population density; (iii) the volume of water treated at water treatment works in levels 3-6;³¹⁹ (iv) weighted average treatment complexity; (v) length of water main; and (vi) number of booster pumping stations / length of main.

(ii) Water Recycling (wastewater) models

³¹⁵ Ofwat changed its approach to Botex between IAP and DD by (i) adding drivers related to population growth, addressing low pressure and reducing flooding risk from enhancement to Botex and (ii) moving enhancement opex out of Botex and into Enhancement. These changes added £1.5 billion to water Botex and £2.6 billion to Water Recycling Botex. Ofwat's approach is set out in PR19 final determinations. Securing Cost Efficiency Technical Appendix (SOC243). At FD, Ofwat moved expenditure on transferred pumping stations and sewers from Enhancement to Botex Plus. See Ofwat FD WWW Model (SOC356) in which Ofwat confirms pumping stations and sewers.

³¹⁶ Ofwat's approach is set out in PR19 final determinations. Securing Cost Efficiency Technical Appendix (December 2019) (SOC243).

³¹⁷ Securing Cost Efficiency Technical Appendix, pages 161 to 166 (SOC243).

³¹⁸ This replaced Ofwat's approach earlier in the process of considering number of booster pumping stations.

³¹⁹ Ofwat defined seven levels of treatment complexity ranging from simple disinfection (SD) to the most complex at level 6 (this covers works with one or more very high cost process such as desalination). Levels 3-6 are thus the four most complex levels of treatment

- (542) For Water Recycling, Ofwat used eight models: two for Wastewater Collection, two for Wastewater Treatment, two for Bioresources and two for 'Bioresources Plus' (Bioresources plus Wastewater Treatment). The results from each of these models were combined with equal weights to derive an overall view of base costs.
- (543) Ofwat included the following drivers in its wastewater cost models: (i) sewer length; (ii) weighted average density; (iii) pumping capacity/length; (iv) properties/length; (v) load received at Water Recycling Centres ('WRCs'); (vi) load treated in WRC size bands 1-3; (vii) load treated in WRC size band 6; (viii) load with NH₃, consent <3mg/l; (ix) sludge produced; and (x) WRC / properties. The results from each of these models were combined with equal weights to derive an overall view of base costs.
- (544) The modelled costs used in Ofwat's FD models were those base costs reported by companies in the eight years from 2011/12 to 2018/19. Values for the independent variables, or cost drivers, were those reported by companies over the same period.
- (545) To convert the model coefficients into assessments of future base cost requirements Ofwat required future values for the independent variables. To derive these Ofwat used a variety of sources: its own estimates based on historical trends, data from non-company sources (e.g. ONS for property numbers) and companies' own forecasts.

3.1.3 Catch-up efficiency adjustment

- (546) Ofwat applied a catch-up efficiency challenge to the costs forecast by its models to ensure it was not allowing 'inefficient' expenditure. At Initial Assessment of Business Plans (IAP) and DD it set this on the basis of the upper quartile (UQ) of the companies, however at FD, Ofwat moved to use the fourth-placed company in wholesale water and the third placed company in wholesale wastewater.

3.1.4 Unmodelled costs

- (547) Not all base costs are included in Ofwat's Botex models, because they are deemed to be driven by highly company-specific factors. They include abstraction licence fees, pension deficit recovery costs and business rates.³²⁰ Anglian does not contest Ofwat's approach to unmodelled costs, except for the frontier shift adjustment which Ofwat applied to them. This is explained in detail in **Chapter E.4: Frontier shift**.

3.1.5 Cost adjustment claims

- (548) Ofwat made allowance for companies to submit claims for model outputs to be adjusted to reflect the costs they incur due to aspects of their operating environments not reflected in Ofwat's models. Anglian made claims at DD Representation for leakage, sludge transport, capital maintenance and smart metering costs (which Ofwat's models failed to capture) which Ofwat rejected at FD.³²¹ At FD, Ofwat made an uplift of £50.2 million to Anglian's Botex Plus allowances for leakage on the basis of the allowances from alternative specifications to its econometric models, leaving a remaining Botex leakage funding gap of £112.4 million³²² (see Section 4.1 below and **Chapter H: Leakage**).

³²⁰ Ofwat's approach to assessing unmodelled costs is set out in Securing Cost Efficiency Technical Appendix, pages 40-47 (SOC243).

³²¹ Anglian's cost adjustment claims are provided in DD Leakage CAC (SOC173); DD Smart Metering CAC (SOC174); DD Sludge Transport (SOC175); and Capital Maintenance CAC (SOC213). See also Ofwat Anglian FD CAC Feeder Model (SOC357).

³²² Ofwat's approach and reasoning changed during the process. At IAP, Ofwat allowed £55 million in partial acceptance of the claim. Anglian noted in its response that the Ofwat calculation included an arithmetic error. When corrected, the £55 million rose to £126 million. See IAP Response, page 34 (SOC104). At DD, Ofwat said it had revised its approach to funding leakage reduction allowances since IAP and a cost adjustment claim was no longer required. It also considered that the Company's frontier performance was recognised through the allowance made for leakage enhancement expenditure in the supply demand balance feeder model and in the determination of the stretching performance commitment level beyond which the Company can receive outperformance payments. See Anglian's DD, page 25 (SOC358).

(549) Anglian also provided further evidence relating to growth expenditure. Ofwat carried out some additional modelling for growth and as a result Anglian received £40.6 million for growth at FD. See **Chapter E.2: Growth** for details of the funding gap which remains.

3.1.6 Adjustments for Real Price Effects (RPEs) and future productivity

(550) Ofwat recognised RPEs with respect to labour costs only (although only partially) and applied a productivity shift of 1.1% pa. For unmodelled Botex costs, this was in addition to the frontier shift Anglian had already applied to its costs, resulting in a double count. Further detail is provided in **Chapter E.4: Frontier shift**.

3.1.7 Comparison between Anglian and Ofwat approach

(551) Table 9 below compares Anglian's approach to assessing Botex (which is summarised in **Chapter B.3: Anglian's Plan and how it was built**) and Ofwat's approach, highlighting the key difference between them. Ofwat depended solely on a suite of econometric models for its assessment whereas Anglian used modelling as one component of a fully triangulated approach, as a cross-check against its bottom-up assessment.³²³

Table 9 Anglian's approach to Botex assessment compared to Ofwat's approach

	Basis of assessment	Further allowances	Cross-checks	Adjustments for economic changes
Anglian Water	A bottom-up assessment, based on Anglian's knowledge of the costs of running its business. Separately for opex and capital maintenance	None – all included in the bottom-up assessment	The outputs of a suite of econometric models Historical Botex levels Industry unit costs	Real Price Effects Continuing productivity
Ofwat	The outputs of a suite of econometric models. Assessed Botex (at IAP) or Botex Plus (at DD and FD), not separately for opex and capital maintenance.	Unmodelled costs Cost adjustments	Historical Botex levels	Real Price Effects Continuing productivity

Source: Anglian

4 Flaws in Ofwat's approach

(552) There are a number of significant shortcomings in the approach that Ofwat took to determining Botex Plus allowances:

- (i) The models on which it relied are poorly defined and fail adequately to account for important characteristics of Anglian's region, the cost of meeting its growth forecasts and its sector-leading service performance (Section 4.1 below);

³²³ Ofwat's email to Anglian on alternate model specifications (SOC360).

- (ii) The models fail adequately to account for legitimate cost increases since AMP6 from new service obligations and higher capital maintenance needs (see **Chapter B.3: Anglian's Plan and how it was built**).
 - (iii) There is a failure to sense-check modelling results with bottom-up evidence of the Company's actual expenditure needs (Section 4.2 below).
 - (iv) There is a lack of proper triangulation with alternative models, alternative levels of aggregation, or different estimation techniques (Section 4.3 below);
 - (v) After adding growth costs (which Ofwat had historically considered Enhancement) to Botex to form Botex Plus, Ofwat's models have allowed insufficient funding for Anglian's acute population growth in the next AMP (Section 4.4 below and **Chapter E.2: Growth**).
 - (vi) Ofwat's **choice of benchmark** is inappropriate (Section 4.5 below)
 - (vii) The models have a number of statistical shortcomings (Section 4.6 below).
- (553) As shown in Table 10 and Figure 35 below, Ofwat's models result in a wide dispersion in Botex allowance versus companies' own assessment of Botex needs in their business plans. In order to show Botex rather than Botex Plus figures for the Ofwat assessment, Anglian has used the approach set out by Ofwat on 24 January 2020 to evaluate, then exclude, the growth quantum of Botex Plus, thus creating Botex.

Table 10 Botex FD vs Plan for all companies

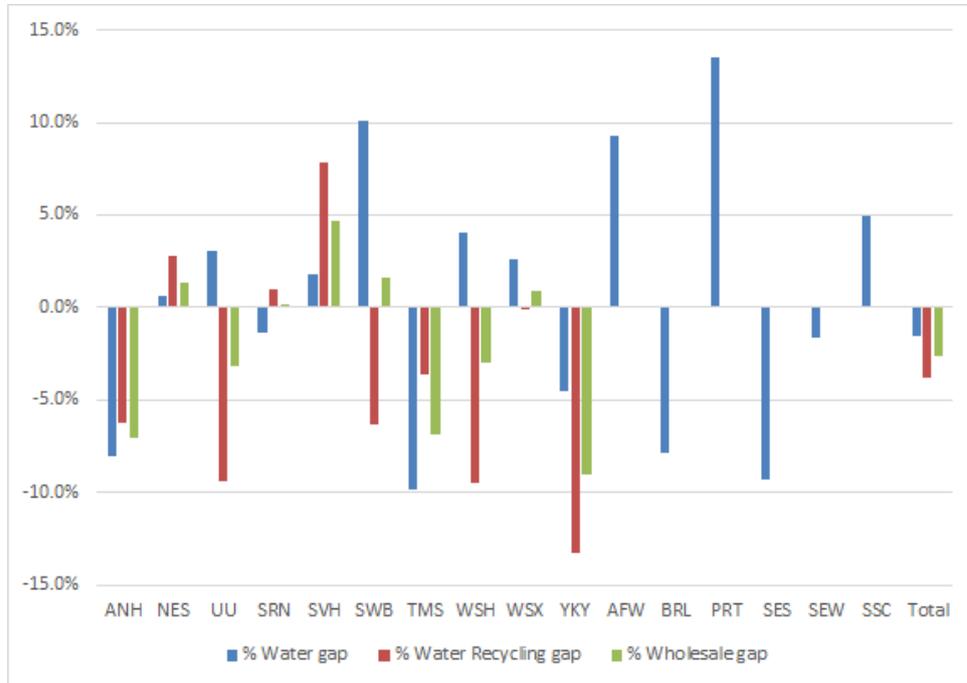
Column1	Water			Water Recycling			Wholesale		
	Botex post DD Reps	Botex FD	% Water gap	Botex post DD Reps	Botex FD	% Water Recycling gap	Botex post DD Reps	Botex FD	% Wholesale gap
ANH	1,576	1,449	-8.0%	1,998	1,874	-6.2%	3,574	3,323	-7.0%
NES	1,369	1,377	0.6%	733	753	2.7%	2,102	2,130	1.3%
UU	2,107	2,171	3.0%	2,135	1,935	-9.4%	4,242	4,106	-3.2%
SRN	713	703	-1.4%	1,413	1,428	1.0%	2,127	2,131	0.2%
SVH	2,365	2,408	1.8%	2,155	2,324	7.8%	4,521	4,732	4.7%
SWB	652	718	10.1%	692	648	-6.3%	1,344	1,366	1.6%
TMS	3,786	3,412	-9.9%	3,548	3,419	-3.6%	7,334	6,831	-6.9%
WSH	1,019	1,060	4.0%	1,113	1,007	-9.5%	2,131	2,067	-3.0%
WSX	505	519	2.6%	836	835	-0.1%	1,341	1,354	0.9%
YKY	1,537	1,468	-4.5%	1,669	1,448	-13.2%	3,206	2,916	-9.1%
AFW	926	1,012	9.3%				926	1,012	9.3%
BRL	380	350	-7.8%				380	350	-7.8%
PRT	135	153	13.6%				135	153	13.6%
SES	186	169	-9.3%				186	169	-9.3%
SEW	660	649	-1.6%				660	649	-1.6%
SSC	396	416	5.0%				396	416	5.0%

Total	18,313	18,033	-1.5%	16,291	15,671	-3.8%	34,604	33,704	-2.6%
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Source: Anglian analysis of Ofwat data

Note: Table 10 and Figure 35 exclude the operating lease adjustments from the FD elements

Figure 35 Botex gap between Anglian's DD Response and Ofwat's FD



Source: Anglian analysis of Ofwat data

- (554) Several companies received considerably higher Botex allowances than they requested. Allowances range from -9% of Botex needs for SES Water (SES) and Yorkshire Water (YKY) to 14% in excess of Botex needs for Portsmouth Water (PRT). This output is striking and casts doubt on the robustness of Ofwat's models.
- (555) At FD, Ofwat made several adjustments, implying a lack of confidence in the output of the models (yet failing to fully address the shortcomings):
- (i) Ofwat introduced alternative model specifications with respect to leakage, pumping head, mains rehabilitation activity and number of new connections. The details of these models were not made public until 12 February 2020, some two months after the FD. Anglian was the only company to benefit, by an amount of £50 million, half of which is due to the two alternative models including leakage. These reduced its leakage Botex funding gap to £112.4 million (See Section 4.1 below and **Chapter E.1: Botex**).
 - (ii) Ofwat made adjustments to reflect different rates of growth between companies. This resulted in adjustments for all companies, and an uplift of £41 million for Anglian (See Section 4.4 below and **Chapter E.2: Growth**).
 - (iii) Ofwat moved the efficiency benchmark from UQ to the fourth (Water) or third (Water Recycling) highest-ranked company which reduced the number of companies receiving allowances in excess of their plans.³²⁴

³²⁴ Anglian's FD, page 33 (SOC231).

(iv) Ofwat also capped Portsmouth's allowance (of 14% in excess of Portsmouth's own assessment of Botex needs) at 10% above its planned value (contradicting Ofwat's own Final Methodology).³²⁵

(556) In Anglian's view, the fact that Ofwat's modelling assesses some companies as requiring larger allowances than their own assessments, is a clue that Ofwat's modelling is not reliable. Moreover, the fact that Ofwat made 'fixes' to the modelled outputs at FD casts further doubt on the underlying robustness of the models.

(557) Each of the failings in Ofwat's approach is addressed further in sections 4.1 to 4.6 below.

4.1 Poorly defined models fail to account for Anglian's characteristics

(558) Ofwat's modelling approach was set out in CEPA's March 2018 report on cost modelling.³²⁶ This report prescribed a framework for Ofwat's cost models as follows:

- (i) Maximum of six explanatory variables;
- (ii) Avoidance of multicollinearity (high correlation between cost drivers) requires only one scale driver per model;
- (iii) Simple model form with no cross-terms (in response to the CMA's 2015 criticism of over-complication).

(559) This modelling framework is excessively simplistic to account for Anglian's atypical characteristics. Anglian is different to other companies (in terms of topography, complexity, growth, quality of service, etc) and these characteristics are not appropriately captured in Ofwat's models. In order to more appropriately forecast Anglian's efficient cost requirement the models need to capture these aspects better.

(560) In terms of the demographic and environmental characteristics of Anglian's region, Ofwat's modelling involves no consideration of how topography (Anglian's need to pump water around a sparse and relatively flat region), water quality/required treatment complexity, water scarcity, leakage control, and water demand management influence the cost of water provision.

(561) In his report³²⁷ for Anglian on Ofwat's modelling framework, Professor David Saal noted: '*Ofwat's water models use no more than a single scale variable, a density control, a single control for treatment complexity, and a control for booster pumping stations. Factors such as significant differences in water resource and treatment costs attributable to the type of water source employed, regional variation in water scarcity, and substantial variation in company efforts to reduce water demand and scarcity via leakage control and water metering are only a few examples that quickly come to mind. Thus, compared to both the CMA's models in the Bristol Water determination and the academic literature, Ofwat's models do not appear to have controlled sufficiently for the complexity of water supply*'.³²⁸

(562) While Ofwat introduced alternative model specifications at the FD which included the following additional variables: leakage (two models), average pumping head, mains rehabilitation activity and number of new connections,³²⁹ these did not adequately address the issue. Anglian was the only company to pass both of the tests which Ofwat set for including allowances from these alternative models, and was allowed an additional £50 million, half of which can be attributed to the two leakage models. However, this still leaves a funding gap of £112.4 million simply for Anglian to maintain its current industry-leading

³²⁵ Portsmouth PR19 FD, page 26 (SOC361).

³²⁶ Ofwat PR19 Econometric Cost Modelling Consultation (SOC362).

³²⁷ Saal & Nieswand Assessment of Ofwat Cost Modelling (March 2019) (SOC125).

³²⁸ Saal & Nieswand Assessment of Ofwat Cost Modelling (March 2019), page 34 (SOC125).

³²⁹ The outcome was then average across the models.

low level of leakage (i.e. without taking into account the costs of reducing leakage further. This point is illustrated further in **Chapter F: Cost service disconnect** and **Chapter H: Leakage**.

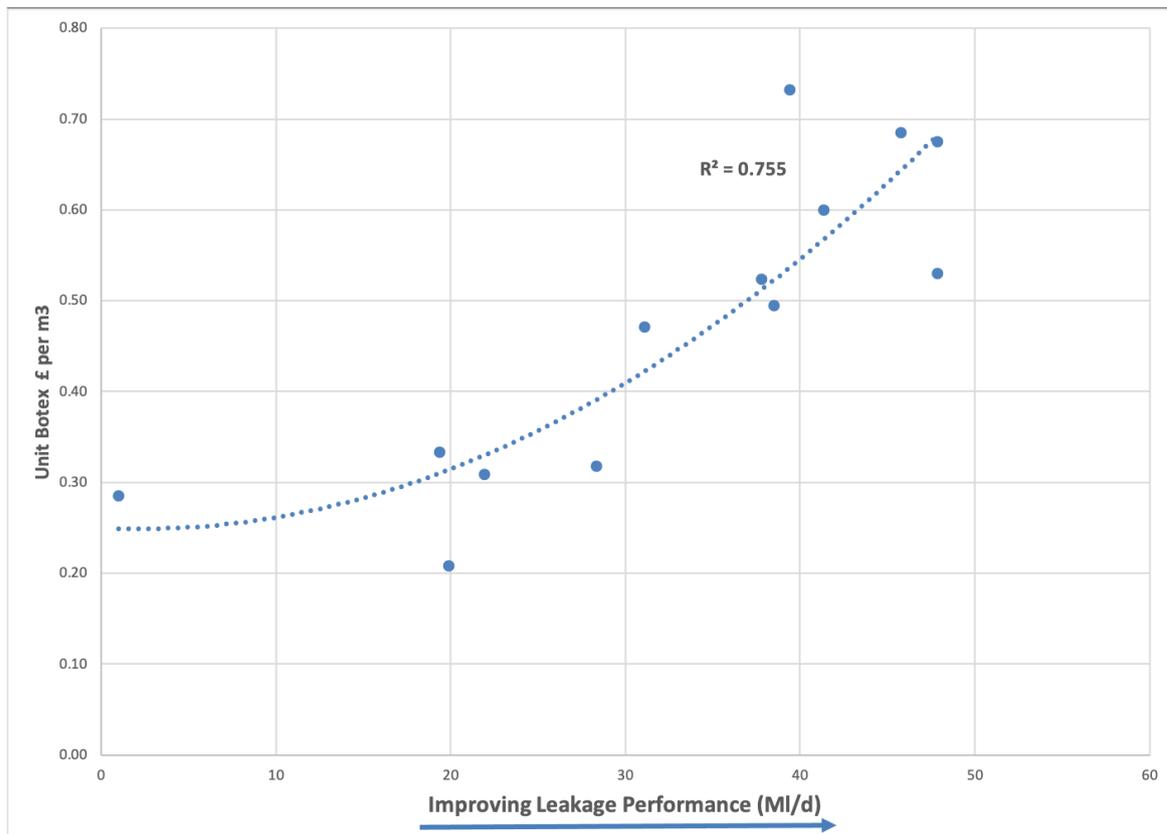
(563) Focusing just on Water, Anglian considers that the following potential changes to cost drivers are worthy of consideration:

- (i) The use of Average Pumping Head ('**APH**') instead of pumping per kilometre as a measure of topography. APH has a long pedigree in this regard and is clearly defined.³³⁰ By contrast, pumping stations per length is first used at PR19 and has proved problematic. In the absence of detailed definitions, companies have interpreted what constitutes a pumping station differently. Moreover, it is unclear why the number of pumping stations should be used for Water models whereas the power capacity – also imperfectly defined - should be used for the Wastewater models. Moreover, APH is a better measure of topography, especially for a WASC serving a flat, rural area. For example, half of Anglian's Distribution Input comes from boreholes. In the case of isolated rural areas (of which Anglian has many), the borehole pump or on-site high lift pumps raise the treated water into the distribution network and to water towers (of which Anglian has the largest number of all water companies in England and Wales). These pumps are excluded from the Pumping Station measure but are included (along with high lift and in line pumps) in the computation of APH.
- (ii) The measures of treatment complexity need to be revisited.
 - (a) No justification is provided for the weights in the 'weighted average measure of complexity' variable Ofwat uses.
 - (b) The second measure – share of water treated above level 3 complexity – is also problematic. As there is very little surface water treated below level 3, the comparison is between all high treatment water and low treatment ground water. A better approach might be to look at the share of low (level 2 and below) water and the share of high treatment (level 5 and above).
- (iii) Further scale drivers in addition to Properties. In particular (water delivered, or Distribution Input – Leakage) has merit in that it both incorporates both the network deliverable, water, and the level of leakage.

(564) Ofwat's core suite of models also take no account of the different levels of service that companies provide and the impact of this on their costs. On leakage control specifically, the models do not recognise that the marginal cost of reducing leakage increases at lower levels of leakage, as illustrated in Figure 36 below.

³³⁰ For example, APH was used in Ofwat power cost models in PR09 and reviews before that. See, for example, Ofwat Water and Sewerage Services Relative Efficiency Report Annex 1, page 7 (SOC363).

Figure 36 Marginal cost of leakage reduction



Source: ICS Report on Ofwat's Overall Stretch Appendix, Figure 36, page 10 (SOC280)

- (565) Some of the alternative models that Ofwat introduced in its FD include leakage as a cost driver. So Ofwat did accept that leakage is an important cost driver and did make a cost adjustment as a result. However, the outcome from the models was averaged with models unrelated to leakage. As such, while the models with leakage predict a higher cost of £98 million, the impact on Anglian's cost allowance was only 25% of this.
- (566) The same principle applies to other areas where higher costs are driven by a higher level of service quality. **Chapter F: Cost service disconnect** explains this in detail.
- (567) Looking more broadly at the models which Ofwat produced within its modelling framework, Anglian draws attention to some of the issues caused by the framework itself, drawing on advice from Professor David Saal.
- (568) First, by ignoring any cost interactions between different parts of the value chain, but adding together the results of different parts of the value chain before calculating the gap to the benchmark, Ofwat's disaggregated models create an unrealistic frontier. For example, adding the frontier for Sewage Collection to the frontier for Sewage Treatment creates a super-frontier beyond a level that can be achieved. This is because upstream factors influence downstream structures: the way Anglian's water recycling centres are distributed, driven in turn by demographics and geography, influences the size and location of its sludge treatment facilities.
- (569) Professor Saal noted: *'Academic literature on cost modelling of network utilities recognize that such systems are complex multiple output industries, where complex interactions, and a wide variety of operating characteristics, cost interactions and constraints influence operations and hence costs. Moreover, complex cost interactions between network and treatment activities will vary both within and*

between companies, thereby requiring careful consideration of how to best specify econometric models capturing these complex engineering, operational, and economic interrelationships'.³³¹

- (570) Secondly, Ofwat's applied modelling principles lack transparency at times and are applied inconsistently. In some cases, there are indications that Ofwat violates its own principles in the models or modifies them without explaining or indicating the change in its modelling approach. A notable example is Ofwat's acceptance of high levels of multicollinearity in its models, contrary to its originally stated modelling principles: the five Water models have VIF statistics³³² ranging from 212 to 230. For the alternative models put forward at FD, the VIF ranges from 215 to 1,570.³³³

4.2 Ofwat failed to sense-check modelling results with bottom-up evidence of the Company's actual expenditure needs

- (571) Anglian's Botex Plan was built up from separate bottom-up assessments of its future opex and capital maintenance needs. These assessments took into account Anglian's expectations of how the future would differ from the past, including its knowledge of changes in risk, growth in the asset base and performance. The process Anglian followed is described in **Chapter B.3: Anglian's Plan and how it was built**.
- (572) Anglian cross-checked its Plan against independent benchmarks, including the triangulated findings of its own econometric cost models. It used its cost models as a cross-check to confirm the efficiency of its plan and not as the primary source of it.
- (573) Anglian's approach was informed by a paper written by Dr Harry Bush and John Earwaker.³³⁴ The paper observed that *'[Ofwat's] approach [of using sector-wide econometric approaches which seek to standardise PR19 funding allowances around the historical spend of the 25th percentile company during the period 2011-2018] looks to us to create a significant risk of mis-provision for capital maintenance on an individual company basis. This is because underlying capital maintenance requirements can vary markedly between companies, and within companies over time, depending inter alia on differences in underlying asset health and age'*.
- (574) The Bush-Earwaker report likened Ofwat's approach at PR19 with the approach it took at PR99, which was heavily criticised by the House of Commons Environmental Audit Committee in 2000 for relying overmuch on past levels of spend to determine what was appropriate for the forthcoming period. The equivalent annualised costs ('EAC') stated that Ofwat's approach amounted to intellectual neglect of this important problem'.
- (575) The Bush-Earwaker report recommended that allowances should be determined through the triangulation of historical cost benchmarking with more grounded asset-based evidence. *'In our view, a price review in which the funding levels suggested by econometric models are cross-checked ... against engineering assessments is likely to produce more rounded and accurate overall funding allowances than a review in which lower quartile historical expenditure is simply rolled forward for another five years'*.
- (576) As described above and in **Chapter B.3: Anglian's Plan and how it was built**, Anglian followed the Bush-Earwaker recommendation, employing the framework that was developed by the industry following the PR99 review.

³³¹ Saal & Nieswand Assessment of Ofwat Cost Modelling (March 2019), page 12 (SOC125).

³³² VIF: Variance Inflation Factor. This is a measure of the severity of multicollinearity. A figure above 10 is generally considered high.

³³³ For the avoidance of doubt, Anglian does not submit that a high level of multicollinearity rules out the use of a model: in such a small dataset with key scale drivers (such as properties, volume and length) highly collinear, multicollinearity is ever-present. Rather, Anglian submits that having set out a set of rules for itself, Ofwat has not held to them and has not made it clear that they have moved away from their own rules.

³³⁴ Bush & Earwaker Capital Maintenance Report (May 2019) (SOC153).

- (577) In contrast, Ofwat depended exclusively on a very small number of models in setting its allowances.
- (578) Ofwat's cost assessments took no account of non-modelling evidence (with the exception of cost adjustment claims). In addition, Ofwat did not seek to understand the future changes in risk of asset failure, repeating the 'intellectual neglect' identified by the Environmental Audit Committee in 2000.³³⁵
- (579) In all water appeals the CMA (and the Competition Commission (CC) before it) have recognised that econometric models are imperfect and supplemented their modelling results with alternative sources of evidence.

4.3 There is a lack of triangulation within Ofwat's models

4.3.1 Inadequate triangulation *between* models

- (580) Proper triangulation is essential if one is to rely solely on modelling evidence because all models include errors. To be effective, triangulated models should be different from each other, and pass tests of engineering, economic and statistical validity.
- (581) In several cases, Ofwat triangulated two models that were very similar to each other. For example, their two wholesale water models differed only in their choice of variable for water treatment complexity so could not be described as economically independent. There was only a single model for treated water distribution – the most significant single area of Botex expenditure (i.e. no triangulation at all). As such, Ofwat has not really tested its model outcomes and, in particular, has not tested its model outcomes for drivers that better account for Anglian's atypical characteristics.
- (582) Furthermore, Ofwat made use of models which fail either statistical, economic or engineering criteria. Averaging a satisfactory model and an unsatisfactory model is not a robust approach. If a model does not pass quality criteria it should not be used and the averaging of two unsatisfactory models does not produce reliable results. For example, Ofwat's first sewage collection model is presented as the following model:

$$\ln(\text{Botex}) = \alpha + \delta \ln(\text{length}) + \beta \ln\left(\frac{\text{pumpingccap}}{\text{length}}\right) + \gamma \ln\left(\frac{\text{properties}}{\text{length h}}\right)$$

- (583) This can be equivalently stated as:

$$\ln(\text{Botex}) = \alpha + (\delta - \beta - \gamma) \ln(\text{length}) + \beta \ln(\text{pumpingccap}) + \gamma \ln(\text{properties})$$

- (584) This reveals that the true underlying log-linear specification does not really control for pumping capacity intensity and density as Ofwat suggests, but in fact specifies a model in which mains length, pumping capacity and properties are treated as outputs in a log-linear specification. Thus, this specification is inconsistent with the modelling framework that Ofwat purports to employ. Moreover, the true underlying specification implies that there is not really an appropriate control for the variable impact on density: Length of mains and properties effectively impact costs with fully separable impact.
- (585) The parameters of the underlying model Ofwat has estimated with random effects are as follows:
- $$\ln(\text{Botex}) = -8.907^{***} - 0.901^{***} \ln(\text{length}) + .170^{**} \ln(\text{pumpingccap}) + 1.471^{***} \ln(\text{properties})$$
- (586) That is, Ofwat has based 50 percent of its cost assessment for sewage collection on a model which suggests that all other things being equal (pumping capacity and properties served), increasing the length of the sewerage network will reduce costs.
- (587) It is interesting to contrast Ofwat's simplistic approach to modelling at PR19 with the approach the CMA took to deriving Bristol Water's Botex allowance in 2015. In *Bristol (2015)* the CMA produced three model

³³⁵ Bush & Earwaker Capital Maintenance Report (May 2019) (SOC153).

specifications (cost driver combinations), three statistical forms (log / linear and unit cost / aggregate cost) and two ways of defining capex (five years smoothed or seven years unsmoothed), i.e. 18 Botex estimates in total, to derive their overall assessment. The CMA then reviewed which of these met economic and engineering criteria as acceptable models. The successful models were then averaged and compared with bottom-up analysis.

4.3.2 Inadequate triangulation between aggregation levels

- (588) Ofwat modelled costs at different levels of aggregation then compared the results. In principle, Anglian supports this approach as it reduces the risk that a poor model is used to set cost allowances. Furthermore, Anglian recognises that Ofwat wanted to set a number of different price controls, not simply one each for water and wastewater.
- (589) Professor Saal noted the limitations in assessing the efficiency of components of the business units given that Anglian manages the business to maximise overall efficiency.³³⁶ For example, Anglian incurs the cost of leakage control in Water Network Plus (which contributes to its perceived inefficiency) in order to optimise long-term efficiency (and other objectives) in the water service as a whole. Likewise, Anglian does not pursue a metering policy in Retail to aid Retail's efficiency, rather the benefits accrue elsewhere.
- (590) Triangulation between aggregated and disaggregated models provides a means of identifying and solving the problem identified by Professor Saal but Ofwat did not do this effectively at PR19. The most glaring absence of triangulation was in wastewater where Ofwat did not use an integrated Water Recycling model. In his report, Professor Saal was able to demonstrate that acceptable integrated Water Recycling models could be created while still following Ofwat's own strict constraints.³³⁷

4.3.3 No triangulation between other estimation methods

- (591) With better quality models, it would be possible to use other estimation techniques instead of relying purely on generalised least squares (GLS) with random effects.

4.4 Ofwat's Botex Plus models do not make accurate forecasts of growth costs

- (592) The separate Growth Chapter explains Anglian's expenditure needs in order to address the significant population growth forecast in its region over the next AMP and why Ofwat's FD delivers a growth expenditure shortfall of £318 million for growth. Below we summarise why Ofwat's modelling approach results in a flawed assessment of growth costs (see **Chapter E.2: Growth** for further detail).
- (593) At DD, and contrary to regulatory precedent where Ofwat had previously assessed growth as part of enhancement, Ofwat moved six growth-related lines of Enhancement expenditure into Botex, transferring £4 billion of industry expenditure and creating what it referred to as Botex Plus. (A seventh, transferred sewers and pumping stations, was added to the list at FD). No substantive changes were made to the IAP cost models (which were created to model Botex) at the same time. In particular, no new growth-related cost drivers were added. Therefore, Ofwat's Botex Plus models do not provide a reliable basis for forecasting the costs of companies' activities to meet future growth needs.
- (594) Anglian submits that the Botex Plus models cannot make reliable forecasts of companies' growth needs for the following reasons:
- (i) No new cost drivers were added to Ofwat's Botex models to address the fact that they now were to be used to forecast Botex Plus costs. For example, Ofwat's approach allows a single per property cost for both maintaining service to a property and adding a new one.

³³⁶ Saal & Nieswand Assessment of Ofwat Cost Modelling (March 2019), page 34 et seq. (SOC125).

³³⁷ Saal & Nieswand Assessment of Ofwat Cost Modelling (March 2019), pages 66-67 (SOC125).

- (ii) Growth rates vary spatially and temporally. That is, even in the medium term there is not necessarily a direct relationship between the recording of new connections and the expenditure needed to service the needs of those new properties. Off-site costs are lumpy. For example, Anglian will incur the cost of laying a main to service a large new development several years before the last properties to be served by it are connected. Conversely, if the demand from the new properties can be met by existing headroom in the network investment might lag behind the connection of those properties.
- (iii) The modelled costs for Botex Plus models were obtained by simply adding opex and capex sums. This approach ignores the difference between a pound of opex, which delivers a short-term benefit and must be made recurrently, and a pound of capex, which is made once but creates an asset which delivers a service over the long-term. This issue, described as 'particularly problematic' by Reckon LLP, existed in Ofwat's Botex models but was significantly exacerbated when capex-heavy growth was incorporated.³³⁸

(595) Anglian supports its view about the inadequacies of the Botex Plus models by highlighting their inelasticity. The incremental value of adding additional properties across AMP7 is very low indeed - £23 million for Water and nothing at all for Water Recycling: while Water Recycling models have both density and pumping capacity per length as variables, properties per se are not included.

(596) Anglian also supports its view by noting that the implied unit costs that Ofwat's models generate for growth are inconsistent with sensible estimates.

(597) Ofwat conceded the lack of growth variables in its Botex Plus models and made company-specific adjustments at FD to reflect average growth rates. Its approach was to assess the variance between each company's forecast growth rate for the period 2020-2025 with the historical growth rate for the industry over the period 2011/12 to 2018/19 then multiply this variance by a unit cost rate per connected property. For unspecified reasons, where this calculation gave a negative figure, the adjustment was halved. This increased Anglian's allowance by £41 million (£12 million Water; £29 million Water Recycling) and reduced Anglian's growth gap from £358 million to £318 million.

(598) Ofwat also introduced a Developer Services Revenue Adjustment (DSRA) true-up mechanism which it claims will deal with any material shortfall in the FD assessment if growth across AMP7 turns out to be higher than Ofwat forecast. However, as explained more fully in the **Chapter E.2: Growth**,³³⁹ this only covers a part of total incremental costs, still leaving Anglian with a funding gap for growth.

4.5 Ofwat makes an inappropriate choice of benchmark

(599) The choice of benchmark is a key decision, with a material impact on the scale of the catch-up challenge applied to companies' modelled allowances. In Anglian's view, the selection of the benchmark should be informed by an assessment of the quality of the models which estimate companies' relative efficiency.

(600) Firstly, regulators rarely select a benchmark more challenging than UQ. In the CMA's determination of Bristol Water's price control in 2015, the CMA applied an average benchmark to models which were significantly superior to Ofwat's PR19 Botex Plus models.

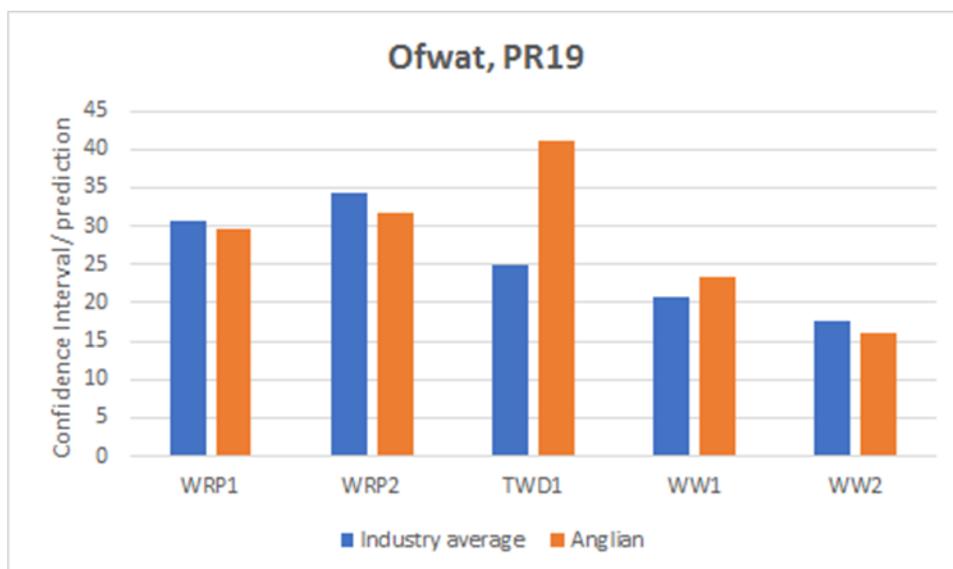
(601) Second, in its FD, Ofwat chose the third or fourth ranked company as its benchmark, having used the upper quartile at IAP and DD. One would expect this move to have been justified on the basis that the FD models were superior to the DD models. However, the FD models were essentially identical to the DD models and Ofwat provided no analysis to support this choice.

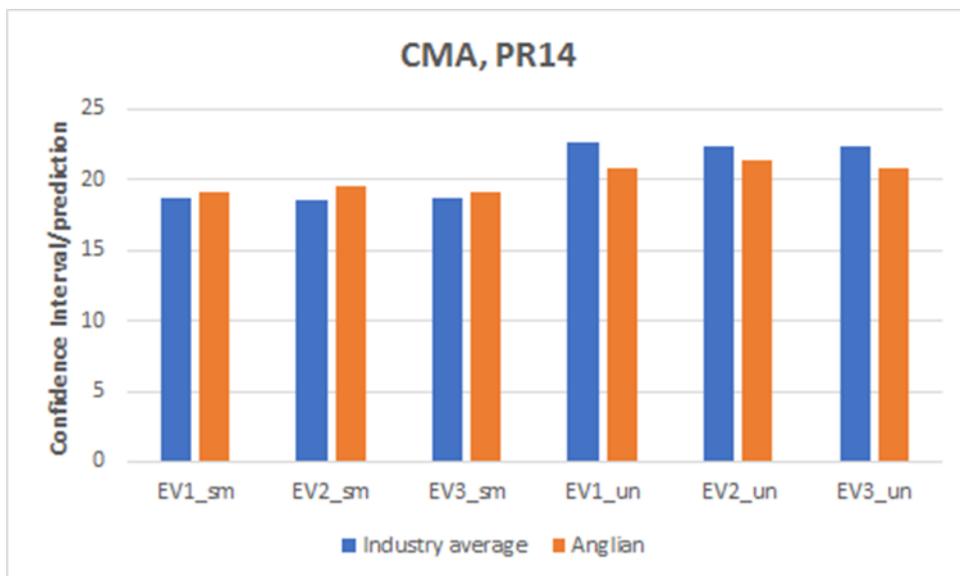
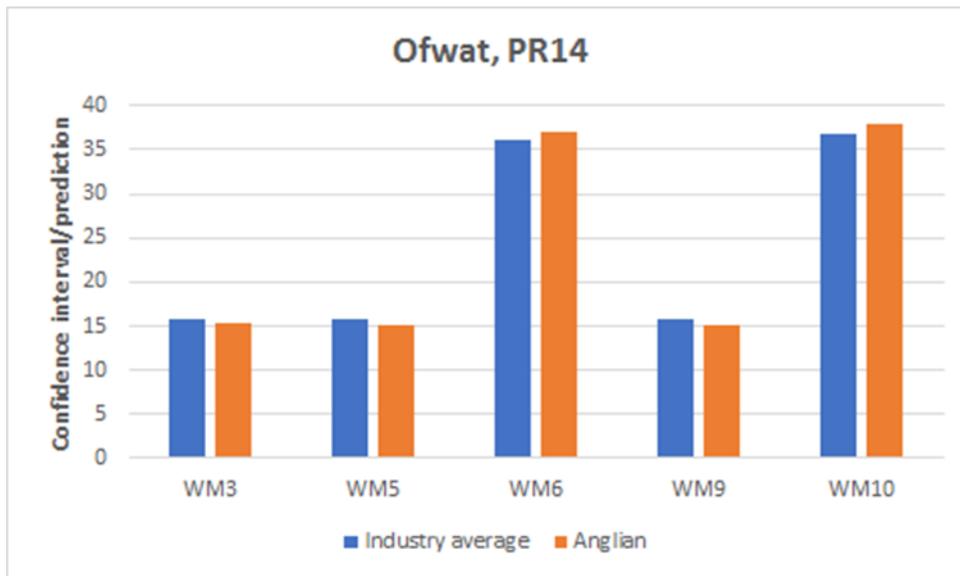
³³⁸ Reckon Review of Ofwat's Treatment of Growth Expenditure, page 27 (SOC201).

³³⁹ **Chapter E.2: Growth**, paras. 80 to 96.

- (602) Third, there is evidence to support the contention that upper quartile efficiency correlates with below average Capital Maintenance spend in the period covered by the model dataset and the period over which the benchmark is calculated. For Water Recycling, all three companies forming the benchmark spent less than their long-term trend over the period from 2012 to 2019. For Water, the evidence is less clear cut. While the frontier company spent much less than its trend, one other company underspent slightly compared to trend; one spent broadly in line with trend; and the fourth company spent marginally more than trend. If the comparison is constrained to the benchmark period, then the evidence is stronger: all companies spend less than trend for both Water and Water Recycling. This is the case, in particular for Water Recycling (aggregate underspend of 15.1% compared to trend) however is also relevant to Water (aggregate underspend of 6.8% compared to trend)
- (603) Fourth, analysis of the quality of the Ofwat models, as measured by the confidence intervals around the cost predictions, shows that there is significantly more variability around the Water Recycling models than around the Water models. This being the case, it is not at all clear why the same benchmark should be used for both services. It would appear sensible to assign a less challenging benchmark to Water Recycling by contrast to Water.
- (604) Fifth, Anglian has compared the prediction uncertainty within the models used by Ofwat at PR19 with the models used by Ofwat at PR14 and developed by the CMA following PR14. At PR14, Ofwat used an upper quartile benchmark while, as mentioned above, the CMA took the view that its models merited a median benchmark. To justify the more demanding benchmark at PR19 one would expect the confidence interval to be much narrower. However, as can be seen from Figure 37 below, the level of prediction uncertainty of the PR19 water models is, in most cases, higher than both Ofwat's PR14 models and those of the CMA. This would suggest that the water benchmark should be no higher than that chosen at PR14 – that is, the median. Given that the prediction uncertainty at PR19 for Water Recycling is higher than for Water, it follows that its benchmark should not be beyond median.

Figure 37 Prediction uncertainty at PR14 and PR19





Source: Oxera

4.6 There are several statistical shortcomings with Ofwat's models

(i) Random Effects

- (605) Anglian submits that at least part of what Ofwat claims to be a measure of Anglian's inefficiency should in fact be interpreted as a statistical allowance for its models' failure to adequately control for our atypical characteristics. This is because Ofwat assumes that the estimated company-specific effect is entirely due to inefficiency when it can be due to omitted company-specific factors.
- (606) Saal notes: '*in the absence of appropriate control variables for legitimate heterogeneity in operating environments, it is more likely that Ofwat's random effects capture unmodelled cost drivers rather than differences in cost efficiency.*'³⁴⁰ Indeed, there are two extreme assumptions (neither of which is likely to be true): either the effect is all inefficiency or nothing to do with inefficiency. Ofwat assumes the former. The truth is likely to be somewhere in between. That is, it is likely that Ofwat has over-estimated inefficiency. This can be examined using various stochastic frontier analysis (SFA) models.

³⁴⁰ Comments on Ofwat's DD Wholesale Water and Wastewater Modelling, page 3 (SOC194).

(ii) Mismatch in dataset for efficiency measurement

- (607) As Saal notes, 'Ofwat uses random effects for the 2012 to 2018 period despite actually assessing costs in the 2014-2018 period. This is inappropriate on both methodological and regulatory grounds, as the estimated random effect which determines estimated cost efficiency is not defined for the relevant cost assessment period. Stated differently, because a single random effect is estimated for each company and forms the basis of its overall two-part annual residual, and hence measured cost performance, 2014-2018 cost assessment will be biased if estimated with a random effect derived using 2012-2018 data'.³⁴¹
- (608) There are different ways to assess the impact of this issue. Anglian has used eight years for its modelling and eight years for determining the benchmark in the efficiency assessment (rather than the five used by Ofwat). Although this may also be impacted by the expenditure cycles and so again capture several effects, Anglian submits that a better approach would be to use a longer dataset for cost modelling rather than a shorter one and to match the benchmarking period to the dataset.

(iii) Log-log bias

- (609) Statistical theory shows that log-log models systematically underestimate costs unless allowances are suitably adjusted. Anglian raised this point after IAP and Ofwat responded with a partial acceptance of the point for the enhancement models but made no change to the approach for Botex Plus.³⁴² This lacks coherence and represents a clear error.
- (610) There are several ways in which the log-log bias can be addressed. Looking back to Ofwat's approach at PR14, where the problem was recognised and addressed using the alpha factor, that adjustment was worth £22 million in 2017/18 Price Base (0.6% of modelled totex).
- (611) Taken in the round, these technical points undermine the integrity and validity of the approach followed by Ofwat and partially explain why Ofwat needed to apply 'sticking plasters' to its models at FD, why its models give a third of companies more Botex than they have asked for and why Ofwat was required to raise the catch-up benchmark at FD.

4.7 Ofwat's cost adjustment claims process in PR19 provide an inadequate remedy to the flaws in Ofwat's models

- (612) Ofwat recognised that models do not necessarily capture every material driver of costs for all companies and invited companies to submit claims for model outputs to be adjusted to reflect the costs they incur due to exceptional aspects of their operating environments.³⁴³
- (613) Ofwat required companies to demonstrate unique or atypical material costs to justify additional funding. However, a realistic view of Ofwat's stated purpose would recognise that models by their nature are not perfect, so quite ordinary circumstances can lead to mis-matches between modelling outputs and realistic assessments.
- (614) In addition, many cost adjustment claims are dismissed outright as they are considered by Ofwat to be captured in the model, but such an assessment is made without thoroughly investigating the issue and is problematic due to the lack of appropriate triangulation as discussed above. For example, Anglian's atypical topography and complexity of treatment both make a significant impact on Ofwat's models and its estimated efficient cost level, but a cursory inspection of Ofwat's models might suggest that both are accounted for.

³⁴¹ Comments on Ofwat's DD Wholesale Water and Wastewater Modelling, page 4 (SOC194).

³⁴² Securing Cost Efficiency Technical Appendix, page 74 (SOC243).

³⁴³ PR19 Final Methodology, pages 148 to 150, Section 9.4.5 (SOC314).

(615) The evidential burden on companies regarding cost adjustment claims was high and out of a total of more than 90 claims made by the industry value (with a combined value of over £5.2 billion), only 11% by value of these claims, amounting to approximately £556 million, were accepted. The cost adjustment claim process therefore is not the same as a sanity check on Ofwat's modelled outputs (where the burden lies on the regulator to demonstrate the robustness of its cost assessment) and is an inadequate substitute for proper triangulation of Ofwat's models.

5 Anglian's Botex funding gap has a significant impact

5.1 Overview of impact

(616) The failings in Ofwat's models and absence of appropriate sense-checking with company capital maintenance requirements, combined with its flawed approach to assessing frontier shift (see **Chapter E.4: Frontier shift**), mean that Ofwat's allowances for Botex and growth are inadequate to enable Anglian to properly perform its functions and maintain its asset base to secure future resilience.

(617) In addition, by basing its forecasts on historical levels of expenditure, Ofwat risks locking in a static view of maintenance activity, irrespective of forward-looking changes in risk. Ofwat's approach of assessing spend purely on the basis of models has little capacity to allow for increases in the overall risk exposure and leaves Anglian unprotected in a scenario where future needs are greater. Anglian is exposed to an increase in Botex expenditure in AMP7 to (i) address the risks arising from asset deterioration, (ii) continue to deliver leading service performance, and (iii) operate and maintain new assets, such as transferred private sewers and pumping stations. Anglian set out the reasons why it needed a higher Botex allowance in AMP7 compared to AMP6 in **Chapter B.3: Anglian's Plan and how it was built**.

(618) The Botex funding shortfall requires Anglian to make suboptimal choices for its business, assets, customers and the environment. These include forcing the Company to reduce asset maintenance activity (because of the constrained level of opex) thereby increasing the risk of early asset replacement and reducing the lifetime value of assets for customers (contrary to the best value approach which is promoted in Defra's SPS). The overall result will be deterioration of the core estate, associated costs to mitigate risk, and deferral of expenditure to future AMPs. By way of brief examples:

Typical maintenance activities

Example 1

Reduced pump maintenance: Anglian makes routine visits to maintain pumps. If Anglian extends the intervals between service visits there is a higher chance of pump failures, leading to water supply interruptions or the discharge of wastewater into homes or water courses.

Example 2

Reduced water pipe rehabilitation: Anglian replaces or refurbishes its extensive water main assets on a risk-based approach. Reducing the volume of activity will increase the burst rate frequency leading to increase interruptions to supply, leakage and customer complaints.

Example 3

Reduced sewer maintenance: Anglian routinely cleans out sewers that are prone to siltation or blocking. If Anglian reduces the frequency of these planned preventative maintenance visits, the risk of service failures increases causing pollutions and the loss of use of facilities.

- (619) These impacts are further exacerbated by the fact that Ofwat has incorrectly allocated over £150 million of opex to capex (as explained in detail in **Chapter E.5: Misallocation of opex and capex**).
- (620) This has the perverse and unintended consequence of incentivising Anglian to replace opex solutions with capex alternatives. This means reducing ongoing maintenance activities (which extend asset life) with earlier asset replacement (and therefore lower lifetime value) than would otherwise be the case. The Company is already experiencing these impacts. has instructed frontline technicians to scale back preventative maintenance activities to enable the Company to live with the FD.
- (621) Ofwat's FD expects challenging performance commitments to be met from Botex Plus allowances. Without sufficient money to do so, Anglian is incentivised to accept the penalties associated with not meeting the performance commitments rather than delivering the service improvements that Anglian's customers told it they valued.
- (622) Taken in the round, the Botex funding gap means that Anglian's ability to properly perform its functions is severely compromised. This results in lower quality of service for customers and increased risks to the environment, resilience and the business, relative to Anglian's Plan. The FD both increases the probability of Anglian incurring penalties under the ODI framework and the risk of further enforcement action from quality regulators, as well as resulting in higher overall costs to customers (in future periods) than Anglian's Plan proposed.
- (623) Anglian set out the importance of appropriately accounting for capital maintenance requirements when building its Plan.³⁴⁴ In its DD Representation, Anglian highlighted how critical capital maintenance was and the risks to both service to customers and the wider environment of inadequate funding of these for a series of different investment areas.³⁴⁵

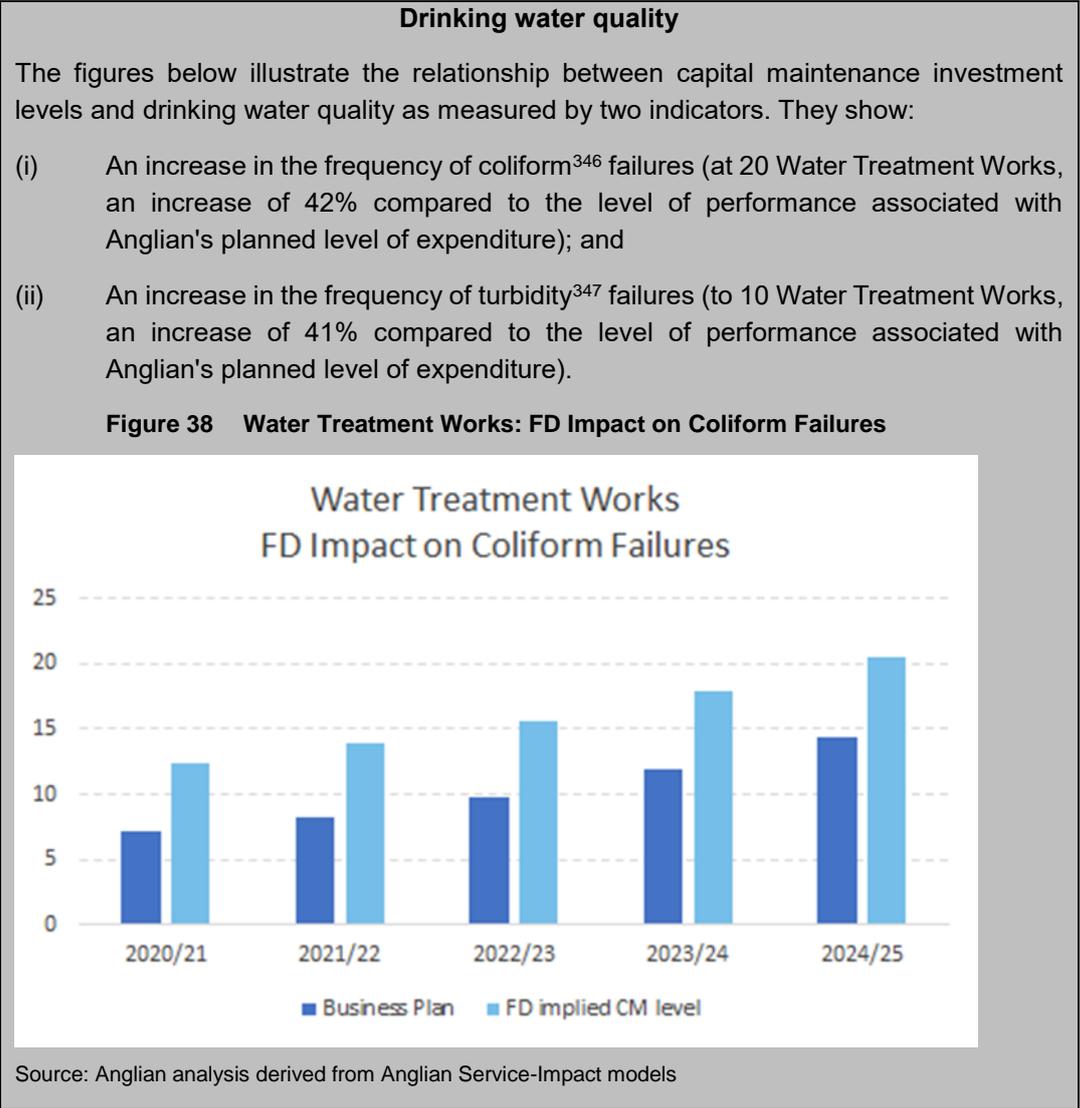
5.2 Impact of failings

- (624) The insufficient level of maintenance resulting from the FD will have significant implications for Anglian's ability to properly perform its legal obligations current statutory water and water recycling quality standards. These have impacts for customers and the environment, both now and in the future.
- (625) For this Statement of Case, Anglian has updated the previous suite of asset management plan summaries which it submitted at DD ('**Asset Management Dashboards**') to reflect the impact of the funding shortfall in the FD for Anglian's base costs. These are contained in Annex SOC364. These summaries illustrate, for each price control:
- (i) Anglian's long-term challenges, how the Company's AMP7 capital maintenance costs have been impacted by changes since AMP6 and the asset health risks which Anglian is managing;
 - (ii) Anglian's asset management plans for each price control;
 - (iii) how Anglian has assessed the impact of changes to maintenance activity on customers and the environment;
 - (iv) the reduction in capital maintenance expenditure from Anglian's Plan relative to the FD; and
 - (v) most critically, the harm caused by the FD and how the funding shortfalls will impact on maintenance activity and the resultant reduction in asset performance, as well as the impact on Anglian's compliance with legal obligations and the corresponding service provided to customers and the environment.

³⁴⁴ See **Chapter B.3: Anglian's Plan and how it was built** and also Bush & Earwaker Capital Maintenance Report (May 2019) (SOC153).

³⁴⁵ DD Investment Area Summaries (SOC193) and DD Representation, pages 14-15 and 21-32 (SOC168).

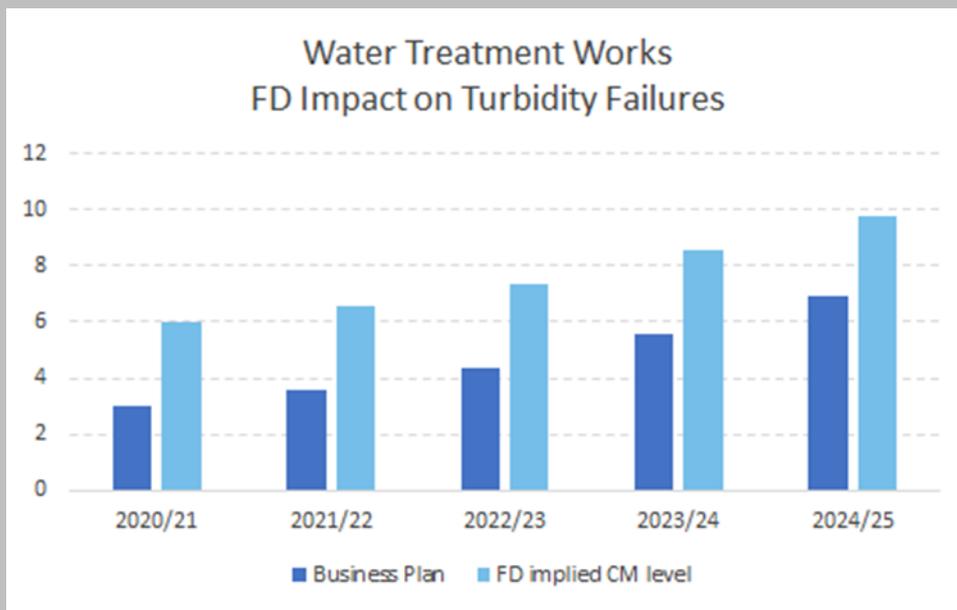
- (626) Each of these Asset Management Dashboards present a summary of the detailed analysis undertaken by Anglian of the implications of the reductions in Capital Maintenance implied by the FD. The outputs of this assessment are derived using the same tools used to develop Anglian's Plan. The Dashboards present the increase in risk, the change in condition of assets or the reduction in performance from planned levels as determined through Anglian's asset planning and investment systems. They also present the harm caused by the change in these assets on Anglian's compliance performance and the associated impact on customers and the environment (via a comparison of Anglian Plan with Ofwat's FD).
- (627) By way of example of the harm caused by the FD relative to Anglian's Plan, extracts from two of these Asset Summaries are replicated below. Both examples relate to Water and Water Recycling compliance measures which contribute to Anglian's compliance with performance standards enforced by the Drinking Water Inspectorate (DWI) and Environment Agency (EA).



³⁴⁶ Coliform failures are the most significant contributor to the DWI's headline measure of Drinking Water Quality – the Compliance Risk Index. See Drinking Water 2018 Report, page 11 (SOC365).

³⁴⁷ Turbidity is also a significant contributor to the CRI. See Drinking Water 2018 Report, pages 11-12 (SOC365).

Figure 39 Water Treatment Works: FD Impact on Turbidity Failures



Source: Anglian analysis derived from Anglian Service-Impact models

There are negative outcomes of performance failures for customers both in the short- and longer-term.

Table 11 Negative impact of performance failures for customers

Short term	Long-term
Risk of supply interruptions in the event that a water treatment works has to be shut down and alternative supplies are not available. Creates a public health risk from the dependence on alternative supplies (e.g. bowsers) and loss of ability to flush toilets.	Loss of confidence in the quality of drinking water.
Illness, from ingestion of contaminated water as described above.	Increased risk to health from long-term exposure to lead, pesticides and disinfection by-products.
Inconvenience – Anglian typically asks customers to boil all water for personal consumption pending the return to compliant water.	Reduced capital maintenance expenditure in any one price control period will require higher costs in future periods to restore performance to acceptable levels.

Water Recycling Centres compliance

The charts below illustrate the relationship between capital maintenance investment levels and Water Recycling Centre performance as measured by two indicators related to Biological oxygen demand ('BOD'). BOD is the amount of dissolved oxygen demanded by aerobic biological organisms to break down organic material present in water. It is the primary measure of the polluting potential of water; the more organic matter there is in water returned to rivers, the more organisms in the river will deoxygenate the river as they break it down. The purpose of wastewater treatment processes is to remove organic matter from waste water in the Water Recycling Centre (WRC) so the BOD of the final effluent leaving the WRC is the primary measure of the effectiveness of those processes. The environmental permits for WRCs which dictate the permissible quality of final effluent can include a range of parameters but always include a BOD limit. If the BOD limit is breached the WRC is deemed to be non-compliant with its permit or is a 'failing works'. Such failures contribute to the EA's Discharge Permit Compliance measure which are reported as part of the EA's annual Environmental Performance Assessment.³⁴⁸

The charts below show that:

- (i) The frequency of BOD failures at large works (Band 6), resulting from the impact of the FD, increases the number of failures from 68 at the start of AMP7 to 106 by 2024-2025; and
- (ii) The frequency of BOD failures at smaller works (Bands 2-5), resulting from the impact of the FD, increases the number of failures from 318 at the start of AMP7 to 558 by 2024-2025.

Figure 40 Water Recycling Band 6 Works: Impact of the FD on BOD Compliance

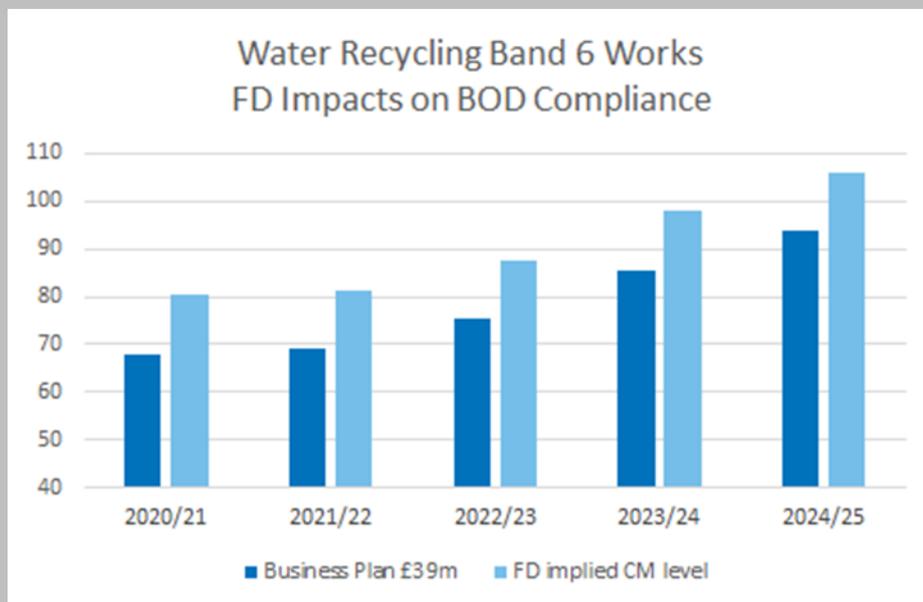


Figure 41 Water Recycling Bands 2-5 Works: Impact of the FD on BOD Compliance

³⁴⁸ See EA 2018 Performance Report (SOC366).

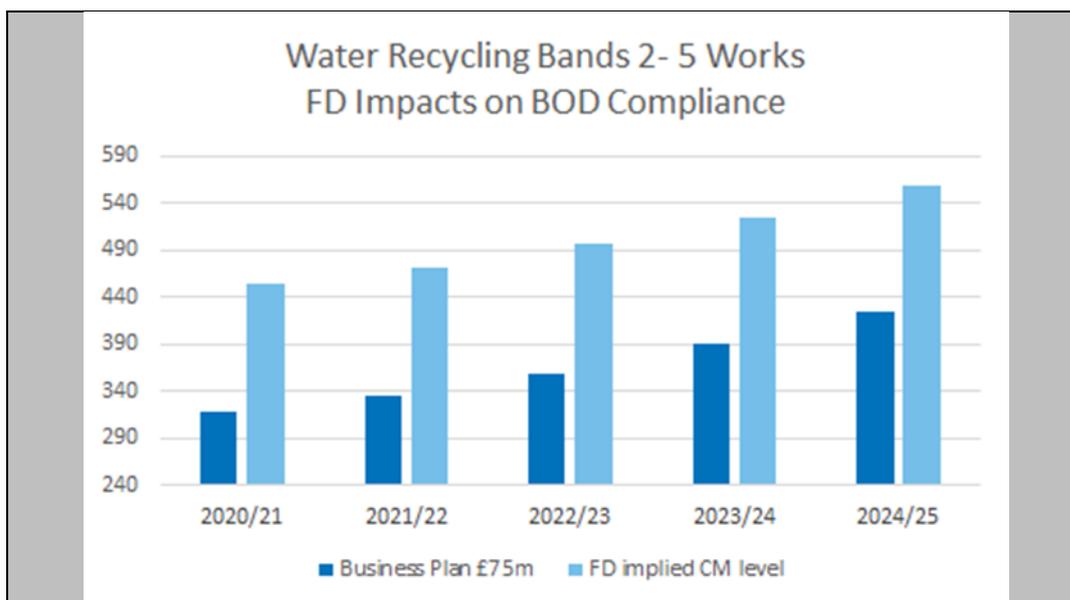


Table 12 below sets out negative outcomes of BOD compliance failures for customers both in the short- and longer-term:

Table 12 Negative impact of performance failures for customers

Short term	Long-term
Loss of species and reduction in biodiversity	Loss of confidence in the quality of the environment and the regulatory system which protects customers and the environment
Loss of visual amenity	Reduced capital maintenance expenditure in any one price control period will require higher costs in future periods to restore performance to acceptable levels
Reduction in quality or loss of recreational facilities	
Illness from ingestion of or contact with contaminated river or sea water during recreational or commercial activities	
Commercial damage – for example, through reduced custom from recreational users or loss of commercial fisheries	

(628) The case studies set out here draw from the general analysis contained in the Bush-Earwaker report³⁴⁹ and illustrate the potential consequences on compliance with Anglian's environmental obligations which directly affect customers and the environment, should insufficient funding be allowed to maintain assets.

³⁴⁹ Bush & Earwaker Capital Maintenance Report (August 2019) (SOC191).

6 Botex funding gap is incompatible with Ofwat's duties

- (629) As illustrated by the examples set out above, the Botex funding gap is at odds with Ofwat's duties to ensure Anglian can finance the proper performance of its functions, promote its customers' interests and secure long-term resilience. The FD fails to allow Anglian to '*plan, invest and operate to meet the needs of current and future customers, in a way which offers best value for money over the long term*' as Ofwat is required to do under the SPS – in fact it achieves precisely the reverse.
- (630) By contrast, WICS, the Scottish water regulator, together with other stakeholders in Scotland, such as consumer bodies, quality regulators, Government and communities, is positively engaging with Scottish Water to understand the scale of the asset replacement challenge in the future. In doing so, they recognise that, allowing an increase in expenditure today can ensure that Scottish Water is '*operating, refurbishing and replacing its assets in an economically optimal way*'. In its 2020 final decision paper Prospects for Prices WICS acknowledged that a trade-off exists between customers' current bills and the interests of future customers who may inherit higher bills, higher levels of debt and a backlog in asset replacement, a trade-off that Ofwat's determination does not recognise.³⁵⁰ Overall, Ofwat has relied exclusively on a narrow range of 'top-down' modelling approaches. Ofwat failed to sense-check the results of its models with bottom-up evidence of each company's actual capital maintenance needs in AMP7.

7 Request to the CMA

- (631) In this section Anglian proposes the approach which the CMA should take in its determination to remedy the errors in Ofwat's Botex Plus assessment.
- (632) Anglian requests that the CMA allows £265 million additional Botex funding to address the gap between Anglian's Plan and Ofwat Final Determination. In particular, Anglian requests that the CMA:
- (i) adjusts Ofwat's Botex models to reflect factors such as service quality and topography which drive Anglian's Botex costs (or overlays cost adjustments to account for these factors);
 - (ii) adjusts Ofwat's Botex models to reflect drivers of increased expenditure (such as new service obligations and higher capital maintenance needs);
 - (iii) triangulates the results of Ofwat's Botex Plus models (after adjustments) with other evidence including alternative models, models at different aggregation levels, alternative estimation methods and Anglian's bottom-up assessment of costs. The latter would entail reviewing the basis on which Anglian's assessment was prepared and Anglian's forward-looking, risk-based assessment of the needs of its asset base, as proposed by the Public Accounts Committee and the Bush-Earwaker paper;
 - (iv) provides sufficient funding for the acute growth challenges that Anglian must meet;
 - (v) reviews the benchmarks Ofwat used for setting catch-up factors, considering the uncertainties and limitations of its, or even revised, models; and
 - (vi) remedies the statistical shortcomings of Ofwat's models.

³⁵⁰ WICS Strategic Review of Charges, page 4 (SOC277). Similarly, in NIC Preparing for a Drier Future Report, page 4 (SOC270), the NIC set out the economic case for boosting supply resilience, comparing the £40 billion costs of relying on emergency options with the £21 billion cost of building resilience over the next 30 years.

Chapter E.2: Growth

1 Overview

- (i) Ofwat's Final Determination fails to provide adequate funding for growth, leaving a gap of over c.£318 million gap between Anglian's assessment of the region's needs and the funding available. The combined impact is to leave Anglian significantly underfunded in AMP7 and inappropriately exposed to most of the risk associated with accommodating growth.
- (ii) This compromises Anglian's ability to meet its statutory obligations and is inconsistent with Ofwat's duties and with the Government's SPS. It will lead to poorer customer service for developer customers, frustrating home building and creating increased business risk as investments to enable growth are reduced or deferred. It could also result in lower standards of performance by Anglian, including increased incidence of pollution incidents, harmful discharges to the environment, low water pressure and sewer flooding.
- (iii) This funding gap arises because Ofwat:
 - (a) used ONS trend-based projections for its forecasts, which are implausibly low relative to Local Authority forecasts, and inconsistent with current outturn data;
 - (b) initially relied solely on inappropriate econometric models in setting cost allowances, without any bottom-up assessment as a cross-check;
 - (c) subsequently attempted to fix this failing with an adjustment that does not in fact address the needs of the Anglian region; and
 - (d) created an inadequate 'true-up' mechanism to adjust revenue in AMP8 if actual growth exceeds Ofwat's AMP7 projections (as it is already doing). This mechanism (i) only partially captures actual growth costs (notably excluding lumpy investments in treatment works, where the Company will carry the risk); and (ii) applies an unrealistic 15% efficiency adjustment to the mechanism's unit rates.
- (iv) Anglian's Plan included £660 million to meet housing and population growth requirements in its region and £60 million to reduce existing sewer flooding and low pressure incidence on its network. As a result of the factors above, Ofwat allowed just £402 million, creating a gap of c.£318 million for growth, reducing sewer flooding and low pressure.
- (v) Ofwat's Final Determination is inconsistent with Ofwat's duties to secure long-term resilience, further the consumer objective, secure that water companies can finance the proper carrying out of their statutory functions and contribute to the achievement of sustainable development. It is also inconsistent with the Government's SPS to ensure that delivery keeps pace with housebuilding and supports development across the country.
- (vi) Furthermore, the Final Determination also risks Anglian's ability to facilitate Government and Local Authority plans for home building in addition to the future growth pressures not reflected in the Anglian Plan such as those associated with the proposed Oxford-Cambridge (OxCam) corridor.
Request to the CMA
- (vii) Anglian requests that the CMA remedy these failings by:
 - (a) setting cost allowances using a realistic forecast of growth in Anglian's region;

- (b) revising the proposed approach to assessing growth costs; and
 - (c) implementing a more effective true-up mechanism, to protect customers and Anglian if levels of growth vary from forecast.
- (viii) These remedies would ensure that Anglian can appropriately carry out its functions and facilitate sustainable housing and economic growth in its region.

(633) The remainder of this chapter is structured as follows: Section 2 sets out the impact of growth on WASCs' investment needs, the challenges the region faces and Anglian's statutory and regulatory obligations. Section 3 sets out Ofwat's Final Determination (FD) approach to growth; Section 4 sets out the methodological shortcomings of the FD (i.e. inappropriate use of the ONS dataset; inadequate approach to modelling growth costs; and inadequate true-up mechanisms). Section 5 sets out the alternative approaches to setting growth allowances; Section 6 describes the customer and environmental harm from underfunding; and Section 7 sets out Anglian's request to the CMA.

2 What is the impact of growth on WASCs' investment needs?

2.1 Statutory and regulatory obligations

(634) Anglian has a series of duties in the Water Industry Act 1991 (WIA91), as well as duties stemming from treatment and permitting regulations. Anglian must connect new homes and businesses to its existing networks (WIA91, Sections 45 and 106) and lay new infrastructure to enable these connections (WIA91, Sections 41 and 98), while maintaining the integrity of its service to its existing customers.³⁵¹

(635) When discharging these duties, Anglian must protect the natural environment, which could be degraded if existing infrastructure is not upgraded to accommodate the additional demand (WIA91, Sections 3 and 101A and Environmental Permitting (England and Wales) Regulations 2010).³⁵²

2.2 Accommodating growth

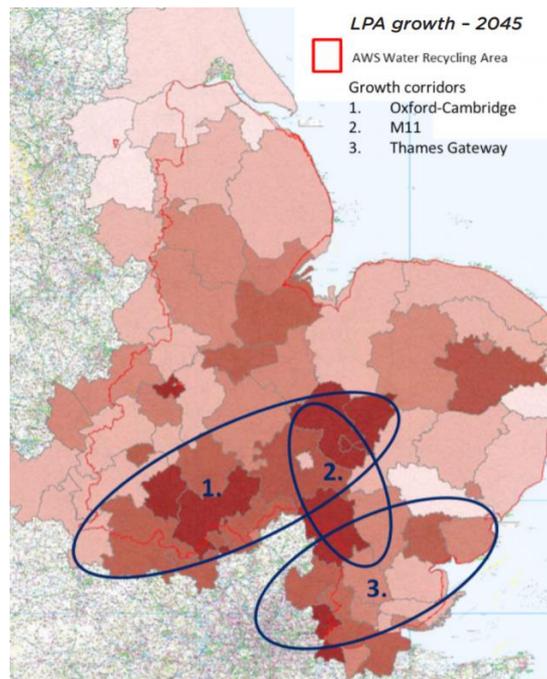
(636) Sustainable economic and housing growth depends on resilient water and water recycling systems. Nationally, there is a significant and growing risk of water shortages due to the impact of climate change, population growth and pressures on the natural environment. The impact is particularly acute for the Anglian region, due to the *combined* impact of climate change, one of the highest rates of population growth and particularly an acute need to leave more water in the environment.³⁵³ Population in the Anglian region is expected to increase by 20% (around one million) over the next 25 years compared with population levels in 2015/16. Concentration of growth in Anglian's region by 2045 is shown in Figure 42 below.

³⁵¹ Anglian's Growth Obligations (March 2020) (SOC367).

³⁵² WIA91, Sections 52 and 94, Urban Wastewater Treatment Regulations (England and Wales) 1994 which may involve upgrades to existing infrastructure. Anglian's Growth Obligations (March 2020) (SOC367).

³⁵³ Anglian's SDS, page 18 (SOC016).

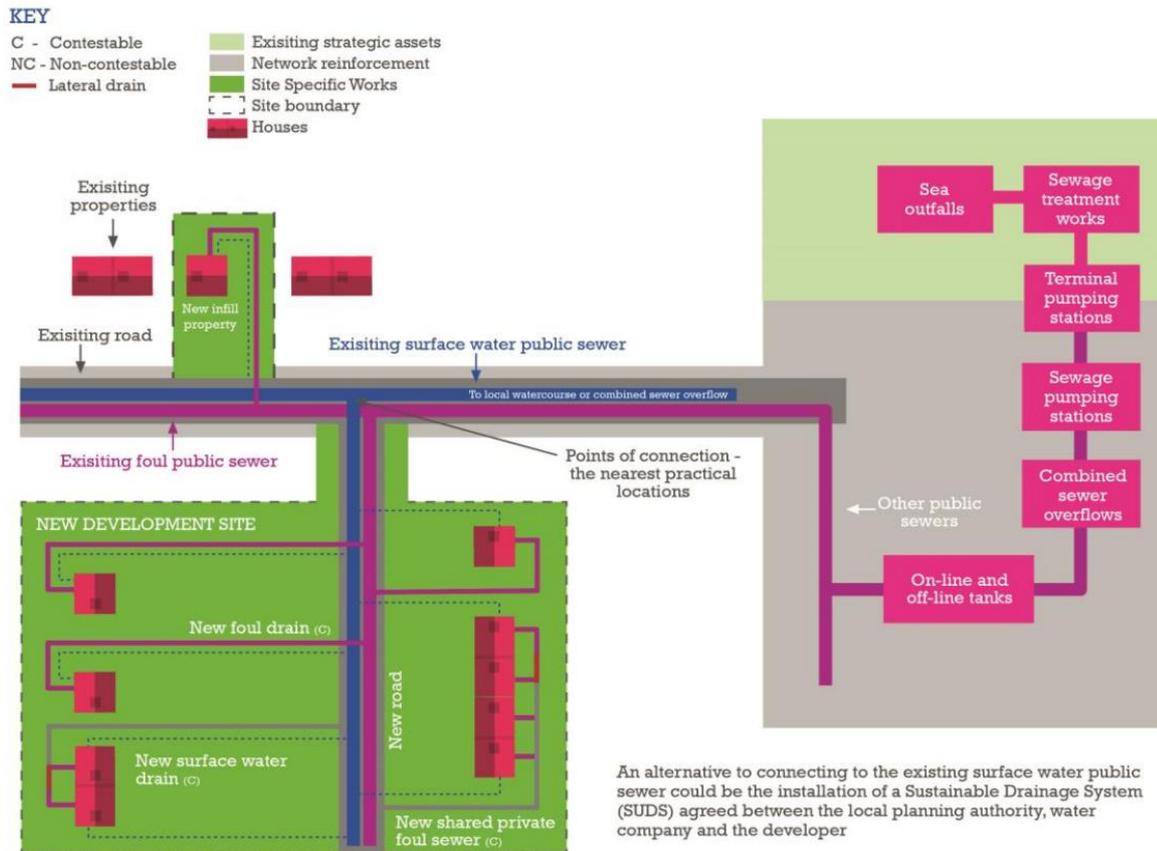
Figure 42 Regional heat map showing growth to 2045 and the emerging growth corridors



Source: Anglian, WRLTP page 25 (SOC332)

- (637) In order to connect new homes to existing networks, companies must ensure there is sufficient capacity available in the supporting assets. These could be the network assets that bring water to homes and businesses and remove waste, or treatment facilities that treat raw water to a drinking standard or treat wastewater. Sometimes new developments and population growth mean the capacity of existing infrastructure be exceeded, triggering the need for upgrades to the existing assets. This is more likely when growth is intense compared to existing populations, such as new town style developments in rural areas.
- (638) The activity involved in facilitating growth can be categorised into three main types, summarised below and shown in Figure 43 below.
- (i) On-site ('Site-specific') work – activity associated with a specific site up to the point of connection with the existing network. This includes laying new pipes to homes, water mains, sewers and activity such as installing meters. This is denoted by dark green in Figure 43 below.
 - (ii) Off-site work – reinforcing the wider water and sewerage networks upstream of the point of connection. This is denoted by light grey in Figure 43 below.
 - (iii) Upgrades to strategic assets, such as treatment facilities – this can be a variety of assets, but with a particular focus on increasing treatment capacity to supply additional water and treat additional wastewater. This is denoted by light green in Figure 43 below.

Figure 43 Types of infrastructure to support growth for water recycling



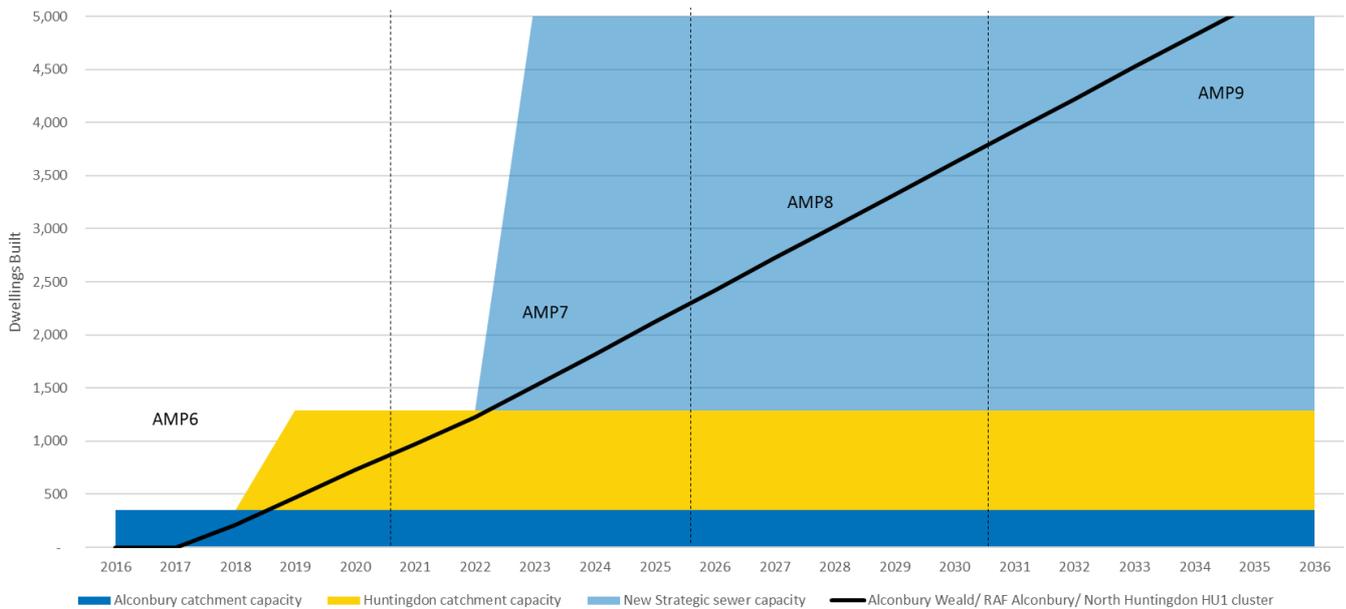
Source: Northumbrian Developer Charging arrangements, page 10 (SOC368)

- (639) The drivers of these activities can have very different characteristics and cost implications. Understanding the cost implications of off-site work and treatment is more complex. The need for these investments will vary from site to site, and when investment is required the optimal solution will depend on the characteristics of the site and existing local infrastructure. Some sites may be relatively inexpensive to accommodate, while others will not be. The marginal costs of facilitating this growth will vary significantly.
- (640) All new connections will require some site-specific work. Some new connections can be accommodated with only the specific requirements (i.e. made without any off-site work or treatment upgrades). However, other growth in populations can trigger significant investment in existing networks and treatment facilities.
- (641) Large development sites can take a number of AMP periods to build and hence there is a pattern of high initial expenditure on off-site works followed by steady expenditure on site-specific works. Thus, expenditure can precede the building of homes by several years and multiple price control periods. For example, Biggleswade Baden Powell Way development currently has planning permission for 1,500 homes. Ultimately, this development and other adjacent developments could include up to 6,000 new properties, but only 500 of these are planned to be built in the five-year period 2020-2025.³⁵⁴
- (642) Consequently, when setting price controls, the costs falling into the five-year window will vary significantly in magnitude dependent on the timing, location and nature of growth. This is outside of management control. For these reasons, there is not a stable relationship between the volume of connections and unit costs for growth per connection. With network reinforcement and treatment

³⁵⁴ Described in further detail in AECOM Growth Case Studies (SOC333).

upgrades, increases in capacity come in defined increments and it is possible that a small number of additional connections or increases in demand exceed available capacity, triggering an upgrade. The unit cost of two similarly sized developments, where one triggers network reinforcement and the other does not, would be very different. This is shown in the Figure 44 below where incremental increases in volume (in this instance sewage flow) trigger 'steps' of capital investment in both network reinforcement and treatment works upgrades. For different volumes and time periods, the incremental unit rates could be very different from the average unit rate for the total volume.

Figure 44 Wastewater flow from the Alconbury Weald triggering infrastructure investment



Source: Anglian

3 Anglian's approach to growth

3.1 The growth challenges faced by Anglian

- (643) Anglian faces unprecedented long-term challenges which include climate change and rapid housing and economic growth. These were fundamental considerations within Anglian's SDS³⁵⁵ and development of Anglian's September 2018 Plan (the Plan). Anglian's ambitions to accommodate growth as part of its long-term SDS are linked to its statutory and regulatory obligations.³⁵⁶
- (644) This supports Defra's Strategic Priorities and Objectives for Ofwat at PR19, which includes facilitating housing growth, and is explicitly linked to Ofwat's duty to support sustainable development.³⁵⁷ Customers are also concerned that population growth and new development should be sustainable.³⁵⁸

³⁵⁵ One of the key objectives of Anglian's 25-year SDS is to Enable Sustainable Economic and Housing Growth in the UK's fastest-growing region.

³⁵⁶ See Chapter C: Ofwat's duties in PR19.

³⁵⁷ Defra's SPS, page 7 (September 2017) (SOC257): 'Ofwat should keep under review what it can do to make sure that company planning and delivery keeps pace with housebuilding and supports development across the country, taking account of its duty to contribute to the achievement of sustainable development.'

³⁵⁸ In the Acceptability testing on Anglian's SDS, enabling growth was seen as the second most important of the Company's four long-term goals.

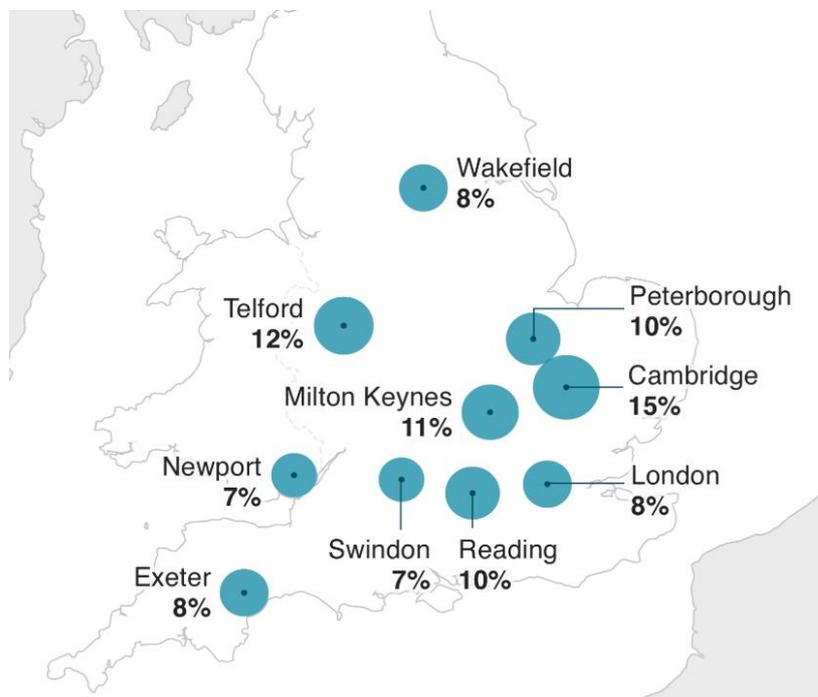
(645) Investing to enable sustainable economic and housing growth is an important part of Anglian's Plan and a priority for its customers. Anglian's Plan puts in place the building blocks that will enable these long-term ambitions to be met.

(646) How growth-related investment needs are modelled and Anglian's approach to determining its growth investment needs, solutions and costs are discussed in **Chapter B.3: Anglian's Plan and how it was built**.

3.1.1 Anglian historical growth rates

(647) Anglian's region has historically seen an above average rate of growth. The expected growth rate over AMP7 is above even this rate. Since 2011, the region has three of the ten fastest-growing cities, by housing growth, in the UK, as classified by the Centre for Cities.³⁵⁹ These are Cambridge, Peterborough and Milton Keynes. Anglian's region is particularly impacted by new development and the garden town and village programme due to the relatively less densely populated nature of the area.

Figure 45 Fastest-growing cities and large towns in England and Wales (2011-2019)



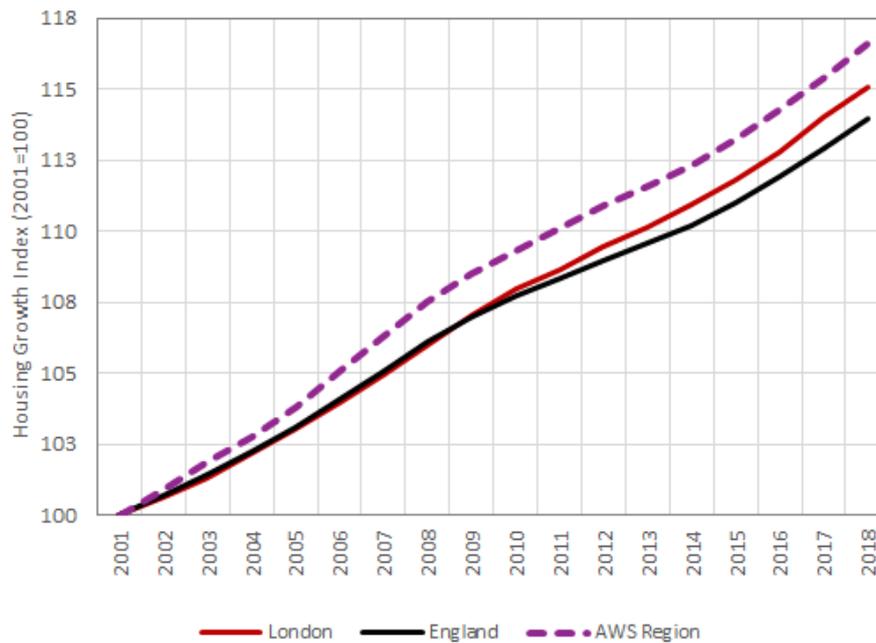
Source: BBC, data source Centre for Cities³⁶⁰

(648) Anglian's region has consistently grown faster than the national average. The Anglian region has seen a higher rate of housing growth in the 2001-2018 period than London as shown in Figure 46 below. In AMP7, Anglian is expecting continued population growth of around 6% for both its water and water recycling areas.

³⁵⁹ Centre for Cities Data Tool (accessed 23 March 2020) (SOC278).

³⁶⁰ Available at: <https://www.bbc.com/news/explainers-51577853>

Figure 46 Housing Growth Index (2001=100)



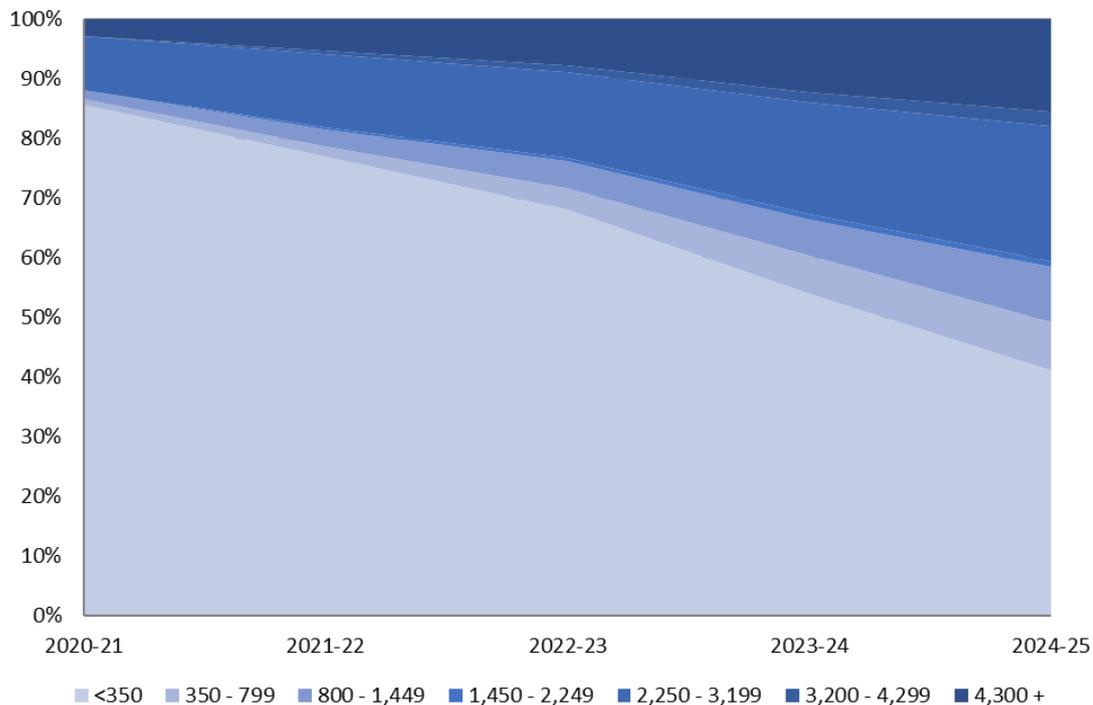
Source: Edge Analytics Housing Growth Outlook (SOC335)

- (649) This growth is unevenly distributed across the Anglian region and frequently results in intense growth that is remote from existing infrastructure, necessitating significant infrastructure upgrades, for example, the Alconbury Weald development that will add 5,000 new homes to the Huntingdon area (a town of around 25,000 inhabitants) and which is more than 6km from Huntingdon town centre (and further from the existing water recycling treatment centre).³⁶¹ The impact of growth intensity and its focus in sparsely populated areas on investment costs is consistent with statistical evidence (see Section 6 below).³⁶²
- (650) Anglian is experiencing an increasing incidence of large, multi-AMP development sites. These are partly in the form of 'garden towns and villages', urban extension and redevelopment of Ministry of Defence sites. The Alconbury Weald development, is an example of a site which is linked to the Government's drive for 'sustainable urban extensions' compared to more piecemeal development. Anglian expects the percentage of connections occurring on development sites greater than 350-plots to increase from 14% to 59% by the end of AMP7. Anglian expects this to continue into AMP8, as illustrated in Figure 47 below.

³⁶¹ Described in further detail in the AECOM Growth Case Studies (SOC333).

³⁶² Vivid Economics Growth Report (March 2020) (SOC369); Vivid Economics Growth Report (March 2020) (SOC369A).

Figure 47 Proportion of connections made by development size



Source: Anglian DD Representation, page 171 (SOC168)

- (651) This is significant as these development site bandings relate to required sewer pipe size i.e. from 150mm for a 350-plot site to 600mm for a site with more than 4,300 plots which have different associated costs.
- (652) The redevelopment of brownfield sites, such as RAF airfields can also have further cost implications. There is a higher probability of contaminated land associated with RAF bases due to use and storage of oil and fuels. When working on contaminated land, where the soil is polluted (e.g. with oil), this may require that excavated material is disposed or treated. Working in contaminated land also requires different, more expensive, pipe materials to be used to protect infrastructure and water quality.

3.1.2 Future pressures

- (653) Beyond the cost drivers directly reflected in Anglian's Plan, there is also additional growth on the horizon, based on Government priorities and objectives not reflected either in local authority plans or Anglian's Plan.
- (654) In its response to the National Infrastructure Commission's report in October 2018, and through the joint declaration with local partners in March 2019, the Government has confirmed its ambition for up to one million new homes to be built between Oxford and Cambridge by 2050 (the OxCam arc). Anglian has engaged with partners, such as Local Authorities, to understand the potential impact with indicative figures suggesting some 70% of these new homes will be within Anglian's area of operation.
- (655) Pressures such as the OxCam arc and Local Growth Deals³⁶³ mean that rapid population and housing growth in Anglian's region is, therefore, set to continue over the long-term, supporting the need for continuing long-term infrastructure upgrades.

4 Ofwat's approach to growth in the FD

- (656) Ofwat's approach to growth in the FD has been summarised below.

³⁶³ Ministry of Housing Local Growth Deals (SOC370).

- (i) Ofwat's FD did not provide separate explicit cost allowances for growth. Instead, growth expenditure needs were assessed in the same models as Botex costs which Ofwat justified as being '*routine, year on year costs, which companies incur in the normal running of their business to operate*'.³⁶⁴ Ofwat also included Enhancement costs associated with service improvement for low pressure and sewer flooding in its assessment of base costs, on the basis that these costs have similar drivers to growth expenditure.³⁶⁵
- (ii) Growth-related expenditure and any contributions from developers towards these costs were included in the Water and Wastewater Network Plus price controls on a single till basis (i.e. both contribute to total allowed revenue and are subject to a single revenue cap). Costs not recovered from developers are recovered from the generality of bill-paying customers.
- (iii) Ofwat's forecast number of connections was based on ONS data. In the Anglian region, Ofwat's forecast was 94,275 water connections and 118,035 water recycling connections during AMP7.
- (iv) In recognition of the modelling limitations, at FD, the outputs of the Botex cost models were adjusted to reflect variance between the ONS forecast and the historical industry average growth rate. This results in a net adjustment of £58.27 million across the industry (some companies receive a lower allowance). The additional allowance for Anglian is approximately £41 million.
- (v) Ofwat proposes an end-of-period true-up through the Developer Services Revenue Adjustment (DSRA), if growth varies from the ONS forecast, which covers only costs for activity chargeable wholly or in part to developers and applies in PR24.

5 Critique of Ofwat's FD approach to growth

5.1 Unrealistic growth projections

- (657) Ofwat's FD forecast for growth is manifestly too low for the Anglian region. This places significant risk on the Company from growth higher than forecast. Ofwat's forecast of new connections is roughly 35% lower than Anglian's latest forecast.

5.1.1 Inappropriate use of the ONS dataset

- (658) Ofwat inappropriately uses ONS data on households. The Government's own planning guidance says this is not the appropriate source for projections of new build housing and demonstrably does not track current and forecast new connection activity in Anglian's region.

- (659) Ofwat used the 2018 version of the table 406 dataset from the ONS (based on 2016 data).³⁶⁶

- (660) The dataset used by Ofwat conflicts with the Environment Agency guidance for WRMPs in England. Ofwat was a contributing party to this guidance. Section 5.3 of the guidance states:³⁶⁷

'For companies supplying customers wholly or mainly in England you will need to base your forecast population and property figures on local plans published by the local council or unitary authority.'

- (661) The ONS dataset used by Ofwat is a projection for households, not properties directly, and year-on-year changes will not directly correlate with new-builds and connections. The 2016 version of the 406 dataset (based on 2014 data) is currently the only dataset sanctioned for use by the Government as a starting

³⁶⁴ Anglian's FD (SOC231).

³⁶⁵ Securing Cost Efficiency Technical Appendix, page 57 (SOC243). See also **Chapter B.3: Anglian's Plan and how it was built** and **Chapter E.1: Botex**.

³⁶⁶ This is the ONS' household projections for England, by region and local authority, mid-2016 to mid-2041.

³⁶⁷ EA Planning Guideline Interim Update, Section 5.3, page 26 (SOC371).

point in assessing the need for additional housing in local plans. Ofwat have not used the dataset sanctioned for assessing the minimum starting point of housing need. Government's guidance is that:³⁶⁸

'The 2014-based household projections are used within the standard method to provide stability for planning authorities and communities, ensure that historic under-delivery and declining affordability are reflected, and to be consistent with the Government's objective of significantly boosting the supply of homes.'

(662) The 2016 baseline data provides a lower forecast than the 2014 baseline data. However, the Government's position is that the 2014 baseline data should be used:³⁶⁹

'... the Government continues to think that the 2016-based household projections should not be used as a reason to justify lower housing need. We understand respondents' concerns about not using the latest evidence, but for the reasons set out in the consultation document we consider the consultation proposals to be the most appropriate approach in the short-term. We are specifying in planning guidance that using the 2016-based household projections will not be considered to be an exceptional circumstance that justifies identifying minimum need levels lower than those identified by the standard method.'

(663) Ofwat has ignored the Government's advice not to use this dataset to forecast future housing need and, as a result, its forecast of connections is too low. This is because the 2016 ONS data is based on historical trends not reflecting factors that would drive a step change in future growth.

5.1.2 Ofwat's approach fails to recognise recent trends, the current levels of growth and Anglian's latest forecast

(664) Anglian recognises that forecasting growth is difficult, due to inherent uncertainty in the housing market. However, over multiple AMP periods, growth in its region has been strong and multiple sources indicate that this will continue. This reinforces the need to make long-term investments to enable large development sites that will be built out over multiple AMP periods.

(665) Year-on-year connections in the Anglian region have been growing steadily since 2012-2013, with a compound annual growth rate (CAGR) of 8% for water. The ONS dataset used by Ofwat suggests a reduction in the number of connections by -4% in 2019/2020 compared to 2018/2019, despite the actual number of connections in the Anglian region having already surpassed the ONS forecast by December 2019.

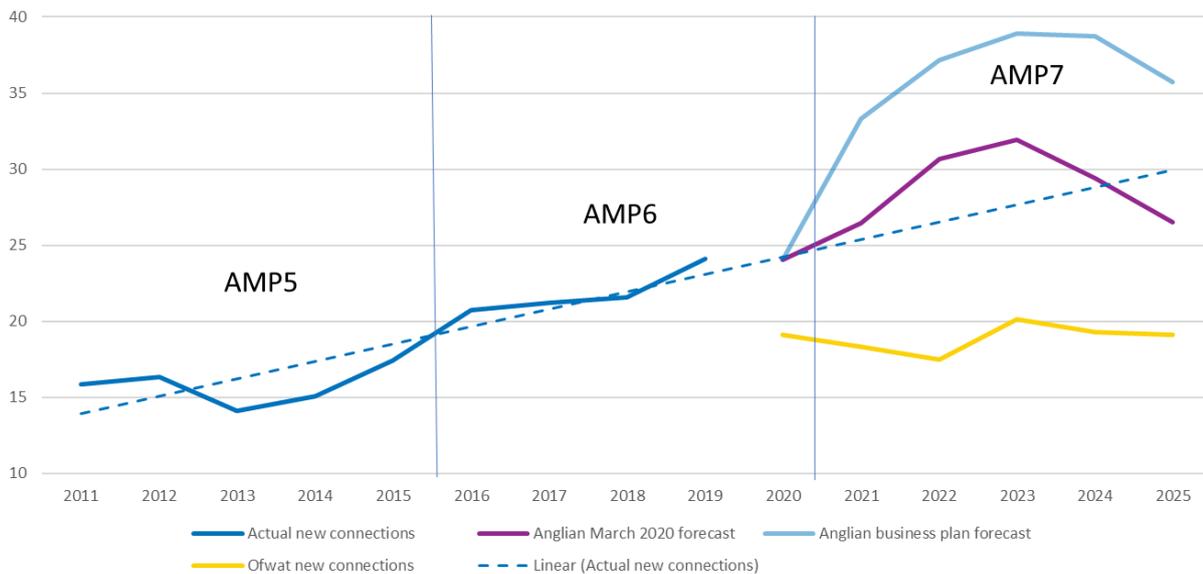
(666) Anglian has reviewed historical outturns for growth, as shown in Figure 48 below. In previous business plans, Anglian has based its growth forecasts based on a relatively crude c.75% of the forecast new connections contained in Local Authority plans reflecting historic delivery.³⁷⁰ There is close alignment between Anglian's latest forecast (purple line) compared to the historic linear rate of growth since 2011 (dotted dark blue line).

³⁶⁸ Government's Growth Needs Assessment, paragraph 5 (SOC372).

³⁶⁹ Government's Response to Technical Consultation on National Planning Updates, page 7 (SOC373).

³⁷⁰ Anglian's latest forecast, discussed in **Chapter B.3: Anglian's Plan and how it was built**, is 81% of Local Authority forecasts for water and 84% for water recycling. This is based on more sophisticated analysis than the historical 75% approach.

Figure 48 Actual and forecast connection activity for water



Source: Anglian

- (667) Despite the current macro-economic uncertainty, growth is likely to materialise in Anglian's region in the longer term, just as it did in the aftermath of the financial crisis. This reinforces the need to plan for long-term growth.

5.1.3 Impact of Ofwat's unrealistic growth projections

- (668) Ofwat's forecast of connections in the FD places significant risk on Anglian if growth continues at current levels or follows Local authority forecasts during AMP7. This risk is exacerbated by other aspects of Ofwat's treatment of growth, as discussed below.

5.2 Inadequate approach to modelling growth costs

- (669) Ofwat's approach to modelling growth costs, informed by its inappropriate growth forecast, leaves Anglian underfunded for growth-related activity by £318 million.
- (670) Following a change introduced at Draft Determination (DD) (to PR19 and precedent from previous price reviews) and carried to FD Ofwat included growth expenditure within base cost models to create 'Botex Plus'. The Botex Plus models were not adjusted to include any new drivers despite including c.£4.5 billion of additional expenditure. Leaving aside the concerns about these models even for assessing base costs,³⁷¹ Anglian considers them unfit for assessing growth expenditure needs.
- (671) Ofwat's approach inadequately captures growth drivers and fails to recognise the non-linear, lumpy nature of certain growth-related costs (unlike base costs), which can lead to lower initial volumes of connections resulting in higher unit rates. Ofwat's approach also fails to recognise the indirect off-site costs that are created because of growth (such as treatment works upgrades and investment to avoid increases in sewer flooding).

5.2.1 Cost model issues

(i) Cost drivers

- (672) The marginal cost of creating capacity at treatment works is influenced by factors such as the existing capacity of the treatment plant, leading to significantly different in unit costs for growth of different scales

³⁷¹ See Chapter E.1: Botex.

and in different circumstances. For example, adding 10,000 population equivalent capacity to a works with an existing capacity of one million population equivalent would tend to have a lower unit rate than adding the same to a works with an existing capacity of 10,000 population equivalent. Table 13 below provides a comparison of Anglian's unit rate per population equivalent ('PE') from its Plan, for different sizes of works. Ofwat requested data on the capacity created at treatment works in data table WWn4, line 25.

Table 13 Comparison of Anglian's unit rates for creating capacity at different sizes of Water Recycling Centres

Band	Biological capacity, Kg BOD/day	Population Equivalent	Anglian unit rate per PE capacity created (£)	Ratio of unit rate to Band 6
1	<=15kg BOD/day	0 – 250	59,687	183.1
2	>15 but <=30kg BOD/day	250 – 500	5,341	16.4
3	>30 but <=120kg BOD/day	500 - 2,000	1,436	4.4
4	>120 but <= 600kg BOD/day	2,000 – 10,000	1,485	4.6
5	>600 but <=1,500kg BOD/day	10,000 – 25,000	564	1.7
6	>1,500kg BOD/day	> 25,000	326	1

Source: Anglian

- (673) The costs of network reinforcement and treatment works are complex and dealt with on a site-by-site basis by Anglian. Costs are driven by many factors which include existing headroom in networks and changes in peak use, for example, with industrial customers changing their demand. Anglian also designs the capacity of the upgrade works to accommodate connections and population growth which are planned to occur well beyond 2025 depending on the expected build-out rate of local developments. Anglian is experiencing an increasing incidence of large, multi-AMP development sites. The need for network reinforcement is driven by growth, but Anglian considers that modelling it on a per connection basis fails to account for the drivers of this investment.
- (674) Ofwat's FD used its 'Botex Plus' models to assess costs for growth. It contended that this is appropriate if (i) similar costs have been incurred in the past; (ii) the activity follows similar drivers to main activities and (iii) there is not significant change in future requirements.³⁷²
- (675) Anglian believes the first condition is met but this masks the lumpy nature of off-site and treatment investments which are site-specific and certainly not routine. Anglian disagrees that the second and third conditions apply. Anglian does not consider that they have similar cost drivers (or, equally important, the same magnitude of impact of those cost drivers) to the main activities included in base expenditure. Anglian also contends that there is likely to be a step change in the level of activity in certain parts of the country in the level of investment required to accommodate significant housing growth.
- (676) The cost drivers in Ofwat's Water and Wastewater Botex Plus models for growth are: (i) the number of properties; (ii) lengths of mains for water; (iii) lengths of sewers; and (iv) treatment load for wastewater (increases again being driven by the number of new connections). Ofwat also includes density/sparsity-related measures. Ofwat's other cost drivers (e.g. complexity of treatment) are not related to growth expenditure. Anglian argues that it is inappropriate to use the scale and sparsity as the sole drivers for network reinforcement and treatment costs or that the relationship between these measures and Botex is the same as the relationship between these measures and growth. This implies, for example, that as connections increase, network reinforcement and treatment costs increase by the same percentage as they do for Botex. The situation is much more complex than Ofwat's simplistic framework recognises.

³⁷² Securing Cost Efficiency Technical Appendix, Chapter 3, pages 13 to 47 (SOC243).

This is material as these types of costs account for two-thirds of Anglian's growth investment programme.

- (677) Models without growth-scale drivers, such as the Botex Plus models, underfund growth because they have attenuated company-scale coefficients. This stems from the fact that growth and company scale are weakly correlated, but unit growth costs are greater than unit costs of serving existing customers. This implies that the increased costs that result from new connections are systematically underestimated, with high-growth companies most adversely affected.
- (678) In addition to the issues discussed above, Anglian submitted evidence on the drivers of growth-related expenditure at the DD, together with Vivid Economics, in response to Ofwat's modelling approach.³⁷³ In support of this redetermination and due to the additional approach introduced by Ofwat in the FD to modelling growth cost allowances, Anglian commissioned Vivid to explore alternative approaches, accounting for a wider set of drivers. Vivid's analysis shows there are statistically robust relationships between remoteness, sparsity and intensity complexity drivers and costs.³⁷⁴

(ii) Implied allowances and unit rates

- (679) Ofwat's FD did not provide an explicit cost allowance for growth. However, following Anglian's request for a detailed explanation of the approach, Ofwat provided an explanation of how implicit allowances could be estimated, via email on 24 January 2020.³⁷⁵ Ofwat also provided an estimated implicit allowance for Anglian of c£402 million.
- (680) Following Ofwat's explanation, Anglian has sought to replicate Ofwat's approach to estimating implicit allowances and Ofwat's modelling adjustment for the entire sector. Anglian has compared this with the level of funding for growth requested by companies in their September 2018 business plans. This is shown in Table 14 below.

Table 14 Implicit allowances and unit rates

Company	FD implied allowance and model adjustment* – Ofwat (£m, 2017-2018)	Growth allowed – FD v Plan	Ofwat Water implied unit rate (£, 2017-2018)	Ofwat Water Recycling implied unit rate (£, 2017-2018)
ANH	402	61%	1,128	2,502
HDD	7	111%	1,546	2,809
NES	193	65%	1,318	5,412
NWT	389	108%	1,682	3,370
SRN	251	74%	1,037	2,327
SVE	497	89%	1,271	2,523
SWB	149	101%	1,191	3,828
TMS	850	93%	1,598	2,187
WSH	211	129%	1,561	3,788
WSX	184	87%	1,099	3,080
YKY	278	164%	1,455	3,553
AFW	76	75%	1,150	-
BRL	24	82%	1,008	-
PRT	10	125%	941	-
SES	13	71%	1,002	-

³⁷³ DD Growth Expenditure Deep Dive (SOC171).

³⁷⁴ This work is discussed further later in this chapter, and in **Chapter B.3: Anglian's Plan and how it was built**.

³⁷⁵ Ofwat's email to Anglian on growth allowances (SOC355).

Company	FD implied allowance and model adjustment* – Ofwat (£m, 2017-2018)	Growth allowed – FD v Plan	Ofwat Water implied unit rate (£, 2017-2018)	Ofwat Water Recycling implied unit rate (£, 2017-2018)
SEW	86	60%	965	-
SSC	25	60%	1,232	-
Total	3,643	87%	1,321	2,741

Source: Anglian analysis of Ofwat's models

* i.e. Ofwat's symmetrical unit cost adjustment

- (681) The output of this analysis highlights significant concerns with Ofwat's modelling for growth. There are 'winners and losers' from Ofwat's approach, with wide variation between the funding requested and funding allowed for companies. There appears to be very little correlation with Ofwat's assessment of scope or efficiency for other areas of expenditure. This suggests that the models are very poorly suited to the purpose for which Ofwat has used them.
- (682) There is also significant variation in the implied unit rates, particularly for water recycling. Such variation exists due to the lack of appropriate drivers for growth in Ofwat's modelling.
- (683) In its FD, Ofwat acknowledged that its approach to modelling growth was not adequate and supplemented it with a further adjustment (see Section 5.2.1(iv) below).

(iii) Models are implausibly inelastic to changes in growth forecasts, severely underestimating costs

- (684) As a further test of the validity of the Botex Plus model for growth, Anglian has tested the model with different scenarios of growth to determine implicit allowances for different levels of growth. Anglian has assessed the model using the volumes of connections included in its Plan (and the plans of other companies) and compared the cost allowances to those provided by Ofwat's model for the ONS level of activity.
- (685) Ofwat's model implies that increasing the number of connections, represented by the properties driver by around 400,000 for both water and water recycling, from 900,000, can be funded with an additional allowance for the industry of £9 million. This figure is not credible. It implies a unit rate of roughly £10 for every connection above the ONS forecast at an industry level. Ofwat's model also implies that some companies face a negative unit rate.
- (686) The models' inelasticity to growth is also demonstrated by keeping all cost drivers constant at the 2019/2020 level during AMP7. This would represent a 'no growth' scenario.³⁷⁶ In this scenario, Ofwat's Botex Plus model allowance for Anglian would reduce by £31.1 million for water and £38.6 million for water recycling (total £69.7 million). This is unreasonably low compared to Ofwat's own implied allowance of £402 million for Anglian to accommodate growth.

(iv) Ofwat's FD adjustments fail to reflect full growth costs

- (687) In the FD, Ofwat accepted in principle that its Botex Plus model did not properly set cost allowances for growth. However, instead of seeking to understand the appropriate drivers for growth costs, Ofwat made two relatively blunt adjustments. Ofwat's approach was to make a volume-driven unit cost adjustment to Company allowances where there is a variance between the historical average rate of growth in the industry and Ofwat's ONS forecast.

³⁷⁶ As well as no increase in treatment complexity, etc.

- (688) Where there is a variance, a unit rate adjustment of £783 for water and £1,715 for water recycling is applied per new connected property.³⁷⁷ This resulted in an additional allowance of £40.56 million for Anglian.
- (689) Ofwat did not seek to support this with any further evidence, such as Company investment plans or its own Botex Plus models. The unit rates used in the adjustment are significantly lower than those implied by Ofwat's model, which is unexplained. The adjustments are volume based and not linked to additional drivers of growth costs. For Anglian, they are 30% lower than the Ofwat model's implied unit rates.
- (690) The other adjustment was to use alternative Botex Plus models introduced in the FD. The details of these alternative model specifications were not made public until 12 February 2020, some two months after the FD.³⁷⁸ Each of the alternative models captures different effects with leakage, new connections, pumping head and mains rehabilitation to the alternative cost drivers.³⁷⁹ These models lead to a total base cost adjustment of £50.2 million. The model with new connections driver results in an additional £3 million allowance for Anglian.
- (691) The addition of simple drivers to Ofwat's existing specifications does not lead to improved estimation. The fact that growth costs are subject to a distinct set of drivers to base costs and that companies face minimal opportunities to substitute between spending across the Botex and growth suggests that joint Botex and growth modelling of the costs is inappropriate. There may be spurious correlations between drivers and costs across the two areas that are unrelated to differences in efficient costs.
- (692) These additional allowances (i.e. the £40.56 million and the £3 million) insufficiently capture Anglian's investment needs to facilitate growth.
- (693) Ofwat provided an additional explicit allowance for growth-related expenditure for at least one other company: South East Water. Ofwat conducted a deep dive of investment associated with 'Zonal Strategies' to address increasing demand and provided an allowance of £41.8 million (in addition to the modelling adjustment referenced above).³⁸⁰ This expenditure appears to be similar to Anglian's proposed network reinforcement expenditure but Ofwat provided no such additional allowance to Anglian.
- (694) Other than volume-driven adjustments, Ofwat did not seek to cross-reference the validity of its growth allowances against any engineering evidence, such as the scale of network reinforcement or the type of solutions being considered by different companies. In Anglian's view, the unit rate adjustment is too low, even compared to Ofwat's model's implied unit rate, and is driven by a volume that is too low (due to the inappropriate use of ONS data).
- (695) Overall, therefore, Ofwat's post-DD adjustments, while a welcome recognition, in principle, that growth costs cannot be derived from Botex models, were an inadequate, *ad hoc* and inconsistent set of fixes, applied to its earlier approach.

5.2.2 Ofwat's treatment of sewer flooding and low pressure

- (696) Ofwat included Enhancement expenditure associated with improving sewer flooding and low pressure performance in its assessment of growth expenditure. Anglian's Plan included £52.88 million for sewer flooding and £9.12 million to address properties at risk of persistent low pressure. Ofwat's rationale was that these costs generally follow a flat profile and are driven by population growth and size of the company.

³⁷⁷ Securing Cost Efficiency Technical Appendix, pages 21 and 22 (SOC243).

³⁷⁸ Ofwat's email to Anglian on alternate model specifications (SOC360).

³⁷⁹ See **Chapter E.1: Botex**.

³⁸⁰ South East Water PR19 FD Cost Efficiency Appendix, page 2 (SOC374).

- (697) However, Anglian's investments relating to sewer flooding and low pressure enhancements are not driven by growth in new connections. As part of facilitating growth, Anglian specifically designed its solutions to ensure no detriment to existing customers. Anglian does not (and cannot) recover these costs from developers to address existing issues in its network.³⁸¹ Anglian considers that these costs cannot be assessed using the drivers in the Botex model. Anglian's flooding programme is designed to address existing issues in its sewer network. An important driver of costs for sewer flooding is to mitigate the impact of climate change, which is an item unrelated to the number of new connections. It is, therefore, not appropriate to allocate expenditure to improve service on low pressure and sewer flooding to new development and growth.
- (698) Anglian considers that including these costs in base allowances and modelling them alongside growth expenditure is inappropriate. Reducing flooding reflects the level of service a company provides to its customers, with Anglian providing a level of service that is above the industry upper quartile. Ofwat has acknowledged that Anglian's 2024-2025 proposed performance commitment target of 1.31 incidents per 10,000 properties was beyond the future upper quartile. The costs of improving service are influenced by the relative performance starting point, as discussed in **Chapter F: Cost service disconnect**.
- (699) Anglian's investment proposals for this, supported by internal and external sewer flooding outcome delivery incentives (ODIs), have been developed with Anglian's customers. Given Anglian's position ahead of the upper quartile, Ofwat should have reviewed these costs in a similar manner to the way in which it has reviewed costs for leakage.
- (700) Anglian's investment proposals for sewer flooding³⁸² and low pressure³⁸³ can be seen in Anglian's data table commentary that supported its Plan. These should be assessed separately from growth and Botex, on their own merits and in a consistent manner with the way in which costs for leakage were assessed.

5.2.3 Conclusions on Ofwat's cost modelling approach

- (701) The flawed approach to modelling costs for growth leaves Anglian significantly underfunded, regardless of the volume of connections. To remedy this, Anglian would propose:
- (i) reviewing growth costs using improved models or deep dives (detailed engineering-led assessments of costs); and
 - (ii) review sewer flooding and low pressure costs by deep or shallow dive.

5.3 Wider consequences of Ofwat's flawed cost modelling

- (702) Ofwat's narrow reliance on its models to set growth cost allowances leads to other flaws.

5.3.1 Opex / capex misallocation

- (703) Ofwat's approach to modelling growth costs as part of base activities causes distortions to the assumed split of opex and capex. Anglian's growth activity is predominantly capex (roughly 98%). This leads to the issue described further in **Chapter E.5: Misallocation of opex and capex**.

5.3.2 Incorrect estimation of grants and contributions within allowed revenue, impacting net totex and the cost-sharing incentive

- (704) A proportion of growth expenditure is recovered from developers. The contributions from developers are included within the price control, under a single till (i.e. they are a component of allowed revenue and

³⁸¹ Ofwat's, Charging Rules for New Connection, Rule 27, 'Any Requisition Charges imposed by an undertaker ... a) must not relate to work needed or desired to modify or enhance existing network infrastructure in order to address pre-existing deficiencies or to enhance network flexibility, in capacity or capability, unrelated to requirements associated with the requisition' (SOC375).

³⁸² IAP Wastewater Data Tables Commentary, pages 104 to 107 (SOC106).

³⁸³ IAP Water Data Tables Commentary, pages 161 to 166 (SOC107).

subject to the revenue cap). These contributions are usually termed grants and contributions (or 'Gs&Cs'). Contributions for connections and network reinforcement are recovered on a per connection basis and contributions for site-specific new mains are related to the specific infrastructure required.

- (705) Gs&Cs are one of the elements applied to gross totex, to calculate net totex funded by the generality of customers. It is net totex which is used to calculate cost-sharing ratios.
- (706) The FD did not specify growth cost allowances, requiring a novel method to estimate Gs&Cs and consequently net totex. Ofwat applied scope and efficiency challenge derived from its Botex Plus model to company submissions, despite the flaws which are described above. The scope and efficiency reduction that Ofwat has applied to Gs&Cs is very similar to its pure efficiency challenge on Botex Plus. These figures have been extracted in Table 15 below.

Table 15 Ofwat efficiency challenge, with and without growth scope challenge

Service	Ofwat efficiency challenge (applied to DSRA unit rates)	Ofwat scope and efficiency challenge (applied to Ofwat's view of Gs&Cs)
Water	15.56%	15.48%
Water recycling	15.94%	16.54%

Source: Ofwat, grants and contributions model - Anglian, tab F_Inputs

- (707) Ofwat reduced the assumed contribution by developers by approximately 15% from Anglian's Plan. This creates a financing gap in practice as the real scope challenge applied by Ofwat's use of the ONS forecast is roughly 50% (for water the ONS forecast is 94,000 and the Plan figure is 184,000). This overestimates Gs&Cs for its assumed ONS level of activity, artificially suppressing the contribution of ordinary customers.
- (708) As Gs&Cs include contributions to network reinforcement, which have a non-linear relationship with volume of connections, Anglian would not expect Gs&Cs to reduce 1:1 in line with the volume of connections. However, Anglian would expect these costs to reduce more significantly than the efficiency challenge applied by Ofwat. Anglian has estimated the likely level of price control Gs&Cs under an ONS level of connections in Table 16 below and compared it with the figure in Anglian's Plan and the FD.

Table 16 Ofwat's growth scope challenge and grants and contributions

Service	Scope challenge (ONS to the Plan)	Anglian's Plan Gs&Cs (£m)	Ofwat view of Gs&Cs, ONS level of connections (£m)	Anglian view of Gs&Cs, ONS level of connections (£m)	Difference for ONS level of activity (£m)
Water	49%	141.7	104.2	84.3	19.9
Water recycling	44%	155.9	131.8	104.3	27.5

Source: Anglian

- (709) Anglian believes Ofwat has overestimated Gs&Cs for a level of activity in line with the ONS by £47.4 million during AMP7. This creates a tension with Ofwat's charging rules for new connections, which require the historical balance of contributions between developers and the generality of customers to be maintained.³⁸⁴ Anglian has flexibility within the revenue cap about how it sets revenues and can correct for Ofwat's error in setting Anglian's charges for household customers.

³⁸⁴ Ofwat's Charging Rules for New Connection, paragraph 19 (SOC375).

- (710) However, Ofwat's approach means that net totex has been underestimated by £47.4 million (as Ofwat assumed higher contributions from developers). This makes it even harder for Anglian to outperform the cost-sharing incentive than would otherwise be the case.
- (711) This issue can be addressed if Gs&Cs and allowed revenues are set consistently in line with an appropriate cost allowance for growth and realistic forecast of growth activity.

5.4 Inadequate true-up mechanisms

- (712) Ofwat's unrealistic projections would not matter if Anglian and other providers were insulated against differences between forecast and outturn growth. However, this is not the case.
- (713) The FD included a partial true-up for growth costs (i.e. DSRA, a new mechanism for AMP7, that does not currently exist in AMP6). It shares some similarities with the 'output logging' mechanisms that existed in AMP5 and preceding AMPs.

5.4.1 The DSRA's scope is too narrow, so it does not provide adequate insulation against the costs of high growth

- (714) The true-up mechanism does not capture all growth-related costs but only those associated with developer chargeable activity. This means that the cost of site-specific activity and network reinforcement is captured, but other costs associated with growth are not. This is despite Ofwat's stated desire in the PR19 Final Methodology to use the DSRA to:³⁸⁵

'encourage companies to respond to changing demand for developer services (as their revenues will increase, if they serve more developers), and to make sure costs are recovered appropriately from customers and developers'.

- (715) The only difference between network reinforcement and Water Recycling Treatment costs is that developers do not contribute to treatment costs and, as such, they are arbitrarily not captured by the DSRA. This is a material area of expenditure for Anglian representing £171.7 million, roughly 26%, of the growth investment programme.

- (716) By modelling all growth costs together in the Botex Plus model, driven largely by population, Ofwat suggested that all costs associated with growth are driven by volume. This includes Water Recycling Treatment; sewer flooding and low pressure costs that Ofwat classified as growth. However, in the FD, Ofwat rejected Anglian's proposed uncertainty mechanisms for growth at Water Recycling Centres as being inappropriate because it is volume-driven:³⁸⁶

'[Anglian] proposes that we introduce a volume adjustment, based on population equivalent treatment capacity, to our allowed costs for enhancement to sewage treatment capacity.'

'Enhancement to sewage treatment capacity is a lumpy investment that does not respond one to one to growth. A reconciliation mechanism that is based on population growth is therefore not appropriate.'

- (717) This rationale conflicts with Ofwat's modelling approach which uses volume as the main driver of growth costs. Another part of Ofwat's rationale was that uncertainty mechanisms for these other costs, such as Water Recycling Treatment, might drive short-term decision-making:³⁸⁷

'The mechanism may therefore inadvertently incentivise the company to adopt the short-term lowest cost solution, which may not be optimal for the long term.'

³⁸⁵ PR19 Final Methodology, page 96 (SOC314).

³⁸⁶ Anglian FD Cost Efficiency Additional Information Appendix, pages 23 and 24 (SOC236).

³⁸⁷ Anglian FD Cost Efficiency Additional Information Appendix, page 24 (SOC236).

- (718) Anglian considers the opposite is true. By underfunding growth in the FD, and only providing risk sharing on a subset of costs, it is the FD that drives Anglian to make short-term decisions.
- (719) During the PR19 process, Anglian has sought to propose mechanisms to share risk between its customers and the Company for growth, most recently in the DD Representation through the outcome delivery incentive framework.
- (720) Anglian continues to believe that its proposed Water Recycling Treatment mechanism is required and believes the mechanism put forward in its DD Representation should be instated.
- (721) In the FD, Ofwat misunderstood this measure as being related to volume of wastewater treated. Anglian's proposal is not driven by the volume but is a more 'output' focused metric. Anglian proposes that additional treatment capacity, created by Anglian's investment is the output measured in the well-defined metric, population equivalent (PE). The proposed mechanism ensures that if additional capacity is needed and delivered, Anglian can recover the funding for it. Crucially, if less capacity is needed and delivered, funding is returned to customers. This is similar to the rationale applied by Ofwat to Anglian's Internal Interconnector Programme and Smart metering ODIs.

5.4.2 Efficiency challenge in the DSRA

- (722) To derive unit rates for the DSRA, Ofwat used company forecasts of gross developer-related growth costs and connections to derive a unit rate. The unit rates then have a company-specific efficiency challenge applied; these are 15.56% for water and 15.94% for water recycling for Anglian.
- (723) These efficiency challenges are not based on sound evidence and reasoning. Ofwat's Botex model was not designed to assess growth allowances (nor calculate efficiency challenges for growth expenditure) and it is not fit to do so, as illustrated by the models':
- (i) implausibly wide variances between allowances and funding requested (some companies receiving c. 150% of their stated needs);
 - (ii) lack of credible drivers for growth expenditure, in this simplistic framework; and
 - (iii) inelasticity to changing volumes.
- (724) The use of the model to derive DSRA unit rates creates further pressures on Anglian's cash flows and financial resilience during AMP7.

5.4.3 Comparison of DSRA unit rates with Ofwat's implied unit rates

- (725) The unit rates that Ofwat's DSRA applies are unreasonably low for Anglian, even when compared to the implied unit rates from Ofwat's Botex Plus model. This is shown in Table 17 below. For water recycling, the DSRA unit rate is consistently lower than that implied by the Botex Plus model, but there is not a consistent picture across the industry for water. This must, in part, be attributable to the narrow scope of the DSRA compared to the total costs of accommodating growth higher than Ofwat's forecast allowance.

Table 17 Ofwat model implied unit rates and DSRA unit rates for growth

Company	Water implied unit rate	Water recycling implied unit rate	DSRA unit rate water	DSRA unit rate water recycling
ANH	1,128	2,502	1,005	841
HDD	1,546	2,809	1,411	438
NES	1,318	5,412	1,050	360
NWT	1,682	3,370	1,050	357

Company	Water implied unit rate	Water recycling implied unit rate	DSRA unit rate water	DSRA unit rate water recycling
SRN	1,037	2,327	1,727	1,102
SVE	1,271	2,523	1,581	467
SWB	1,191	3,828	1,243	1,311
TMS	1,598	2,187	831	265
WSH	1,561	3,788	1,989	982
WSX	1,099	3,080	750	698
YKY	1,455	3,553	487	354
AFW	1,150		1,152	
BRL	1,008		1,110	
PRT	941		509	
SES	1,002		1,618	
SEW	1,881		1,489	
SSC	1,232		1,467	
Average	1,300	3,216	1,204	652

Source: Implied unit rates are Anglian's analysis of Ofwat's model (following Ofwat's explanation for estimating growth costs using its Botex Plus model), DSRA unit rates from Ofwat's FD document Ofwat's Approach to Regulating Developer Services (SOC250)

5.4.4 Conclusions on appropriately sharing risk

- (726) The DSRA only applies at PR24, creating further pressures on cash flows and financial resilience during AMP7. An end-of-period true-up is appropriate only if cost allowances are set on a realistic forecast of growth. However, for the reasons described earlier, Anglian expects Ofwat's forecasts to turn out to be materially inaccurate (indeed, they already are), so this does not properly insure the Company against the large, unsustainable cash flow risk. This is inconsistent with Ofwat's primary duties to secure that water companies can finance the proper carrying out of their statutory functions.
- (727) To appropriately share the risks of growth between Anglian and its customers, Anglian proposes that Anglian's Water Recycling Treatment uncertainty mechanism be adopted, and the unit rate challenge applied to Anglian's DSRA unit rates be removed.

6 Alternative approaches to modelling growth costs

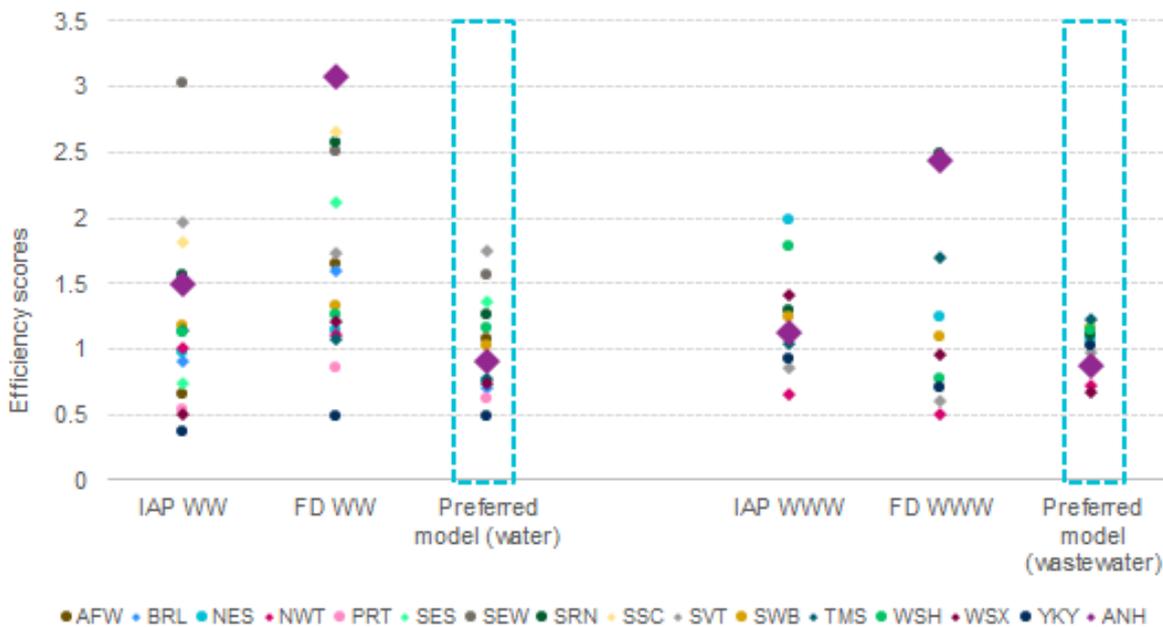
- (728) In support of this redetermination, Anglian commissioned Vivid to explore alternative approaches, accounting for a wider set of drivers.³⁸⁸
- (729) Vivid found that, by following a systematic approach, it is possible to develop fit-for-purpose models for water and water recycling growth costs. The modelling provides strong statistical support for the importance of the spatial profile of growth in determining unit costs, particularly for water recycling. This includes the relevance of the spatial profile (i.e. intensity and remoteness or sparsity³⁸⁹). Vivid Economics work suggests that economies of scale associated with larger sites are offset by greater infrastructure.
- (730) As well as providing a technical basis for conducting cost assessment, the rich body of modelling evidence generated for this report provides broader statistical evidence on the causal determinants of growth costs and the magnitude of their impact.

³⁸⁸ See Vivid Economics Growth Report (March 2020) (SOC369); Vivid Economics Growth Report (March 2020) (SOC369A).

³⁸⁹ Vivid's sparsity driver is based upon Ofwat's sparsity thresholds, but weighted to postcode sectors where growth is occurring.

- (731) These models perform well in terms of alignment with operational expectations and stability and acceptably for explanatory power. Using them offers the practical advantage of explaining the whole of growth costs in a transparent manner. The R² values of the preferred growth models, which range from 0.75 to 0.86, are within the range of the more reasonable Ofwat PR19 models, while the efficiency score ranges of the preferred growth models tend to be narrower (and hence better explain company costs) than the Ofwat models – while still being wider than the plausible range of relative company efficiency. The strength of these models is such that they can be used to inform cost assessment, either through setting cost allowances directly or supporting engineering-focused deep dives of costs.
- (732) Vivid's models suggest that Anglian is average or above averagely efficient in the sector, once additional drivers are accounted for.

Figure 49 Efficiency scores from Ofwat's Initial Assessment of Business Plans (IAP) and DD models, and Vivid's model



Source: Vivid Economics

7 Examples of customer and environmental harm from underfunding growth

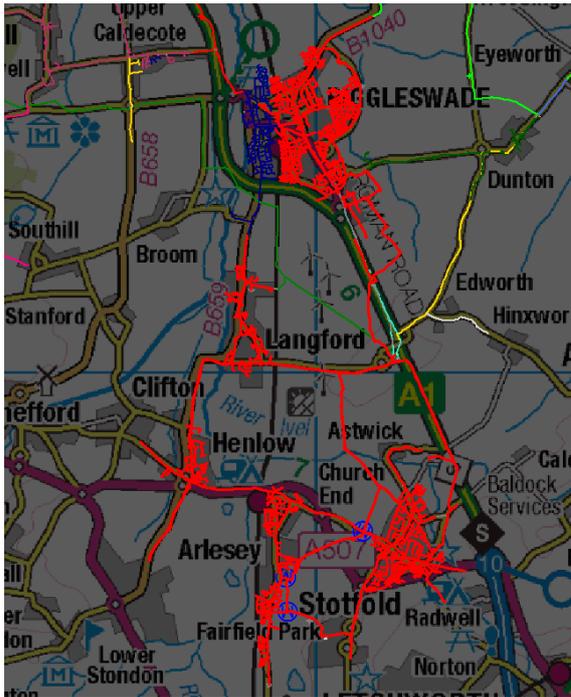
- (733) The harm the FD causes can be seen when reviewing Anglian's growth case studies, and the consequences of not making those investments.³⁹⁰ Two of these are summarised below. Shortfalls in growth funding of £318 million jeopardise Anglian's ability to deliver these types of schemes, risking services to new and existing customers and environmental harm.

7.1 Biggleswade

- (734) Biggleswade is a town of roughly 20,000 inhabitants. Construction of the King's Reach development to the east of Biggleswade was started in 2010 with an estimated size of 2,000 properties. In February 2019, Central Bedfordshire Unitary Authority gave outline planning permission for a new village of 1,500 additional new homes east of the King's Reach development, with 500 connections expected in AMP7. This is an example of intense growth on Anglian's existing water system.

³⁹⁰ AECOM Growth Case Studies (SOC333).

Figure 50 Network at risk of loss of supply



Source: AECOM Growth Case Studies (SOC333)

- (735) Without mains reinforcement these new developments would exceed the capacity of the existing water mains that run from Topleys Hill water reservoir to the development. This would affect the integrity of supply to existing and new customers. Anglian's modelling shows that the highlighted area above would lose their water supply (roughly 14,000 customers affected).
- (736) Water network reinforcement is required to support this new development, with a totex value of £4.92 million. Shortfalls in growth funding of £318 million in the FD (around 39%) jeopardise Anglian's ability to deliver these types of schemes. A reduction in funding of £1.9 million (39% of the estimated cost) would seriously compromise Anglian's ability to support this development, risking the supply to new and existing customers. It might force Anglian to size the reinforcement to accommodate only AMP7 growth, requiring future investment and increasing overall costs.

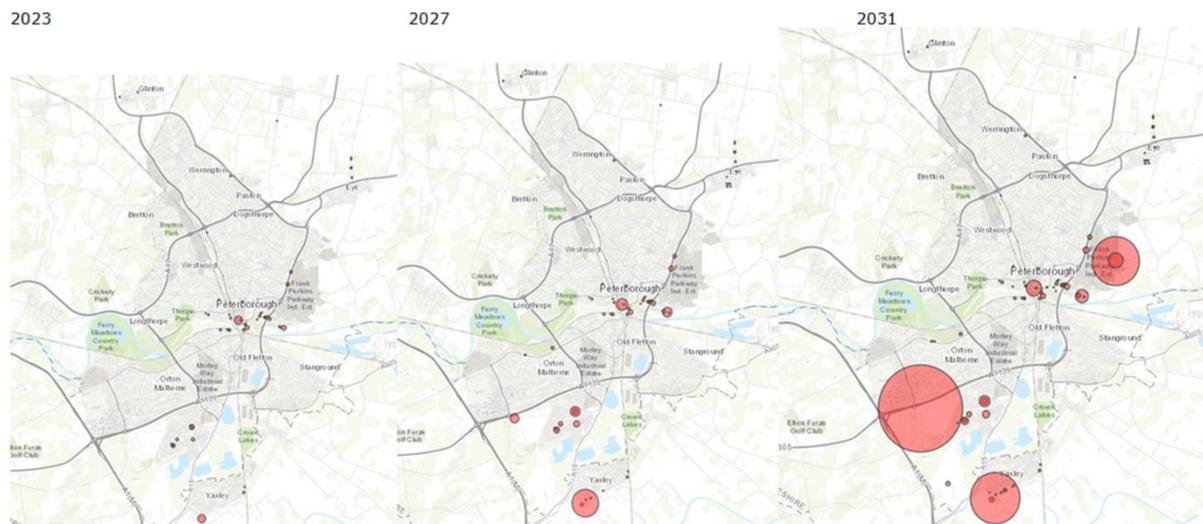
7.2 Peterborough Flag Fen

- (737) Peterborough is one of the country's fastest-growing cities and was one of the New Towns Developments in the 1970's. The city and surrounding area within the catchment are experiencing rapid, intense growth, with a 9% increase in population expected by 2025. There are 79 known developments where 10 or more properties are expected to be built by 2034, providing 15,000 new homes in the catchment. Almost 11,000 of these are predicted to have been built by 2027. Investment is required as:
 - (i) the water recycling centre (WRC) is already biologically stressed;
 - (ii) there is an unacceptable increase in the risk of compliance failure, with detrimental effects on river quality and increased pollution risk; and
 - (iii) there is a lack of hydraulic capacity within the wastewater network to accept new development, which will result in increased combined sewer overflow (CSO) spills and risk of sewer flooding.
- (738) Anglian's Plan therefore proposes to upgrade the capacity of the Flag Fen WRC and, as a silver catchment identified as high risk, includes investment in increased capacity in the water recycling

network. Anglian is considering a sustainable urban drainage solution (SuDS) to provide some of this capacity.

- (739) The impact of growth on wastewater networks under different storm scenarios has been assessed. The outcome of this analysis, and impact on Peterborough of this investment not going ahead, is shown in the Figure 51 below. The larger red circles indicating increased incidence and severity of spill events.

Figure 51 Increasing incidence of sewer flooding and CSO spills in Peterborough by 2031 due to growth and climate change



Source: AECOM Growth Case Studies (SOC333)

8 Request to the CMA

- (740) Overall, Ofwat has derived unrealistically low costs from its modelling, imposed a growth forecast that is demonstrably too low and then designed a true-up mechanism that does not compensate for these unrealistic assumptions. The combined impact is to leave Anglian and other high-growth companies significantly underfunded for growth and to distort their investment choices. Moreover, Ofwat's approach also results in misallocation of costs between capex and opex, which further exacerbates opex pressures during AMP7.
- (741) Ofwat's approach to growth compromises Anglian's ability to meet its statutory and regulatory obligations and is inconsistent with Ofwat's primary duties to secure that water companies can finance the proper carrying out of their statutory functions, secure long-term resilience including '*as regards ... population growth*' and further the consumer objective; and its secondary duty to contribute to the achievement of sustainable development, as well as the Government's SPS.³⁹¹ While many regions are adversely affected by shortfalls in growth funding, Anglian is one of the most disadvantaged, given its growth requirements. This underfunding is likely to lead to:

³⁹¹ Defra's SPS, paras 8 and 27 (SOC257). These emphasise that '*population growth*' is '*putting increasing pressure on the water sector in England. The sector needs to innovate and adapt to make sure that it can continue to meet the needs of people, businesses and the environment; and the regulatory framework needs to adapt too*'. As a priority, '*Ofwat should challenge the water sector to plan, invest and operate to meet the needs of current and future customers, in a way which offers best value for money over the long term*'. '*A resilient water sector must meet the needs of a growing population. The Government is undertaking radical, lasting reform that will get more homes built right now and for many years to come*.' The SPS expects '*that companies will contribute by achieving timely connections of new developments ... so that this does not hold up getting homes built*'. Ofwat needs to '*make sure that company planning, and delivery keeps pace with housebuilding and supports development across the country, taking account of its duty to contribute to the achievement of sustainable development*'.

- (i) poorer customer service for developer customers with the potential for increased waiting times for connections, in turn frustrating house building;
 - (ii) the frustrating of central and local Government ambitions for home building; and
 - (iii) increased business risk as investments to enable growth are reduced or deferred. This could lead to lower standards of performance by Anglian, including increased incidence of pollution incidents, harmful discharges to the environment, low water pressure and sewer flooding.
- (742) Anglian considers that these issues can be readily addressed, and risk appropriately shared between Anglian and its customers by:
- (i) setting cost allowances using a realistic forecast of growth in Anglian's region as proposed by the company, which will properly support the Government's long-term ambition in its region;
 - (ii) revising the proposed approach to assessing growth costs, for example, by taking account of Anglian's modelling approach and engineering-based assessments of growth costs (Anglian can make its models, C55 tool and staff available to the CMA for this purpose) and assessing sewer flooding and low pressure separately to growth;³⁹² and
 - (iii) implementing a more effective true-up mechanism, to protect customers and Anglian if levels of growth vary from forecast.
- (743) These remedies would ensure that Anglian can appropriately carry out its functions and facilitate sustainable housing and economic growth in its region.

³⁹² Anglian's investment optimisation tool, C55, is described in **Chapter B.3: Anglian's Plan and how it was built.**

Chapter E.3: Enhancement

1 Overview

- (i) Ofwat's Final Determination delivers a significant funding shortfall for Enhancement investment (£161 million) relative to Anglian's planned Enhancement spend. This is inconsistent with Ofwat's primary duties to long-term resilience, customers (including the principle of inter-generational equity) and the environment, as well as the Government's SPS.
- (ii) Ofwat's justifications for this shortfall stem from a series of reductions applied to Anglian's Enhancement proposals: (i) modelled efficiency challenge; (ii) a company-specific efficiency challenge; (iii) challenge to investment need; (iv) reduction in investment scope; and (v) a WINEP frontier shift adjustment. The consequences will include lower quality service for customers, higher risks to long-term resilience and a higher overall long-term cost.
- (iii) These reductions are flawed and methodologically incorrect. They ignore important cost drivers of Enhancement expenditure, attribute model error to inefficiency, apply a frontier shift efficiency challenge on a forward-looking benchmark resulting in a double count, and make inappropriate adjustments on the need for and scope of investments. Taken together they present an unacceptable level of challenge and risk to Anglian, its customers, and the environment.
- (iv) AMP7 sees large increases in the scope of Anglian's statutory requirements from WRMP and WINEP, greater demand on services through growth in the region, pressures on the environment from climate change, and customer expectations of improvements in service levels and environmental enhancement. This necessitates a step change in the level of Anglian's proposed Enhancement investment, compared to AMP 6, including a WRMP that is eight times bigger, and a WINEP programme with double the number of obligations.
- (v) Anglian's overall Enhancement plan was discussed extensively with customers, who strongly supported the proposal to deliver additional investment now to strengthen resilience in the face of climate change pressures, rather than to defer this to later periods and future customers.
- (vi) Ofwat's approach to Enhancement undermines Anglian's proposals to ensure the region can remain resilient to the rapidly growing risks of drought and flooding that are the consequence of the climate emergency. Necessary investments to deliver long-term best value and environmentally sustainable solutions, that had been planned in consultation with Anglian's customers, will be deferred. Costs of meeting these needs are also deferred to future periods and future customers, as Anglian is forced in AMP7 to undertake solutions with a higher whole life cost.

Request to the CMA
- (vii) Anglian requests that the CMA correct Ofwat's errors of analysis and assessment in relation to Enhancement, including its challenges on both efficiency and needs, as well as reinstating Anglian's rejected Cost Adjustment Claim for smart metering.

2 Introduction

- (744) The remainder of this chapter is structured as follows: Section 2 provides an introduction to Enhancement expenditure and its statutory drivers; Section 3 sets out an overview of Ofwat's Final Determination (FD); Section 4 assesses the impact of Ofwat's FD; Section 5 discusses Ofwat's approach

to uncertainty mechanisms, Section 6 assesses the FD against Ofwat's duties; and Section 7 sets out Anglian's request to the CMA.

2.1 Background to Enhancement

- (745) Enhancement expenditure comprises the costs of providing higher levels of service or meeting new legislative requirements. Typically, Enhancement expenditure is driven by the need to meet higher water quality standards, environmental standards, improve the service delivered to customers, serve new customers through developer driven growth, strengthen resilience or enhance the supply-demand balance. Ongoing operational and maintenance costs are Botex costs (please refer to **Chapter B.3: Anglian's Plan and how it was built** and **Chapter E.1: Botex**).
- (746) In contrast to Botex, the scale of Enhancement expenditure is expected to vary over time because the scope of the Company's Enhancement programme will change depending on drivers such as legislation, customer preferences and growth. For example, Anglian's Plan includes the installation of over one million smart meters to deliver its statutory WRMP19 whereas there was no smart metering in its AMP6 programme (except for the trials allowed in Anglian's PR14 plan).³⁹³
- (747) Ofwat established the principle of differentiating between base and Enhancement expenditure at privatisation and the dichotomy has served the industry well. One important change at PR19 is that historically Ofwat included within Enhancement the costs of service enhancements, such as reducing the risk of sewer flooding or addressing low pressure. However, at PR19, it determined that the costs of such service enhancements should be met from base expenditure.³⁹⁴ The exception to this change is leakage Enhancement expenditure. A separate Chapter solely dedicated to leakage describes Anglian's leakage Enhancement plans and how these are negatively impacted by Ofwat's FD – please refer to **Chapter H: Leakage**.

2.2 Anglian's statutory duties

- (748) As outlined in **Chapter B.3: Anglian's Plan and how it was built** and **Chapter C: Ofwat's duties in PR19**, Anglian is required to:
- (i) deliver the enhancements under the WINEP (Water Industry National Environment Programme)³⁹⁵ (please refer to Section 5.2 of **Chapter B.3: Anglian's Plan and how it was built**);
 - (ii) progress the programme of works described in its statutory WRMP (Water Resources Management Plan) (please refer to Section 5.1 of **Chapter B.3: Anglian's Plan and how it was built**);
 - (iii) facilitate sustainable and economic growth in the region;
 - (iv) improve the resilience of its treatment and distribution systems;
 - (v) deliver the enhancements agreed with the Drinking Water Inspectorate (DWI); and
 - (vi) deliver the service levels requested by its customers (as revealed by extensive customer engagement).

³⁹³ Anglian conducted two trials for smart metering in AMP6: 6,000 smart meters in Newmarket and 10,000 in and around Norwich. See September 2018 Plan, Section 5.1.3 (SOC001).

³⁹⁴ See **Chapter E.1: Botex**.

³⁹⁵ WINEP sets out what companies need to do to meet statutory requirements. It is developed by the EA working with Natural England and water companies. It includes actions to manage abstractions and improve water quality to meet river basin management objectives, reduce pollution, and manage protected areas. It identifies investments that need to be included in companies' plans and promotes the use of catchment-based approaches.

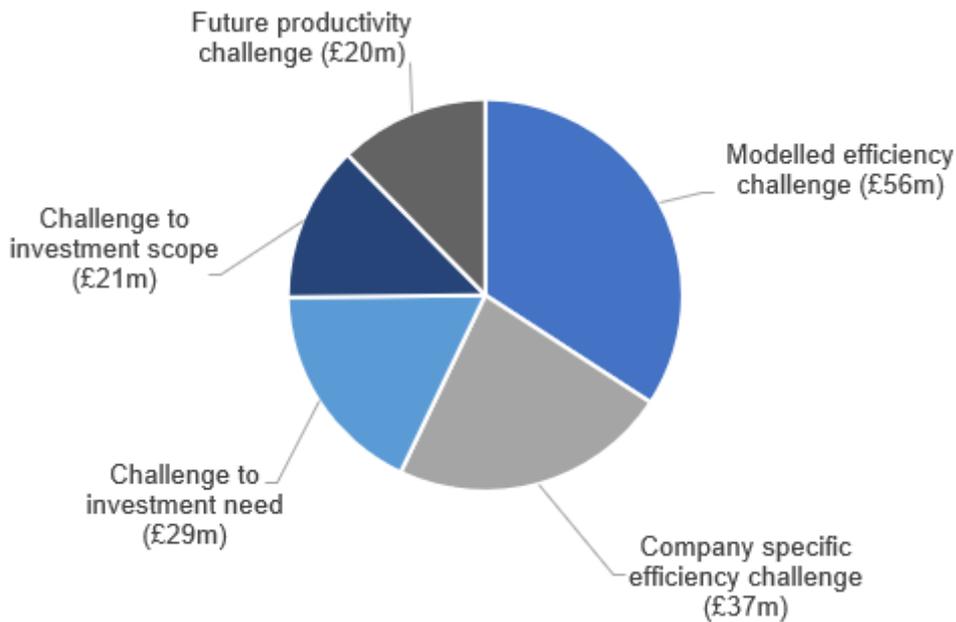
3 Ofwat's FD approach

3.1 Overview of Ofwat's approach

(749) As part of its FD,³⁹⁶ Ofwat has applied multiple reductions to Anglian's Enhancement plan, including scope/need adjustments, productivity challenges as well as different types of efficiency challenges.

(750) The scale of these reductions is illustrated in Figure 52 below and summarised in this section.

Figure 52 Ofwat reductions to Anglian's Enhancement plans



Source: Anglian. This figure excludes an additional approximately £2 million allowance made to Anglian in the FD for DPC and third-party adjustments, which brings the net enhancement expenditure gap to £161 million

(751) Taken together, the Enhancement reductions create an unprecedented and unrealistically low-cost allowance for Anglian to meet its increased obligations. As illustrated in Table 18 below, they result in a substantial gap in Anglian's Enhancement allowance of £161 million.

Table 18 AW Enhancement gaps per area of challenge

Area of challenge	Gap for water (£m)	Gap for water recycling (£m)	Total gap (£m)
Scope	21	0	21
Need	22	7	29
Future productivity	0	20	20
Modelled efficiency	15	41	56
Company-specific efficiency	34	3	37
Total	92	71	163 ³⁹⁷

Source: Anglian

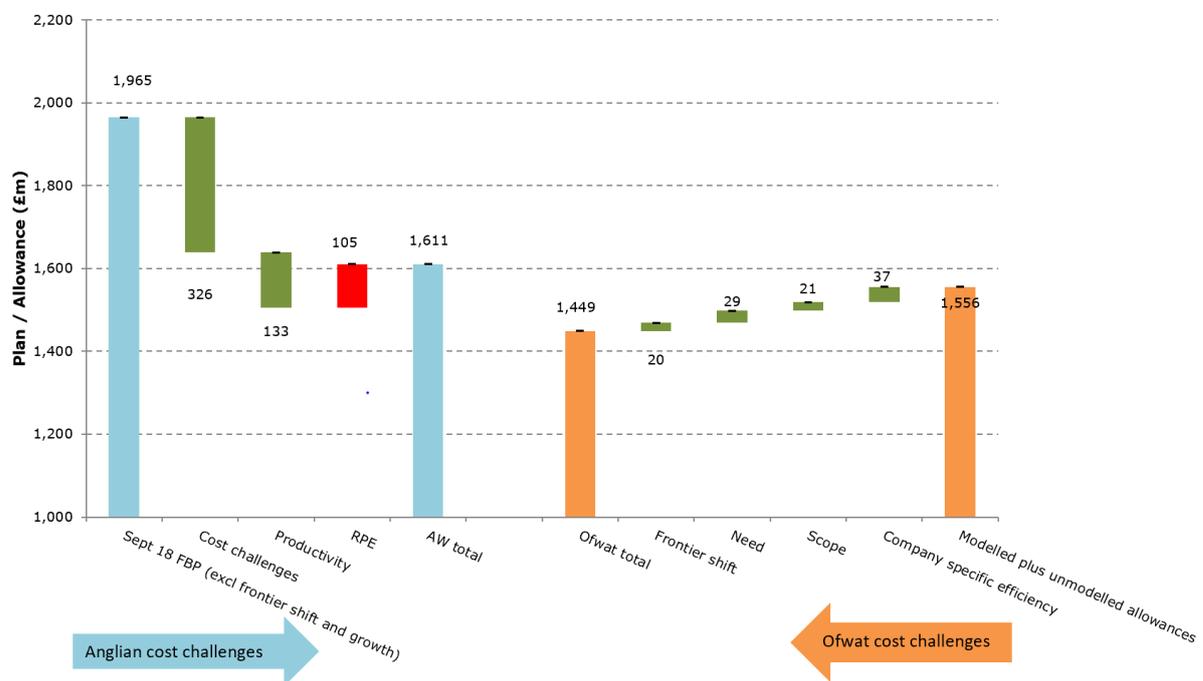
³⁹⁶ Securing Cost Efficiency Technical Appendix, Section 4 on Enhancement costs, pages 48 to 114 (SOC243).

³⁹⁷ This figure excludes an additional approximately £2 million allowance Anglian benefits from in the FD for DPC and third-party adjustments, which brings the net Enhancement expenditure gap to £161 million.

Note: The gap for each area of challenge is taken from Ofwat's explanation in the FD of the challenge applied in each Enhancement feeder model³⁹⁸ and compared against Anglian's DD Representation.³⁹⁹

- (752) This gap puts Anglian in an untenable position which would require it to deliver Ofwat's Enhancement proposal as set out in the FD at an unrealistically low cost.
- (753) In addition, Ofwat's position and cuts to Botex and growth are likely to further aggravate the impact of the overall Enhancement shortfall. The treatment of growth expenditure, which creates a material reduction in opex allowances in the FD, reduces the opportunity to deliver more sustainable solutions
Chapter E.2: Growth.⁴⁰⁰
- (754) Figure 53 below shows the overlay of cost challenges from Ofwat at FD over and above the challenges Anglian applied to its Plan, including through cost challenges at Initial Assessment of Business Plans (IAP) and Draft Determination (DD) and through its own productivity challenges.⁴⁰¹

Figure 53 Enhancement - Anglian's Plan and Ofwat's FD allowance



Source: Anglian

- (755) This demonstrates Anglian's Plan already reflected significant proposed efficiencies to derive the Plan. The £161 million gap between Ofwat's allowance and Anglian's Plan reflects a poorly evidenced expenditure reduction which conflates efficiency and scope reductions. The net impact results in an unrealistically large efficiency and scope challenge (£621 million) applied by the FD. The value of this relating to WINEP is approximately £163 million which is equivalent to 18% of Anglian's Plan prior to the application of Anglian's and Ofwat's cost reductions to these statutory obligations.

³⁹⁸ Ofwat, Final Determination Models, Section 7 on Enhancement feeder models, available at: <https://www.ofwat.gov.uk/final-determinations-models>. To calculate the gap for each challenge, Anglian analysed each of the models listed in Section 7 of the modelling page to determine the basis on which costs were allowed/disallowed for each area of Enhancement expenditure.

³⁹⁹ DD Data Tables, WS2 and WWS2 tables (SOC176).

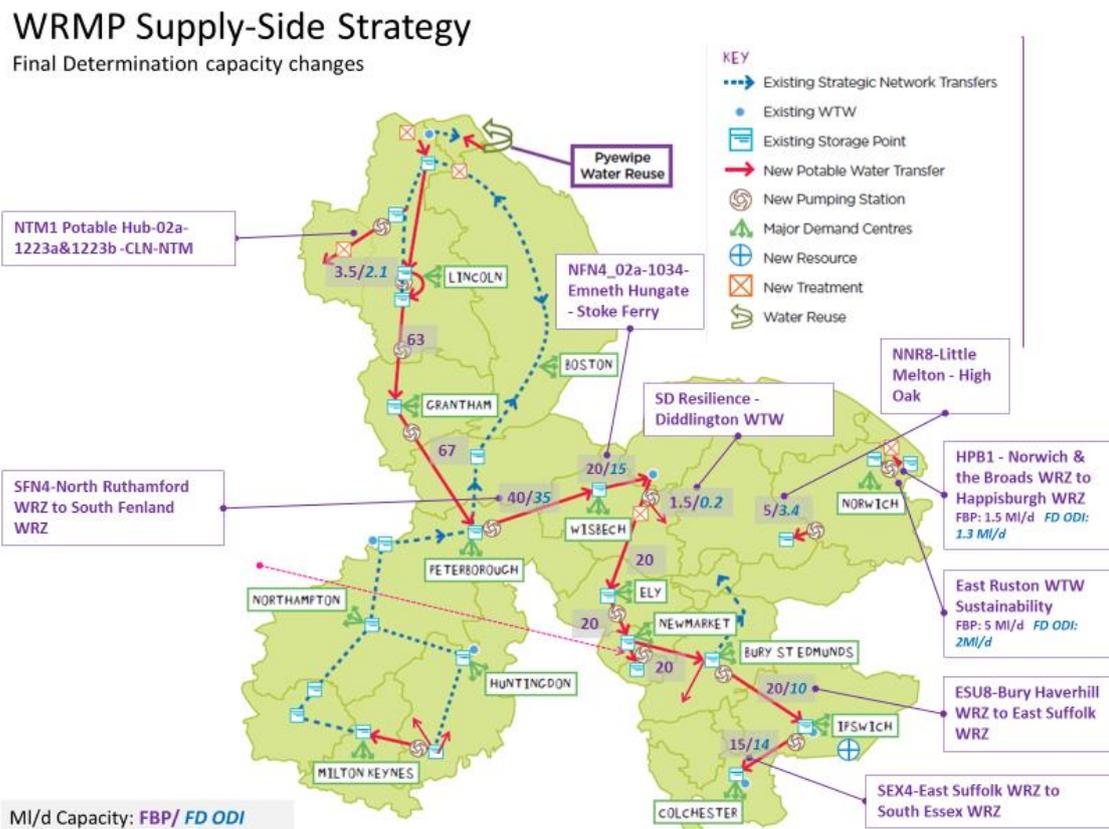
⁴⁰⁰ For example, the FD means that investment in sustainable drainage systems ('SUDs') is being reconsidered. The most likely effect of this insufficient allowance is the delivery of an alternative investment (which could be sewer upsizing, pumping station improvements, or an underground tank), but Anglian is also considering a far reduced investment (c.60% reduction) or no investment at all.

⁴⁰¹ Please note that the Plan submitted in September 2018 and Anglian's total figures exclude growth Enhancement to allow comparison with Ofwat's Enhancement reduction which excludes growth.

3.1.1 Scope reduction (£21 million)

- (756) Ofwat's scope challenge is based on WRMP interconnector schemes. Interconnectors allow Anglian to deliver security of supply, by moving water from areas of surplus in the North of its region to areas of deficit in the South. For certain interconnector schemes, as Anglian's interconnector capacity is greater than what Ofwat deems necessary to meet the immediate supply demand pressures in Anglian's region, Ofwat only allowed a reduced capacity. This issue is especially important for Anglian given the particularly acute water scarcity issues in its region.
- (757) Figure 54 below illustrates the capacity reduction as a result of Ofwat's FD across Anglian's region. Anglian's MI/d capacity for each relevant interconnector scheme is shown in purple and Ofwat's reduced proposed capacity is shown in blue (e.g. Bury Haverhill WRZ to East Suffolk WRZ 20/10 - i.e. where Anglian has proposed a capacity of 20MI/d, but Ofwat has reduced this to 10MI/d in the FD, leading to a cost allowance reduction of £5.16 million).

Figure 54 WRMP interconnector scope reduction and strategy



Source: Anglian

- (758) Table 19 below illustrates how Ofwat's scope reduction has been applied to Anglian's interconnector schemes in both MI/d (compared to Anglian's Plan) as well as showing the impact each challenge has in terms of Enhancement expenditure.
- (759) Further details of the impact of these scope reductions on Anglian's interconnector programme are set out in Section 3.2 below and in the interconnector case study, along with the combined impact when taken in the round with changes to Anglian's demand management programme, in the WRMP case study later in this chapter.

Table 19 Ofwat's scope challenge as applied to Anglian's WRMP

Scheme challenged	WRMP19 scheme reference	Anglian Plan Scope (MI/d)	Ofwat FD Scope (MI/d)	Scope challenge applied (% of business plan costs)	Scope challenge (£m)
North Ruthamford to Fenland transfer	SFN4	40	35	10%	-5.01
Emneth Hungate-Stoke Ferry	NFN4	20	15	10%	-1.37
Bury Haverhill to East Suffolk	ESU8	20	10	20%	-5.16
East Suffolk to South Essex	SEX4	15	14	5%	-1.22
Norwich to Happisburgh	HPB1	1.5	1.3	10%	-0.73
Potable hub: Central Lincs to Nottinghamshire	NTM1	3.5	2.1	20%	-2.62
Little Melton-High Oak	NNR8	5	3.4	20%	-0.79
East Ruston ⁴⁰²	N/A ⁴⁰³	5	2	-	-4.16
Total		110	82.8		-21.06

Source: Anglian, based on Ofwat's FD Enhancement feeder models⁴⁰⁴

3.1.2 Need challenge (£29 million)

(760) Ofwat has challenged the need for investments where it considers that: (i) Anglian's investments should not be classified as Enhancement (e.g. water resilience); (ii) Anglian's investments are not required as there are other alternatives (e.g. bioresources); (iii) the need for expenditure was not considered (e.g. metering); or (iv) Anglian has not adequately evaluated the available options (e.g. interconnectors optioneering).

(761) Table 20 below illustrates how Ofwat's need challenge has been applied to Anglian's Plan.

Table 20 Ofwat's need challenge as applied to Anglian's Enhancement plans

Need challenge		
Enhancement area	£m	Ofwat's position in the FD
Water resilience	-8.9	Investment for risk of failure of electro-mechanical shut down panels and risk dashboard at Alton water treatment work (WTW) considered to be base activities.

⁴⁰² For East Ruston, rather than applying the scope challenge as a % of the costs in Anglian's Plan, Ofwat selected the smallest capacity option considered by Anglian. The 2MI/d capacity option which had been rejected by Anglian was used by Ofwat to calculate a £3.23 million allowance, whereas the 5MI/d option proposed in Anglian's Plan costs £7.395 million. The 2MI/d option delivers the capacity to address the likely deficit associated with the immediate loss of Deployable Output from East Ruston WTW but does not address further licence reductions and additional industrial demand, from other impacted abstractors. The 5MI/d option proposed by Anglian has been designed to accommodate these future changes and avoid the risk of stranded assets; the 2MI/d option would curtail opportunities to re-use or add capacity at a later date. The 5MI/d option represents a 9% reduction in overall costs, in comparison to addressing the needs via two separate smaller capacity solutions.

⁴⁰³ Scheme added after DD following additional EA sustainability reduction

⁴⁰⁴ Ofwat FD SDB Enhancement Feeder Model (SOC376).

Need challenge		
Enhancement area	£m	Ofwat's position in the FD
Metering	-7.4	Increased meter installation costs (e.g. for new connections reactive and proactive replacements) not considered.
Bioresources	-6.8	Ofwat considers that a contract with a third-party is the best option for customers and one which would stimulate the bioresources market. ⁴⁰⁵
SEMD / non-SEMD ⁴⁰⁶	-3.3	Any further Security and Emergency Measures Direction (SEMD) costs should be met through the Company's base totex allowance.
Others	-2.7	Includes 10% optioneering challenge applied to four WRMP schemes. ⁴⁰⁷
Total	-29.1	

Source: Anglian, based on Ofwat's FD Enhancement feeder models⁴⁰⁸

3.1.3 Future productivity challenge (£20 million)

(762) As explained in **Chapter E.4: Frontier shift**, Ofwat has applied a future productivity assumption of 1.1% to the forward-looking cost benchmark for modelled WINEP Enhancement costs, even though companies had already applied their own productivity assumption to these forward-looking costs. Ofwat did not apply this assumption to modelled WINEP Enhancement costs at IAP and DD but introduced it in the FD Enhancement feeder models.⁴⁰⁹ This is considered in more detail in **Chapter E.4: Frontier shift**, while paragraphs (789) to (792) below mention the double count due to its application to WINEP.

3.1.4 Modelled efficiency challenge (£56 million)

(763) Benchmarking is Ofwat's preferred approach when preparing its modelled efficiency challenges. Ofwat uses benchmarking to assess about 60% of Enhancement expenditure for water and 90% for water recycling.⁴¹⁰ Benchmarking takes the form of econometric or unit cost models. Depending on the appropriateness and availability of data, Ofwat uses historical or forecast data. At FD, Ofwat uses mainly forecast data from company business plans. Ofwat applies a range of efficiency challenges the choice

⁴⁰⁵ However, current regulations do not allow non-WASCs to manage or store sewage sludge via their current environmental permits. Non-WASCs cannot recycle sewage sludge-based products under this regulatory regime as sewage sludge products are recycled under the Sludge Use in Agriculture Regulations. Therefore, it is only other WASCs that can be contracted to procure additional digestion capacity to Anglian. However, other WASCs are also capacity constrained due to growth and impacts of WINEP. More details on bioresources are available below.

⁴⁰⁶ The Security and Emergency Measures (Water and Sewerage Undertakers) Direction 1998 directs undertakers to maintain plans to provide a supply of water at all times. The Security and Emergency Measures (Water Undertakers) Direction 2006 places a qualified duty on undertakers to provide a water supply to a licensed water supplier where (i) there is an access agreement in place and (ii) the licensed water supplier requests the water undertaker to provide it with a supply of water in the event that the licensed water supplier is unable to provide a supply to its customers due to an emergency or security event. Please refer to Defra's website for more details, available at <https://consult.defra.gov.uk/water-and-flood-risk-management/directions-new-water-supply-sewerage-regime/>.

⁴⁰⁷ The relevant schemes impacted are BHV Intra RZ Bury Haverhill Transfers (£1.52 million); SD Resilience Diddington WTW (£220,000); RTS Intra RZ – Woburn PZ (£360,000); and RTS Intra RZ – Meppershall PZ (£320,000).

⁴⁰⁸ Ofwat FD Resilience Enhancement Feeder Model (SOC377); Ofwat FD Metering Enhancement Feeder Model (SOC378); Ofwat FD Sludge Enhancement Feeder Model (SOC379); Ofwat FD Security Enhancement Feeder Model (SOC380); and Ofwat FD SDB Enhancement Feeder Model (SOC376).

⁴⁰⁹ Ofwat FD Capex Enhancement Aggregator Feeder Model, WINEP-in-the-round tab (SOC381).

⁴¹⁰ Securing Cost Efficiency Technical Appendix, Section 4 on Enhancement costs (SOC243).

of which, according to Ofwat, depends on the quality of the model and the spread of companies' cost projections around their benchmarks.

(764) Table 21 below illustrates how Ofwat's modelled efficiency challenge has been applied to Anglian's Plan.

Table 21 Ofwat's modelled efficiency challenge as applied to Anglian's Enhancement plans

Modelled efficiency challenge		
Enhancement area	£m	Ofwat's position in the FD
WINEP (water recycling) ⁴¹¹	-39.8	-£52.9 million 'WINEP in the round' based on modelled, forward-looking upper quartile performance. From the modelled costs for individual areas of WINEP Enhancement under the FD, Anglian receives an additional allowance of £13.1 million compared to the position in its DD Representation resulting in the net figure of approximately £39.8 million.
Lead	-11.5	Modelled costs do not appropriately reflect the length of pipes replaced and therefore Anglian's greater cost of proactive customer supply pipe replacements is considered to be 'inefficiency'.
Metering	-3.1	Challenge based on Anglian's costs for new meter installations being greater than that modelled based on unit costs to deliver forecast number of meters.
First time sewerage	-1.6	Challenge based on Anglian's costs being greater than modelled due to two companies ⁴¹² dominating expenditure in the model causing instability.
Total	-56	

Source: Anglian, based on Ofwat's FD Enhancement feeder models⁴¹³

3.1.5 Company-specific efficiency challenge (£37 million)

(765) Ofwat applies a 10% efficiency challenge based on Ofwat's Botex assessment⁴¹⁴ (please refer to **Chapter E.1: Botex** for further details). This challenge is automatically applied to areas where Ofwat conducted a 'shallow dive' assessment. It also includes efficiency challenges on individual interconnector schemes, which are typically lower than 10% (e.g. a 2.5% direct cost challenges for reservoirs, pumping stations and water mains).⁴¹⁵

(766) Table 22 below illustrates how Ofwat's company-specific efficiency challenge has been applied to Anglian's Plan.

⁴¹¹ For WINEP models, Ofwat also applies an additional 6.94% challenge to the modelled costs, as a 'catch-up' to industry upper quartile. There is an additional forward-looking efficiency of 2.64% (covered in future productivity challenge Section of this Chapter).

⁴¹² Anglian and Severn Trent.

⁴¹³ Ofwat FD Capex Enhancement Aggregator Feeder Model (SOC381); Ofwat FD Lead standards Enhancement Feeder Model (SOC382); Ofwat FD Metering Enhancement Feeder Model (SOC378); and Ofwat FD First Time Sewerage Enhancement Feeder Model (SOC383).

⁴¹⁴ Security Cost Efficiency Technical Appendix, Section 4 on Enhancement costs, pages 51 and 52 (SOC243).

⁴¹⁵ Ofwat applies a 2.5% challenge to water reservoir, pumping station and water main costs. It also applies a 10% challenge to electrical distribution and project location factors. Depending on the ratio of these costs, each scheme gets an efficiency challenge of between 4 and 7.5%.

Table 22 Ofwat's company-specific efficiency challenge as applied to Anglian's key Enhancement plans⁴¹⁶

Company-specific efficiency challenge		
Enhancement area	£m	Ofwat's position in the FD
Supply demand balance	-18.3	10% company challenge and 2.5% direct cost challenges for reservoirs, pumping stations and water mains.
Water WINEP	-6.1	10% efficiency challenge applied to catchment management, Water Framework Directive ('WFD') measures, ⁴¹⁷ eels regulations and invasive non-native species.
Leakage	-5.3	10% efficiency challenge applied to leakage enhancement.
Others	-7.7	Nitrates, lead, resilience (water and water recycling) and odour.
Total	-37.4	

Source: Anglian, based on Ofwat's FD Enhancement feeder models⁴¹⁸

3.2 Impact of Ofwat's FD decision

- (767) Taken individually, the challenges applied by Ofwat at FD remain flawed and methodologically incorrect and lead to higher costs and risk to customers and the environment, despite significant critique and challenge by Anglian at both IAP and DD.
- (768) Collectively, Ofwat's challenges prevent delivery of the investment supported by customers to meet both statutory obligations and deliver best value solutions to make the region resilient to the future pressures of growth and climate change, as set out in Anglian's Strategic Direction Statement.

3.2.1 Scope challenge

- (769) As set out in Table 19 above, Ofwat has challenged several of Anglian's proposals relating to water interconnectors as it considers that the capacity for the relevant schemes exceed the capacity required to close the deficits in the period to 2045 in Anglian's current WRMP.⁴¹⁹
- (770) Ofwat's approach in the FD fails to recognise that Anglian had based and planned the capacity for the relevant interconnector schemes, as set out in its Plan, to address future supply demand uncertainty, resilience needs and future strategic scheme utilisation. Specifically, in relation to assessing future supply demand uncertainty, it was not possible to fully quantify these needs as part of WRMP19, due to timing of water resources planning methodological changes ahead of WRMP24. Anglian therefore took a stress testing approach to quantify the most appropriate interconnector capacities for delivery in

⁴¹⁶ This table only includes Ofwat's company-specific efficiency challenge as applied to Anglian's three largest areas impacted by this challenge.

⁴¹⁷ Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy. Ofwat, Final Determination Models, Section 7 on Enhancement feeder models available at: <https://www.ofwat.gov.uk/final-determinations-models>.

⁴¹⁸ Ofwat FD SDB Enhancement Feeder Model (SOC376); Ofwat FD Drinking Water Protection Enhancement Feeder Model (SOC384); Ofwat FD WFD Enhancement Feeder Model (SOC385); Ofwat FD Eels Regulation Enhancement Feeder Model (SOC386); Ofwat FD Invasive Species Enhancement Feeder Model (SOC387); Ofwat FD Raw Water Deterioration Enhancement Feeder Model (SOC388); Ofwat FD Lead standards Enhancement Feeder Model (SOC382); Ofwat FD WW Resilience Enhancement Feeder Model (SOC389); Ofwat FD Resilience Enhancement Feeder Model (SOC377); and Ofwat FD WW Odour Enhancement Feeder Model (SOC390).

⁴¹⁹ Anglian's FD, page 44 (SOC231).

AMP7.⁴²⁰ Anglian also commissioned NERA Economic Consulting to carry out a Least Worst Regrets Analysis, which demonstrated that Anglian's plan is robust.⁴²¹

- (771) When preparing its Plan, Anglian considered potential resilience opportunities, i.e. where it could jointly deliver supply-demand and resilience (dual source of supply) benefits. This approach seeks to achieve the most benefit for customers through the delivery of each scheme, offsetting the future costs of providing resilience to communities currently only served by one source of supply.
- (772) Providing for this capacity now, rather than delaying subsequent upsizing in future AMPs, will ensure better long-term value for customers. As set out below, when compared to Anglian's Plan, delivering Ofwat's WRMP proposal under the FD leads to higher costs (both in terms of equivalent annualised costs and whole life costs) as well as higher carbon dioxide emissions. Anglian has further tested the principle of future-proofing its interconnector capacity investment with its customers and received a strong level of support.⁴²²
- (773) As Anglian repeatedly explained throughout the PR19 process,⁴²³ Ofwat was fully consulted as part of the WRMP process where Anglian clearly set out the need for its proposed interconnectors investment.⁴²⁴ In its DD Representation, Anglian also explained, again, in detail why the scope of the proposed investment was justified.⁴²⁵

Interconnectors case study

Anglian requested £343.8 million for its interconnector programme which comprises more than 500km of mains.⁴²⁶ Ofwat's FD allowed £304.9 million – resulting in a funding gap of £38.9 million.⁴²⁷ Ofwat has assessed interconnectors with scope, optioneering and efficiency challenges. Ofwat argues that Anglian's proposed interconnector capacities exceed the deficits in its WRMP planning tables and that Anglian did not sufficiently investigate alternative supply-side options for its WRMP.

In addition to the known supply demand balance challenges set out in WRMP19, Anglian provided, throughout PR19, evidence that its proposed Enhancement expenditure for interconnectors delivers best value for customers over the long-term by addressing (i) single source resilience risks and (ii) future supply demand uncertainty.

Single source resilience risks: Certain communities are currently only connected to one water source. Anglian's proposed single-source resilience risk investments would have connected these

⁴²⁰ This approach took into account a broad set of criteria including costs, adaptability, deliverability, customer preferences and environmental and social impacts. After stress-testing the Plan for different scenarios (e.g. extreme drought and higher climate change impact). Anglian prepared a best value plan that balanced known pressures with the need for an element of future-proofing to avoid future re-work.

⁴²¹ WRMP Least Worst Regret Analysis (SOC220). The Least Worst Regret analysis is a practical tool for decision-making in the context of uncertainty and especially where it is difficult or inappropriate to attach probabilities to possible futures states of the world (Stan Zachary, Least worst regret (LWR) analysis for decision-making under uncertainty, with applications to future energy scenarios (3 August 2016), p.1). The rationale for using LWR analysis to appraise Anglian's investment options is that there are multiple sources of uncertainties regarding the future water demand-supply balance due to the uncertain effects of climate change, changing planning standards, costs, and performance of new supply and demand schemes.

⁴²² Revised draft WRMP Customer and Stakeholder Engagement, page 9 (SOC205). Page 9 specifically talks about the options presented to customers, with 71% of customers supporting future-proofing.

⁴²³ IAP Response, pages 64 to 65 (SOC104) and IAP Water Data Tables Commentary, pages 40 to 41(SOC107); and DD Representation, pages 195 to 198 (SOC168).

⁴²⁴ In the Resilient Water Supplies chapter of September 2018 Plan (SOC001) and in the Revised draft WRMP, pages 60 to 75 (SOC204).

⁴²⁵ DD Representation, pages 195 to 198 (SOC168).

⁴²⁶ DD Representation, page 66 (SOC168).

⁴²⁷ These figures relate to the whole interconnector programme and not on a specific interconnector. The £343.8 million request excludes the £52 million early investment in resilience made available by shareholders in AMP6 (i.e. the AMP7 figure that Ofwat used to calculate the £/Mld unit rate used the AMP7 figure not including this early investment). If the early investment had been reflected in Ofwat's calculation, it would have resulted in a higher unit cost allowance.

isolated communities to a second source of water supply and exploited synergies with the WRMP supply-side interconnector programme.⁴²⁸ Without the capacity upgrades proposed, Anglian will not be able to deliver the benefits associated with these single source resilience schemes.

Whilst allowance has been made for additional enhancement to provide link mains from the interconnectors to small populations close to the route of the interconnectors, Ofwat has not allowed the necessary capacity upgrades in the supply-demand balance model to support this resilience. Whilst the resilience programme makes an allowance to connect isolated communities to an additional supply source, the capacity requirement in the interconnectors to deliver this resilience is not allowed.

Table 23 below outlines the number of impacted customers that will continue to be at risk from being connected to a single source of supply, as a result of the FD.

Table 23 Impact of Ofwat's FD on Anglian's planned WTWs

WTW Failed	WRMP19 Scheme Reference	Household population at risk	Population on Single Water Supply	Reason for lack of benefit
Alton WTW	ESU8	70,054	1.60%	WTWs where the reduction in interconnector capacity directly limits the ability to deliver additional resilience benefits in AMP7
High Oak WTW	NNR8	26,266	0.60%	
Little Melton WTW		27,989	0.64%	WTWs where the reduction in interconnector capacity will limit the opportunity to deliver additional resilience benefit in future
Gainsborough WTW	NTM1	10,814	0.25%	
Everton WTW		18,626	0.42%	
Ordsall Road WTW		33,955	0.77%	
Total (potential)			187,704	4.28%

Source: Anglian

Future supply demand uncertainty: Anglian's proposed interconnectors programme has been designed to accommodate some of the future supply demand uncertainty associated with pressures on its supply demand balance that will occur at WRMP24, requiring investment in AMP8 and beyond, but which were not quantifiable within WRMP19. These pressures include the need to be resilient to a one in 500-year drought event (as set out in the new Water Resources National Planning Framework⁴²⁹) and a move to using new UKCP18 climate change projections in WRMP24 and expected additional future growth.⁴³⁰ The new National Planning Framework also sets out ambitions for further sustainability reductions beyond WINEP. The capacities have also been tested to allow the full utilisation of a new strategic reservoir being developed through Ofwat's strategic regional solution programme. Anglian has sought to help address these pressures through investment in AMP7 where doing so results in a lower whole life cost for customers.

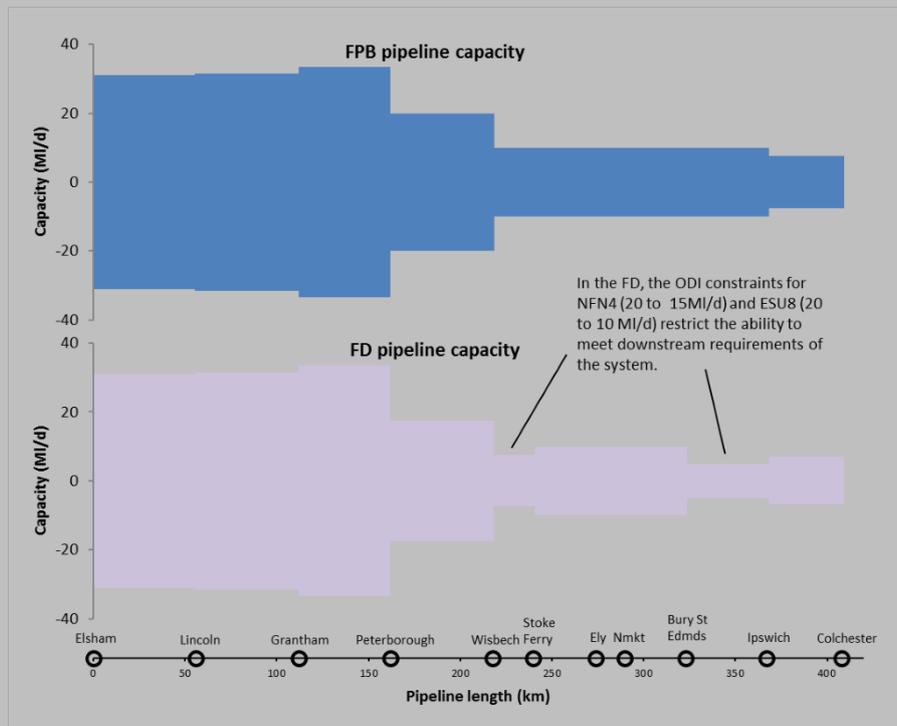
⁴²⁸ For example, connection to multiple sources reduces the risk of interruptions to supply leading to better customer outcomes.

⁴²⁹ EA's National Framework (SOC281).

⁴³⁰ The UK Climate Projects ('UKCP') is a climate analysis tool that forms part of the Met Office Hadley Centre Climate Programme which is supported by the Department of Business, Energy and Industrial Strategy (BEIS) and the Department of Environment Food and Rural Affairs (Defra). UKCP provides the most up-to-date assessment of how the climate of the UK may change over the 21st century.

In addition, Ofwat has focused its challenges on individual interconnectors, failing to appreciate the wider implications for the operability and long-term resilience of Anglian's supply system as a whole. This is illustrated in Figure 55 below which demonstrates the impact of Ofwat's decision to reduce the capacity from 20 to 15 MI/d for the Wisbech to Stoke Ferry interconnector and from 20 to 10 MI/d for the Bury St Edmunds to Ipswich interconnector. These reductions constrain downstream pipeline capacities, reducing overall strategic feasibility and flexibility.

Figure 55 Impact of Ofwat's FD on Anglian's interconnectors



Source: Anglian

Key: NFN4 is the Wisbech to Stoke Ferry interconnector and ESU8 is the Bury St Edmunds to Ipswich interconnector.

(774) Table 24 below illustrates how Ofwat's position in the FD will lead to Anglian having to adopt WRMP solutions which give rise to overall higher costs for customers and will be detrimental to the environment. They show the whole life costs ('WLC') and the capital carbon emission (in tonnes of CO2 emissions ('T CO2 e')) for Anglian's solution vs. Ofwat's WRMP proposal in the FD.

Table 24 WRMP long-term Anglian solutions vs. short-term Ofwat solutions WLC and capital carbon emissions

	AW Business Plan		Ofwat Phased Approach		Difference	
	WLC £m	Embodied Carbon (T CO2 e)	WLC £m	Embodied Carbon (T CO2 e)	WLC £m	Embodied Carbon (T CO2 e)
WRMP interconnectors	162.1	75,815	180.2	90,973	18.1	15,158

Source: Anglian

Note: All prices are 2017-2018 Prices Base and discounted over 40 years. Anglian has followed the Treasury Green Book Approach when preparing these figures.

- (775) Ofwat's solutions in the FD will result in approximately £18.1 million in additional whole life cost resulting in higher future bills than would otherwise be the case as well as an additional 15,158 tonnes of CO2 emissions. Ofwat's proposals therefore not only defer expenditure unduly, they require Anglian to implement inefficient phasing of solutions and greater overall capital carbon emissions.⁴³¹
- (776) Anglian WRMP19⁴³² strategy involves a twin-track approach, with a focus on demand management and development of new supply-side capacity. It is critical that both of these strands are successfully delivered as part of WRMP19 in order to meet long-term water resources challenges.⁴³³ Security of supply is also a key metric in the EA's Environmental Performance Assessment and an inability to deliver WRMP19 ambitions would have a significant impact on wider regulatory performance.
- (777) Ofwat's FD seeks to reduce all of the investment areas that collectively form the WRMP19 strategy. The combined impact of these reductions is to increase significantly the risk associated with maintaining the security of water resources and providing resilient supplies across the region for AMP7 and beyond. The FD prioritises short-term cost reductions over the long-term interests of the environment and customers in the region. It will result in a disproportionate future burden of costs for customers and higher costs overall. It also limits the ability to fully utilise a new strategic reservoir scheme currently being developed through Ofwat's Strategic Regional Solutions programme and being assessed via the RAPID gateway process.⁴³⁴
- (778) In order to illustrate this combined impact, three case studies below are presented here from different parts of the region. The first describes an urban centre, the second focuses on the specific impact on one of Anglian's key interconnectors in that urban area and the third illustrates the impact of Ofwat's FD on an environmentally sensitive rural area.

⁴³¹ Ofwat's solutions in the FD will result in approximately an additional 28 KT of carbon dioxide emissions. For context, Anglian's annual net operational carbon emissions were 314KT in 2018/19. Further information on operational carbon is available via Anglian's performance dashboard available at http://ourperformance.anglianwater.co.uk/smaller-footprint.html?tab=tab_b.

⁴³² The WRMP19 is a statutory plan that has been approved by the Secretary of State. The plan outlines how Anglian will maintain security of supplies in its region, addressing the combined challenges of population growth, climate change, increased likelihood of future droughts and the needs of the environment in the east of England.

⁴³³ As set out in the newly published Water Resources National Framework by the EA's National Framework (SOC281).

⁴³⁴ The Regulators' Alliance for Progressing Infrastructure Development ('RAPID') brings together Ofwat, Environment Agency and the Drinking Water Inspectorate to improve regulation and aid the water sector in responding to long-term water resources challenges. 17 national strategic water resources schemes have been proposed to address current and forecast supply deficits through RAPID. The progression of these schemes and access to the next tranche of funding will be evaluated in a gated process.

WRMP Case Study 1: Ipswich and the East Suffolk Water Resource Zone

The East Suffolk WRZ (Water Resource Zone) includes the town of Ipswich, a significant demand centre in the east of region, with a household population of 270,000 customers and experiencing rapid growth. Ipswich is supplied from a combination of a large surface Water Treatment Works (WTW), receiving supplies from Anglian's Alton Water reservoir, and groundwater sources abstracting from the Chalk aquifer. Ipswich is a particularly vulnerable town both in terms of water resources pressures and wider supply system resilience.

During the summer of 2019, the supply system in the town came under significant pressure from having received only 71% of average rainfall over the previous 12 months, with reservoir levels dropping below the trigger for a drought permit and groundwater levels at notably low levels similar to those observed during the mid-90s groundwater drought. The reservoir at Alton is also susceptible to algal issues which can cause challenges during peak summer demand events and the reliable output of the reservoir is impacted by climate change.

It is therefore critical that the necessary improved connectivity is delivered into Ipswich, to mitigate both long-term supply demand and resilience risks within AMP7.

Ofwat's capacity reductions undermine the effectiveness of the interconnector programme

Anglian's supply-side strategy for Ipswich requires a transfer of water from Bury St Edmunds. Ipswich is almost the final point in the strategic grid of interconnectors, with only the South Essex (Colchester) WRZ being further downstream.

Ofwat's intervention in the interconnector programme includes **reducing the capacity of the connection between Bury and Ipswich from 20 MI/d to 10 MI/d**. This capacity limits Anglian's ability to deliver supply system resilience to Alton WTW which serves 94,907 properties. It also limits Anglian's ability to deploy resources to this area, for example from a new strategic reservoir in future. Accepting Ofwat's capacity reduction would result in significant residual risk at what is already Anglian's highest-risk site. This approach is inconsistent with Ofwat's resilience duty and inconsistent with the decision to support supply-side resilience investment in other areas of the FD.

Further upstream, Ofwat makes interventions to reduce capacities to other sections of the strategic interconnector grid.⁴³⁵ These reductions mean that, even with sufficient capacity between Bury and Ipswich, it would not be possible to transfer the necessary volume of water from areas of surplus in the north of Anglian's region to secure supplies under future drought scenarios. Specifically, **the intervention to reduce capacity between Wisbech and Stoke Ferry from 20 MI/d to 15 MI/d presents a very significant risk**. The reduction results in an incoherent strategy for transferring water across Anglian's region, with smaller capacities upstream than downstream.⁴³⁶

The capacity interventions Ofwat makes limit the ability to respond to extreme (1 in 500-year return period) drought events, which is set out as planning criteria for WRMP24 in the newly published Environment Agency National Planning Framework.

Ofwat's approach also limits Anglian's ability to adapt to future climate change and environmental and population growth pressures. The ability to utilise new resources, such as the South Lincolnshire strategic reservoir, will be limited. This will put upward pressure on future investment required to secure supplies, resulting in Anglian having to duplicate mains laid in AMP7 as early as AMP8, with a much higher, and avoidable, total cost for customers as a result.

In order to deliver the future capacity that Ipswich needs, all the upstream elements have to be in place for supplies to be secure. As this case study shows, the FD has materially undermined these leaving Ipswich exposed to risk of insufficient supply to meet demand in the face of ongoing climate change pressures and growth, both in AMP7 and beyond.

WRMP Case Study 2: Additional risk created by including the Elsham transfer scheme within Direct Procurement for Customers (DPC)

The success of the interconnector programme relies on all components of the strategic grid being delivered on time, to allow sufficient volumes of water to be transferred from areas of surplus to areas of deficit. The intervention Ofwat made at DD to include the Elsham transfer scheme for delivery via DPC creates a further delivery risk, which affects the whole of the interconnector programme.⁴³⁷ Ofwat's intervention to include this within the scope of DPC makes the successful operation of the whole programme dependent on timely completion of the DPC scheme. Previously, temporary operation could have been achieved by utilising surpluses from WTW near Lincoln. However, until the lower section of the Elsham transfer scheme is complete, these WTW cannot be connected to the interconnectors and linked into the strategic grid. This is a first of a kind programme with challenging timescales, which Ofwat has recognised. The DPC element of the scheme will also be required for commissioning the downstream interconnectors, which poses a delivery risk to the interconnector programme. Late delivery would compromise the ability to deploy the downstream interconnector and could result in delivery penalties for most of the interconnectors.

⁴³⁵ Specifically (i) between Peterborough and Wisbech, Ofwat seeks to reduce the capacity from 40 MI/d to 35 MI/d and (ii) between Wisbech and Stoke Ferry, Ofwat seeks to reduce the capacity from 20 MI/d to 15 MI/d.

⁴³⁶ Ofwat has assessed the capacities on an individual basis, rather than taking into account the system view by which WRMP19 has been developed.

⁴³⁷ The Elsham transfer initially failed the discreteness test for DPC due to the dependency of other parts of the grid on this connection to the new treatment works and to other surpluses in North Lincolnshire.

WRMP Case Study 3: Norfolk Water Resource Zones

This case study focuses on resources zones in Norfolk, specifically, Norwich and the Broads, Happisburgh and North Norfolk Rural. This part of Anglian's supply region is particularly environmentally sensitive with a number of groundwater sources either being subject to reduced abstractions or full source closure, in addition to licence volume caps being implemented across the region. Norfolk has been quoted as one of the first places in the country to be experiencing a 'water war' due to the unprecedented pressures on the environment.

The WRMP19 strategy for addressing the pressures of sustainability reductions in areas of Norfolk focuses on a 'demand management first' approach. This means, with the exception of the interconnector scheme from Norwich to Happisburgh included in Anglian's supply-side programme, Anglian assessed it was able to manage the reduction in available water through the roll out of leakage, smart metering and water efficiency demand management programmes.

Ofwat's FD significantly damages all three of these programmes. Specifically, opex efficiency constraints applied to the smart metering and leakage programmes present a significant risk, and the overall opex constraints associated with the FD impact the water efficiency programme. For example, the reductions in funding for smart metering mean Anglian can only roll out smart meters in urban areas where it is most cost-efficient to do so, omitting the highly sensitive environmental areas in rural parts of Norfolk.

Also, critical to the success of the smart metering programme are water efficiency campaigns. Anglian's ability to direct opex expenditure into these campaigns will be severely limited in light of the overall FD opex constraints, and the misallocation between capex and opex results in Ofwat incorrectly reducing the opex allowance by c.£157 million.

Similarly, the insufficient funding available for the leakage programme will constrain Anglian's ability to focus on harder to find leaks in rural areas, thus further risking the supply-demand balance. Ofwat's FD reductions in relation to leakage are discussed further in **Chapter H: Leakage**.

Ofwat's reductions to proposed demand management programmes put at risk Anglian's ability to meet security of supply requirements and deliver regulatory obligations in the WINEP. Licence changes are likely to be legally enforced by the EA to ensure compliance with the Habitats and Water Framework Directives, leaving Anglian at risk of non-compliance. Ofwat's FD also restricts Anglian's ability to deliver per capita consumption ('PCC') savings in line with Defra's long-term objective.⁴³⁸

- (779) The case studies above illustrate the significant combined effect Ofwat's FD reductions have. The FD creates a significantly increased AMP7 risk profile meaning that Anglian's supply-demand balance may not be met. As a result, Ofwat is failing to meet its resilience duty and is putting the Government's long-term ambitions for water resources at risk.⁴³⁹

3.2.2 'Need' challenge

- (780) As set out in Table 20 above, for several Enhancement areas, Ofwat has rejected Anglian's investments on the basis of need (explained in Section 3.1.2 above). It also includes an optioneering challenge which fails to recognise the limited availability of options for the majority of Anglian's water resource zones (WRZs). This is even more apparent at the sub-WRZ, 'planning zone' level. Anglian's optioneering process is robust, starting with more than 800 unconstrained supply-side options.⁴⁴⁰ Anglian's approach

⁴³⁸ Defra's 25 Year Plan (SOC284) and the EA's National Framework, page 9 (SOC281) which sets a target of 110 litres per person per day by 2050 nationally.

⁴³⁹ Defra's 25 Year Plan (SOC284).

⁴⁴⁰ Revised Draft WRMP Options Appraisal, Chapter 3, pages 38 to 63 (SOC206).

follows WRMP19 guidance⁴⁴¹ and its active involvement in trading in the upstream market also means that Anglian considers every available opportunity and not just those developed 'in-house'.⁴⁴² Anglian's justification for the need of proposed Enhancement investments in three specific areas is presented below.

(i) Water resilience

- (781) Anglian's water treatment resilience Enhancement plans, which relate to investment for risk of failure of electro-mechanical shut down panels and risk dashboard at Alton WTW, have been rejected on the basis that they should be considered Botex and not Enhancement. Ofwat's approach fails to recognise the enhanced protection that this investment will provide to customers. The proposed water resilience investment here is about upgrading the asset to result in a lower-risk profile (and therefore presents an enhancement service).
- (782) In its DD Representation, Anglian highlighted to Ofwat the additional protection that would be provided to customers through its water treatment resilience Enhancement plans.⁴⁴³

Water resilience case study

Anglian has taken a 'systems approach' to reviewing the risk to customers from a variety of shocks and stresses which could initiate resilience events. In its resilience programme, Anglian has sought to address known single points of failure and weaknesses. Investments were proposed in WTW resilience, SEMD measures, cyber security measures and enhancements in Anglian's ability to respond to supply interruptions with alternative supplies.

As part of developing its overarching AMP7 investment plan, Anglian carried out an extensive programme to identify single points of failure.⁴⁴⁴ The findings identified several investment areas which would substantially improve the resilience of these sites. These were prioritised with the most urgent put forward as part of Anglian's AMP7 investment plan. At DD Representation, Anglian reduced investment to only two areas,⁴⁴⁵ which were represented with further supporting evidence. These areas were critical to improving resilience for customers fed by Anglian's WTW as certain mechanical failures can result in potentially un-disinfected water to be supplied to customers.⁴⁴⁶

The investments for risk of failure of electro-mechanical shut down panels and risk dashboard at Alton WTW were rejected by Ofwat on the basis that they should be considered Botex and not Enhancement. As a result of Ofwat's funding gap at FD, Anglian's WTW resilience programme cannot be progressed in AMP7. This will lead to greater customer exposure to 'low probability but high impact' risks of loss of supply and deterioration in water quality compared to Anglian's Plan. Ofwat's approach runs counter to DWI's priorities and also means that Anglian is unlikely to be able to fully complete its cyber security programme.

(ii) Smart metering

⁴⁴¹ EA Final WRMP Guideline, page 10 (SOC391).

⁴⁴² September 2018 Plan, pages 120 to 134 (SOC001).

⁴⁴³ Specifically, Anglian set out: (i) the specific cause of service failures and associated probability of failure the investment is proposing to address; (ii) the consequence of failure to customer service; and (iii) how the failure and the consequence are currently beyond management control. DD Representation, page 132 (SOC168).

⁴⁴⁴ Anglian carried out a programme of WTW (hazard and operability) studies across 30 WTWs to identify single points of failure and weaknesses on site which could initiate resilience events. This is supported by DWI and was highly commended by this regulator during a site audit in 2017.

⁴⁴⁵ Replacement of WTW critical shutdown systems and a risk visualisation dashboard.

⁴⁴⁶ Whilst all hardwired electro-mechanical panels are subject to rigorous periodic testing and inspection, these cannot identify failures that are not age-related or predictable.

- (783) Ofwat has accepted Anglian's smart metering technology costs in full, but has not accepted, and makes no additional allowance for, the additional costs associated with the installation of the technologically advanced meters that Anglian has planned to install; this includes the disallowance of Anglian's base cost adjustment claim (£42.4 million) to enable the delivery of the programme. Installing these smart meters represents an additional cost that would not otherwise be incurred, and which is not a result of an inefficiency as evidenced by the international benchmarking exercise conducted by Anglian and submitted to Ofwat at the September 2018 Business Plan and IAP stage.⁴⁴⁷ It is unreasonable for this element of the programme to be disregarded.
- (784) At IAP, Anglian explained the different costs associated with meter installations.⁴⁴⁸ In its DD Representation, Anglian also made clear to Ofwat the reason for the increased cost in installing smart meters.⁴⁴⁹

Smart metering case study

Anglian believes Ofwat has provided £126.3 million for metering Enhancement in the FD, a gap of £52.9 million (29%) compared to the total Enhancement and base cost adjustment expenditure requirements.

To deliver its smart metering programme, in line with its statutory WRMP, Anglian is required to replace existing meters with smart meters in order to utilise its data network as it is rolled out across the region. As part of its DD Representation, Anglian submitted a smart metering cost adjustment claim of £42.4 million. This claim reflects the increase in the number of meters Anglian will be replacing in AMP7, over and above the number it would be replacing if it did not need to deliver its smart metering programme.⁴⁵⁰ The remainder of the gap results from Ofwat's failure to consider costs associated with different types of meter installations (£7.4 million) and the higher unit costs associated with areas, such as Anglian's, that have a higher meter penetration (£3.1 million).⁴⁵¹

As a result of Ofwat's position in the FD, Anglian has to revise the areas that it will deliver smart meters in AMP7.⁴⁵² Ofwat's FD position means that Anglian will have to deliver its smart metering plans over 13-15 years and possibly longer dependent on PR24 and PR29, instead of over the initial

⁴⁴⁷ Benchmarking data comparing Anglian's unit rate of replacing a dumb meter with a smart meter with large scale roll-outs in Valencia, Spain and Yarra Valley, Australia, and Austin, TX USA. IAP Water Data Tables Commentary, pages 61 to 63 (SOC107).

⁴⁴⁸ IAP Water Data Tables Commentary, page 68 (SOC107).

⁴⁴⁹ DD Supplementary Evidence, page 8 (SOC169): '*[n]ew connections present a higher cost because all new connections are manifold meters and this is our most costly installation. Existing meters are a combination of differing fits including internal, which have a lower installation cost*'.

⁴⁵⁰ By taking forward a geographical smart meter roll-out, including replacing some dumb meters before they become faulty or reach the end of their life, customers benefit from: (i) efficient per unit labour costs by replacing meters in close proximity, reducing the need to revisit the area at later dates; (ii) data consistency on leakage at a DMZ level; (iii) total coverage of the impact of water efficiency and customer engagement strategies focused to target whole areas; and (iv) maximising the efficiency of data collection and the fixed networks. DD Smart Metering CAC (SOC175).

⁴⁵¹ IAP Response, page 70 (SOC104) - Ofwat's benchmarking models do not take into account the increasing marginal cost of meter installations for Optant and Selective meters. For areas with high meter penetration, these meters are more costly as a greater proportion of meters to be installed under these programmes will be difficult and costly relative to areas of low meter penetration. In order to improve the models to account for this cost driver, Vivid Economics suggest meter penetration should be taken into account. Using readily available data, in their testing they proved that modelling including this variable produced an improvement over the IAP models.

⁴⁵² Areas will be prioritised based on supply-demand balance deficits and those areas that are relatively urban in nature which could benefit from deliverability benefits due to concentration. Anglian maintains its view that roll-out of smart metering on a geographical basis, with 100% coverage in each roll-out area offers the best long-term solution for customers and the environment. This minimises installation costs both within AMP7 when meters in proximity are replaced at the same time, and in future AMPs as meters will reach their replacement age at the same time.

10-year plan. Over the next five years, this will mean Anglian installing fewer meters than originally planned (currently estimated at 863,000 meters as opposed to the envisaged 1.1 million meters).⁴⁵³

In the short term, as a result of Ofwat's FD position, fewer people will have the benefit of engaging with their water use to drive down demand, aid with bills and identify leaks on customers' supply pipes (which are the responsibility of customers and not Anglian).⁴⁵⁴ With higher per capita consumption and less leakage reduction, there will be increased demand for abstraction from rivers, and reduced understanding of Anglian's network to identify leaks from pressure management.

Whilst the cost in AMP7 will be lower as a result of Ofwat's position, the cost difference is ultimately simply being deferred into AMP8/9. There will be greater risk in some WRZs that will be affected by abstraction licensing reductions.⁴⁵⁵ This also runs counter to the aims to reduce PCC to 110l/h/d by 2050⁴⁵⁶ and to achieve leakage reductions of 50% by 2050.⁴⁵⁷ It also leads to an additional risk, with Anglian facing an ODI penalty of c.£4 million for not delivering its full AMP7 smart metering programme.

(iii) Bioresources

- (785) Ofwat has disallowed Anglian's bioresources Enhancement expenditure on the basis that it considers a contract with a third-party to be the best option for customers. Ofwat's approach fails to recognise that there is insufficient capacity in the market in relation to sludge treatment capacity driven, in part, by the prohibition of non-WASCs providing bioresource treatments.⁴⁵⁸
- (786) The need for additional capacity because of population growth and the impacts of the WINEP were acknowledged by Ofwat. The FD suggested Anglian procure the necessary additional capacity via a two and a half-year guaranteed trade contract with a third-party provider. This conclusion fails to recognise Anglian's engagement with, and experience of, bioresources markets.⁴⁵⁹ Ofwat's FD ignores evidence that Anglian presented that demonstrated there is currently insufficient capacity in the market to support Anglian's bioresources needs.⁴⁶⁰
- (787) Anglian's Plan promoted the solution with the lowest whole life cost (WLC). The long-term costs associated with the Anglian solution for treating bioresources on site is lower than Ofwat's proposed solution. Anglian estimates the equivalent annualised cost ('EAC') to be £663,000 per year or a discounted whole life cost of £15.5 million over 40 years relative to Ofwat's proposal which has an equivalent annualised cost of £2.64 million and a whole life cost of £39 million respectively.

⁴⁵³ In order to maximise the benefit of a smart meter data network established in a given area, it is beneficial to have as many smart meters installed in that area and a full 'data network' in place. As a result of having to defer the installation of meters over a longer time period, some properties will receive a smart meter during AMP7 where a data network may either not be in place until AMP8 or where it may be in place but be underutilised as a result of the low number of meters installed in that area.

⁴⁵⁴ Reducing the roll-out to 863,000 meters will mean lost benefits from demand reduction by 3.09MI/d from smart meter behaviour change, 1.73MI/d from customer supply pipe leakage, and 0.38MI/d from understanding of distribution losses. This gives a total of 5.2MI/d of extra demand compared with Anglian's plan to deliver 1.1 million smart meters.

⁴⁵⁵ Such as North Norfolk, Happisburgh and Norfolk rural south.

⁴⁵⁶ Currently 135l/h/d. The EA's National Framework (SOC281) sets a target of 110 litres per person per day by 2050 nationally.

⁴⁵⁷ In line with the recommendations from the National Infrastructure Commission, NIC Preparing for a Drier Future Report (SOC270).

⁴⁵⁸ Current regulations do not allow non-WASCs to manage or store sewage sludge via their current environmental permits. Non-WASCs cannot recycle sewage sludge-based products under this regulatory regime as sewage sludge products are recycled under the Sludge Use in Agriculture Regulations. Therefore, it is only other WASCs that can be contracted to procure additional digestion capacity to Anglian. However, other WASCs are also capacity constrained due to growth and impacts of WINEP. This point was explained in the September 2018 Plan, pages 124 to 126 (SOC001).

⁴⁵⁹ Anglian has, for example, led the sector in promoting an accredited assurance scheme; the Biosolids Assurance Scheme (BAS). See September 2018 Plan, pages 124 to 126 (SOC001).

⁴⁶⁰ IAP Wastewater Data Tables Commentary, pages 45 and 54 to 58 (SOC106).

(788) Ofwat's FD position acts to restrict available capacity. This results in further unnecessary costs to transport and store sludge and potential harmful consequences for the environment as a consequence of needing to store raw sludge cake remotely⁴⁶¹ and increased risk of permit non-conformance. These risks to customers and the environment necessitate the building of additional capacity at Whitlingham with subsequent impacts elsewhere in the business.

3.2.3 Future productivity challenge

(789) As further developed in **Chapter E.4: Frontier shift**, Ofwat's future productivity challenge is incorrect. It double-counts the productivity growth that the benchmark WASCs have already included in their costs. For Enhancement expenditure, Ofwat has used a forward-looking benchmark and this already includes the frontier shift assumption of those benchmark companies. This is why Ofwat did not apply a frontier shift assumption on Retail when using a forward-looking benchmark. As Ofwat stated, "*We do not apply a further frontier shift challenge or input price pressure adjustment in residential retail. Efficient business plans may have accounted for these in their cost forecasts, which feed into our forward-looking efficiency challenge, and thereby are reflected in our efficient 'allowances'*".⁴⁶²

(790) As a result of the additional 1.1% future productivity challenge applied by Ofwat, Anglian is subject to a total future productivity challenge of 5% per annum.⁴⁶³ This results in double-count; the 1.1% should not be applied to the forward-looking benchmark. This impact alone creates a gap of at least £20 million in Anglian's Enhancement funding.

(791) Despite Ofwat's base models being based on historical data, and the analysis for the WINEP programme being based on forecast data, Ofwat uses an identical net frontier shift challenge for the WINEP programme as it does for base expenditure. This inconsistency demonstrates how Ofwat's approach is inappropriate. Anglian considers that no net frontier shift overlay should be applied when forward-looking benchmarks are used.

(792) Furthermore, as Ofwat only introduced the frontier shift element to WINEP in its FD, Anglian has not previously had the opportunity to make representations on this aspect of Ofwat's approach.

3.2.4 Modelled efficiency challenge

(793) Issues with the modelled efficiency challenges applied by Ofwat include (i) benchmarking and choice of benchmark, and (ii) treatment of Enhancement opex. Each of these specific components is, in Anglian's view, flawed. Each is considered in turn below.

(i) Benchmarking

(794) There are several problems with Ofwat's benchmarking approach:

- (i) failure to appropriately recognise the idiosyncratic nature of Enhancement;
- (ii) failure to correct for different adopted solutions;
- (iii) lack of benchmarking with other evidence;

⁴⁶¹ In practice an additional 18,500 tonnes of sludge will have to be stored on large concrete pads covering a land area of approx. 12,000m² if stockpiled at an average height of 1.5m. An estimated 1,480 vehicle movements and 59,200 additional km would be travelled to move bioresources. Storage of the additional 18,500 tonnes anticipated will in turn increase the risk of leaching into the ground and odour complaints.

⁴⁶² Securing Cost Efficiency Technical Appendix, page 121 (SOC243).

⁴⁶³ The 'ongoing efficiency improvement' assumptions on Enhancement submitted in the business plans of companies that are above the benchmark on the WINEP modelling (United Utilities, Severn Trent and South West) were between 2.7% and 5.0%, or 3.9% on average. 5% is the sum of 1.1% and 3.9%. Source: Table App24a of September 2018 business plan submissions, average per annum 'ongoing efficiency improvement' for wastewater network plus, weighted by infra and non-infra.

- (iv) inappropriate use of the forecast upper quartile as a benchmark; and
 - (v) inappropriate treatment of Enhancement opex.
- (795) First, Ofwat's Enhancement models do not capture sufficient drivers. Enhancement expenditure is idiosyncratic. As Ofwat notes, '*enhancement expenditure can be quite company-specific, irregular and difficult to predict*.'⁴⁶⁴ However, Ofwat's Enhancement models are very simple (with only one or two cost drivers) and much simpler than its Botex Plus models. This is a direct function of Ofwat's data capture which only captured one or two potential cost drivers and results in poor models. Ofwat's benchmarking generally lumps all companies together regardless of size of programme. As such, there is bound to be omitted variable bias and a tendency for the models to over-estimate inefficiency. Anglian presented its critique of Ofwat's modelling approach on a model-by-model basis at IAP and again at DD with supporting evidence from Vivid Economics.⁴⁶⁵
- (796) Second, Ofwat's over-simplistic benchmarking assessment fails to correct for 'different adopted solutions' where for a similar outcome there might be multiple solutions. Depending on the solution adopted, Ofwat's chosen cost driver may be completely irrelevant.⁴⁶⁶ To determine relevant company-specific allowances, Ofwat also does not appear to have considered the different approaches adopted by WASCs and fails to take into account the long-term costs (as opposed to AMP7 costs).⁴⁶⁷
- (797) Third, Ofwat has not cross-checked (i.e. triangulated) its simple benchmarking models with other evidence. Ofwat's failure to account for such variations will result in reasonable differences in costs incorrectly being attributed to relative efficiency levels. Through the PR19 process (i.e. at IAP and DD) Anglian submitted various challenges regarding the relevant results from Ofwat's modelling.⁴⁶⁸
- (798) Fourth, Ofwat uses an inappropriate and *ad hoc* benchmark - the forecast upper quartile - for enhancement areas including WINEP. In the past, Ofwat has stated that this is based on the confidence they have in the accuracy of their modelling.⁴⁶⁹ Forecast data is used in both the modelling and the definition of Ofwat's benchmark.⁴⁷⁰ There is a risk that allowed expenditure is being driven by unrealistically optimistic forecasts by some companies, rather than efficiency. This is particularly acute for areas where Ofwat applies an upper quartile benchmark, such as WINEP, which alone constitutes 92% of Anglian's non-growth wastewater Enhancement expenditure following reallocations.⁴⁷¹ In Anglian's view, such methodological benchmarking flaws should have been dealt with by Ofwat sense-checking the models with other evidence, carrying out company-specific deep-dive assessments and/or collating information from the WASCs to allow it to better understand, and account for, the cost variations between such companies. Anglian considers that an average benchmark would be appropriate. This would be consistent with the approach that Ofwat used when benchmarking capital Enhancement expenditure using its 'cost base' methodology in PR09, where Ofwat used the median benchmark.⁴⁷²

⁴⁶⁴ PR19 Final Methodology Consultation, page 175 (SOC392).

⁴⁶⁵ See IAP Response, Section 5.5 (SOC104), Vivid Economics Enhancement Cost Assessment Modelling (March 2019) (SOC128) and Vivid Economics Enhancement Cost Assessment Modelling (August 2019) (SOC196).

⁴⁶⁶ For instance, for spill frequency, some investments do not require storage (e.g. one of Anglian's investments will be resolved with screen upgrades) and are therefore not captured by Ofwat's cost drivers - storage volume and the number of sites.

⁴⁶⁷ For example, a treatment of nitrates can be undertaken by blending or treatment, with significantly different opex and capex expenditure associated with each option within the AMP7 window and over the longer term.

⁴⁶⁸ IAP Response, page 56 (SOC104) and DD Representation, page 120 (SOC168).

⁴⁶⁹ For example, in 2015, with respect to the precision of its econometric cost models, Ofwat stated, '*If the models we produce are less robust then we can place less reliance on their results. This means it becomes harder for us to set stretching cost thresholds*'. Ofwat, Initial CMA Submission *Bournemouth Water / Pennon Group plc* (SOC393).

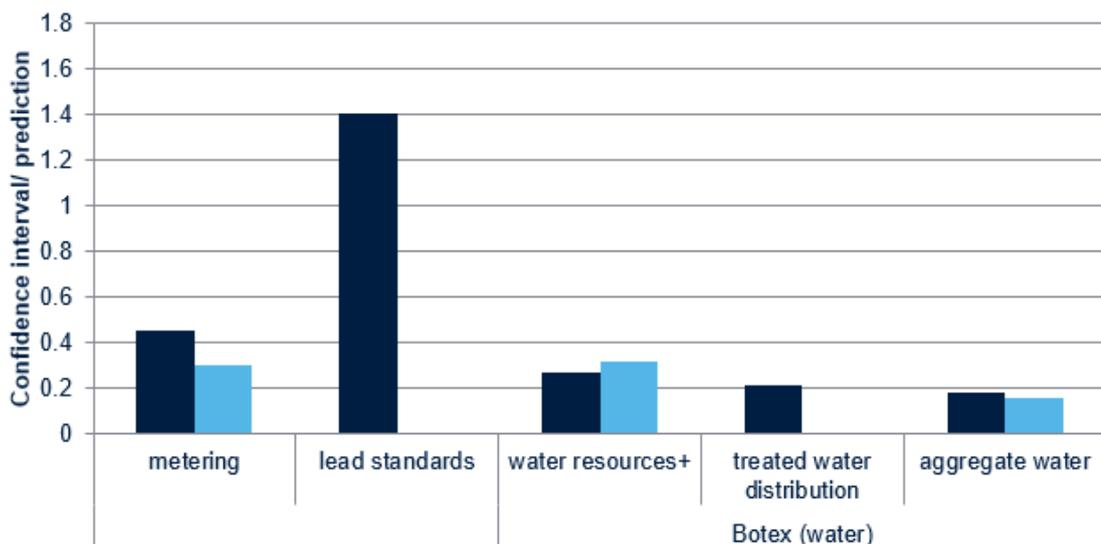
⁴⁷⁰ This creates more 'noise' in the data, the models and the benchmark than in Botex Plus models.

⁴⁷¹ This 90% figure relates to wastewater expenditure only excluding growth. The WINEP figure provided in **Chapter B.3: Anglian's Plan and how it was built** refers to WINEP as a proportion of all Enhancement expenditure (water and wastewater) including growth.

⁴⁷² PR09 FD, page 72 (SOC394).

- (799) Finally, Ofwat incorrectly treats Enhancement opex in the same way regardless of whether this is a one-off expenditure or a recurring expenditure. Anglian highlighted this issue in reports from Reckon in both its IAP and DD Representation to Ofwat. Ofwat's approach does not distinguish between capex and opex in its Enhancement models (i.e. so £1 of capex is treated as equivalent to £1 of recurring opex) and does not take into account the opex associated with Enhancement projects. Ofwat's approach fails to recognise the potential for opex solutions to be used instead of capex solutions when it comes to Enhancement plans. Specifically, Ofwat ignores that several WASCs, including Anglian, actually adopt a variation of capex and opex when preparing Enhancement forecasts. This approach is flawed and WASCs should have been asked, throughout the PR19 process, to clarify their position if this was not clear to Ofwat and/or if Ofwat required more data. Indeed, Anglian clearly highlighted this issue and submitted, as part of its IAP and DD Representation, reports specifically setting out potential solutions to this problem.⁴⁷³
- (800) The outcome is that the range of estimated inefficiency from the Enhancement models is very high (much higher than the range from the Botex Plus models). This is due to all the issues above and does not imply large inefficiency gaps. There is also a wide confidence interval around Anglian's cost predictions which is far wider than for Botex Plus. Figure 56 and Figure 57 below show the confidence interval over prediction for each of Ofwat's Enhancement models for water and wastewater respectively and compare this to that of the base expenditure models. It can be seen that, bar metering, all Enhancement models have a substantially wider range of uncertainty than the base expenditure modelling.

Figure 56 Water confidence interval over prediction, by modelling area

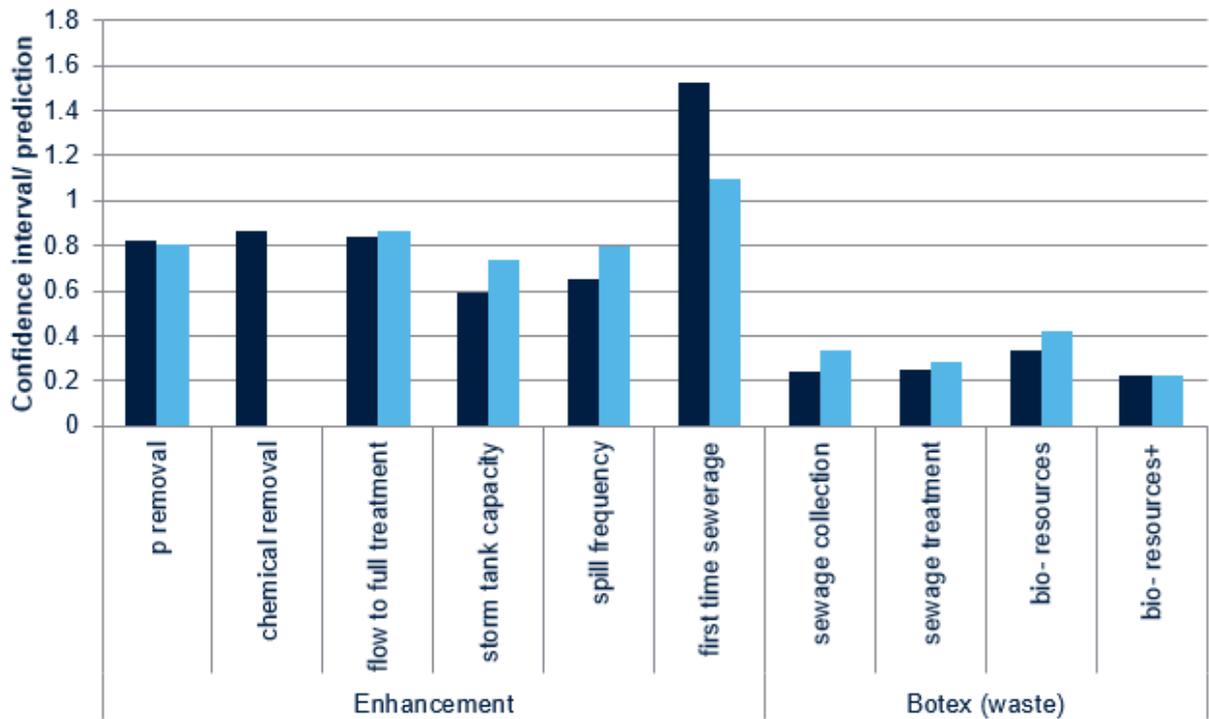


Source: Oxera⁴⁷⁴

⁴⁷³ Reckon Review of IAP Enhancement Opex (SOC126); DD Representation, Section 8.2.5 (SOC168) and Reckon Note on Enhancement Opex (19 June 2019) (SOC195).

⁴⁷⁴ Oxera was unable to replicate the precise coefficients Ofwat gives for its random effects lead model using the data provided in the corresponding enhancement feeder model. However, Oxera gives the result from our estimation for completeness.

Figure 57 Wastewater confidence interval over prediction, by modelling area



Source: Oxera⁴⁷⁵

- (801) The two case studies below exemplify the combined impacts of the changes above in two key areas of Anglian's Enhancement plan: WINEP (specifically P-removal) and Lead.

WINEP phosphorus removal case study

Anglian presented data from Vivid Economics at IAP and DD which demonstrated improved model fit using 1mg/l consent threshold, compared to the 0.5mg/l threshold used Ofwat's modelling.⁴⁷⁶ Ofwat's use of the upper quartile benchmark and frontier shift through WINEP-in-the-round leads to a total gap for phosphorous removal ('P-removal') of £45 million (consisting £4 million from the P-removal model and £41 million from WINEP-in-the-round). Issues with Ofwat's modelling are instead assumed to represent inefficiency.

A significant part of Anglian's WINEP programme was focused on a P-removal solution involving the fitting of a Mecana disk filter (to remove the solid fraction containing the phosphorous) combined with chemical dosing⁴⁷⁷. This would have ensured compliance with relevant environmental obligations. However, as the FD resulted in a £45 million funding gap for P-removal⁴⁷⁸, Anglian has had to review its approach to meeting the WINEP requirements.

To meet this gap, Anglian will not be able to install Mecana disk filters, instead relying on chemical dosing in isolation. This will materially increase the risks of: (i) not meeting the phosphorus consents under the WINEP; (ii) higher discharge than consented; (iii) deterioration to water quality; (iii) potential prosecution; (iv) poorer

⁴⁷⁵ Oxera was unable to replicate the precise coefficients Ofwat gives for its random effects lead model using the data provided in the corresponding enhancement feeder model. However, Oxera gives the result from our estimation for completeness.

⁴⁷⁶ Schemes with a consent level above 1mg/l can typically be achieved through optimisation of existing assets or natural capital solutions. However, schemes with a consent level of less than 1mg/l often involve significantly different solutions to these such as the adoption of new treatment technologies such as sand filters.

⁴⁷⁷ An accepted industry solution following the AMP6 P-removal trials in the context of the AMP6 National Environment Programme.

⁴⁷⁸ Including pro-rata removal from WINEP in the round efficiency.

results in the EA's Environmental Performance Assessment; and (v) compromising the ability of the UK to meet its EU commitments under the WFD.⁴⁷⁹

Table 25 below outlines the whole life cost and the capital carbon emissions (in T CO₂ e) for the P-removal schemes that Anglian proposed to deliver in its Plan through natural capital solutions vs. the conventional solutions it may have to deliver as a result of the FD.

Table 25 Impact of Ofwat's FD on Anglian's P-removal

	Natural capital solutions		Conventional solutions		Difference	
	Discounted Whole Life Cost (£m)	Whole life carbon (T CO ₂ e)	Discounted Whole Life Cost (£m)	Whole life carbon (T CO ₂ e)	Discounted Whole Life Cost (£m)	Whole life carbon (T CO ₂ e)
P-removal schemes	23.65	5,732	26.60	16,445	-2.95	-10,713

Critically, taking Anglian's FD approach (chemical dosing only) rather than the approach in Anglian's Plan does not support the views expressed by customers that Anglian should invest to protect the environment, and this investment should not be deferred to future AMPs. Customers expressed a preference for higher bills in this AMP to support this approach, rather than an alternative scenario of lower bills in AMP7 and poorer environmental outcomes in the long-term.⁴⁸⁰

⁴⁷⁹ Anglian noted it would achieve 'Good Ecological Status' by 2027 across the 1,708km of river length it reported as the length of river improved by WINEP schemes in the East of England. September 2018 Plan Data Tables (SOC002).

⁴⁸⁰ CEF Summary (September 2018), page 8 (SOC012). In particular, it was reported that '*The CEF acknowledged that customer engagement had proved conclusively and robustly that more than 80% of customers were supportive of key investments to cope with future resilience issues and to protect the environment, and that they accepted bill increases of at least 2.5% as a result of the investment. Following this, the company had robustly challenged costs and, in its final plan, was able to offer the outcomes customers wanted for bill increases of around 1%. Customers perceived this to be good value for money.*'

Lead case study

Lead is a cumulative toxicant which affects multiple body systems. Exposure to lead has harmful effects no matter how limited it is. In the UK, one of the main risks of exposure to lead is through drinking tap water supplied through lead pipes.⁴⁸¹

The DWI has a goal to be 'lead free' by 2050. Anglian's Plan proposed replacing 5,250 lead pipes in customers' homes over the next five years. In response to Ofwat's funding gap at DD, Anglian revised its initial proposal by nearly 50% to only replace 2,250 of those pipes.⁴⁸² In response to a further funding gap of £12 million at FD, Anglian's AMP7 programme will be primarily reactive, and it is unlikely that Anglian will be able to replace all customer side lead pipes arising from its reactive programme proposed at DD or trial the replacement of customer side pipes as a proactive programme. Instead, it will need to continue to dose ortho phosphoric acid to prevent lead uptake into the water. This is against DWI's long-term aspiration to remove the health hazard presented by lead from customers supplies.

Ofwat bases its benchmarking on the number of pipes, rather than length of pipes, being replaced. With customer support, Anglian had proposed to replace longer sections of pipe and, as a result, Anglian's costs look anomalously high under Ofwat's benchmarking. Whilst Anglian's costs look high on a 'number of pipes' basis, this is not as a result of inefficiency, but simply due to Ofwat's flawed benchmarking assessment. As noted by Vivid Economics, Ofwat's model in relation to lead is 'highly unstable and produces [an] implausible efficiency score range'.⁴⁸³ Ofwat's approach leads to increased costs and higher risks for customers and the environment.

Anglian's Plan also included £1.4 million Enhancement opex costs for the water in buildings programme, an integrated package of measures used to assess and manage the risks to consumers posed by the quality of water within public buildings.⁴⁸⁴

Ofwat's approach does not lead to long-term sustainable solutions. First, by not replacing the lead pipes, there is an increased risk of contamination in drinking water. Second, phosphate used for the orthophosphoric acid dosing is a finite resource.⁴⁸⁵ Third, the alternative phosphate-based chemical solution also creates additional costs for Anglian due to ongoing obligations to remove phosphorus from water to protect the environment (see the WINEP P-removal case study above). Fourth, the DWI aspiration to be lead free by 2050 would mean that Anglian would need to replace around 10,000-15,000 pipes per year or 50,000-75,000 per AMP, so the issue of how to model lead costs could be magnified in future AMPs.

Whilst customers have indicated the need to pursue sustainable solutions that benefit the environment while ensuring Anglian keeps delivering safe, clean water, the FD does not allow Anglian to fully pursue these or to meet the DWI's aspiration. This presents a distinct mismatch in regulatory expectations.

⁴⁸¹ NHS, Lead poisoning, available at <https://www.nhsinform.scot/illnesses-and-conditions/infections-and-poisoning/lead-poisoning>.

⁴⁸² 1,750 reactively and a trial area of 500 customer side pipes.

⁴⁸³ Vivid Economics Enhancement Cost Assessment Modelling (March 2019), Page 5, meeting lead standards (SOC128).

⁴⁸⁴ Ofwat absorbed these costs into the lead model on a per pipe basis with no explanation of this in the model. These costs are a separate issue which ought to have been modelled outside the lead model and, if that had happened, would have been evaluated as immaterial compared to the water wholesale totex and passed through as a shallow dive. Investment was explained and justified in detail in September 2018 Plan Water Data Tables Commentary pages 70 to 75 (SOC004).

⁴⁸⁵ Anglian relies on imports, with high and volatile prices.

3.2.5 Company-specific efficiency challenge

- (802) Ofwat's company-specific efficiency challenge to Enhancement expenditure is inappropriately based on Ofwat's efficiency challenge from its base cost modelling.⁴⁸⁶ This approach is *ad hoc*. There is no reason to consider that a company's efficiency on base expenditure (i.e. 'day-to-day business as usual' expenditure) is a good indicator of a company's efficiency on Enhancement expenditure (i.e. large lumpy capital Enhancement projects). This approach takes no account of differences driven by factors other than efficiency, such as accounting policies for the capitalisation of costs.
- (803) In its FD, Ofwat has simply taken the outputs from one assessment area and applied them without sense-checking to a different purpose and the results are not reliable. Through the PR19 process (i.e. at IAP and DD), Anglian submitted various challenges regarding the relevant results from Ofwat's modelling. At IAP, Anglian had already set out its concerns with Ofwat's company-specific efficiency challenge, which at IAP was capped at 15%.⁴⁸⁷ At DD, Ofwat reduced the company-specific efficiency challenge to 10%. When making its DD Representation, Anglian re-iterated these concerns and highlighted that Ofwat's DD analysis persisted with the application of company-specific factors even though evidence had been provided on the efficiency of individual areas of Enhancement – e.g. a report by KPMG showed that Anglian had undertaken a tendering process for the WRMP strategic interconnectors which showed that the modelled unit rates in the Plan were below average in all cases.⁴⁸⁸ Ofwat re-asserts, as it did at IAP, that the Company's scope for efficiency in proposed Enhancement costs will be at a similar level to base costs.⁴⁸⁹
- (804) Ofwat's approach is not supported by regulatory precedents, including previous assessments in the water industry, which did not assess similarly efficiency for base costs and Enhancement.⁴⁹⁰ Where Ofwat does not have the capability to undertake cost modelling in these areas, Anglian would propose that it should have, at least, carried out deep-dive assessments in order to minimise the impact of this flawed approach.

4 Uncertainty mechanisms⁴⁹¹

- (805) In its FD, Ofwat recognised that Anglian could be exposed to additional costs during AMP7 that would be beyond management control, relating to the Elsham treatment works and transfer scheme and the metaldehyde programme.⁴⁹² In both cases, there is a significant possibility that Anglian will have to incur expenditure without the ability to recover that expenditure. This is wrong as a matter of regulatory principle: it exposes the Company to unnecessary, uncontrollable purely downside risk.

⁴⁸⁶ Securing Cost Efficiency Technical Appendix, pages 51 and 52 (SOC243).

⁴⁸⁷ IAP Response, page 54 (SOC104).

⁴⁸⁸ KPMG Strategic Pipeline Scheme Review, page 2 (SOC132).

⁴⁸⁹ DD Representation, pages 122 and 123 (SOC168).

⁴⁹⁰ For example: (i) in the CMA review of Bristol's PR14 determination, the results of the CMA's Opex/Botex modelling were not used to derive their view of the capex efficiency challenge for Bristol's Enhancement expenditure; and (ii) in Northern Ireland Water's PC15 final determination, capital efficiency targets were derived through triangulation of cost base analysis and views on capital procurement efficiencies from independent sources. The resulting efficiency factors were materially different to those derived for opex.

⁴⁹¹ See also **Chapter D: Risk and return**.

⁴⁹² Notification of Anglian's FD, page 15 (SOC230).

- (806) In its DD Representation, Anglian also requested that the Specification for the Reinstatement of Openings (SROH) risk⁴⁹³ was considered as a notified item at £100 million.⁴⁹⁴ This has not been reflected in the Final Determination, requiring a significant absorption of this risk by Anglian.⁴⁹⁵
- (807) Anglian accepted Ofwat's proposal for the Elsham scheme to be carried out using a direct procurement for customers process. The approximately £122 million expenditure for this project was therefore removed from Anglian's requested allowance. However, if the tender process does not result in bids cheaper than this, it will have no cost allowance to so implement the scheme itself, nor - as explained below - any mechanism for future recovery. In effect, the £122 million would be treated as an 'overspend' as if it were simply inefficiency, on which the cost-sharing rules would allow Anglian to recover around 32% for water. Alternatively, Anglian could defer this important project to the next AMP, with negative consequences for customers and the environment. However, doing this would mean that Anglian would fail to deliver its WRMP.
- (808) Similarly, Anglian agreed to removed £68 million from its Plan that had been intended to deal with metaldehyde pesticide, because of an announced Government ban on its use from Spring 2020. However, the ban was over-turned on judicial review so as of now this expenditure is necessary. The Government has stated that it intends to introduce the ban, but in the event that this is delayed, or the decision reversed, Anglian faces significant expenditure with, again, no allowance or possibility of recovery.
- (809) In brief, Ofwat proposes that the mechanism for recovery of these currently unfunded costs (if incurred) should be by means of an interim determination of K (IdoK). However, Anglian's Licence specifies that an IdoK will not apply unless the value of the claim for additional funding is at least equal to 10% of turnover. Based on Anglian's current turnover, there is no realistic prospect of deploying the IdoK mechanism to recover the costs of either the Elsham Scheme or the metaldehyde programme. Therefore, if these risks materialise, Ofwat will have breached its duty to ensure Anglian is able to finance the proper performance of its functions.
- (810) The obvious way to deal with both of these issues is through a workable reimbursement mechanism. This would be straightforward, as in each case there will be an external, verifiable cause determining whether or not the expenditure should take place.

5 Overall consistency with Ofwat duties

- (811) Overall, Ofwat's challenges to Anglian's Enhancement plans are inconsistent with Ofwat's duty to ensure long-term resilience of WASC's systems as regards environmental pressures, population growth and changes in consumer behaviour. These are also inconsistent with Ofwat's duty to protect current and future customers as well as with Defra's SPS.
- (812) Furthermore, Ofwat's plans run counter to its obligation to secure that water companies (meaning water and sewerage undertakers) properly carry out their statutory duties and are enabled, in the long-term, to meet the need for waste supplies and water recycling services.
- (813) The sub-optimal short-term solutions proposed by Ofwat, which defer vital enhancements proposed by Anglian to future AMPs, compromise Anglian's ability to delivery long-term environmentally sustainable

⁴⁹³ Department for Transport, Specification for the Reinstatement of Openings in Highways Fourth Edition, (February 2019) available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/782183/reinstating-road-after-street-works-statutory-code.pdf.

⁴⁹⁴ Anglian, DD Representation, pages 38 and 39 (SOC168).

⁴⁹⁵ Anglian notes that it has not included Enhancement expenditure risks, for example, it removed £13 million from its original submitted plan for the Drinking Water Directive Revisions which still may come into force during the period.

solutions. The FD also runs counter to the Government's SPS and the principle of intergenerational equity which states that every generation must pay its fair share of costs.

6 Request to CMA

- (814) Anglian requests that the CMA correct Ofwat's errors of analysis and assessment in relation to Enhancement, which led to unrealistic cost allowances that will force Anglian to adopt sub-optimal solutions. This should allow the CMA to reach a position which: (i) allows Anglian to adopt the long-term environmentally sustainable solutions as put forward in its Plan; (ii) is robust rather than arbitrary; and (iii) upholds Ofwat's duties and obligations, whilst taking into account Anglian's customers' views.
- (815) Such an approach should also ensure that the quality of the solutions delivered by Anglian is not compromised, that customers and the environment do not face unnecessary increased risks and that customers have certainty around long-term Enhancement costs. Anglian requests in particular that the CMA address the flaws with Ofwat's assessment of Enhancement allowances in the FD as set out in the chapter, specifically the following:
- (i) Ofwat's efficiency challenges (modelled and company-specific) are overlaid onto efficiencies which are already built into Anglian's own Plan, this creates an unreasonable level of challenge in Anglian's Enhancement programme.
 - (ii) Ofwat's assessment excludes key cost drivers, uses inappropriate cost drivers, fails to account for different solutions adopted by companies, and does not cross-check the results with other evidence.
 - (iii) Ofwat's efficiency challenges are based on an inappropriate choice of benchmark.
 - (iv) Ofwat's efficiency challenge of 1.1% frontier shift is a double count of the efficiency assumptions included in the forward-looking benchmark.
 - (v) Ofwat's capacity challenge on WRMP needs to be reversed. This contradicts the needs of Anglian's region considering its growth and climate challenges.
 - (vi) Ofwat's need challenges, including in relation to bioresources and water resilience, leave a funding gap for schemes that Anglian must deliver.
 - (vii) A rejection of Anglian's cost adjustment claim in relation to smart metering means that Anglian cannot deliver the full Enhancement programme included in its Plan, and which Ofwat considers it has made a full allowance for. The long-term interest and practicalities of delivering these meter installations should be reflected in Anglian's totex allowance.

Chapter E.4: Frontier shift

1 Overview

- (i) Ofwat has used unrealistic assumptions for future frontier shift in setting cost allowances: failing to recognise the likely costs, and risks, of Real Price Effects ('RPEs') to which water companies are exposed by the nature of their business; and using a productivity assumption that is much higher than the evidence suggests is feasible.
- (ii) The Final Determination underfunds and fails to recognise the risks to Anglian from RPEs. Ofwat's late inclusion of labour costs is insufficient and it recognises no other cost pressures on the sector, despite ample evidence of cost inflation that exceeds CPIH.⁴⁹⁶ By including an end-of-period true-up for wages, Ofwat has transferred the risk of labour input price changes to customers. By not including a similar true-up for other inputs Ofwat has left the risk of input price changes with companies.
- (iii) Furthermore, Ofwat applies a future productivity assumption of 1.1% p.a. across the board.
 - (a) The 1.1% figure is itself implausibly high, derived from a highly selective reading of the evidence, for example considering only the most productive comparator sectors while ignoring more directly relevant sectors such as construction. It also appears to rely, entirely without evidence, upon an assumed productivity boost from Ofwat's introduction of a totex framework, a framework that the Final Determination in any case undermines through its reintroduction of a capex bias as a result of the misallocation of costs between capex and opex.
 - (b) Moreover, Ofwat applied this 1.1% to unmodelled costs and the majority of Enhancement expenditure, to which Anglian had already applied a 1% p.a. productivity assumption, resulting in a 'double count' future production assumption of 2.1% p.a.
- (iv) This contributes to Anglian being underfunded to perform its functions.

Request to the CMA
- (v) Anglian requests that the CMA:
 - (a) applies an appropriate methodology for assessing the impact of RPEs on Anglian's costs;
 - (b) is consistent in its allocation of RPE risk between companies and customers;
 - (c) identifies a realistic productivity improvement assumption; and
 - (d) ensures that no double count occurs across unmodelled base costs and the relevant categories of Enhancement costs.

(816) The remainder of this chapter is structured as follows: Section 2 sets out Anglian's approach to adjusting for RPE (Real Price Effects) and future productivity (together 'frontier shift'); Section 3 explains Ofwat's Final Determination (FD) approach; Section 4 captures Anglian's challenges to Ofwat's approach; and Section 5 sets out Anglian's request to the CMA.

⁴⁹⁶ The Consumer Price Index including owner occupiers' housing costs.

2 Anglian's approach to adjusting for RPE and future productivity (together 'frontier shift')

(817) The cost assessments produced in Anglian's cost assessment were valid for the time of their production but will be subject to the forces of economic change during the 2020-2025 period. Anglian therefore made RPE and future productivity adjustments to 'future proof' them against these changes. The combined effect of RPE and productivity adjustments comprise the overall improvements in efficiency one can expect all companies to achieve, even those at the current efficiency frontier. It is therefore referred to as 'frontier shift'.

2.1 Adjusting for RPE

(818) The cost assessments were in 2017/18 prices but will be subject to input inflationary pressures during the 2020-2025 period. Under the price control regime, Anglian is partially compensated for the increase in costs due to general inflation that will arise during 2020-2025 by the indexation of its revenues to annual changes in the Notified Index, CPIH.

(819) However, CPIH is derived by the Office for National Statistics by monitoring the change over time in the price of a basket of goods whose composition is representative of the typical purchases of residential consumers across the UK economy. Insofar as the goods and services purchased by a water company differ from the items in the CPIH basket, the Index provides an inadequate hedge against inflation.

(820) To correct for these differences, Anglian made separate forecasts of the input price change of the key components of its own 'shopping basket' over the next regulatory period. The difference between this company-specific inflation index and the CPIH represented the Company's estimate of RPE over the 2020-2025 period.⁴⁹⁷

(821) To do this Anglian employed the straightforward, three-step methodology which all regulators have used over the last decade: (i) forecast the likely nominal rate of input price change for each key input type; (ii) calculate a weighted nominal index on the basis of relative expenditure on each input type; then (iii) make it real by deducting forecast CPIH.

(822) Anglian used Ofwat's cost categories (labour; energy; chemicals; materials, plant and equipment (MPE); and a catch-all category of 'other costs') to allocate its planned expenditure across these cost categories on the basis of its historical evidence.

(823) Anglian forecasted the future nominal price change for all these items. These forecasts were sourced, where possible, from input price forecasts by independent government departments (e.g. Office for Budgetary Responsibility forecasts of labour rate changes) or agencies, or, where not possible, extrapolated from trends in the historical data produced by such bodies. Anglian's choice of sources was based on advice in Real Input Price Inflation by First Economics (February 2018).⁴⁹⁸

(824) Anglian did not change its cost allocations through the process, but for its Draft Determination (DD) Representation, it refreshed its nominal price forecasts to make use of updated evidence.

2.2 Adjusting for future productivity improvements

(825) The underlying principle for the inclusion of an adjustment for future productivity is that firms in all sectors of the economy seek to improve their productivity on an ongoing basis. In quantifying the rate of future productivity improvement which it might reasonably be expected to make, Anglian considered historical productivity improvements made by the water sector, current levels of UK-wide productivity change, and regulatory precedent.

⁴⁹⁷ September 2018 Plan, page 101 (SOC001).

⁴⁹⁸ First Economics Real Input Price Inflation (SOC395).

(826) Anglian used the 1% pa figure which has become established in various forums as a regulatory standard. The following evidence informed Anglian's approach:

- (i) *Productivity improvement in the water industry in England and Wales* report by Frontier Economics for WaterUK in 2017 showed that productivity improvements had been high in the early years after privatisation but dwindled to 0.1% pa since 2009.⁴⁹⁹
- (ii) *Frontier productivity growth* report by First Economics (February 2018) advised there was a case for aiming below the 1% pa regulatory standard in light of UK productivity trends and the findings of the Frontier Economics report on total factor productivity for WaterUK.⁵⁰⁰ First Economics' central argument was that water companies outsource most of their capital expenditure and a substantial proportion of their operating expenditure to other firms. If those suppliers were struggling to achieve significant productivity improvements, it is logical to assume that water companies are also unlikely to match historical productivity achievements.⁵⁰¹ Anglian accepted this argument but decided to apply a 1% pa productivity adjustment, accepting the accompanying challenge.

2.3 Application of frontier shift adjustments

(827) Anglian applied its frontier shift adjustments to all of its costs (opex and capital maintenance and enhancement). For opex (base and enhancement), Anglian applied the frontier shift adjustment from 2020/21. For capex Anglian applied its frontier shift from 2018/19. Anglian referred to the additional challenge to its costs resulting from this early application to capex as '*stretch efficiency*' or '*affordability challenge*'.⁵⁰²

3 Ofwat's approach to estimating frontier shift

(828) Ofwat's decisions on frontier shift through the PR19 process were set out in versions of the technical appendix '*Securing cost efficiency*'.⁵⁰³ Its decisions were informed by estimates of continuing productivity gains contained in reports by Europe Economics and KPMG, and assessments of RPE by Europe Economics. These reports (and updates which they made during the process) were published as supplementary technical appendices.⁵⁰⁴

3.1 Adjusting for RPE

(829) For its analysis of future Real Price Effects, Europe Economics considered four major cost areas: labour, energy, chemicals and materials, plant and equipment. They departed from the established three-step approach in favour of a more complicated assessment framework. For each cost type they assessed the case for an RPE for each against four criteria:

- (i) whether the 'wedge' between the input price and CPIH exhibits high volatility over time;
- (ii) whether it is adequately captured in CPIH;
- (iii) whether the 'wedge' between the input price and CPIH is likely to differ substantially from zero; and

⁴⁹⁹ First Economics Water Industry Productivity Improvement, Figure 2, Page 3 (SOC396).

⁵⁰⁰ *Ibid.*

⁵⁰¹ First Economics Real Input Price Inflation (SOC395)

⁵⁰² September 2018 Plan, page 102 (SOC001).

⁵⁰³ Securing Cost Efficiency Technical Appendix, page 34 (SOC243).

⁵⁰⁴ Europe Economics Real Price Effects and Frontier Shift (January 2018) (SOC397); Europe Economics Real Price Effects and Frontier Shift - Updated Assessment (July 2019) (SOC398) and KPMG Totex Framework Innovation / Efficiency Gains (SOC399).

(iv) whether exposure to the input price is outside management control.

- (830) On the basis of its analysis, Europe Economics concluded at Initial Assessment of Business Plans (IAP) that there was no compelling case to allow for any RPEs in wholesale costs.⁵⁰⁵ Ofwat accepted this conclusion.⁵⁰⁶
- (831) In response to the IAP companies and their advisors offered various arguments against Europe Economics' analysis. Europe Economics accepted a number of those arguments and made changes to its assessment in a number of areas. The outcome of its revised assessment was that there was now a potential allowance to be made for labour and energy, depending on the reliance placed on forecasts made by the OBR on wages and the Department for Business, Energy & Industrial Strategy (BEIS) on energy.⁵⁰⁷
- (832) On the basis of Europe Economics' revised assessment, Ofwat decided at DD that it should make an RPE adjustment for labour. However, it acknowledged that the reliability of OBR forecasts of wages is uncertain and that it would therefore apply a true-up at the end of the price control period to adjust for the difference between the wage growth rate assumed in its DD and outturn wage growth.⁵⁰⁸ By doing this, Ofwat transferred the input price risk for labour to customers. However, it was inconsistent in not allowing similar true-ups for other cost types and leaving the price risk with companies.
- (833) At DD, Ofwat decided not to make an RPE adjustment for energy on the grounds that energy forecasting is very uncertain, energy is a less material component of companies' costs than wages, energy costs are partially captured in CPIH and there is scope for management control.⁵⁰⁹
- (834) At FD Ofwat continued to make an allowance for Real Price Effects for labour costs only, based on OBR real wage forecasts. Ofwat confirmed it would apply an *ex-post* true up on the labour RPE at PR24. It increased the proportion of costs accounted for by labour costs from 35% to 38.6%.⁵¹⁰

3.2 Adjusting for future productivity improvements

- (835) At IAP Ofwat applied a future productivity improvement of 1.5% per year for base wholesale costs.
- (836) Ofwat's adjustment was informed by analysis by Europe Economics and KPMG. Europe Economics' estimates of continuing productivity gains were based on its total factor productivity analysis of comparator sectors using data from the EU KLEMS database. They considered productivity over the periods 1980–2007 and 2010–2014 to cater for the potentially distorting effect of economic upturns and declines. They produced two range estimates for continuing productivity improvement – one for base and one for total expenditure – and recommended using numbers towards the upper end of these ranges.⁵¹¹
- (837) The KPMG study also produced estimates of continuing productivity improvement using similar analysis to Europe Economics but its main focus was to consider the potential improvements from the totex and outcomes framework. To do this it examined the impact on cost outperformance in sectors that have introduced versions of the totex and outcomes framework, the impact of significant structural and regulatory changes, and case studies from water companies and the supply chain on the impact of the totex and outcomes framework in practice. On the basis of its work, KPMG produced a range estimate for the total continuing productivity improvement it considered achievable over the 2020-2025 period,

⁵⁰⁵ Europe Economics Real Price Effects and Frontier Shift, page 84 (January 2018) (SOC397).

⁵⁰⁶ Securing Cost Efficiency Technical Appendix, page 12 (SOC243).

⁵⁰⁷ Europe Economics Real Price Effects and Frontier Shift - Updated Assessment, page 81 (SOC398).

⁵⁰⁸ Securing Cost Efficiency Technical Appendix, pages 28 and 29 (SOC243).

⁵⁰⁹ Securing Cost Efficiency Technical Appendix, page 131 and 132 (SOC243).

⁵¹⁰ Securing Cost Efficiency Technical Appendix, page 187 and 188 (SOC243).

⁵¹¹ Europe Economics, Real Price Effects and Frontier Shift, page 81 (January 2018) (SOC397).

comprising 'regular' productivity improvement plus 'special' improvement attributable to totex and outcomes.⁵¹²

- (838) In its DD Ofwat set out the various arguments companies and their advisors had offered on the continuing productivity assumptions used at IAP. Ofwat concluded that nothing that the companies or its consultants had said or other available information had made it change its assumptions and that the continuing productivity assumption would remain at 1.5% p.a.⁵¹³
- (839) In its FD Ofwat reduced the challenge from 1.5% pa to 1.1% p.a., citing evidence of lower levels of company outperformance in the current price control period and the stretch on outcomes, particularly leakage. However, it simultaneously broadened the scope of costs to which this challenge would apply and the point in time at which it would apply from as discussed below.⁵¹⁴

3.3 Application of frontier shift adjustments

- (840) At IAP and DD Ofwat applied its frontier shift adjustments to all modelled, base wholesale costs. It did not apply them to unmodelled base costs, retail costs or enhancement costs because its assessments for these cost types had been done in such a way that frontier shift adjustments had already been captured.
- (841) At IAP and DD Ofwat applied its frontier shift adjustments from 2020/21.
- (842) At FD Ofwat extended the scope of costs to which the challenge was applied. Specifically, the following costs were now subjected to frontier shift:
- (i) all wholesale Botex Plus costs (it was previously modelled Botex Plus costs only); and
 - (ii) the allowances for WINEP in the round and new meter installations.
- (843) Furthermore, at FD Ofwat applied its frontier shift adjustments from 2019-2020 onwards.

4 Anglian's challenge to Ofwat's frontier shift adjustments

4.1 Adjusting for RPE

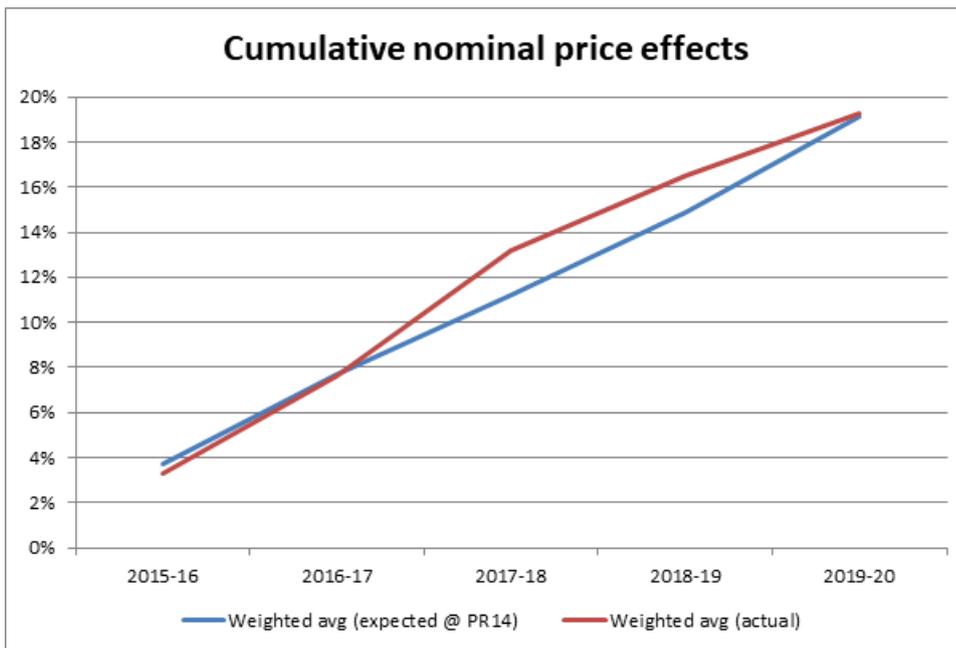
- (844) Anglian disagrees with the framework which Europe Economics applied in order to derive its RPE forecasts. For example, it does not understand the relevance of historical volatility in input prices or why Europe Economics considers no allowance needs to be made if water companies and households are spending comparable percentages on a particular input type.
- (845) Anglian considers that Ofwat should have made a thorough assessment of future RPE adjustments using the established three-step methodology which regulators have used over the last decade.
- (846) Anglian does not understand why Ofwat has assumed that different parties bear the risk of price changes for different inputs. By including an end-of-period true-up for wages, Ofwat has transferred the risk of labour input price changes to customers. By not including a similar true-up for other inputs Ofwat has left the risk of input price changes with companies.
- (847) Anglian's record of forecasting RPE has been good. Figure 58 below looks back to PR14 and compares Anglian's forecasts then with the subsequent outcomes. Anglian considers its PR19 forecasts to be equally robust.

⁵¹² KPMG Totex Framework Innovation/Efficiency Gains, pages 133 and 134 (SOC399).

⁵¹³ Securing Cost Efficiency Technical Appendix, pages 27 to 29 (SOC243).

⁵¹⁴ Securing Cost Efficiency Technical Appendix, pages 115 and 116 (SOC243).

Figure 58 Anglian's forecasted RPE v actual prices



Source: Anglian

4.2 Adjusting for future productivity improvements

(848) Anglian disagrees with Ofwat's estimate that water companies can achieve productivity improvements of 1.1% pa during the 2020-2025 period. It considers that its own forecast of 1.0% pa was already exceptionally challenging in the light of the very low levels of productivity improvement that have been observed in the UK economy over the last decade, and does not accept arguments that water companies can be immune from these underlying forces. In particular, Anglian does not agree with Ofwat's assumption (based on the analysis by KPMG) that water companies can achieve a 'special' productivity increase from the totex and outcomes framework on the basis of flimsy evidence from the energy industry, selective use of comparator sector data and incongruity with productivity evidence in the rest of the economy. Moreover, the FD undermines Ofwat's totex policy, as it reintroduces a capex bias as a result of the misallocation of costs between capex and opex, as set out in **Chapter E.5: misallocation of opex and capex**.

(849) Anglian also disagrees with Europe Economics' analysis of historical productivity improvements which informed Ofwat's decisions. It considers that Europe Economics was highly selective in its choice of comparator sectors, using evidence only from sectors where productivity improvements have been greater. Furthermore, it considers Europe Economics' analysis was misleading by selecting as a base year 2009, when economic activity was at its most depressed following the global financial crisis.

4.3 Application of frontier shift adjustments

(850) Anglian disagrees with the application of frontier shift adjustments to cost allowances which already include such adjustments. Anglian therefore disagrees with the extended application which Ofwat made at FD. Ofwat's allowances for unmodelled base costs and enhancement costs were based on companies' future forecasts which already include frontier shift adjustments. Applying a further adjustment constitutes a clear double count.

(851) At FD Ofwat applied its own frontier shift adjustments to companies' costs from 2019-2020. Having consulted with First Economics on the point, Anglian agrees with Ofwat's position in the FD that 2019-

2020 is the appropriate starting point for the frontier shift for both opex and capex and therefore does not dispute this element.

5 Request to the CMA

(852) Anglian requests that the CMA:

- (i) applies an appropriate methodology for assessing the impact of RPEs on Anglian's costs;
- (ii) identifies a realistic productivity improvement assumption;
- (iii) is consistent in its allocation of RPE risk between companies and customers; and
- (iv) ensures that no double count occurs across unmodelled base costs and the relevant categories of enhancement costs.

Chapter E.5: Misallocation of Opex and Capex

1 Overview

- (i) Ofwat's Final Determination delivers insufficient opex and capex, as set out in previous chapters. Compounding this problem, as a result of an error, Ofwat specifically misallocates too little to opex within this total: approximately £157 million of opex is incorrectly characterised as capex.
- (ii) Opex and capex are recovered through different timescales where opex is generally recovered through pay as you go (PAYG) in the same period. This misallocation means that there will be less revenue in AMP7 than would result from a natural PAYG rate. When assessing financeability Ofwat did not consider the actual opex that Anglian would incur. In fact, costs are more front-loaded than Ofwat assumed, allowing it to wrongly conclude that the notional company would be financeable.
- (iii) Ofwat disallowed more capex than opex in part because it shifted expenditure related to growth enhancement to a new 'Botex Plus' model, and disallowed a significant proportion of the expenditure that Anglian proposed for growth, which was very capital intensive.
- (iv) However, Ofwat then assumed that the disallowed network Botex Plus expenditure⁵¹⁵ of c.£420 million was nearly equally split between opex and capex. In reality, the majority of the costs disallowed were capex. This resulted in c.£157 million of opex being incorrectly characterised as capex.
- (v) As a result of the misallocation, Anglian will have to distort its operational decisions in order to avoid further worsening its credit metrics and spend only the allowed opex. On top of the overall cost challenge, this error reduces the opex available to meet the range of requirements in the operation of the business. Decisions that should be made on the basis of the most efficient whole life cost solution, will instead be subject to a capex bias. To take just one example, Anglian are having to reduce the number of front-line water technicians employed.
Request to the CMA
- (vi) Anglian requests that the CMA remedy this, ensuring that the accounting drivers of cost are appropriate reflected in Anglian's cost recovery.

(853) The remainder of this chapter is structured as follows: Section 2 provides an overview of the difference between cost assessment and cost recovery; Section 3 sets out Ofwat's opex/capex allocation at Final Determination (FD); Section 4 explains how the FD results in a significant misallocation; Section 5 sets out the negative impact on financeability; Section 6 explains how Ofwat's approach is inconsistent with the 'totex' regime; Section 7 sets out the long-term impact on customers and constrained investment decision-making of this misallocation; and Section 8 provides some conclusions and the request to the CMA.

2 Cost assessment and cost recovery

(854) The two key stages of the regulatory price control are cost assessment and cost recovery.

⁵¹⁵ Water Network and Wastewater Network.

2.1 Cost assessment

- (855) Ofwat first sets the totex allowance for each company. This is the efficient level of costs that a company can recover from its customers. Figure 59 below sets out the four elements of the cost assessment.
- (856) Each of these elements is assessed on a totex basis and there is no distinction made on whether the costs are opex or capex in nature. For example, the econometric model used to calculate modelled base costs only includes cost drivers and coefficients that are related to totex costs. Any change in the value of a cost driver will lead to a change in the level of calculated 'efficient' totex, it will not show whether the change in totex should be opex or capex.

Figure 59 Building blocks of totex assessment



Source: Securing Cost Efficiency Technical Appendix, page 11 (SOC243)

2.2 Cost recovery

- (857) Allowed costs may be recovered in two ways: (a) PAYG where customers pay for the costs in the same year that they are incurred, or (b) non-PAYG where the costs are added to the RCV and recovered over a longer period through the RCV run-off. The former is mainly used to fund opex costs and the latter mainly used to fund capex costs.
- (858) The determination of the PAYG rate, i.e. the allocation of cost recovery between PAYG and non-PAYG is carried out separately from the cost assessment. While cost assessment models have a single set of cost drivers for the entire industry, Ofwat sets company-specific PAYG rates to reflect individual companies' opex / capex profiles.
- (859) Companies propose PAYG rates in their business plans based on the underlying split of opex and capex of their proposed totex. Where there is a gap between Ofwat's allowed totex and the Company's proposed totex, use of these business plan rates will not be appropriate. Rather, Ofwat must consider how the allowed totex is split between opex and capex to determine the 'natural' PAYG rate. In other words, Ofwat needs to ensure that opex is recovered through PAYG and capex is added to the RCV to be recovered in the long-term.

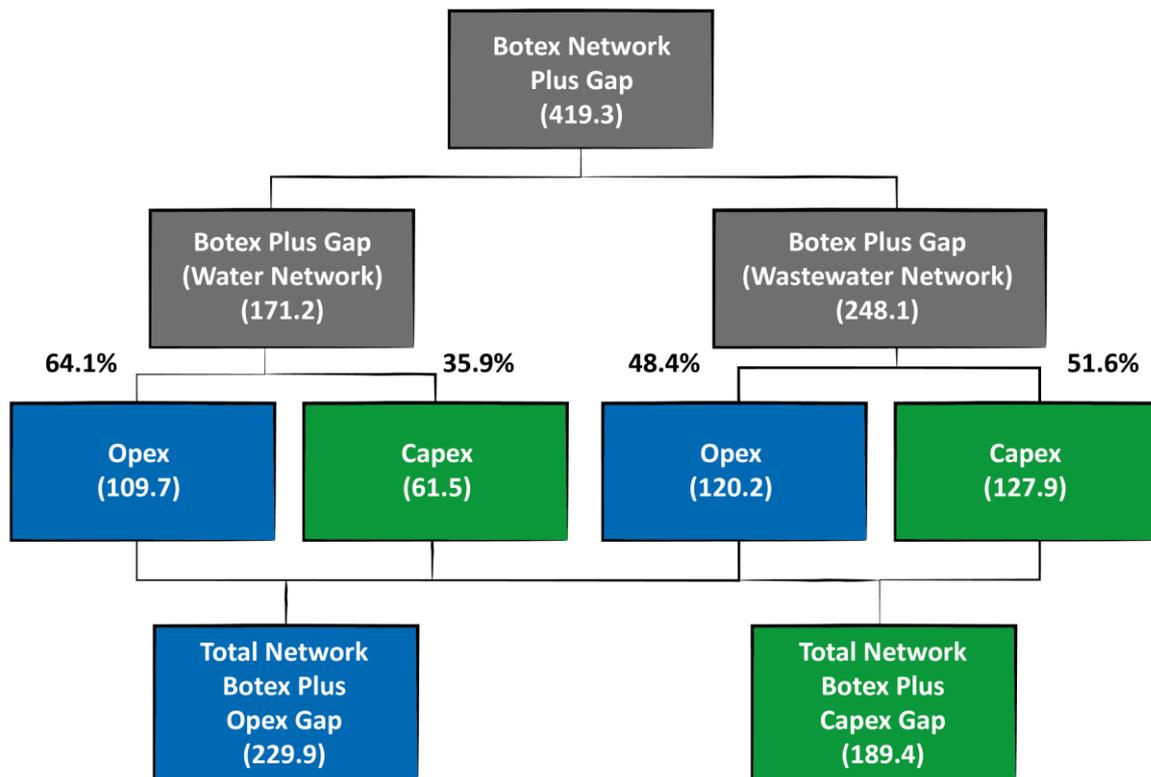
3 Ofwat's opex/capex allocation at FD

- (860) At FD, Ofwat's cost assessment of many companies (including Anglian) resulted in a significant reduction in the totex allowance from the levels proposed in the companies' business plan (the '**totex gap**'). Ofwat had also changed its approach to cost assessment at DD, shifting a number of elements related to growth from the enhancement into a new 'Botex Plus' model, thus mixing Botex and growth expenditure.
- (861) To determine cost recovery, Ofwat considered how to allocate the totex gap between opex and capex. In other words, it assessed by how much its FD reduces each company's proposed opex and capex.
- (862) At FD, Ofwat separately considered the disallowance to Botex Plus expenditure (the '**Botex Plus gap**') and enhancement expenditure (the '**Enhancement gap**'). It calculated the opex/capex split for each of

Botex Plus and enhancement expenditure based on data from companies' business plans, and then applied the splits to the Botex Plus gap and Enhancement gap.⁵¹⁶

- (863) In relation to the Botex Plus gap, Ofwat used a weighted average opex / capex split (i.e. based on proposed expenditure for base costs and growth costs). For this average not to lead to distortions, one of the two assumptions below must hold: either (a) the opex / capex split for the allowed base and growth expenditure must be the same; or (b) Ofwat must apply the same cost challenge percentage to both base and growth expenditure.
- (864) As set out in detail in Section D, neither of these assumptions hold true for Anglian. Growth costs have a significantly higher proportion of capex (c.98%) than base costs (c.33%). Further, the cost challenge in relation to growth was c.£318 million, compared to the total Botex Plus gap of c.£420 million (i.e. 75.7%) while the share of growth costs of total network Botex Plus cost amounted to c.19%.
- (865) In the case of Anglian, Ofwat disallowed c.£419.3 million of network Botex Plus expenditure. (£171.2 million for the water network and c.£248.1 million for the wastewater network). Figure 60 below shows the proportions (i.e. the weighted averages) applied by Ofwat to allocate this Botex Plus gap between opex and capex. These amounts were then subtracted from Anglian's proposed Botex Plus opex and Botex Plus capex.

Figure 60 Ofwat's allocation of the Botex Plus gap



Note: Figures are in (£m). Ofwat's allocation was based on differing proportions for the Water and Wastewater networks in line with Anglian's Plan

⁵¹⁶ See Anglian Opex / Capex spreadsheet (SOC401); and Anglian Opex / Capex spreadsheet narrative (SOC402). This shows in detail the opex/capex rates that Ofwat used for enhancement and Botex Plus expenditure (and the use of differing rates across different networks).

4 Ofwat's approach resulted in a significant misallocation of opex as capex

- (866) Ofwat implicitly acknowledged the need to apply the natural rate to determine PAYG. It separated the assessment of Enhancement costs from base costs, noting that Enhancement had a greater proportion of capex, and applying the opex/capex split to the totex gap as a whole could lead to the '*challenge being more evenly split between opex and capex than the companies' expenditure profiles would suggest it should be*'.⁵¹⁷
- (867) However, Ofwat did not adequately account for the fact that the same logic applies to Botex Plus costs: the growth expenditure included in the Botex Plus model had a significantly higher proportion of capex (c.98%) than the base costs (c.33%). For companies where Ofwat's cost challenge on growth expenditure was higher than its challenge on base expenditure, this approach inevitably led to a misallocation of opex as capex.
- (868) This has particularly severe consequences for Anglian which had initially proposed significant growth expenditure (c.£720 million) but a significant amount (c.£318 million) was disallowed at FD. As set out in Table 26 below, this constitutes a significant proportion of the challenge on network Botex Plus expenditure.

Table 26 Botex / Growth split of the Botex Plus gap

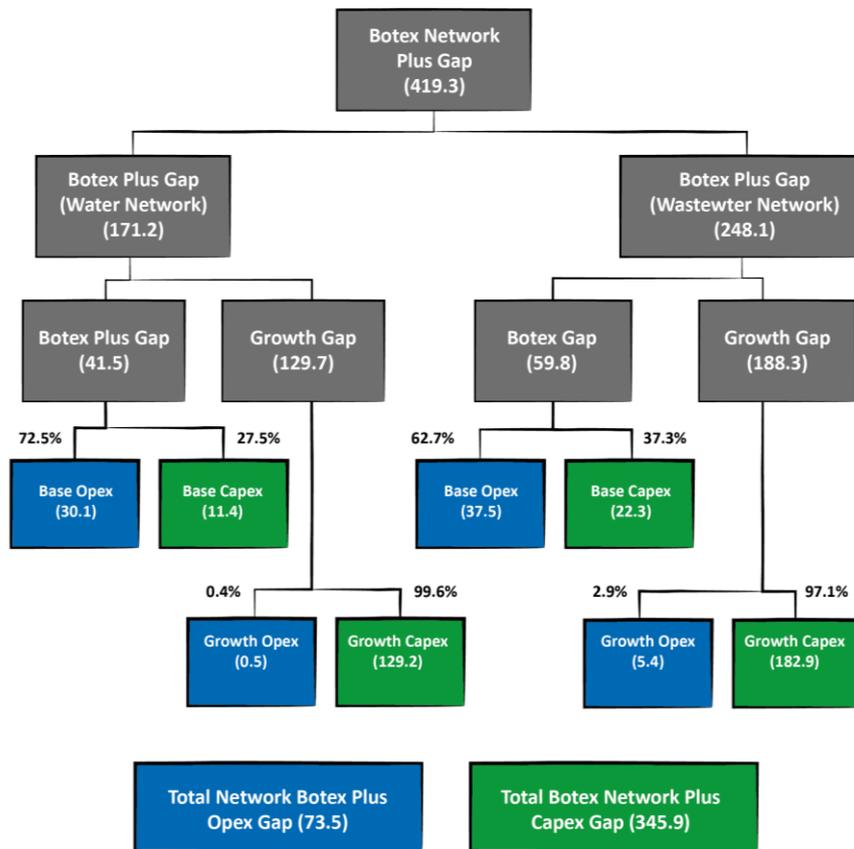
	Base Gap (£m)	Growth Gap (£m)	Base Plus Gap (£m)
Water Network	(41.5)	(129.7)	(171.2)
Wastewater Network	(59.8)	(188.3)	(248.1)
Total	(101.3)	(318)	(419.3)

Source: Anglian, Opex/Capex spreadsheet (SOC243)

- (869) Figure 61 below sets out Anglian's view of the correct allocation of the Botex Plus gap – calculated by considering the opex/capex splits for base and growth separately within the Botex Plus cost bucket. Taking into account the fact that growth costs are predominantly (c.98%) capex while base costs have a significantly lower proportion of capex (c.33%), Anglian's calculations show that the cost challenge at FD results in disallowing c.£73.5 million of opex and c.£345.9 million of capex.

⁵¹⁷ Securing Cost Efficiency Technical Appendix, page 152 (SOC243).

Figure 61 Anglian's view of the correct allocation of the Botex Plus gap



Source: Anglian, Opex / Capex spreadsheet (SOC401)

Note: Figures are in (£m). Anglian has (in line with Ofwat) considered the Water and Wastewater networks separately. It has then separated the growth and base costs, applying different opex / capex proportions

(870) Table 27 below sets out a comparison between Ofwat's allocation (Figure 60 above) and Anglian's allocation (Figure 61 above) of the Botex Plus gap. To reconcile Ofwat's allocation in the FD with the correct allocation, the CMA needs to increase Anglian's opex allowance by c.£157 million and reduce the capex allowance by the same number.

Table 27 Allocation of the Botex Plus gap

	Ofwat's allocation (£m)	Anglian's allocation (£m)	Difference (£m)
Opex	(229.9)	(73.5)	156.5
Capex	(189.4)	(345.9)	(156.5)
Totex	(419.3)	(419.3)	0

Source: Anglian, Opex/Capex spreadsheet (SOC401)

(871) Ofwat conducted a 'soft consultation' before the FD, where it set out its proposed approach. Both Anglian and Wessex Water raised concerns that the challenge on growth costs is primarily related to capex and by using the same challenge on base and growth, the impact on opex may be understated.⁵¹⁸

⁵¹⁸ Securing Cost Efficiency Technical Appendix, page 153 (SOC243).

- (872) However, Ofwat did not agree that base and growth expenditure should be considered separately for the purpose of calculating the opex/capex split. It made the following points:
- (i) Base and growth expenditure are modelled together since they have similar cost drivers and to minimise cost allocation inconsistencies between them. Ofwat has a single challenge for both base and growth costs.
 - (ii) Ofwat has changed aspects of its approach to modelling base and growth costs, making an additional allowance for high-growth companies, and this may narrow the challenge on growth costs.
 - (iii) Since Ofwat does not set separate base and growth allowances, it does not consider it appropriate or feasible to split the allowance to separately calculate the split of opex and capex.⁵¹⁹
- (873) Ofwat's reasoning is insufficient for the following reasons:
- (i) Ofwat conflated the cost assessment and cost recovery elements of the price control. The calculation of the current opex/capex split does not impact cost allocations – it is only related to revenue recovery. Having similar cost drivers, as assumed by Ofwat, does not impact whether the costs are related to opex or capex.
 - (ii) While Ofwat has made some methodological changes that may narrow the challenge on growth costs, these changes do not remedy the misallocation of opex and capex.
 - (iii) Since Ofwat has already calculated the allowance attributable to growth, it would be easy to address the misallocation by considering separately the appropriate opex/capex split for base and growth costs.
- (874) There is no justification for Ofwat's simplistic approach which has resulted in creating a very significant artificial capex bias.

5 Ofwat's misallocation impacts Anglian's financeability

- (875) Ofwat's financeability assessment, which has not reflected its opex/capex misallocation has significantly overstated the revenues available to service debt in AMP7. The calculation of key financial metrics (in particular, adjusted cash interest cover ratio (AICR) and funds from operations (FFO/Net Debt) have not accounted for the additional £157 million of opex that Anglian will actually have to spend. This has allowed Ofwat to conclude that Anglian's notional company will be able to attain a Baa1 rating (and is therefore financeable) in addition to making other assumptions such as PAYG advancements from future price controls.
- (876) As set out in **Chapter J: Financeability** and the Oxera Financeability Report Anglian's actual financial ratios will be lower than the minimum required for a Baa1 rating.
- (i) Anglian's correct AICR (accounting for the misallocation) will be 1.31x rather than the 1.50x derived by Ofwat (where 1.50x-1.70x is the range required for a Baa1 rating)
 - (ii) Anglian's correct FFO/Net Debt ratio (accounting for the misallocation) will be 8.90% rather than the 9.49% derived by Ofwat (where 10-15% is the range required for a Baa1 rating).⁵²⁰
- (877) The misallocation, in combination with the other factors set out in **Chapter J: Financeability** impacts Anglian's financeability and if not remedied will lead to Anglian's downgrade. Alternatively, Anglian will

⁵¹⁹ Securing Cost Efficiency Technical Appendix, page 153 (SOC243).

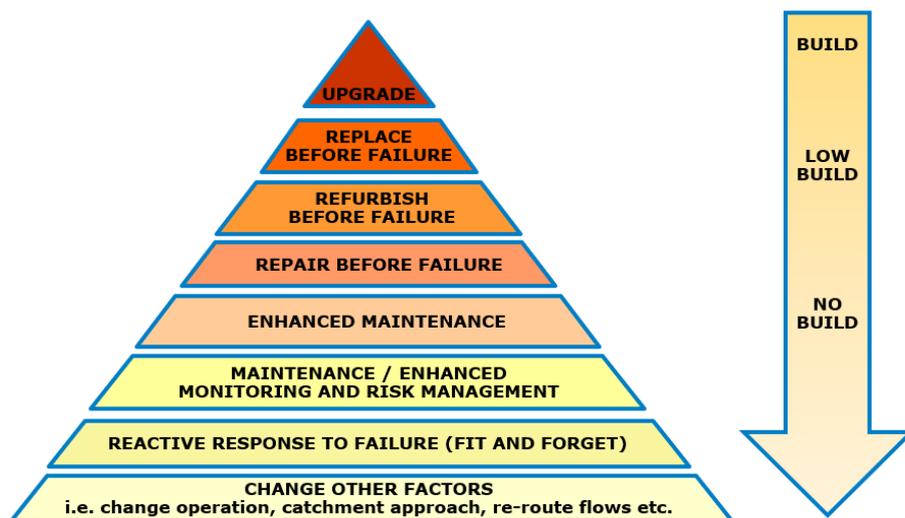
⁵²⁰ See Oxera Financeability Report, tables 6.1 and 6.3 (SOC448).

have to make a series of artificial choices to reduce its opex in order to meet its target ratings and stay financeable.

6 Ofwat's misallocation is inconsistent with the regulatory 'totex' framework

- (878) In previous price reviews Ofwat has taken specific action to remove the misalignment between a company's incentive to spend on different types of expenditure. Central to this was the equalisation of incentives relating to both opex and capex such that the perceived incentive to invest in capital expenditure (i.e. a 'capex bias') was removed. This created a regulatory framework focused on totex with associated outperformance/underperformance incentives around totex replacing previously separate incentives for opex and capex.
- (879) Associated with the move to totex was Ofwat's transition from an output-based regulatory framework to one which focused on the outcomes delivered to customers. For example, Ofwat moved from prescribing a checklist of outputs (which were generally capital solutions) to a focus on outcomes – i.e. the focus being on the benefit delivered by such as an improvement in the environment or improved resilience for customers by a reduction in the risk of an extreme event (e.g. the number of customers on a single source of supply). This was one of the most fundamental reforms of the PR14 regulatory framework which Anglian fully supported.
- (880) In combination, these reforms presented the realigned incentive for companies to select optimal whole life cost, long-term solutions to deliver an outcome without the previous regulatory constraint of needing to demonstrate a specific output nor the incentive to invest in capex as opposed to opex solutions.
- (881) Anglian fully embraced greater freedom and flexibility to optioneer solutions that maximised the benefits to customers and the environment. Aligned with the movement to totex and outcomes, Anglian fundamentally redesigned internal governance and optioneering processes to align with this new flexibility and 'totex thinking'. It also removed previous governance which prioritised capex over opex solutions.
- (882) Figure 62 below demonstrates the range of solutions considered under a full totex framework:

Figure 62 Range of solutions considered under a full totex framework



Source: Anglian

- (883) For example, a company could deal with faulty screens by deploying an opex maintenance solution to check and clean the screens by hand every week, rather than the capex solution of replacing the

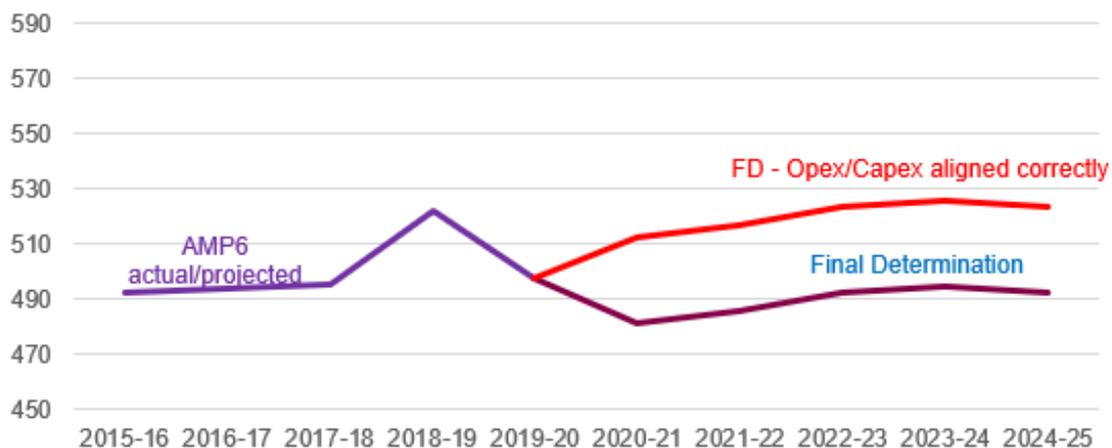
screens. This would deliver the same outcome, but with lower whole life costs. Further, opex solutions often have lower carbon, environmental and customer impact.

- (884) This optioneering process remains central to Anglian's investment decision-making process and is reflected in its business plan investment development process.
- (885) Ofwat's general approach to cost assessment (See **Chapter E.1: Botex and Chapter E.2: Growth and Chapter E.3: Enhancement**) combined with this misallocation reduces the opex allowance and represents a significant step back from enabling the most efficient, whole life cost totex solutions to be delivered for the long-term benefit of customers and the environment.
- (886) This issue is further compounded by the suite of outcome delivery incentives (ODIs) which focus on the output (e.g. Interconnector ODI, Cyber ODI) rather than emphasising the outcome for customers and the environment – i.e. greater resilience or reduced risk.
- (887) Finally, the shift from 'totex' incentives creates a clear inconsistency between this approach and other parts of Ofwat's FD; specially the justification of a stretching frontier productivity assumption (1.1%p.a) which Ofwat justifies in part as a consequence of the totex regime.⁵²¹

7 Ofwat's misallocation will have a long-term impact on the business and customers

- (888) Figure 63 below sets out the gap between the correct allocation of opex / capex and the actual allocation in the FD. The c.£157 million of opex misallocated is equivalent to c.£32 million per annum in nominal prices or around 20% of total salary costs in Anglian's opex budget.

Figure 63 Operating costs AMP6 v AMP7 (2017-2018 prices)



Source: Anglian

- (889) This reduces the allowed opex available to meet a set of requirements in the operation of the business. The misallocation of opex, combined with the overall cost challenge, results in a fundamental reduction in the full range of opex solutions that can be effectively used to deliver a specific outcome. Decisions that should be made on a totex basis (i.e. seeking the best whole life cost choice to deliver an outcome) will be subject to a capex bias as a result of this artificial pressure on opex.
- (890) To remain financeable and mitigate the opex shortfall, Anglian has an incentive to focus on short-term expenditure reduction to attempt to live within the means of the FD. This will reduce the quality of service

⁵²¹ See **Chapter E.4: Frontier shift**.

provided to customers and increase the certainty of needing greater levels of expenditure in future periods to recover from this harm.

- (891) For example, Anglian is having to reduce the number of front-line water technicians employed. This will reduce opex expenditure by c.£480,000 per annum, or c.£2.4 million across AMP7. The net result anticipated is a decrease in asset conditions, a resultant increase in future asset failure rate / breakdowns, and subsequent service risk for customers. This may manifest in increased interruptions to supply, unplanned outages of assets and water quality failures through deterioration in treatment performance. The estimated reactive capex expenditure resulting from the consequential reduction in preventative maintenance is £1.4 million per annum, or £7.2 million across AMP7.

8 Conclusion and request to the CMA

- (892) The FD resulted in a reduction in the opex available to meet a range of requirements in the operation of the business. Ofwat did not account for this misallocation in its financeability assessment. In calculating key financial metrics, Ofwat did not consider the actual opex that Anglian would incur and consequent lower revenues. This, in addition to some other assumptions, allowed Ofwat to conclude that the notional company would be financeable.
- (893) In reality, Anglian will have an incentive to make a series of artificial choices in order to avoid further worsening its financial metrics. The misallocation of opex, combined with the overall cost challenge, significantly reduced the full range of opex or capex solutions available to the Company. In endeavour to remain financeable, decisions that should be made on the basis of the whole life cost, will instead be subject to a capex bias.
- (894) Anglian request that the harm created as a result of Ofwat's misallocation at FD be remedied, ensuring that the accounting drivers of costs are appropriately reflected in Anglian's cost recovery.

Chapter F: Cost service disconnect

1 Overview

- (i) Underlying Ofwat's approach to cost allowances and to outcome delivery incentives (ODIs) is a belief that there is no trade-off between cost reduction and quality. Ofwat argues that companies can perform well on both but has not provided sufficient evidence to demonstrate that this is the case. By adopting this position, Ofwat unduly benchmarks high-quality networks against the costs of low-quality networks, and then disallows the additional cost of the former as 'inefficiency'.
- (ii) Ofwat was able to advance only very tenuous evidence in support of its surprising view that there is no such trade-off: a weak correlation between the ranking of a company by its measured cost efficiency and its ranking on an average of quality measures. Ofwat provided details of its analysis only in March 2020. Anglian has now reproduced this and finds it to be thoroughly unreliable. This is particularly worrying given the weight Ofwat has placed on this analysis and the importance of the issue for the sector as a whole.
- (iii) Economic theory, common sense and regulatory precedent all suggest that higher quality – like any valued output – is generally not free. Companies will increase output to the point at which the marginal cost of increased quality makes further increases uneconomic. Regulatory systems contain incentives for leakage reduction and other measures of quality, so if improvement were costless, companies would logically improve them without end. Historical evidence and planning tools used in the sector all reflect the rising marginal cost of further quality improvement, which Ofwat used to recognise but does not in the Final Determination.
- (iv) It costs more to create and maintain a high-performing network than a mediocre one and it costs more to push the frontier of what is possible than merely to catch up. Pushing the frontier benefits customers across the country, as it shows what can be achieved and provides a path for others to follow. By undervaluing quality, Ofwat's approach not only fails to allow high-performing companies sufficient funds to properly finance their functions, it also contains a long-run incentive for mediocre performance.
- (v) As a high-performing company, Anglian is particularly exposed to this, especially on leakage for which it is the sector leader. Anglian has had to incur costs, both in terms of people and equipment, in order to achieve the frontier position it occupies on leakage. Anglian's plans to further reduce leakage and improve the resilience of the network are similarly not costless. Anglian has provided ample evidence of this to Ofwat.
- (vi) Ofwat's failure to recognise the linkages between cost and quality, compounded with other problems in assessing Botex, compromises Anglian's ability to meet its statutory obligations and is inconsistent with Ofwat's duties to secure long-term resilience, further the consumer objective, secure that water companies can finance the proper carrying out of their statutory functions and contribute to the achievement of sustainable development.
- Request to the CMA**
- (vii) Anglian requests that, the CMA correct Ofwat's systematic failure to recognise there is a relationship between the levels of expenditure incurred by Anglian and the level of service it provides to customers and the environment. Anglian requests that the CMA therefore set appropriate levels of expenditure in the Redetermination, whilst maintaining appropriate targeted incentives for continued improvement.

(895) This chapter is structured as follows: Section 2 provides an overview of how Ofwat's Final Determination (FD) creates a cost/service disconnect; Section 3 analyses why Ofwat's approach is flawed; Section 4 explains that Anglian's Plan is built upon the efficient costs of improving service; and Section 5 provides some concluding remarks.

2 Introduction

(896) Anglian believes that the FD fundamentally fails to recognise the costs of reaching and maintaining high-quality performance, and the additional costs required for an already high-performing network to improve from this position to push the frontier further out. Ofwat's assertion that base cost allowances fund upper quartile performance assumes that there are companies that deliver upper quartile performance in all service areas within their cost allowances. However, no such company exists. It is equivalent to defining the car one might want as being as fast as a Porsche, as fuel efficient as a Prius and as easy to park as a Twingo, all for the price of a second-hand Ford Escort.

(897) Ofwat's core suite of Botex Plus models reflect this same unrealistic approach and includes no cost drivers relating to quality.⁵²² That is, the models omit key explanatory factors. Consequently, what Anglian views as costs required to deliver high-quality outputs to customers, at a price they are prepared to pay, Ofwat views simply as 'inefficiency'. As a result, Ofwat's position underestimates Anglian's efficiency.

(898) This is not a minor or accidental disagreement. It is not minor because it feeds into other areas of the price control review, such as the cost-sharing incentive rates.⁵²³ This underestimation of Anglian's efficiency also affects Ofwat's position on assessing growth costs (through the Botex Plus model) and Enhancement costs (through the company-specific efficiency challenge).⁵²⁴ Accordingly, the plans that Anglian drew up for accommodating the very rapid growth expected in its region whilst preserving its performance (plans that it has tested and revised to ensure efficiency) are again regarded by Ofwat as simply inefficient.

(899) Even the plans to deliver Anglian's statutory obligations under WRMP and some elements of WINEP have had a similar 'company-specific' efficiency factor applied to them, derived from the same Botex Plus modelling – and the same error, in Anglian's view.⁵²⁵ The FD also does not reflect Anglian's leading performance on leakage, the additional base cost needed to maintain this performance compared to other companies, and the increase in marginal costs of reducing leakage even further beyond this level.⁵²⁶

(900) This is not accidental, as Ofwat clearly states that it simply does not accept that maintaining high-quality, or achieving higher-quality, outputs comes at a cost.⁵²⁷ This contradicts economic theory, regulatory precedent, and substantial evidence from Anglian's own business. Moreover, it contradicts some of Ofwat's own analysis in PR19. In its FD, Ofwat estimated a number of alternative model specifications. Two of these models included the distance from the upper quartile 2024-2025 leakage target as a cost

⁵²² See also **Chapter E.1: Botex**

⁵²³ See also **Chapter D: Risk and return.**

⁵²⁴ See also **Chapter E.3: Enhancement.**

⁵²⁵ See also **Chapter E.3: Enhancement.**

⁵²⁶ See also **Chapter H: Leakage.**

⁵²⁷ Ofwat's Overall Stretch Appendix (SOC229).

driver. As a result of this modelling, Ofwat made a £50.2 million upward adjustment to Anglian's cost allowance of which £24.5 million relates to leakage.⁵²⁸

- (901) As noted below, Ofwat recognises that Anglian is a high-performing company. Customers across the country would benefit if other WASCs performed at a similar level to Anglian:
- (902) *'Anglian Water is currently delivering above average levels of performance in the sector. It is the best performing company on the service incentive mechanism in 2018-19, delivered UQ performance on leakage, water quality contacts and internal sewer flooding, and achieved a higher proportion of its performance commitments in 2018-19 than any other company.'*⁵²⁹
- (903) Yet Ofwat regards the costs Anglian has incurred to deliver this high performance as inefficiency. Anglian's costs do not fit with the 'average' company in Ofwat's Botex models, and the framework punishes this as inefficiency. This has led Ofwat to multiple errors in assessing Anglian's and others' costs but, more worryingly, sets very poor incentives for the sector as a whole in the long-term.

2.1 Ofwat's overall approach and why it matters

- (904) Before examining point-by-point how Ofwat's approach is incorrect, Anglian first considers Ofwat's overall position,⁵³⁰ which states: *'[b]etter outcome performance should not necessarily increase cost'*. Ofwat observed *'a positive relationship between cost efficiency and high service quality across companies'* since *'improvements to outcomes can be made by better management and operation of the business – improving both service and cost efficiency. Efficient and well managed companies should be able to improve both costs and outcomes'*.⁵³¹
- (905) In support of this surprising statement, Ofwat presents scatter charts within its Overall Stretch Appendix.⁵³² Here, it presents analysis purporting to show a weak positive correlation of (a) company rankings by historical cost efficiency and (b) company rankings by outcome performance. The positive correlation seems to show that better quality outcomes can be (and on average are) associated with lower costs. For example, the best-ranked company on cost efficiency was in the top half (ranked 7th out of 17) for outcome performance. Ofwat's published document provides little information on how the rankings were constructed. However, in response to a query from Anglian, Ofwat provided further details in an email of 5 March 2020⁵³³ and Anglian has been able to reproduce Ofwat's rankings. In brief:
- (i) The rankings for cost efficiency performance are based on the relative cost efficiency of companies using the Draft Determination (DD) models for the five-year period 2013/14 to 2017/18. Ofwat also clarified that re-running its analysis using the FD models for the period 2014/15 to 2018/19 would not change its conclusion.
 - (ii) The rankings for service quality performance are based on service quality performance as set out in the service delivery report for the period 2014-2015⁵³⁴ to 2018-2019.⁵³⁵ Ofwat measured average performance from 2014/15 to 2018/19 for six performance measures (leakage, supply

⁵²⁸ In its FDs, Ofwat estimated a number of alternative model specifications. Two of these models included the distance from the upper quartile 2024-25 leakage target as a cost driver. This outcome was averaged with results from other models which had nothing to do with quality of service, reducing the leakage impact by 75%. As a result of this modelling, Ofwat made a £50.2 million upward adjustment to Anglian's cost allowance for all the issues captured by the alternative models which £24.5 million of this attributable to leakage. So while some account was taken for Anglian's leading service performance, only its leakage performance was accounted for and only partially.

⁵²⁹ Ofwat's Third CMA Teach In, slide 13 (SOC353).

⁵³⁰ Ofwat's Overall Stretch Appendix (SOC229).

⁵³¹ As set out in Ofwat's Overall Stretch Appendix (SOC229).

⁵³² Ofwat's Overall Stretch Appendix (SOC229).

⁵³³ Ofwat's email to Anglian on comparing costs and service (SOC403).

⁵³⁴ Ofwat's 2014-15 Service Delivery Report (SOC265).

⁵³⁵ Ofwat's 2018-19 Service Delivery Report (SOC265).

interruptions, water quality contacts, SIM, internal sewer flooding and pollution incidents), ranked companies from 1 to 17 for each, averaged those ranks (for example, if there were only two measures, a company ranked 1 and 10 respectively would have an average rank of 5.5) and then ranked those 'average rank' scores (so if the 5.5 were fifth-highest, the company would rank 3).

- (906) This seems to Anglian to be an extraordinarily tenuous basis on which to base a regulatory determination that embodies a belief that '*[b]etter outcome performance should not necessarily increase cost*'.⁵³⁶ This belief has very significantly affected the outcomes of the period review, in a way that Anglian believes will be harmful for customers.
- (907) Service and cost are interrelated. However, in the FD Ofwat did not undertake an 'in the round' assessment of service and cost proposals. Anglian believes that companies' forward-looking business plans should reflect their customers' preferences for a level of service provided at an efficient price for that level of service. Where companies' historical performance is strong, and customers support maintaining this level in future, this should inform the level of costs customers pay. Maintaining good service and the standards against which the industry is judged by regulators and customers costs money. Conversely, customers should not pay for the recovery from poor performance or bad management decisions.
- (908) Ofwat's current sole reliance on econometrics does not reflect these interactions, because the quality of service provided is not included as an explanatory factor within Ofwat's core-suite of models.⁵³⁷ The risk is that poor performers are rewarded through the current approach while good performers are unduly penalised.
- (909) The risk of the current situation is a simple one. Cost allowances derived in a way that do not cover the expectations of arbitrarily stretched performance ODIs will, in future, present companies with the dilemma of whether (a) to invest further beyond their allowances in order to meet these performance commitment levels (PCLs) and to avoid penalties under the ODI framework, detracting funds from elsewhere; or (b) whether simply to accept the penalty. It is unclear whether this is the genuine policy intent from Ofwat.

3 Flaws in Ofwat's approach

- (910) Ofwat's conclusion that improving to the future forecast upper quartile level of performance does not have expenditure or risk implications (i) is at odds with economic theory and regulatory precedent; (ii) is insufficiently substantiated; (iii) is at odds with historical evidence; and (iv) does not account for differences in service levels between companies.

3.1 Ofwat's cost/service disconnect is at odds with economic theory

- (911) Economic theory (as well as common sense) suggests that valuable and higher quality services, are not generally available for free. The phrase 'there is no such things as a free lunch' captures the point succinctly. It does not mean there are never opportunities to get something for nothing, just that in normal circumstances those opportunities will already have been taken. In markets in which firms sell their output, they can presumably sell more or increase price if they provide higher quality, so they will increase quality up to the point where marginal increases in quality would require a higher cost than

⁵³⁶ As set out in Ofwat's Overall Stretch Appendix, page 6 (SOC229).

⁵³⁷ As noted above, in its FDs, Ofwat estimated a number of alternative model specifications. Two of these models included the distance from the upper quartile 2024-25 leakage target as a cost driver. This outcome was averaged with results from other models which had nothing to do with quality of service, reducing the leakage impact by 75%. As a result of this modelling, Ofwat made a £50.2 million upward adjustment to Anglian's cost allowance for all the issues captured by the alternative models of which £24.5 million was attributable to leakage. So while some account was taken for Anglian's leading service performance, only its leakage performance was accounted for and only partially.

customers are prepared to pay. As a result, the quality levels actually observed will reflect rising marginal costs of quality. The incentives for regulated utilities are somewhat different, but the regulatory regime overall rewards higher quality (it would be perverse if it did not) so companies will always take any 'zero cost' opportunities for better quality and will continue improving quality until marginal costs rise to make it unprofitable.

- (912) Equivalently, if companies could easily maintain the same level of quality while reducing cost, they would do so – again until they reach the point at which there are no more such free lunches to be had. Presumably Ofwat agrees, as otherwise there would be no need for regulatory mechanisms to penalise reductions in quality, because companies would have no incentive to do that.
- (913) That is not to say that companies cannot find novel approaches that reduce cost and improve quality (although even that requires management talent and effort which needs to be incentivised). However, in noting that some low-cost companies are also high quality, and vice versa, Ofwat confuses movements along the supply curve (steadily increasing quality, with known technology, resulting in increasing marginal costs) with shifts in the supply curve (changes to the technology that could shift this trade-off). The former is the norm and the regulatory regime should reward it, while also allowing and encouraging the possibility that an innovative firm might be able to improve this trade-off as well.
- (914) In a regulatory context, the point that higher quality is costly is almost too obvious to cite any comprehensive literature, since it is rarely questioned. Among a great many examples, Jamasb et al (2012),⁵³⁸ an empirical investigation of the UK electricity industry, notes in the very first paragraph that '*However, the striving for cost savings may result in lower service quality as maintaining or improving upon a given level of quality of service is costly*'. Kwoka et al (2010) makes a similar point, studying the equivalent USA industry.⁵³⁹ In previous Price Reviews, Ofwat has itself actively captured the costs associated with enhancing the service provided to customers through an economic appraisal of the level of service each company should be investing to deliver based on the marginal cost and marginal benefit considerations.⁵⁴⁰ Furthermore, Ofwat's annual reporting requirements specifically request expenditure to improve service such as improving low pressure and reduction sewer flooding as Enhancement expenditure.⁵⁴¹
- (915) Ofwat considers that achieving upper quartile common performance commitments goes hand in hand with achieving or outperforming upper quartile base expenditure allowances. While this may be necessary to support Ofwat's predetermined view, it is not realistic, as it ignores the underlying marginal costs of achieving performance commitments (and those will legitimately differ across commitments and companies – a point that the CMA previously recognised in *Bristol (2015)*).⁵⁴²

3.2 Ofwat's cost/service relationship is poorly substantiated

- (916) To substantiate its blanket conclusion that improving to the future forecast upper quartile level of performance does not have expenditure (or risk) implications, Ofwat relied on a scatter plot of total efficiency and quality ranks (where 1 = worst performance and 17 = best performance), which is illustrated in Figure 64 below.

⁵³⁸ Jamasb et al (2012) (SOC404).

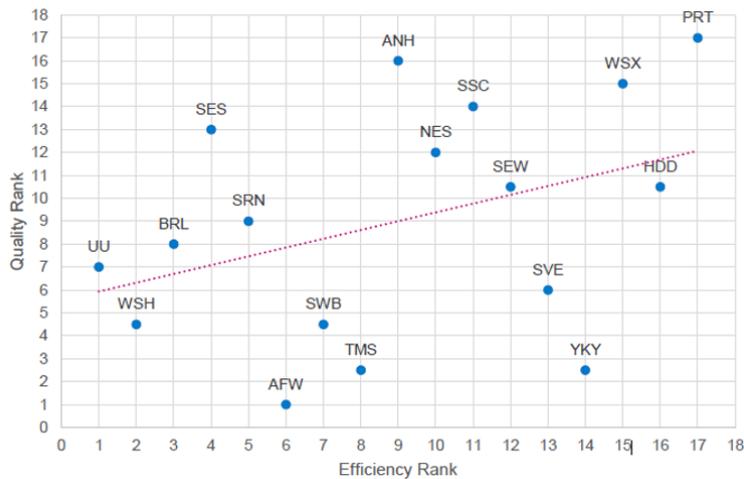
⁵³⁹ Ter-Martirosyan et al (2010) (SOC405).

⁵⁴⁰ See PR09 Final Methodology, Section 3.4 (SOC406). Justifying proposals for service and investment where Ofwat states: 'Each company should carry out an appraisal of the costs and benefits of its proposals using CBA appropriate to the scale and nature of its investment programmes'.

⁵⁴¹ See Tables 4L and 4M of Anglian's 2019 Performance Report (SOC292).

⁵⁴² '[L]ocal issues can significantly influence the true economic level of performance. Although the extent to which this is true will differ between metrics...', *Bristol (2015)*, Appendix 9.1 (SOC275).

Figure 64 Ofwat's scatter plot of total efficiency and quality ranks



Source: Ofwat's Overall Stretch Appendix, page 38 (SOC229)

(917) Anglian, together with ICS Consulting,⁵⁴³ has reproduced this analysis on the basis of information supplied by Ofwat in March 2020. The reconstruction of this chart shows that it is not a sufficiently robust piece of analysis on which to base policies with wide-ranging (malign) consequences for the sector.

- (i) Ofwat's assessment is based solely on historical outcome and cost levels, but is used to deny that cost allowances need to be made for *changes* to these levels. Even if Ofwat were correct that its scatter chart shows a robust positive correlation between historical levels of outcomes and costs (which Anglian strongly disputes, as explained below), that would still by no means demonstrate that a change to achieve a high score on outcomes in future would not require an increase in costs. Ofwat's scatter chart is simply irrelevant to that question.
- (ii) The statistical association is very weak and statistically insignificant. ICS's reconstruction of Ofwat's analysis shows that variations in efficiency rankings 'explain' (in a statistical sense) just 15% of the variation in quality ranking and the positive relationship is not statistically significant at the normal threshold of $p = 0.05$. This is also fairly obvious from the chart.
- (iii) Ofwat's approach is so sensitive to the method by which it is constructed that merely changing the approach from 1 = best and 17 = worst to 17 = best and 1 = worst changes the overall rankings for 15 out of 17 companies. This arises from an unjustifiable arithmetic shortcut in Ofwat's calculations. Some of the data points relate to water-only companies, which are rated on only the water metrics. Remarkably, the WASCs are therefore rated out of 10 for wastewater measures but out of 17 for water measures but the ratings out of 10 are simply combined with the ratings out of 17 and averaged. Consequently, it makes a difference whether 17 is considered 'best' or 'worst' as a wastewater rating cannot be 17. ICS has corrected for this, by 'normalising' wastewater rankings and the positive correlation becomes much smaller, 'explaining' less than 10% of the variation and still less statistically significant.
- (iv) Finally, Ofwat's approach of simply averaging rankings is not legitimate, even if done properly, for two reasons. First, the six measures of service quality need not be considered to be of equal weight. Second, the differences between companies' rankings will also conceal large variations in weight both in terms of customer preferences for maintaining or improving service in this area and the associated costs of doing so. A company that is 0.1% better on some score than its nearest rival is treated just the same as one that is 20% better. Small changes in performance,

⁵⁴³ See ICS Report on Ofwat's Overall Stretch Appendix (SOC280).

how it is measured and how the rankings are weighted can therefore all result in very different overall rankings (because the relationship is already so tenuous), so Ofwat's analysis is not at all robust and its conclusions are fragile.

- (918) Overall, Ofwat's 'evidence' is poorly constructed, lacks robustness and is wholly unfit for the purpose to which Ofwat has sought to put it.

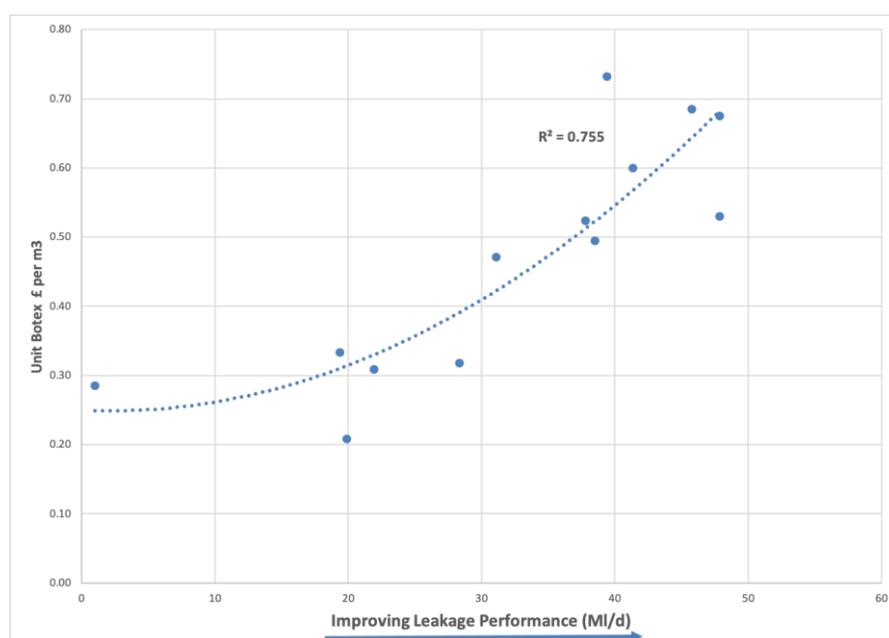
3.3 Ofwat's cost service disconnect is at odds with historical and future looking evidence

- (919) Ofwat's tenuous and unreliable finding that there is a weak positive correlation between companies' historical performance on costs and outcomes is disproven by historical data and by the analysis of costs that Anglian carries out in the normal course of planning its business.

- (920) As illustrated by the figures and case study below, for key performance measures, marginal costs increase with levels of service performance.

- (921) Figure 65 below reports the marginal costs of leakage reduction based on historical reported performance.

Figure 65 Marginal costs of leakage reduction

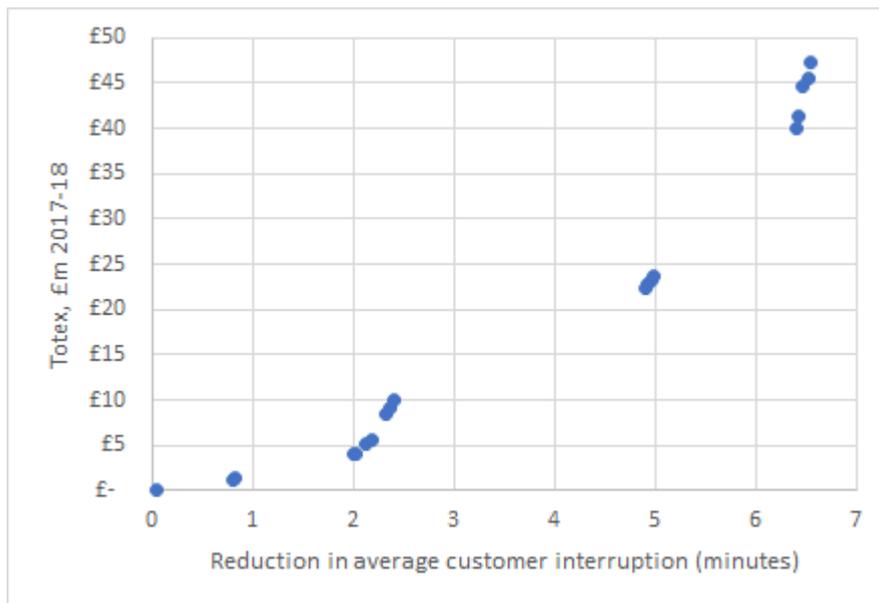


Source: ICS based on historic cost and service data provided by Anglian

- (922) Figure 66 below was produced using Anglian's investment optimisation and delivery planning tool (C55).⁵⁴⁴ Figure 66 below plots AMP7 totex per unit of improvement against the scale of improvements in the same period. The costs of these investments are based in previously actual delivered projects in previous AMP periods post application of future productivity assumptions. This varies from Figure 65 above which is based purely on annual historic costs plotted against leakage reductions delivered.

⁵⁴⁴ Further information is provided in **Chapter B.3: Anglian's Plan and how it was built.**

Figure 66 Costs of improving water supply interruptions performance



Source: Anglian analysis based on AMP7 investment options taken from C55

Water supply interruptions

The interruptions to water supply (I2S) PC provides an illustration of the link between costs and improved quality. It measures the impact of all supply interruptions over three hours as the average length of time each customer is without water from such events.

As evidenced by AMP6, increased performance to meet the challenging commitment cannot be achieved without a corresponding increase in expenditure

During 2010-2015, Anglian's average performance was around 20 minutes. At PR14, Anglian set a PC level of 12 minutes per year, with penalties applicable from year three if it failed to meet the PCL and the opportunity to earn rewards for performance between 12 and 10 minutes.

Ofwat's view at PR14 was that improvements could be achieved within current base spending by using existing resources more efficiently. Anglian tested whether there were any possible changes to practices and procedures that could improve performance with existing resources. In particular, Anglian:

- (i) reviewed its water quality mains shutdown processes and amended its procedures to avoid unnecessary interruptions, with a revised emphasis on 'restore before repair';
- (ii) reviewed its approach to planned mains schemes and amended processes to reduce the length of interruptions;
- (iii) implemented a number of programmes to increase awareness of the importance of rapid restoration, including campaigns, team talks, competitions, use of text messages and employee reward schemes;
- (iv) reviewed its weekly interruption supply meeting, and developed an approach to help identify the root cause of events and disseminate learnings; and
- (v) reviewed its high scoring events and shared best practice, identifying areas for improvement and investment.

Despite these initiatives, the required improvements in I2S could only be achieved with an additional investment of £17.9 million. In particular, Anglian:

- (i) identified its top 500 risky mains and completed seven mains connectivity schemes to enable water to be brought from alternative sources;
- (ii) installed more than 100 devices to remotely reset pumps which have tripped;
- (iii) upgraded its network pressure monitor reporting system;
- (iv) purchased additional pressure loggers so that each technician has two available to use during an event, to better understand the area affected and help the validation of results;
- (v) developed a restoration team to help maintain supplies via temporary overland mains and tankering of water into the supply network, to facilitate the approach of 'restore before repair';
- (vi) bought mobile pumps, installed pressure reducing valves and automated innovative valves and new generators, and installed additional generator sockets to support issues and provide resilience;
- (vii) made pipework modifications at five water treatment works where it assessed a high risk of supply failure, to enable emergency treatment if required; and
- (viii) developed its critical spares stocks to support rapid repair and restoration.

As illustrated by Table 28 below, overall, customers received an improvement to service of around nine minutes during the period. This was achieved through a net investment of £8.6 million (£17.9 million total investment less £9.3 million in rewards).

Table 28 Anglian's performance during 2015-2020

Year	Performance	Reward (£m)
2015-2016	8 minutes 15 seconds	5.7
2016-2017	11 minutes 43 seconds	0.8
2017-2018	7 minutes 24 seconds	5.7
2018-2019	8 minutes 43 seconds	5.7
2019-2020 (forecast)	19 minutes 30 seconds	-8.6
Total/average	11 minutes 7 seconds	9.3

Source: Anglian

PR19 targets are unattainable with the funding provided and the investment required to avoid a penalty exceeds the penalty itself, thereby incentivising Anglian to target the penalty

As exemplified above, meaningful improvements in I2S cannot be achieved without corresponding increases in costs. Ofwat's unrealistic proposals in this area are exacerbated by its reliance on optimistic and inconsistent company forecasts of future upper quartile data, which has led to unrealistic targets compared with PR14 (in which Ofwat used real, historical data to assess upper quartile performance levels).

Long-term supply interruptions remain an important concern for customers, but customers appear less concerned about brief interruptions. Compared with PR14, the customer valuation for this service has reduced by more than 50% and customers appear less willing to pay for further improvements. During Anglian's PR19 societal valuation research, the majority of customers wanted to 'maintain' current service for interruptions that last six to 12 hours, with low levels of support (19%) for improvements to the level of unplanned interruptions.

As Anglian is unable to meet the PCL with the funding allowed, Anglian is effectively incentivised to target a penalty during AMP7 (estimated, based on FD incentives, to be around £9.4 million), which is lower than the cost that would be required to avoid it by targeting the PCL.

- (923) Ofwat generally dismissed this type of marginal cost evidence alleging information asymmetries (i.e. according to Ofwat, companies have incentives not to reveal the 'truth').⁵⁴⁵ However, this ignores well-established best practices for investment prioritisation used within the water industry and which have been previously advocated by Ofwat.⁵⁴⁶ It also suggests that outperformance during PR14 is something to be regretted, rather than reflecting companies appropriately responding to regulatory incentives. By responding to incentive regulation, companies share outperformance with customers at roughly 50% and reveal lower costs as the starting point for the subsequent price review.
- (924) An analysis of Ofwat's assumed stretch in PR19 compared with the improvement achieved since PR14 also reveals inconsistencies in Ofwat's defence of the 2020-2025 stretch in outcomes. For example, Ofwat has assumed lower rates of improvements for internal sewer flooding and pollution incidents, for 2024-2025, which helps mitigate the risk from Ofwat's unrealistic assumptions about costs. By contrast, for supply interruptions these risks are significantly exacerbated by close to a fourfold increase in the outcomes stretch for this measure at PR19.

Table 29 Ofwat's comparison of PR19 stretch v PR14 improvement – Anglian

Measure	PR19: Stretch to 2024-2025	PR14 improvement
Supply Interruptions	-55%	-15%
Internal Sewer Flooding	-21%	-30%
Pollution Incidents	-33%	-55%

Source: Ofwat's Overall Stretch Appendix, Table 8, page 29 (SOC229)

3.4 Ofwat's approach does not account for differences in service levels between WASCs

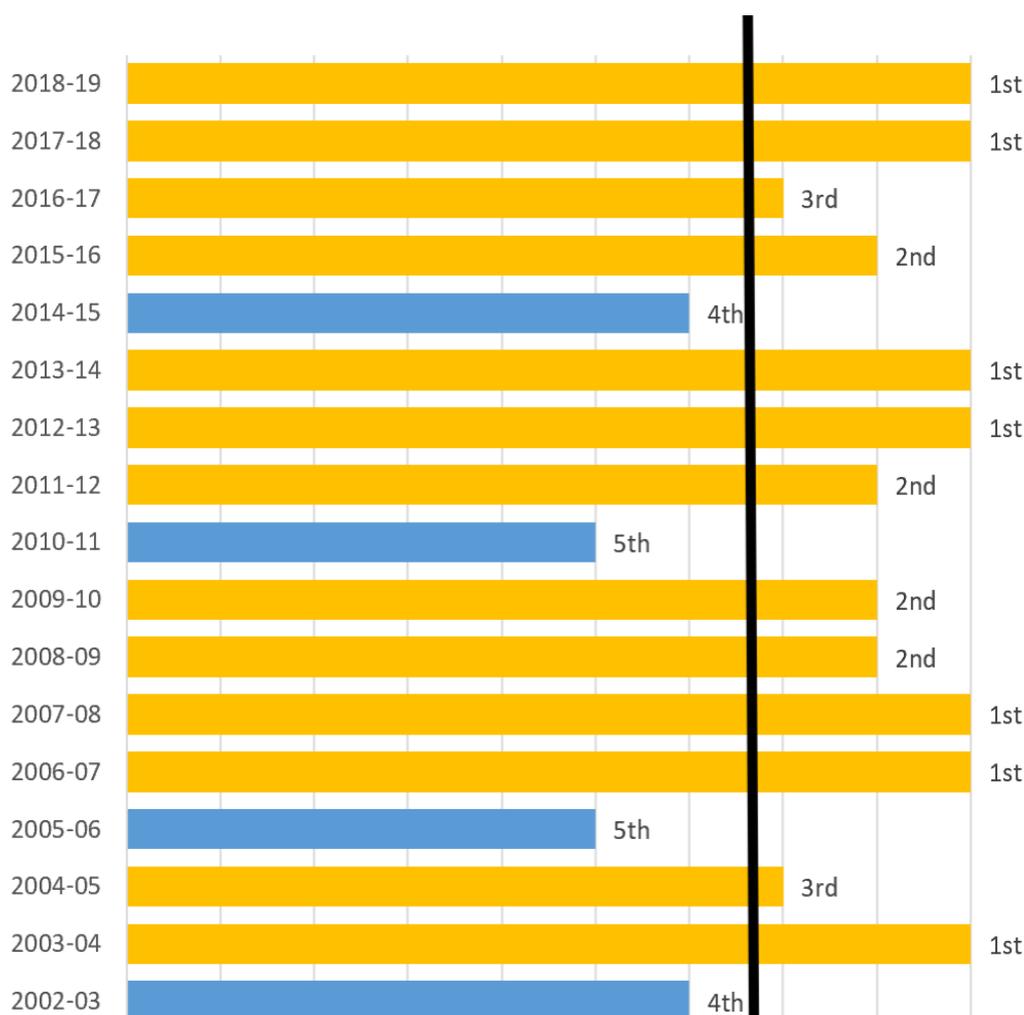
- (925) Ofwat's decision to ignore variations in service quality between companies matters because there are significant differences between companies in the level of service they provide to their customers. The costs associated with these will depend on the service measure in question. Anglian has performed well in the past, maintaining good service across the board, as is recognised by Ofwat.
- (926) Figure 67 below shows Anglian's ranking among the 10 WASCs against the two headline performance measures Ofwat has used since 2001: the overall performance assessment (OPA) and service incentive mechanism (SIM).⁵⁴⁷

⁵⁴⁵ See for example, Ofwat's Overall Stretch Appendix, page 2 (SOC229).

⁵⁴⁶ For example, the water industry 'Common Framework' for investment planning. PR09 Final Methodology, Section 3.4 (SOC406).

⁵⁴⁷ From 2010, the OPA was replaced by the SIM. SIM scores were used to adjust price limits at PR14 and PR19.

Figure 67 Anglian's rank among WASCs on Ofwat's overall performance assessment and service incentive mechanism 2001-2002 to 2018-2019



Source: Anglian

- (927) Anglian presented in its September 2018 Plan⁵⁴⁸ and again at DD Representations,⁵⁴⁹ analyses using well-established methods, with a sound methodological basis and good track-record, which are objective, and generally recognised as good measures of the performance aspect in question. However, Ofwat's FD dismissed this analysis as being flawed for focusing too heavily on customer satisfaction.⁵⁵⁰
- (928) Anglian believes that measures of customer satisfaction are an important, broad-based measure of the value and the service companies deliver. If customers do not think they are receiving a good service, they will not be satisfied. Furthermore, as demonstrated previously in this chapter, Ofwat sought to replace Anglian's analysis with its own analysis which is crude and has no firm basis upon which to draw the conclusions Ofwat does.
- (929) Anglian's strong performance on a range of measures (beyond leakage) was also recently highlighted in Ofwat's Service Delivery Report 2018-2019.⁵⁵¹ The report compared information on total costs and outcomes for customers reported by the 17 largest companies within England and Wales.

⁵⁴⁸ September 2018 Plan, pages 282 to 283 (SOC001).

⁵⁴⁹ DD Representation, page 18 (SOC168).

⁵⁵⁰ Ofwat's Overall Stretch Appendix, Section 5.3, page 35 (SOC229).

⁵⁵¹ Ofwat's 2018-19 Service Delivery Report (SOC265).

- (930) Ofwat accepts that Anglian is a high-performing company, as outlined above and as noted in the teach-in provided by Ofwat to the CMA.⁵⁵²
- (931) However, Ofwat fails to recognise the reality behind Anglian's strong performance. Achieving the outcomes, which customers and regulators value, has required Anglian to spend more money than companies that are performing less well.⁵⁵³ Indeed, Ofwat's own alternative model specifications including leakage drivers estimated an impact of £98 million (although Anglian does not believe this fully captures the impact).⁵⁵⁴ Yet, under the simplistic approach to modelling cost-efficiency that Ofwat has generally adopted, these higher costs contribute to Anglian's perceived 'inefficiency'.
- (932) Ofwat's approach to setting cost allowances assumes that high levels of performance can be maintained and improved, with cost allowances influenced by poorer performing companies. In the following section, Anglian sets out how its proposed service improvements cannot be achieved with the PR19 FD cost allowances.

4 Anglian's Plan includes the efficient cost of improving service

- (933) In contrast to Ofwat's top-down assertions on the cost of improving service, Anglian's Plan has been built on a bottom-up basis. As part of this, Anglian has quantified the cost of improving service.
- (934) Anglian based its Botex requirements for AMP7 on a bottom-up assessment of costs. Anglian has cross-checked its bottom-up approach in two ways, firstly by a comparison with AMP6 expenditure and secondly by the development of Anglian's peer-reviewed and published set of econometric models, which have been used as the basis for computing a top-down estimate of efficient Botex costs.
- (935) Anglian's Enhancement programme has also been built on a bottom-up basis. Anglian used a rigorous three-step process to identify programme costs and challenge:
- (i) Anglian challenged the need to invest and scope of solutions. Anglian does this component by component, rather than at a site-wide level.
 - (ii) Anglian selected the most appropriate solution to meet the need. This means Anglian builds only when it needs to and challenges itself to deliver low-carbon, innovative solutions.
 - (iii) Anglian ensures efficient delivery of the selected solutions. An example is its commitment to alliancing and modular construction.⁵⁵⁵
- (936) Anglian's approach gives confidence that the investments proposed address the correct needs with the best value solution, and that the costs proposed are robust and efficient.

Using Anglian's business as usual cost estimation and investment optimisation tool,⁵⁵⁶ C55, it is possible to show practical examples of the increasing cost of improving service. For Anglian's Plan, the levels of service were those agreed with customers, and were an input into Anglian's proposed outcome delivery incentive under and outperformance rates.

- (937) Anglian has undertaken investment optimisation for a sample of performance commitments (PCs) using repeated runs of C55 to optimise investments to meet the required level of service. In Table 30 below, it shows the required expenditure to deliver service improvements.

⁵⁵² Ofwat's Third CMA Teach In, slide 6 (SOC353).

⁵⁵³ For example in reducing leakage to frontier levels. See **Chapter H: Leakage**.

⁵⁵⁴ This impact is then reduced by 75% though averaging with models that take no account of service performance.

⁵⁵⁵ IAP Water Data Tables Commentary, page 116 (SOC107); IAP Wastewater Data Tables Commentary, page 90 (SOC106); ICE Delivering High Performing Infrastructure Report, page 8 (SOC408); and September 2018 Plan, Section 10.10.7, page 111 (SOC001)

⁵⁵⁶ An overview of our C55 investment optimisation tool is provided in **Chapter B.3: Anglian's Plan and how it was built**.

Table 30 Cost of improving performance

Performance commitment	Level of service end AMP7 (Final Determination)	Investment required (£m, 2017-2018 prices)
Water supply interruptions (minutes: seconds)		32.9*
Mains repairs (bursts per 1,000km of main)	132.3	59.4
Sewer collapses (incidence per 1,000km of sewer)	5.5	90
Low pressure (no. properties)	106	0.9
Total		183.2

Source: output of optimisation scenario analysis in C55 to achieve given level of performance

*Improvement of 6 minutes 30 seconds from starting point costed (but not necessarily sufficient to achieve the PCL), reflecting all possible identified investments

5 Request to the CMA

- (938) Ofwat does not recognise the interrelationship between the efficient level of costs that a company reasonably incurs to provide good service to customers, the environmental outcomes it delivers and the regulatory requirements it must meet. Ofwat has advanced no serious evidence in support of its belief that the highest performing companies should also be the lowest cost. This flies in the face of economic theory and regulatory precedent and conflicts with historical evidence and the planning tools used in the industry.
- (939) However, the effect of this unsupported assumption is very significant, particularly for Anglian, as a high-performing company. It also creates perverse incentives, both in the immediate future because of unrealistic ODIs and in the longer-term, as incentives to be a high-performing company are blunted.
- (940) Ofwat's failure to recognise the linkages between cost and quality, compounded with other problems in assessing Botex, compromises Anglian's ability to meet its statutory obligations and is inconsistent with Ofwat's duties to secure long-term resilience, further the consumer objective, secure that water companies can finance the proper carrying out of their statutory functions and contribute to the achievement of sustainable development.
- (941) Anglian requests that the CMA ensures that the determination suitably recognises the costs associated with maintaining and improving services to customers whilst maintaining appropriate targeted incentives to continue to do so in future.

Chapter G: ODIs

1 Overview

- (i) Ofwat rejected Anglian's coherent Outcome Delivery Incentive (ODI) package, developed in consultation with its customers, and instead imposed in the Final Determination a package that does not reflect customers' wishes and does not provide effective incentives for improvement.
- (ii) Anglian's package was underpinned by customers' interests and preferences, as evidenced by its extensive customer research. It evolved during the process, and in response to challenges from the Customer Engagement Forum (CEF),⁵⁵⁷ to ensure that it effectively reflected what Anglian's consumers want.⁵⁵⁸ Ofwat described Anglian's customer engagement as exceptional. earlier in the process, and stated that Anglian's ODI package demonstrated 'a high-quality approach to customer research and triangulation to support robust estimation of marginal benefits' and it 'sufficiently evidence[d] its approach to marginal costs'.⁵⁵⁹ The reports from the CEF and its Economic & Valuation sub-group on Anglian's customer engagement and how effectively this fed into the Plan generally and the ODI and Performance Commitment (PC) package proposed was equally positive.⁵⁶⁰
- (iii) By contrast, the outcome delivery incentives (ODIs) Ofwat imposes in the Final Determination:
 - (a) used industry benchmarking to create a disparate set of ODIs, which fails to reflect or promote the stated interests of Anglian's customers (which, according to Ofwat, were meant to underpin any ODI package).
 - (b) fail to reflect the interrelationship between the efficient level of costs that a company incurs in relation to the level of service it provides the environmental outcomes it delivers, and the requirements of quality regulators that it must meet. This is a departure from robust economic principles underpinning the ODI framework and Ofwat's own regulatory precedent.
 - (c) are particularly inappropriate for Anglian, because they are based on Ofwat's fundamentally unrealistic view that improving frontier performance can be achieved at the same unit cost as improving average performance.⁵⁶¹
- (iv) The risk of the current situation is a simple one. Cost allowances are too low given the arbitrarily stretched performance ODIs. This will, in future, present companies with a dilemma of whether to stay within their cost allowances or exceed them in order to meet Performance Commitment Levels and avoid penalties under the ODI framework. It is unclear if this is the genuine policy intent from Ofwat.
- (v) Combined with Ofwat's approach to cost assessment which represents a material shortfall in the expenditure requirements to maintain and enhance service going forward, Anglian is

⁵⁵⁷ Customer Engagement Forum.

⁵⁵⁸ For example, following robust challenge from CEF members and members of the Sustainability & Resilience Panel, the Company removed from its early delivery performance commitment on the WINEP (Water Industry Environment Programme) those schemes that may be suitable for catchment and Natural Capital solutions so as to avoid any bias towards more traditional but quicker hard engineering solutions. CEF Report, page 14 (SOC409).

⁵⁵⁹ IAP Test Question Assessment, page 4 (SOC410).

⁵⁶⁰ CEF Report (SOC409).

⁵⁶¹ See **Chapter F: Cost service disconnect** and **Chapter H: Leakage**.

forced into a scenario of accepting penalties by allocating effort and expenditure not in line with customer preferences, but to areas which minimise the negative impact.

- (vi) The Final Determination fails to promote the interests of Anglian's customers, compromises the quality of Anglian's service offering, and fails to ensure that Anglian is financed to ensure the proper performance of its functions. It also compromises resilience to long-term challenges. For certain performance commitments, it distorts Anglian's incentives to meet the target so it fails principles of regulatory best practice and will not promote efficient service improvement.

Request to the CMA

- (vii) Anglian requests that the CMA reinstate its proposed ODI package. This was derived from Anglian's customers' interests and preferences, sets stretching targets and produces a reasonable balance of risk and reward.

- (942) This chapter is structured as follows: Section 2 provides an overview of incentives-based regulation in PR19; Section 3 sets out Anglian's approach to PCs (performance commitments) and ODIs in its Plan; Section 4 analyses Ofwat's approach at Final Determination (FD); Section 5 considers the impact of Ofwat's FD on Anglian and its customers; and Section 6 sets out Anglian's request to the CMA.

2 Introduction

- (943) PCs are measures of service that companies pledge to deliver for customers (for example, the average length of supply interruptions that last more than three hours). PCLs (Performance commitment levels) are typically the particular level of the service (for example, a commitment to reduce supply interruptions to a level of 10 minutes per property per year).
- (944) PCs can be classified into: (i) PCs with common definitions (i.e. common PCs); (ii) PCs that apply to multiple companies and have the same or similar characteristics (i.e. comparable PCs);⁵⁶² and (iii) PCs that reflect individual companies' circumstances and customers' preferences (i.e. bespoke PCs).⁵⁶³
- (945) PCs are accompanied by ODIs which set underperformance penalties if companies do not meet their PCLs and outperformance payments for going beyond the stretching PCLs and delivering additional value for customers. Some ODIs are non-financial and represent reputational incentives. Penalties and rewards are calculated by reference to underperformance and outperformance ODI rates, which are built on a bottom-up basis using evidence of customer valuations for service increments and the forecast efficient marginal cost of delivering them.⁵⁶⁴ The intent is to set targets at economically efficient levels with incentives that reflect customer valuation and efficient costs. Penalties and rewards are subject to maximum thresholds in the form of collars and caps. There are also specified ranges of PCLs where the ODI underperformance or outperformance payment is zero (i.e. deadbands).
- (946) An effective ODI package creates an incentive framework to improve service at efficient costs where that improvement is sufficiently valued by customers. It is vital that the incentive framework links closely to the totex cost allowances. A package which is skewed towards rewards could foster complacency by rewarding companies for simply performing at levels already expected of them without creating

⁵⁶² Ofwat's approach to common and comparable PCs (and the associated ODIs) covered: (i) upper quartile measures – supply interruptions, pollution incidents and internal sewer flooding; (ii) reducing water demand – leakage and per capita consumption; (iii) statutory measures – the compliance risk index and treatment works compliance; (iv) asset health measures – mains repairs, unplanned outages, sewer collapses, external sewer flooding, sewer blockages, water quality, and low pressure; (v) resilience measures – risk of sewers flooding in a storm and severe restrictions in a drought; (vi) vulnerability measures – the priority services register; and (vii) customer experience – the customer measure of experience ('C-MeX') and the developer services measure of experience ('D-MeX').

⁵⁶³ Delivering Outcomes for Customers Policy Appendix, page 4 (SOC241) and PR19 Final Methodology Appendix 2, page 4 (SOC411).

⁵⁶⁴ Delivering Outcomes for Customers Policy Appendix, pages 4 and 5 (SOC241).

incentives to pursue stretching targets. A package that is skewed towards penalties unduly penalises companies if they are unable to meet unattainable targets, thereby removing funds which could be spent elsewhere, with potential short- and long-term knock-on implications on incentives and service provision.

- (947) Ofwat indicated that '*[o]utcomes-based regulation was one of the most significant innovations [it] introduced at the 2014 price review (PR14) ... the outcomes approach has sharpened companies' focus on delivering what matters to customers and society, while giving them greater flexibility in how they deliver them*'.⁵⁶⁵

3 Anglian's approach to PCs and ODIs in its business plan

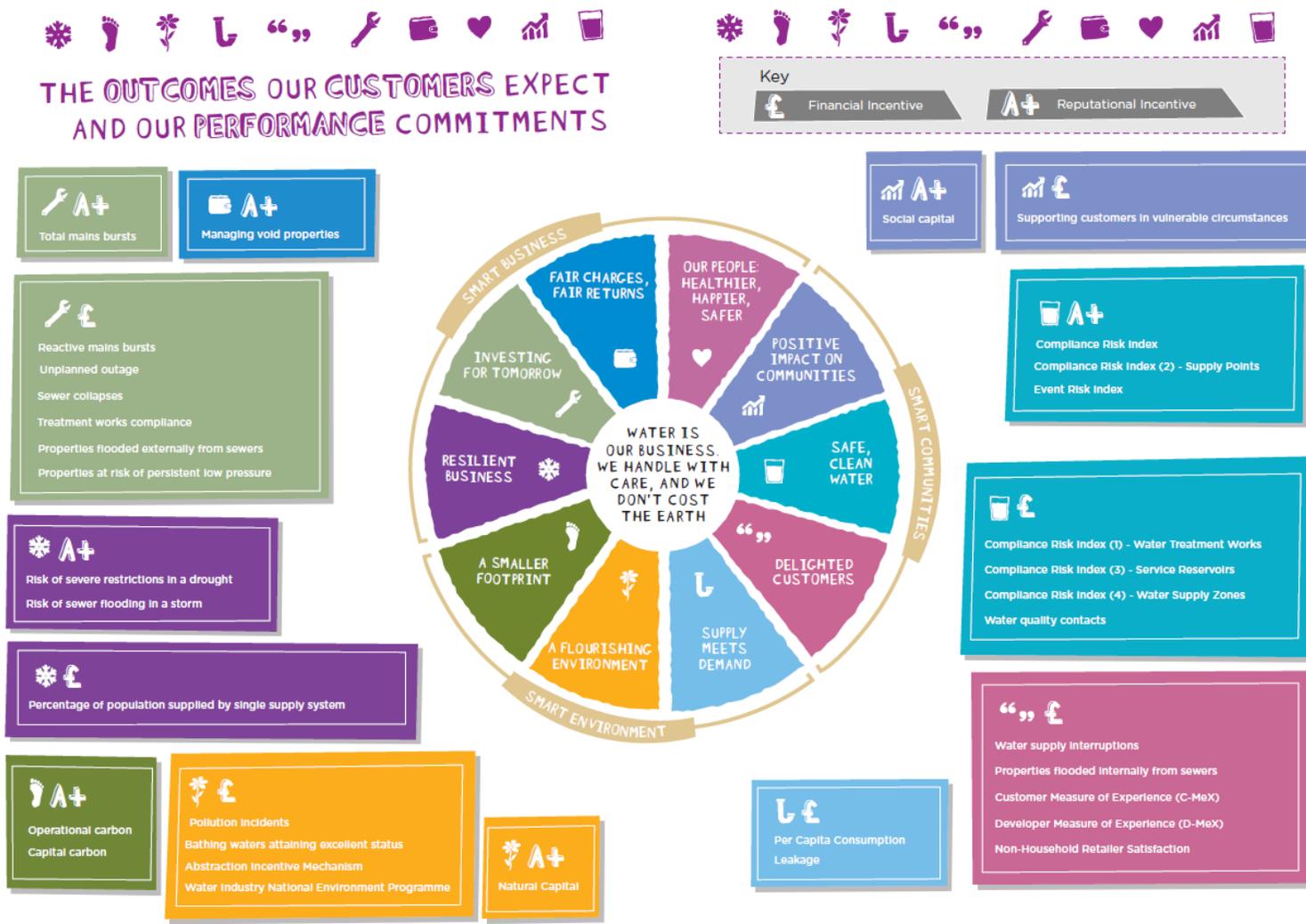
3.1 Anglian's Plan

- (948) Anglian's proposed PCs support the delivery of the outcomes Anglian has agreed with its customers. Every component of Anglian's ODI framework, including PC definition, PCL, balance between asset health and service, the stretch on targets and enhanced incentives for leakage. The total and individual levels of incentive have been developed with Anglian's customers, both directly and indirectly through the CEF. An overview of Anglian's AMP7 outcomes and associated PCs is set out in Figure 68 below.⁵⁶⁶

⁵⁶⁵ Delivering Outcomes for Customers Policy Appendix, page 3 (SOC241).

⁵⁶⁶ Anglian's Plan includes significant detail on its PCs and ODIs, which should be read alongside this chapter. September 2018 Plan, Chapter 13 (SOC001).

Figure 68 Overview of Anglian's AMP7 outcomes and associated PCs



Source: Anglian's September 2018 Plan, page 158 (SOC001)

- (949) The package was shaped by customers and is in line with the long-term ambitions agreed with customers as part of Anglian's SDS (Strategic Direction Statement).⁵⁶⁷
- (950) The CEF and sub-panels have challenged and changed Anglian's ODI proposals. For example, the CEF increased the ambition and changed the direction of the Natural Capital and Vulnerability PCs and the associated incentives.⁵⁶⁸ Anglian's approach to setting incentive caps was a direct response to the CEF challenge.
- (951) Anglian has a strong track record of performance over the last three AMPs. For example, in 2018-19 Anglian met 93% of its PCLs compared to 67%⁵⁶⁹ across the industry and is categorised by Ofwat as a 'better' performer in Ofwat's service delivery report ('better' being the highest performance category).⁵⁷⁰
- (952) Anglian has set even more stretching targets in its Plan, building on the work it did with Ofwat to develop the PCs and ODI framework at PR14. Ofwat recognised that Anglian's proposed ODI package contained ambitious and stretching PCs.⁵⁷¹

'Anglian Water's plan provides evidence of a balanced package of PCs that overall reflects customer views and a high quality approach to its PCs and appropriately stretching levels'

- (953) Some of the highlights from Anglian's suite of proposed PCs and ODIs are:
- (i) none of Anglian's customers will be at risk of severe water restrictions in a severe drought;
 - (ii) leakage will reduce by a further 22% between 2017/18 and 2024-2025, from a performance level that is already frontier with associated enhanced incentives;
 - (iii) customers supplied by a single system will drop from 45.3% in 2017-2018 to 14% by 2024-2025;
 - (iv) internal sewer flooding incidents will reduce by 24%;
 - (v) serious pollution incidents are targeted to be zero; and
 - (vi) average length of water supply interruptions experienced by customers will drop by 71% from Anglian's expected 2019-2020 performance.⁵⁷²
- (954) Each PC sets out what Anglian will deliver for customers in AMP7. Anglian's PCs are construed with a long-term horizon, extending to at least 2035, or to 2045 for PCs linked to Anglian's WRMP (Water Resources Management Plan).
- (955) Anglian will continue to share best practice for reducing leakage and supporting customers in vulnerable circumstances across the water industry, to the benefit of all water customers in England and Wales. Anglian will continue to report transparently on its performance to customers, customer representatives, regulators and other stakeholders.
- (956) Overall, Anglian's proposed ODI package contains stretching targets but a reasonable balance of risk and reward, and has been designed with customers for customers.

3.2 How Anglian developed its PC and ODI package with customers⁵⁷³

⁵⁶⁷ Anglian's SDS, page 2 (SOC016).

⁵⁶⁸ CEF Report, pages 13 and 14 (SOC409).

⁵⁶⁹ Ofwat's 2018-19 Service Delivery Report, page 12 (SOC265).

⁵⁷⁰ Ofwat's 2018-19 Service Delivery Report, page 5 (SOC265).

⁵⁷¹ IAP Test Area Assessment, page 2 (SOC315).

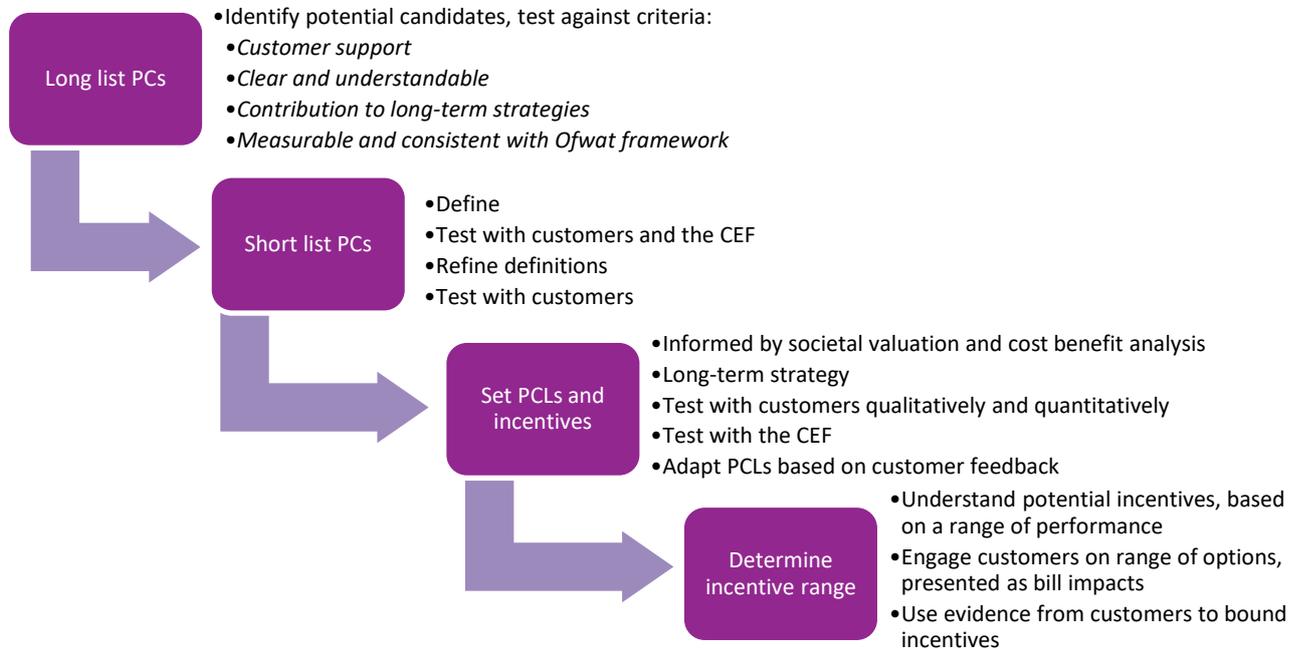
⁵⁷² September 2018 Plan, page 156 (SOC001).

⁵⁷³ See also **Chapter B.2: How customers have shaped the Plan.**

3.2.1 Overview of Anglian's customer engagement

(957) Developing PCs with customers is an iterative process. This Section describes the process Anglian followed, which is summarised in Figure 69 below. Anglian's approach is closely aligned to Ofwat's PR19 Final Methodology.

Figure 69 Anglian's process behind its ODI package



Source: Anglian's September 2018 Plan, page 164 (SOC001)

(958) Anglian comprehensively engaged on all aspects of its PC and ODI framework, including:

- (i) agreeing Anglian's long-term ambitions with customers in its refreshed **SDS** and the 10 outcome goals within it;
- (ii) Anglian's largest ever programme of **societal valuation** of service, which placed increasing focus on revealed preference and subjective wellbeing. This builds on Anglian's sector-leading approach to societal valuation at PR14;
- (iii) testing of the **short list of PCs** and clarity of definitions;
- (iv) testing **affordability** and **level of stretch in PCLs** as part of the outline business plan. There was strong support for Anglian's proposals among its customers. On average, **70% of household** and 79% of non-household **customers considered each of Anglian's proposed PCLs stretching**;
- (v) testing customer support for Anglian to continue pushing the frontier for leakage, with the majority tested supporting the bill impact associated with enhanced rewards for delivery of moving the frontier further. 78% of respondents to the **'Be the boss'** engagement supported the proposal with a £4 per year bill impact;⁵⁷⁴ and
- (vi) conducting targeted research with **600 customers** on the appropriate **scale of incentives** (presented as bill impacts) and customer views on asset health and associated incentives in detail.⁵⁷⁵

⁵⁷⁴ Be the Boss, available at <http://www.h2olets.go.com/quiz/>.

⁵⁷⁵ September 2018 Plan, page 161 (SOC001).

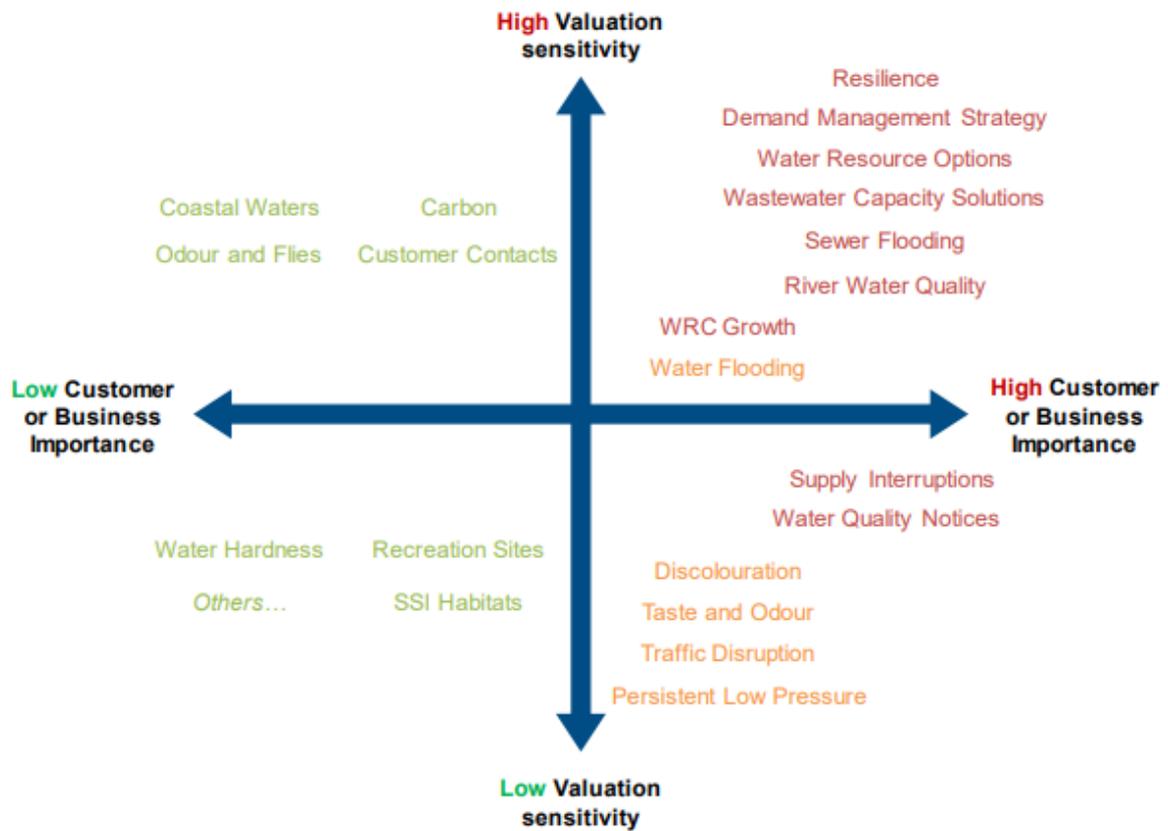
- (959) The feedback from Anglian's engagements with customers changed its proposed PCs and associated ODIs in a number of ways.
- (i) **Selecting PCs** – customers drove PC selection as customer priorities informed from the full range of engagement undertaken for Anglian's SDS and Plan. This resulted in the selection of PCs such as 'Bathing waters attaining excellent status'. The proposed PCs provide good coverage of customer priorities: no gaps were identified in Anglian's acceptability research.
 - (ii) **Defining PCs** – some of the PCs and appropriate PCLs are inherently technical in nature and are not intuitive to customers. Anglian worked hard to develop its survey materials with customers and undertook innovative post-study focus groups to check understanding of materials and validate views from these studies. Definitions were tested and improved through two phases: initial ODI acceptability research and later ODI testing.
 - (iii) **PCLs** – Anglian tested PCLs with customers through qualitative and quantitative engagement and changed its proposals in response to this feedback. For example, in relation to External Sewer Flooding, Anglian set a more stretching PCL to reflect customers' prioritisation of this.
 - (iv) **Incentive rates** – Anglian has followed Ofwat's guidance in setting incentive rates. These rates are driven by the valuation that customers place on improving service. Anglian's valuations are derived from its robust, comprehensive and innovative societal valuation programme, which included a rigorous triangulation process.
 - (v) **Potential scale of ODIs** – Anglian has set the potential range of ODIs (using outperformance caps and underperformance collars) based on customer choices through its research and engagement on the outline plan.⁵⁷⁶

3.2.2 Valuation in focus

- (960) Valuation is a key part of the overall engagement programme, providing insight on customer priorities and the value that customers give to improving and maintaining water and water recycling services. The societal values for improvements in services feed into cost-benefit analysis, inform the prioritisation of investments and underpin ODI rates.
- (961) Building on PR14, there was recognition of the need for greater triangulation and utilisation of information from different sources to improve the reliability of valuation estimates, including the need to build stronger links with ongoing customer engagement. Completing this step before commissioning any studies enabled Anglian to focus effort proportionally on service attributes of high-value to customers, select appropriate valuation methods and continue to be industry leading on its approach to valuation. This was informed by Anglian's classification of service attributes.

⁵⁷⁶ September 2018 Plan, page 162 (SOC001).

Figure 70 Classification of service attributes by importance and valuation sensitivity



Source: Developing a Societal Valuation Strategy, page 26 (SOC035)

Note: (Red – large investment requirement, Orange – stakeholder priority, Green – low strategic priority)

Wellbeing valuation

As part of its valuation strategy,⁵⁷⁷ Anglian undertook an innovative study assessing the impact of flooding and roadworks on the subjective wellbeing of its customers. The study was the first of its kind to assess the subjective wellbeing impact of flooding and roadworks.⁵⁷⁸

The Wellbeing Valuation approach calculates the value of each type of incident by estimating the impact on subjective wellbeing for customers who have experienced the incident. This impact is then converted into a monetary value by estimating the equivalent amount of money the customer would be willing to pay to avoid the incident (see Figure 71 below in relation to flooding and roadworks).

Figure 71 Willingness to pay for avoiding flooding and road works

⁵⁷⁷ Developing a Societal Valuation Strategy (SOC035).

⁵⁷⁸ Wellbeing Valuation of the impact of roadworks and flooding (SOC036).

Monetary value = α/β

Source: Anglian

The analysis was conducted by merging information on Anglian flooding and roadwork incidents in Anglian's region with the Annual Population Survey.⁵⁷⁹ Respondents were identified as being potentially affected if an incident had occurred within a specified distance of their postcode and in a specific time after their survey response. The equation below illustrates the relationship between subjective wellbeing (using life satisfaction as the measure) and flooding/roadwork incidents. The coefficient in the study is estimated as the impact of the incident on customers' subjective wellbeing. The money impact is the estimated impact of yearly income on wellbeing taken from separate research estimating the causal effect of income on life satisfaction.

The wellbeing monetary value is then approximately calculated as shown below providing the WTP values to avoid an incident for households affected by the incidents within the affected area.

- **Wellbeing regression (OLS):** $LS_i = \alpha Incident_i \pm X_i \beta \pm u_i$
- Key outcome variable (LS): **Life satisfaction**
- **Control variable (X):** Age, gender, employment, income, education, ethnicity, marital status, smoking, benefits, number of children, rurality, local authority dummies (best practice based on academic literature)

The results from this study have fed into Anglian's Valuation Completion Report and included in its final triangulation values.⁵⁸⁰

3.2.3 CEF challenge and creating an economic sub-panel

- (962) Anglian engaged extensively with its CEF during the development of its PCs. The CEF is an independent group, tasked with acting as an informed customer advocate and challenging Anglian on how customer engagement and priorities shape its operations, and short- and long-term plans.⁵⁸¹
- (963) In late 2017, in response to the increasing emphasis for the CEF to address questions on societal valuation and ODIs, the CEF, at Anglian's expense, recruited three additional members with a broad

⁵⁷⁹ This is a continuous household survey containing information on wellbeing.

⁵⁸⁰ Wellbeing Valuation of the impact of roadworks and flooding (SOC036).

⁵⁸¹ See Anglian's Customer engagement forum, available at <https://www.anglianwater.co.uk/about-us/our-strategies-and-plans/customer-engagement-forum/>.

range of regulatory economic experience. These additional members included current and former regulatory professionals at the Civil Aviation Authority.

(964) These members formed an Economic and Valuation panel, along with existing CEF members (including Consumer Council for Water ('CCWater') and Environmental Agency representatives) to provide additional challenge in this area. The remit of the panel was to review, scrutinise and challenge Anglian's work on:

- (i) developing societal valuation and willingness to pay information;
- (ii) the development of Anglian's PC and ODI package, and the degree to which it was in line with Ofwat's methodology and feedback from customers; and
- (iii) the application of societal valuation to the financial incentives associated with ODIs.

(965) As well as the Economic and Valuation panel, Anglian has engaged extensively with the Vulnerability panel and Sustainability and Resilience panel on PCs of specific interest to those stakeholders.

- (i) Economics and Valuation panel – main engagement on the development of PCs and ODIs.⁵⁸²
- (ii) Sustainability and Resilience panel – detailed engagement on environment and resilience PCs.⁵⁸³
- (iii) Vulnerability and Affordability panel – detailed engagement on the vulnerability PCs, particularly the proposed use of a panel to assess Anglian's performance and the type of incentive.⁵⁸⁴

(966) They have provided robust challenge and Anglian's Plan has changed as a result. Ofwat recognised that Anglian's ODI package was overall well-evidenced, in particular that it demonstrated a robust estimation of marginal benefits and marginal costs.⁵⁸⁵ The approach to using customer evidence to bind incentives with caps and collars based on customer evidence was developed in response to challenge from CCWater, voiced through the Economic and Valuation panel. Overall, this sub-panel concluded that:⁵⁸⁶

'in general the sub-group saw strong evidence that the body of customer engagement and research had been well used, first to define which additional company-specific performance commitments [Anglian] would propose in its business plan, and then to calibrate the level to be achieved and the over- and under-performance financial incentives.'

(967) The full detail of this engagement and view is contained in the CEF's report. The CEF helped to shape its engagement with customers on PCs and ODIs. For example, Anglian has adapted its proposals for the Natural Capital and WINEP PCs in response to challenge from the CEF.⁵⁸⁷

3.3 Anglian's track record on PCs

(968) Anglian has a strong track record of PC delivery, with its performance highlighted in Ofwat's Service Delivery Report 2018-2019. Anglian hit the top 25% in seven measures: Wholesale, Customer Service, Meeting Performance Commitments, Earning Financial Incentives, Leakage, Water Quality Contacts

⁵⁸² CEF Economics and Valuation Sub-Group Report (SOC413).

⁵⁸³ CEF Sustainability and Resilience Panel Report (SOC414).

⁵⁸⁴ CEF Affordability and Vulnerability Panel Report (SOC415).

⁵⁸⁵ IAP Test Question Assessment, pages 3 to 5 (SOC410).

⁵⁸⁶ CEF Economics and Valuation Sub-Group Report, page 7 (SOC413).

⁵⁸⁷ CEF Report, page 14 (SOC409).

and Internal Sewer Flooding. The Company also hit the middle 50% in three further measures: Retail, Supply Interruptions and Pollution Incidents.⁵⁸⁸

(969) Anglian had PCLs for 14 of its PCs in 2018-2019. It met 13 of these, with the only shortfall against mean zonal compliance (a measure of the quality of drinking water), where the PCL is 100%.⁵⁸⁹ The Company has reduced leakage by a third since privatisation to reach industry-leading levels, with the water lost per kilometre of pipe at half the national average. It has also outperformed its PCL of leakage in AMP6.⁵⁹⁰ Anglian also cut its capital carbon emissions by 58% compared to 2010 levels and reduced operational carbon emissions by 29% in comparison to the 2014-2015 baseline.⁵⁹¹ This has driven innovation and efficiencies that feed into lower bills.

3.4 Ofwat's assessment of Anglian's PCLs and ODI package at Initial Assessment of Business Plans (IAP)

(970) Ofwat assessed water companies' proposed ODI packages as part of its IAP. The assessment areas tested were:

- (i) How appropriate, well-evidenced and stretching are the company's proposed performance commitments and service levels?
- (ii) How appropriate and well-evidenced is the company's package of ODIs?
- (iii) How appropriate is the company's focus on service performance in its risk/return package?

(971) Ofwat recognised Anglian's PCLs and ODIs as being well-evidenced, reflecting customer priorities 'developed on the basis of robust customer valuation research which has been appropriately triangulated to set incentives that reflect customer preferences and priorities across its package'⁵⁹² and of high quality. Anglian was one of only two companies (out of 17) to receive a 'B' assessment against all assessment areas (i.e. the highest rating effectively awarded).⁵⁹³ This is shown in Figure 72 below.⁵⁹⁴

⁵⁸⁸ Ofwat's 2018-19 Service Delivery Report (SOC265). See **Chapter B.2: How customers have shaped the Plan**.

⁵⁸⁹ Anglian's performance in 2018-19 was 99.95%. This is the same level as overall industry performance and no WASC has ever achieved 100%. See Discover Water's website available at: <https://discoverwater.co.uk/quality>.

⁵⁹⁰ See **Chapter H: Leakage**.

⁵⁹¹ September 2018 Plan, page 116 (September 2018) (SOC001).

⁵⁹² IAP Test Question Assessment, page 1 (SOC410).

⁵⁹³ IAP Summary of Test Area Assessment, Figure 3.3, page 18 (SOC271).

⁵⁹⁴ IAP Summary of Test Area Assessment, Figure 6.1, page 57 (SOC271).

Figure 72 Ofwat's IAP assessment of ODI packages

Question	Water and sewerage companies											Water only companies					
	Anglian Water	Dŵr Cymru	Hafren Dyfrdwy	Northumbrian Water	Severn Trent Water	South West Water	Southern Water	Thames Water	United Utilities	Wessex Water	Yorkshire Water	Affinity Water	Bristol Water	Portsmouth Water	South East Water	South Staffs Water	SES Water
OC test area	B	C	D	C	C	B	C	C	C	C	C	C	C	C	B	C	C
OC1	B	C	D	B	C	B	C	C	C	B	B	C	B	C	B	B	B
OC2	B	D	D	C	C	B	C	C	C	D	B	D	C	C	B	C	C
OC3	B	C	D	C	C	B	B	C	C	C	C	C	C	C	C	C	C

Source: IAP Summary of Test Area Assessment, Figure 6.1, page 57 (SOC271)

(972) Ofwat also recognised the strength of Anglian's customer engagement that supports the entire business plan, awarding Anglian the only 'A' rating for engagement.⁵⁹⁵ Ofwat noted the link between Anglian's sector-leading societal valuation work and how it had been reflected in the PC and ODI package, as shown below.

*'The company demonstrates a clear line of sight from the results of its customer engagement to the outcomes in its business plan. Its performance commitments are based on robust customer valuation research with incentives that reflect customer preferences and priorities.'*⁵⁹⁶

4 Ofwat's approach to PCs and ODIs in the FD

4.1 Ofwat's assessment of overall stretch on outcomes

4.1.1 Ofwat's approach largely sets aside customers' views

(973) At PR14 Ofwat set a number of common PCLs on the basis of historic upper quartile (based on 2011-2012 to 2013-2014 data), with a glidepath over the first three years of the review to upper quartile. At PR19, Ofwat considered that setting PC targets on the basis of historical upper quartile performance was not sufficiently stretching, as in many cases companies had exceeded these. It therefore based targets on industry level forecasts of the forward-looking upper quartile performance.

(974) This implies that Ofwat is dispensing with, or at very least diminishing, the requirement that companies should develop their own stretching targets in consultation with customers and in line with the customer priorities revealed through those consultations.

(975) Ofwat makes no reference to customer views and in effect ignores customer evidence (that companies would have used to underpin their stretch improvements to 2024-2025) in its FD. This gives effect to dispensing with the economic link between cost and service. Ofwat's FD represents a marked departure from numerous methodological statements Ofwat had provided in the earlier phases of PR19. Examples of these statements would include:

⁵⁹⁵ IAP Company Categorisation, page 4 (SOC346).

⁵⁹⁶ IAP Company Categorisation, page 4 (SOC346).

*'The outcomes approach is rooted in customer engagement. Companies engage with their customers on their high-level objectives, their performance commitments, their associated service levels and their ODIs.'*⁵⁹⁷

*'Our approach to setting stretching performance commitment levels for PR19 is that companies should ... engage with their customers on their performance commitment levels; and challenge the level of stretch in their performance commitments with their customers, CCGs and other stakeholders against a range of approaches.'*⁵⁹⁸

- (976) These statements are indicative of a more rounded and balanced regulatory methodology than has been revealed in the PR19 FD. This is reinforced by further prior statements such as:

*'We want companies to engage with their customers on the appropriate performance commitment levels for the common performance commitments.'*⁵⁹⁹

*'Companies should use the above approaches for setting bespoke performance commitment levels (cost benefit analysis, comparative information etc.) to inform their setting of stretching performance commitment levels for the common performance commitments. We particularly expect companies to challenge their performance commitment levels for the common performance commitments against forecast upper quartile performance levels because there is more likely to be comparable data available for them.'*⁶⁰⁰

- (977) Arguably, evidence that this balanced regulatory approach had been taken for the PR19 determinations would have included a demonstration that what the regulator considers achievable also chimed with the views of customers.

4.1.2 Ofwat's approach is also affected by a number of methodological shortcomings

- (978) Anglian considers that Ofwat's approach to assessing overall stretch on outcomes was affected by a number of methodological shortcomings – discussed below – which have contributed to creating very stretching (and sometimes inconsistent) targets, which are often not reflective of customers' priorities.

(i) Low number of data points and limited cross-checks

- (979) As explained above, Ofwat's methodology instructed companies to forecast upper quartile performance to set their PCLs. Once it received the company bids, Ofwat made very limited assessments of whether they were realistic or achievable, but did set common PCLs using the upper quartile of the figures provided. Ofwat has used PCLs which represent forecasts of frontier performance (e.g. Yorkshire's water supply interruptions and Wessex's pollution incidents target) as if they were forecasts of upper quartile performance. The performance of these companies is likely to be worse than the levels proposed and may be unachievable.
- (980) In other words, Ofwat treated companies' forecasts of upper quartile performance as equally valid data, without conducting robust cross-checks on the realism of such forecasts against historic performance.
- (981) Ofwat's methodology encouraged companies to submit stretching targets that Ofwat has made more stretching through upper quartile interventions. On water supply interruptions and pollution incidents, a number of companies have put forward PCLs that they do not appear to be able to achieve. For example, as illustrated in Figure 73 below, Affinity, Bristol, South East and Wessex all proposed PCLs below four minutes and affected Ofwat's upper quartile for water supply interruptions. Only one of these companies

⁵⁹⁷ PR19 Final Methodology, page 45 (SOC411).

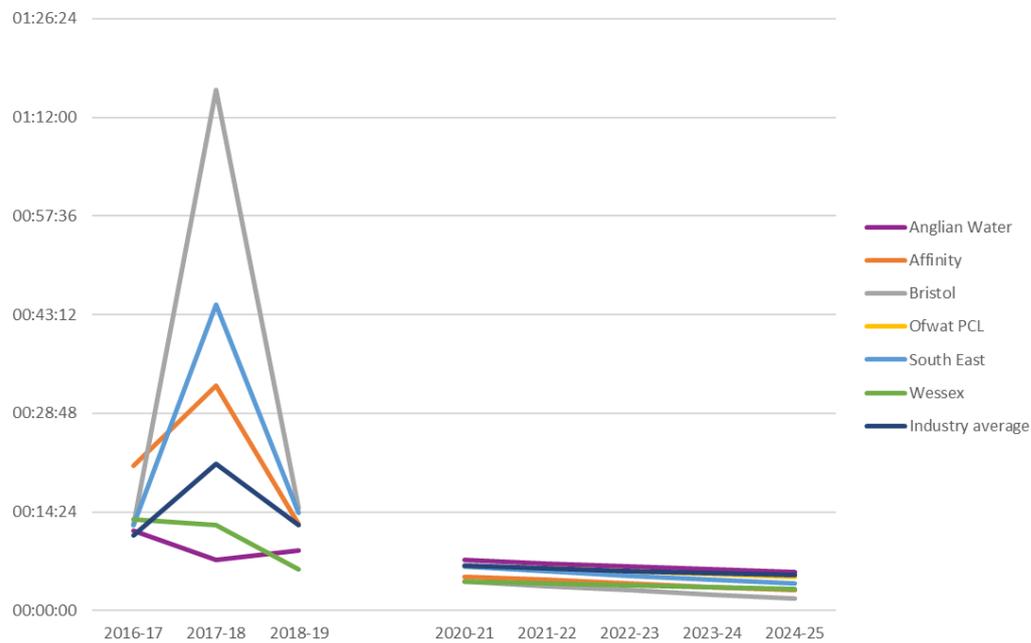
⁵⁹⁸ PR19 Final Methodology, page 53 (SOC411).

⁵⁹⁹ PR19 Final Methodology Appendix 2, page 57 (SOC314).

⁶⁰⁰ PR19 Final Methodology Appendix 2, page 57 (SOC314).

has achieved a score of less than 12 minutes in AMP6, and that was in only a single year. Given their historic performance these forecasts lack credibility.

Figure 73 Water supply interruptions' historic performance and proposed PCLs



Source: Anglian, based on industry data

- (982) The PCLs put forward are obviously not forecasts of the companies' future performance, but attempts to set stretching upper quartile PCLs in response to Ofwat's methodology.
- (983) This is particularly problematic as the data that companies and Ofwat used to set PCLs has been very limited due to the number of new measures and new definitions for measures that Ofwat introduced for AMP7. In particular, out of the 15 common PCs, 11 have been subject to changes in definition for AMP7 or are new measures introduced in AMP7. Of these, there is not a single PC where all companies were fully compliant with the definition at the time of business plan submission. This suggests that the results of this process are not robust and calls into question the reliability of Ofwat's assertion that the PCLs it is setting will be achievable. For example, for water supply interruptions only 22% of the industry was fully compliant with the reporting definition at the time of business plan submission.

(ii) Incorrect conclusions drawn from AMP6

- (984) Ofwat argued that, in general, companies have achieved the upper quartile common PCs set in PR14, therefore Ofwat considers it appropriate to set more stretching targets. As discussed in the ICS Report on Ofwat's Overall Stretch Appendix (SOC280), this assertion over-simplifies mixed performance across measures and companies.⁶⁰¹
- (985) This high-level statement masks considerable variation across measures. Table 31 below shows net rewards and penalties achieved to date in AMP6 for measures where Ofwat set historic upper quartile targets (i.e. water supply interruptions, pollution incidents, and internal sewer flooding) and for leakage. There is a range of performance outcomes with penalties getting stronger towards the end of the AMP. The net position is £26 million across the industry. However, this is partly influenced by Severn Trent's strong performance on sewer flooding measures, where they have made £25 million net reward on internal flooding. If this is removed, the rest of the industry in effect only breaks even.

⁶⁰¹ ICS Report on Ofwat's Overall Stretch Appendix, pages 4 and 5 (SOC280).

Table 31 Net rewards and penalties achieved to date in AMP6

	2015-2016 (in £m)	2016-2017 (in £m)	2017-2018 (in £m)	2018-2019 (in £m)	Total (in £m)
Supply Interruptions	10.5	14	-31.3	2.1	-4.7
Leakage	2.7	5.1	-10.2	-42.7	-45.1
Internal Flooding	2.9	13.7	29.6	15.7	61.9
Pollution Incidents	16.8	10.8	10.2	11.1	48.9
Drinking Water Complaints	-2.4	-2.4	-11.6	-12.5	-28.9
Mean Zonal Compliance	-0.8	-0.2	-0.6	-4.2	-5.8
Total	29.7	41.0	-13.9	-30.5	26.3

Source: Anglian

- (986) Whilst this data also confirms that a majority of companies responded to achieving the target set at PR14, there is no consideration of the costs associated with achieving these and no demonstration as to whether this was achieved efficiently or the potential trade-offs in other areas. As discussed in the water supply interruptions case study,⁶⁰² improving service had cost implications which were unplanned in the PR14 business plan and Anglian reprioritised investment and expenditure to improve performance.
- (987) When there are only a small set of PCs with stretching PCLs, it is easier to make adjustments to expenditure to mitigate penalties. However, given the overall stretch at PR19 is much more widespread (on cost and service), then there are serious constraints on Company flexibility to prioritise investments. The breadth of the challenge is more significant at PR19.

4.1.3 Ofwat's approach is inconsistent with CMA precedent

- (988) Ofwat's approach is inconsistent with CMA precedent and other regulatory practice (such as Ofgem for RIIO-2).⁶⁰³ In *Bristol (2015)*, the CMA commented that it was '*not convinced that a blanket use of the industry upper quartile target was a superior method*'.⁶⁰⁴ The CMA also noted that '*for Ofwat to consider that upper quartile performance (historical or otherwise) would match economic levels appeared unlikely to us in general*'.⁶⁰⁵
- (989) At the time of its deliberations, the CMA was referring to the PR14 approach, based on historical upper quartile performance, but this criticism holds just as much force, if not more, to the blanket use of forward-looking upper quartiles.

4.2 Ofwat's assessment of overall stretch on outcomes and costs

- (990) Not only has Ofwat set significantly stretching targets, which are often not reflective of customers' priorities (and are also sometimes inconsistent across companies), it has then assumed that no additional funding is required to achieve them. Ofwat's underpinning assumption is that service improvements do not cost more and that improving to the future forecast upper quartile level of performance has neither expenditure nor risk implications. This: (i) is at odds with economic theory and regulatory precedent; (ii) is insufficiently substantiated; (iii) is at odds with historical evidence; and (iv)

⁶⁰² See **Chapter F: Cost service disconnect**.

⁶⁰³ ICS Report on Ofwat's Overall Stretch Appendix, page 3 (SOC280).

⁶⁰⁴ *Bristol (2015)*, Appendix 9.1, pages A9(1)-8 to A9(1)-9 (SOC275).

⁶⁰⁵ *Bristol (2015)*, para. 9.16 (SOC275).

does not account for differences in service levels between WASCs. Whilst there are some areas where performance improvements can be achieved without increases in costs (for example, Anglian has achieved some improvement in Water Quality Contacts through optimisation and targeted use of social media to educate customers regarding minor quality issues); for the vast majority of PCs, there is an unavoidable trade-off between cost and levels of service, well-evidenced in this industry as in others.⁶⁰⁶

4.3 Ofwat's component-by-component interventions

4.3.1 Overview of Ofwat's individual interventions

- (991) Ofwat imposed a range of individual interventions across Anglian's proposed suite of PCs and ODIs. Interventions made at a micro level were not reconciled back to the overall balance of risk and return for improving service which was clearly received from Anglian's customers during the engagement process. For example, water supply interruptions where the magnitude of potential penalties is far greater, placing greater emphasis on this PC than Anglian's customer evidence had.
- (992) Ofwat's FD continued in the same vein, specifically a measure-by-measure, component-by-component intervention-based approach. In this micro detail, Ofwat has systematically increased risk by adjusting PCLs, removing deadbands and moving caps and collars. Ofwat also intervenes on incentive rates. There is a clear asymmetry to these interventions. This is captured by the extension of companies' downside for RoRE. Ofwat has not made any adjustments where its analysis suggests that companies have set targets that are too stretching or incentive rates that are too punitive. The totality of these interventions served to decouple the ODI package significantly away from Anglian's customers' views on their priorities.
- (993) Overall, the combination of these interventions and the approach to setting costs allowances cements a materially downward skew to the potential RoRE performance range during AMP7.⁶⁰⁷
- (994) Ofwat weakly refutes this downside skew on the basis that companies have historically outperformed PCLs and therefore should be expected to do so again. This does not recognise that performance expectations and costs in AMP7 are materially different to the past. For example, Anglian has presented ample evidence on the increasing marginal cost of a further reduction of leakage.⁶⁰⁸
- (995) This approach has a number of problems associated with it. First, it undermines the macro 'package' which companies developed with customers. Anglian's engagement and its application was acknowledged by Ofwat as leading. Secondly, Ofwat's interventions depart from the basic economics of the ODI measures. For example, on water supply interruptions, Ofwat stretched the PCL to five minutes but fails to adjust the incentive rate to be consistent with the diminishing marginal benefit of service improvement, retaining an incentive rate associated with the original PCL proposal. This undermines the basic economic theory of diminishing willingness to pay for service improvements. Ofwat made similar interventions ignoring the economics during the PR14 process.

4.3.2 Examples of methodological shortcomings in Ofwat's component-by-component interventions

(i) Ofwat's use of standardised approaches with poor quality data

- (996) Proposed ODI rates were subject to a series of tests, following which Ofwat decided whether intervention is merited.⁶⁰⁹ Notably, Ofwat set a benchmark against which to assess companies proposed ODI rates,

⁶⁰⁶ The lack of associated funding to deliver stretching targets is discussed in further detail in **Chapter F: Cost service disconnect**.

⁶⁰⁷ See also **Chapter D: Risk and return**.

⁶⁰⁸ PwC Leakage Report, page 15 (SOC417).

⁶⁰⁹ Delivering Outcomes for Customers Policy Appendix, Table 4.1, pages 93 to 94 (SOC241).

on the basis of the industry 'reasonable ranges', which, for key ODIs, are calculated by reference to the industry's forecast upper quartile values.

- (997) Ofwat previously stated that '*[c]ustomer engagement therefore provides essential evidence to support companies' proposals in their business plans, such as their performance commitments to customers' and that 'customer engagement is a vital element of PR19'*.⁶¹⁰
- (998) Whilst Ofwat claimed that it had tested the overall quality of customer valuation evidence and triangulation and also conducted deep-dives of the marginal benefit components of the proposed ODI rates, the use of standard ranges for incentive rates limits customer choice and influence over incentive rates, contradicting Ofwat's stated focus on customers' views.
- (999) In some instances, Ofwat took the most punitive rate, resulting in it accepting customer evidence on outperformance rates for particular PCs for a company but rejecting it for the corresponding underperformance rate, or vice versa. For example, sewer collapses, and low pressure penalty rates were not reduced to Ofwat's 'reasonable range'. Similarly, Anglian's pollution incidents reward rate was not increased to Ofwat's 'reasonable range'.
- (1000) Moreover, Ofwat's 'reasonable ranges' did not even provide a representative portrayal of the industry, as these do not reflect the varying quality of customer research, the varying approaches to calculating marginal costs, the mixture of household and non-household valuations, and the varying rate calculations themselves. The use of 0.5 standard deviations either side of an average assumes that the incentive rates provided by companies follow a normal distribution (and also assumes an equal quality of customer research), which is not the case.

(ii) Ofwat's approach also failed to recognise differences in performance levels

- (1001) Ofwat's FD also fails to recognise that different companies are currently performing at materially different service levels and this has implications for current costs and willingness to pay for future changes to service (e.g. customers who experience high levels of service would be expected to be willing to pay less for improvements than those experiencing lower service levels). This is discussed further in **Chapter F: Cost service disconnect**.

(iii) Ofwat's approach to caps and collars sets inconsistent opportunities to outperform

- (1002) Ofwat evaluated the proposed caps (i.e. limits on outperformance payments for an ODI), collars (i.e. limits on underperformance payments for an ODI) and deadbands (i.e. specified range of performance levels where the ODI underperformance or outperformance payment is zero). Ofwat's general approach was to set caps at P90 levels (based on companies' estimates). Collars are generally more punitive and have a separate justification.⁶¹¹
- (1003) Guidance on how to estimate these potential ranges of performance was very limited and in most cases methodologies for forecasting future performance ranges will have been based on rough estimates. In general, companies would have provided Ofwat with methodologies for how they came to these estimates and it would have been apparent to Ofwat that these P10s and P90s were set using different assumptions.
- (1004) As a result of the different approaches that companies took to setting the P90s, companies have different caps on the amount of outperformance that they can achieve on certain common ODIs. These limits are not related to customer preferences; therefore, some customers will miss out as their company does not have the same level of incentive to improve as other companies. The current P90s are not consistent,

⁶¹⁰ Ofwat's PR19 FD Policy Summary, page 29 (SOC228).

⁶¹¹ Ofwat's initial approach was opposed to caps and collars, which Anglian removed for DD Representations where not material.

despite consistent PCLs and incentive rates, and therefore arbitrarily provides different opportunities to outperform.

(1005) Additionally, neither P10 or P90 reflects likely outturns. Ofwat has not considered more likely outturns, just the extremes. A more appropriate and balanced approach would be to assess rewards and penalties closer to P50.

(1006) Overall, there is a substantial increase in risk as a result of capping potential outperformance and extending the downward skew.

(iv) **Ofwat's FD contains some basic flaws on how certain measures operate**

4.3.3 Bathing waters attaining excellent status

Bathing waters attaining excellent status

Ofwat's proposal for this PCL is flawed. The bathing water assessments are based on the previous three years of data plus the year in which the assessment is made. Each year is equally weighted. Thus, for improvements to be delivered in AMP7, investment must be made early in the AMP and for early years in the AMP this performance will be heavily affected by performance in AMP6.

However, Ofwat's proposed PCLs see the number of bathing waters rated as excellent increasing from year three. The levels are currently set higher than Anglian's current performance of 30 excellent bathing waters, which would be difficult to improve upon due to the influence of the AMP6 performance in the measure. If a PC is set on an annual basis, then there should be improvement from year four onwards to allow for AMP6 influence to be removed. Anglian proposed in its Plan and in representations that the PC be end-of-period, with a PCL of 36 by the end of AMP7. Anglian's customers both agreed with and understood the Company's approach,⁶¹² as did the CEF.⁶¹³ However, Ofwat did not accept this evidence.

Anglian proposes the PCLs for the bathing waters PC be set in line with the Plan, so that there is only one PCL and financial incentive in the final year of AMP7 as Anglian initially proposed at 36 bathing waters at excellent status.

5 Impact on Anglian, its customers and the environment

5.1 Anglian's ODI package is heavily skewed towards penalties

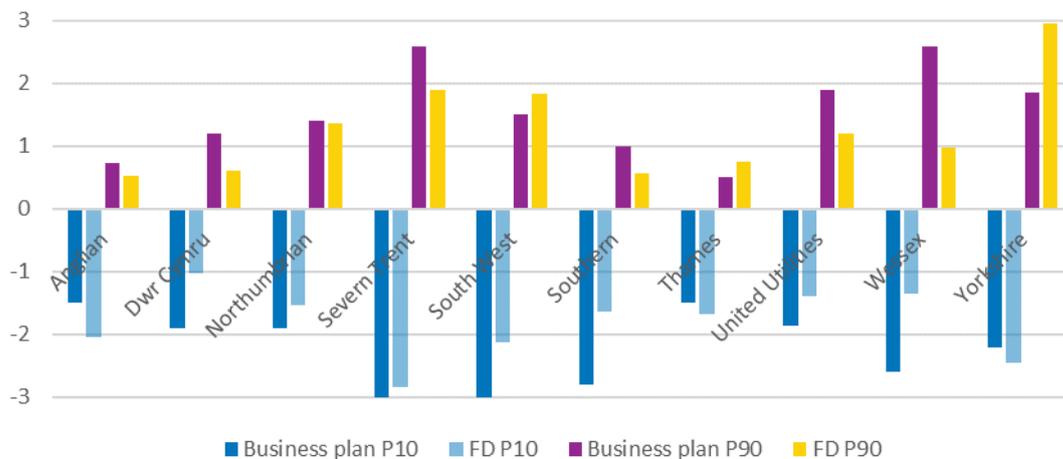
(1007) Ofwat's FD builds in asymmetry towards penalty for companies. This comes from the combination of stretching PCLs requiring upper quartile performance across the board and Ofwat's default calculation of incentive rates resulting in higher penalty unit rates relative to outperformance rates.

(1008) As illustrated by Figure 74 below, there is a clear asymmetry between Ofwat's range of expectations for outperformance and underperformance payments. This is the case for Anglian but also for many other WASCs. Compared to the business plans, the potential for outperformance is reduced for seven companies. For five companies, their P90 outperformance is lower than Ofwat's indicative range of 1-3%. In other words, in general, the downside scope is greater than the upside; and for Anglian (and many others), the FD downside is greater than the Plan.

⁶¹² Incling Ofwat LED Feedback Report, pages 13 to 17 (SOC119).

⁶¹³ CEF Economics and Valuation Sub-Group Report, page 9 (SOC413).

Figure 74 Analysis of ODI RoRE ranges



Source: Based on public data from company business plan submissions and Anglian's FD, Anglian's figure for the FD uses Anglian's September 2018 Plan estimates for P90 and P10 performance (and not Ofwat's)

- (1009) This analysis assumes companies are appropriately funded. However, the FD approach to setting cost allowances suggests most companies are unlikely to meet Ofwat's targets. The average company will incur penalties even if it is improving performance levels for customers. Rewards can only be earned where a step change in performance is delivered. However, the funding allowed by Ofwat in the FD does not enable Anglian to make this step change.⁶¹⁴
- (1010) Anglian researched customer views on the appropriate RoRE range for ODIs, expressed as bill impacts. Customers supported a symmetrical RoRE range of +/- 2%.⁶¹⁵ Ofwat's proposals resulted in a RoRE range for Anglian with significantly less potential for outperformance and more underperformance than the range supported by Anglian's customers (when accounting for C-MeX and D-MeX, which are not shown in Figure 74 above but were included in Anglian's engagement with customers).

5.2 The cost service disconnect and asymmetry between penalty and reward creates perverse incentives

- (1011) Not only does the FD create a shortfall in allowances, it also distorts incentives. By setting cost allowances too low for companies to achieve PCL targets and by allowing high penalties as a result of missing these targets, Ofwat effectively dispenses with incentives to improve customer service, in exchange for a one-off reduction in bills. This is despite the fact that customer research has shown that customers are willing to pay more for improved levels of service. Customers will not receive improved levels of service and, as a result of companies being penalised, they will have less ability to invest in improving service in the future. Ofwat's revised ODI ranges could result in companies hitting the 'worst performance' penalty collar and then having no real incentive to improve performance.
- (1012) In the longer term this means companies will not be incentivised to continue to improve performance as maintaining that level will not be funded.⁶¹⁶

Water quality contacts

Anglian's Plan highlighted that there was very little support from its customers to reduce the number of water quality contacts that the Company receives.

⁶¹⁴ For further detail see **Chapter D: Risk and return** and **Chapter F: Cost service disconnect**.

⁶¹⁵ ICS ODI Research, page 8 (SOC044). This included incentives for C-MeX and D-MeX which are not shown in Figure 73 above.

⁶¹⁶ This is clearly the case in relation to leakage, as illustrated in the case study in **Chapter H: Leakage**.

*'This is not high priority stuff, and if it detracts too much from other, more important areas, then it needs to be bottom of the list.'*⁶¹⁷

This was due to good performance compared to the rest of the industry and other challenges being prioritised for investment by customers. In 2018, Anglian was fourth of the companies that proposed a PC in AMP7.⁶¹⁸

Anglian proposed a flat profile for the PCLs in its Plan, maintaining improvements in performance that were expected in AMP6. Ofwat has set PCLs in the FD based on what it calls the upper quartile percentage improvement for companies who are not in the upper quartile of current performance.

Anglian is just outside upper quartile for companies that proposed this PC. This is the most difficult position to improve from (it is already performing at a relatively good level). Companies towards the lower end of performance now will find improving by Ofwat's 34% upper quartile value much easier to achieve. Anglian's current performance is better than most companies are required to reach by the end of AMP7.

Ofwat's FD gives Anglian a stark choice. Incur expenditure to meet a target that is beyond the level supported by customers on an issue that is not a priority for them, or receive a penalty and risk significant reputational damage for being seen to 'fail on water quality'. If Anglian maintained current levels of performance, it would expect to incur a penalty of £3.3 million during AMP7. As referenced above, Anglian intends to prioritise funding for leakage, accepting that it will incur penalties for this PC during AMP7, despite customer support for stable rather than improving performance.

Anglian proposes that the expected level of performance, 1.09 contacts per 1,000 population, be maintained. This is more stretching than the proposal in the Plan but reflects that Anglian is currently delivering a higher level of performance and customers supported maintaining current performance.

Table 32 Anglian's proposed performance commitment level

	2020-21	2021-22	2022-23	2023-24	2024-25
Quality contacts per 1,000 population served	1.09	1.09	1.09	1.09	1.09

Source: Anglian

(1013) Ofwat's approach will also drive the business to make shorter-term decisions which address immediate penalty risks at the expense of investment in maintenance, where issues potentially take longer to appear, resulting in future customers needing to foot the bill. Under a simple cost-benefit analysis, unrealistic targets with high penalties coupled with insufficient funding to achieve them encourage companies to target penalties rather than seeking to improve performance. Ofwat is expecting significant service improvements resulting in a redirection of funds away from other areas against a measure that customers do not see as an improvement priority. This is the case for water supply interruptions and water quality contacts, two measures not prioritised for improvement by customers,⁶¹⁹ where Anglian

⁶¹⁷ Incling Water Quality and Social Capital Report, page 5-9 (SOC049).

⁶¹⁸ Based on published Company data in business plan table App1 (the ODI table).

⁶¹⁹ Customer Research and Engagement (March 2018), page 151 (SOC089). Long-term supply interruptions remain an important concern for customers, but customers appear less concerned about brief interruptions. Compared with PR14, the customer valuation for this service has reduced by more than 50% and customers appear less willing to pay for further improvements. During the PR19 main stage societal valuation study, the majority of customers wanted to 'maintain' current service for interruptions that last 6 to 12 hours, with low levels of support (19%) for improvements to the level of unplanned interruptions.

will accept performance that would attract penalties in order to prioritise funding for leakage (a customer priority).⁶²⁰

(1014) Cost allowances derived in a way that do not cover the expectations of unduly stretched performance ODIs will, in future, present companies with the dilemma of whether to invest further beyond their allowances in order to meet these PCLs and to avoid penalties under the ODI framework. In the long-term, Ofwat's approach creates perverse incentives to be a mediocre performer as it effectively discourages companies that aim for frontier performance. Whilst this is unlikely to be Ofwat's policy intent, it is the unintended consequence of its approach.

6 Request to the CMA

(1015) Anglian's proposed ODIs were developed as a coherent overall package, with stretching targets but a reasonable balance of risk and reward. The package was underpinned by Anglian's customers' interests and preferences, as evidenced by Anglian's extensive customer research, which led to several changes throughout the process to ensure that the package effectively reflected what Anglian's consumers want in the round. Ofwat recognised Anglian's ODI package as being well evidenced, reflecting customer priorities and of high quality. In particular, the plan was considered to sufficiently evidence marginal costs. Anglian received a 'B' rating against all assessment areas (i.e. the highest rating effectively awarded, which was only achieved by one other company out of 17).⁶²¹

(1016) The package that Anglian had proposed, which has been supported by its customers in the round and includes all elements of the ODIs considered together, has been subject to a process of dismantling by Ofwat. Interventions made at a micro level have lost sight of the bigger picture. Several of the interventions made in isolation to specific elements of Anglian's ODIs materially detract from the clear direction that Anglian received from its customers during the engagement process. These interventions are based on industry data of varying quality and consistency. Ofwat's approach to setting incentive rates effectively decouples companies' incentive rates from their company-specific research, which was directly linked to the marginal benefits of moving from the current service position to deliver their proposed AMP7 levels of service.

(1017) Ofwat appears largely to have dispensed with a core idea that it has long promoted; namely that stretching performance in outcomes should be related in some way to an assessment of the economic level of service supported by customers; an idea that explicitly would require targets to be set with reference to the costs and benefits of achieving them. Upper quartile performance targets have in effect supplanted both the concept of economic levels of service, and any use of customer preferences to determine priorities. The same can be said where, for other non-upper quartile measures, Ofwat supplants its judgement on stretch and incentives for that derived by companies through customer engagement.

(1018) Additionally, Ofwat's approach has not recognised the interrelationship between the efficient level of costs that a company reasonably incurs and the level of service it provides to customers, the environmental outcomes it delivers, and the requirements of quality regulators it must meet. Nor did it reflect historic performance in key areas for customers such as drinking water quality and leakage reduction. For Anglian, Ofwat's package is particularly inappropriate because it is based on an unrealistic view that improving frontier performance can be achieved at the same unit cost as improving average performance.

(1019) Ofwat's FD delivers a systematic shift to reduce the potential rewards for companies should they achieve stretching performance by way of achieving their P90 forecasts, whilst significantly increasing the risk

⁶²⁰ This is illustrated in the case study in **Chapter F: Cost service disconnect**.

⁶²¹ IAP Test Question Assessment, pages 3 to 5 (SOC410).

of penalties. This asymmetry between penalty and reward creates perverse incentives and is inconsistent with customer views on the appropriate calibration of reward and penalty.

- (1020) In absence of consideration of the wider cost implications, setting performance at the forecast upper quartile creates a significant risk of more cost over-runs and penalties as the implied stretch is out of line with previous improvements. As a consequence, Ofwat's PR19 approach presents financial risks that are not recognised or accommodated elsewhere in the FD, including in its overall assessments of the cost of capital.
- (1021) Overall, Ofwat's approach is inconsistent with Ofwat's statutory duties, including the primary duties to further the consumer objective and to secure that water companies can finance the proper carrying out of their statutory functions;⁶²² and the secondary duties to promote economy and efficiency and to contribute to the achievement of sustainable development.⁶²³ Additionally, Ofwat's approach is inconsistent with best regulatory practice (including the principles under which regulatory activities shall be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed).⁶²⁴
- (1022) Anglian requests that the CMA reinstates Anglian's ODI package, underpinned by Anglian's customers' interests and preferences, which sets stretching targets but a reasonable balance of risk and reward.
- (1023) The small number of exceptions to restating Anglian's PC and ODI package are shown in Table 33 below.

Table 33 Exceptions to restating Anglian's PC and ODI package

Performance commitment	Change (by)	Rationale	Final form of PC and ODI
Supporting customers in vulnerable circumstances (quantitative)	Removal of outperformance incentives (Ofwat), change in definition to household rather than population (Ofwat), change in performance commitment level (Anglian, accepted by Ofwat)	Changed performance commitment level to reflect new definition	Final determination
Supporting customers in vulnerable circumstances (qualitative)	Removed (Anglian, accepted by Ofwat), with new vulnerability performance commitments (accepted by Anglian)	Superseded by other vulnerability performance commitments	Final determination
Managing void properties	Changed definition to include unmeasured properties (Ofwat) updated performance commitment level (Anglian, accepted by Ofwat)	Changed performance commitment level to reflect new definition	Final determination
Population supplied by a	Removed underperformance element (Ofwat)	Double counting of underperformance on the	Final determination

⁶²² Section 2(2A) WIA91.

⁶²³ Section 2(3) WIA91.

⁶²⁴ Section 2(4) WIA91.

Performance commitment	Change (by)	Rationale	Final form of PC and ODI
single supply system		Strategic Interconnector Programme ODI	
Non-Household Retailer Satisfaction	Removed financial incentives (Ofwat)	Market governance arrangements are evolving to introduce financial incentives on wholesaler performance in the market. These would duplicate the incentives of the ODI.	Final determination
Water quality contacts	Revised performance commitment level to 1.09 to reflect maintenance of current performance (Anglian)	Principle of maintaining steady performance remains from the business plan, update to reflect latest performance	Statement of case

Source: Anglian

Chapter H: Leakage

1 Overview

- (i) Ofwat's Final Determination creates poor outcomes for customers as a result of its approach to several different building blocks of the price control, as detailed in other chapters. Here, this leakage master case study illustrates the combined effect of these shortcomings in an area of great importance to customers: leakage.
- (ii) As the frontier company in the sector, Anglian is in a unique position in that:
 - (a) maintaining its existing low level of leakage comes at a higher marginal cost; and
 - (b) continuing to drive forward the frontier in AMP7 requires significant investment beyond the cost of maintaining current levels.
- (iii) Anglian has presented compelling evidence that the marginal cost of maintaining and reducing leakage levels increases as leakage performance improves. On the basis of a very weak evidence base, Ofwat denies this and instead imposed a Final Determination that:
 - (a) allows insufficient base costs to maintain Anglian's current frontier performance;
 - (b) compounds the problem by allowing insufficient Enhancement costs to shift the leakage frontier further during AMP7 in line with the Performance Commitment Level;
 - (c) sets an ODI framework that penalises Anglian, even if it continues to push the frontier forward, and delivers an absolute level of performance at which all other companies would receive rewards; and thus
 - (d) creates outcomes contrary to the policy aims set out in Ofwat's methodology and the views of Anglian customers.
- (iv) The combined effect of Ofwat's Final Determination on Anglian regarding leakage cannot be overstated. Anglian does not have the funding to maintain its current performance, let alone improve it and even if it did improve, further increasing its leading position in the sector, it would still face financial penalties.
- (v) Its overall effect on leakage exemplifies the ways in which the Final Determination compromises Anglian's ability to meet its statutory obligations and is inconsistent with Ofwat's duties.
Request to the CMA
- (vi) Anglian requests that the CMA appropriately reflect the expenditure required to maintain and improve Anglian's leakage performance (for example, by reversing Ofwat's rejections of its cost adjustment claim) and removing the company-specific efficiency challenge on leakage enhancement. Anglian also requests that its ODI mechanism as proposed in its business plan is reinstated.

(1024) This chapter is structured as follows: Section 2 sets out Anglian's frontier position on leakage; Section 3 outlines why Ofwat's base allowance is insufficient; Section 4 outlines why Ofwat's Enhancement allowance is insufficient; Section 5 outlines how the leakage performance commitment level (PCL) and outcome delivery incentives (ODIs) are inappropriate and do not reflect customers' views; Section 6

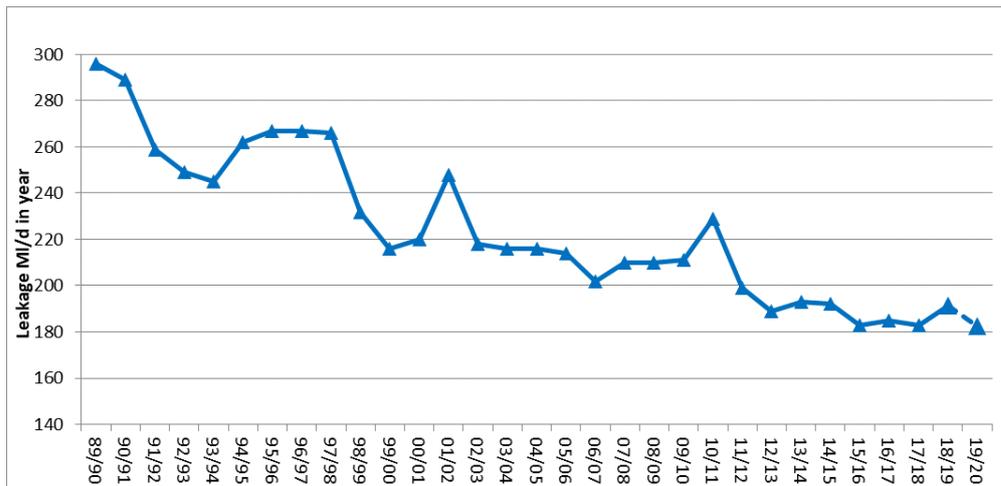
analyses the overall impact of Ofwat's Final Determination (FD); and Section 7 sets out Anglian's request to the CMA.

2 Anglian's frontier position on leakage

2.1 Looking backwards: the path to frontier performance

(1025) Through its rigorous historical focus on finding and fixing leaks, Anglian has reduced leakage by one-third since privatisation. It is now at record low levels, as illustrated by Figure 75 below.⁶²⁵

Figure 75 Anglian's Historical leakage performance since privatisation



Source: Anglian historical reported leakage data – Annual reports

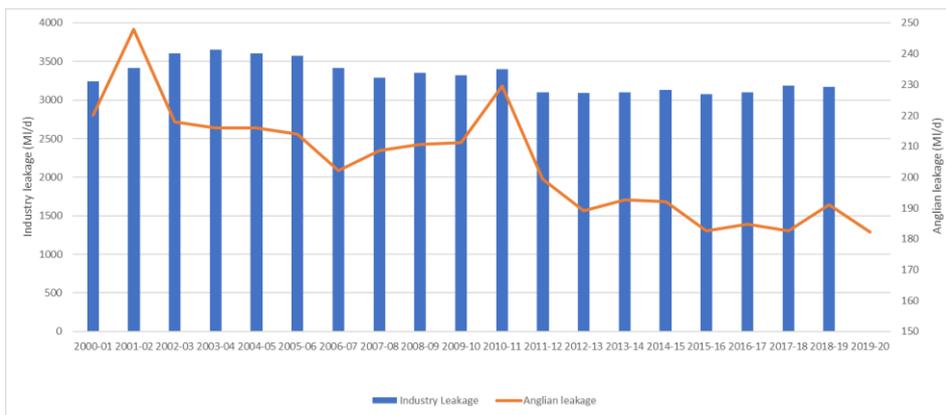
(1026) Anglian's performance directly contrasts with the industry performance cited by Ofwat in the FD. Ofwat states that the overall industry position has shown little change since 2000-2001.⁶²⁶ This statement masks individual company performance over this period. Figure 76 below overlays Anglian's performance compared to the sector's overall performance for the same period. This demonstrates Anglian's level of leakage has reduced by more than 15% over this time. In 2017-2018 its leakage was around half the industry's average in terms of l/km/day of water main and around 70% of the industry average when measured as leakage/property/day.⁶²⁷ It is against this backdrop of being the industry leading performer that Anglian's base and Enhancement requirements must be considered.

⁶²⁵ Leakage measures the volume of water escaping from the pipes each day.

⁶²⁶ Ofwat's Overall Stretch Appendix, pages 5 and 6 (SOC229).

⁶²⁷ DD Leakage CAC, page 2 (SOC173).

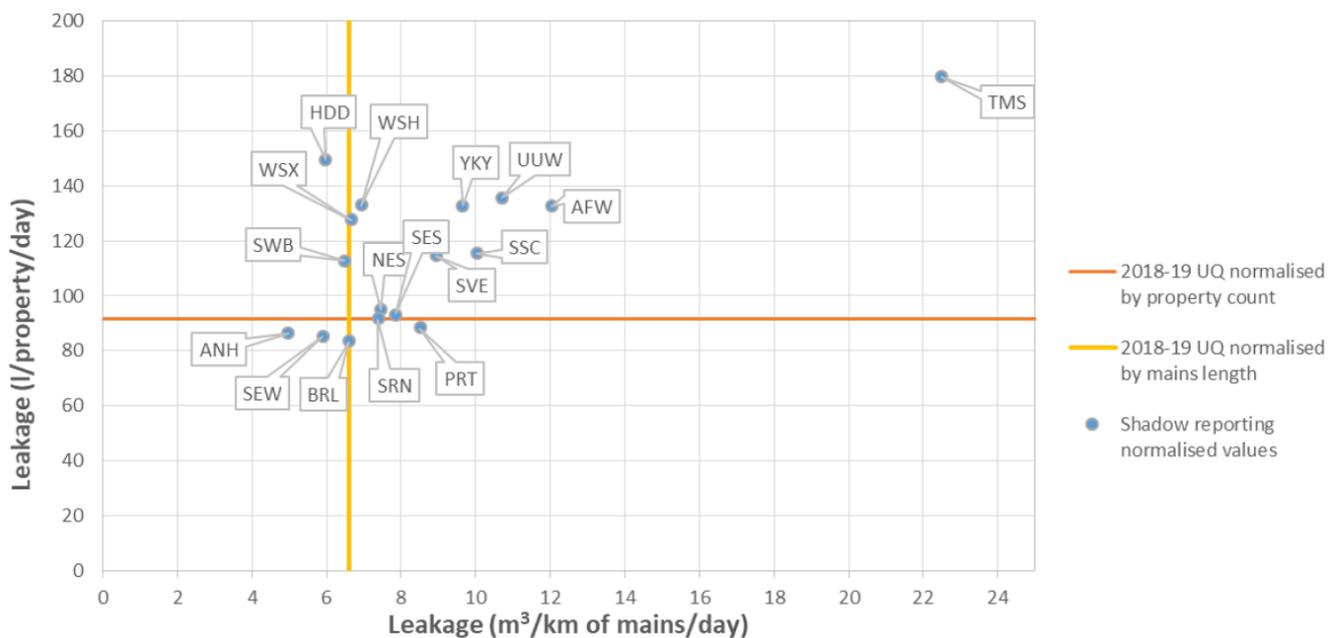
Figure 76 Anglian's performance compared to the rest of the industry



Source: Ofwat's Overall Stretch Appendix, Figure 4 (SOC229) combined with Anglian's annual performance data

(1027) Figure 77 below shows Anglian's frontier position when leakage levels are normalised for company scale and size of asset base:

Figure 77 Leakage performance data 2018-19



Source: Ofwat's Overall Stretch Appendix, figure 6 (SOC229)

2.2 Why leakage matters

(1028) Leakage reduction is a key priority for Anglian as its licensed area is already water-stressed and faces challenges from rapid housing and economic growth, numerous ecologically sensitive wetlands, significant agricultural production, and a changing climate with more frequent and severe droughts. This makes leakage reduction an essential element of balancing supply and demand. Anglian's continued success in leakage reduction means it takes less water from the environment to supply customers and so can mitigate its impact on the environment.

(1029) The benefits of Anglian's strong performance are not only enjoyed in the east of England. The Company endeavours to continually share its learnings on how to reduce leakage, to the benefit of the whole sector (e.g. through participation in national and international fora). For example, Anglian jointly hosted

an 'Innovate East' event with Essex and Suffolk Water, attended by 1,800 people from water companies around the globe and from other sectors.⁶²⁸ This included sprints and hackathons on leakage. One of the ideas from this event which received funding for the next stage of development was a project which looks at utilising data in novel ways to drive more granular understanding of the difference between leakage and usage in different District Meters Areas.⁶²⁹

- (1030) Anglian's approach to leakage is rooted in customers' preferences. The majority of customers prefer options that make best use of existing resource and infrastructure, as opposed to options that involve developing new resources. This highlights a clear preference for demand management, particularly leakage reduction. Customers understand that Anglian's leakage performance is industry-leading and further leakage reductions require significant investments which will be subsequently reflected in customers' bills. Customers would like Anglian to continue pushing the frontier on leakage, which remains a key priority for them⁶³⁰ and supported Anglian receiving rewards for doing so.⁶³¹
- (1031) During PR14, Anglian's owners made the commitment that funding improvements in the level of leakage in AMP6 would be done at the risk of shareholders rather than through customers' bills.⁶³² These costs associated with driving down leakage would only be recovered through customer bills and through the ODI framework on the condition that the leakage PC level was achieved. No other measures for any other company operated on such a basis.⁶³³

2.3 Looking forwards: the plan to push the frontier on leakage

- (1032) Anglian has taken a 'twin-track' approach to supply/demand balance.⁶³⁴ This approach prioritises interventions to reduce leakage and reduce consumption as well as developing solutions to increase supply capacity. Such an approach was considered necessary by the National Infrastructure Commission.⁶³⁵ It has also been called for in the NAO's March 2020 report into Water Supply and Demand Management.⁶³⁶ Anglian's WRMP and Plan propose ambitious leakage reductions and rolling out smart meters which will help customers to decrease their personal consumption and help Anglian to identify leaks.
- (1033) Anglian's Plan was driven by its customers' views, which were fully integrated into the Company's proposals. The robustness of Anglian's customer engagement was recognised by Ofwat, which awarded the Company the only sector-leading 'A' rating at Initial Assessment of Business Plans (IAP).⁶³⁷
- (1034) Customers' stated preferences on leakage can be summarised as follows:
- (i) **Customers want Anglian to pursue both demand and supply-side measures** – this was highlighted in future customer workshops for example, where students pointed out that population growth would be associated with increased demand and decreased or rationed supply. They felt Anglian should deal with this by encouraging reduced use (e.g. through education initiatives); increasing supply (e.g. through desalination and building more reservoirs); using advanced technology to manage the water system and re-use water from sewerage.⁶³⁸

⁶²⁸ Website available at: <https://www.innovateeast.org/>.

⁶²⁹ For more details on how Anglian has and will continue to share best practice see September 2018 Plan, page 195 (SOC001).

⁶³⁰ WRMP 19, page 48 (SOC279).

⁶³¹ See **Chapter B.2: How customers have shaped the plan** and **Chapter G: ODIs**.

⁶³² PR14 FD Company Specific Appendix for Anglian, page 15 (SOC282).

⁶³³ PR14 Final Methodology Appendix 2, page 95 (SOC283).

⁶³⁴ September 2018 Plan, pages 54 to 67 (SOC001).

⁶³⁵ NIC Preparing for a Drier Future Report (SOC270).

⁶³⁶ NAO Water Supply and Demand Management Report (SOC269).

⁶³⁷ IAP Company Categorisation, pages 2 to 4 (SOC346).

⁶³⁸ Customer Research and Engagement (August 2018), 'supply meets demand' Section, page 175 (SOC033).

- (ii) **Customers want Anglian to continue pushing the leakage frontier and support the prospect of enhanced outperformance payments for doing so** – 78% of customers responding to Anglian's Plan in the 'Be the Boss' survey voted to reduce leakage further and supported the prospect of enhanced outperformance payments for Anglian for shifting the industry frontier.⁶³⁹ Similarly, 70% of customers in Anglian's targeted ODIs research supported enhanced rewards to reward for further additional leakage reductions.⁶⁴⁰ In Anglian's water resources second stage research, leakage reduction was ranked as the highest priority of all demand and supply-side options by both household and non-household customers.⁶⁴¹
- (iii) **Customers want Anglian to invest now** – As illustrated by the customer quotes below, on affordability choices and trade-offs, customers wanted Anglian to invest now to drive down leakage to even lower levels.

What do customers say about leakage?

In the online community survey, in response to leakage question, 'Would you like Anglian Water to continue to invest towards this? Why, do you feel this is or isn't important to invest more towards?', customers' responses included:

'In the long term improving the infrastructure will make things more efficient in the longer term'

'Well if leaks are not prevented, then it will cost more for customers in the long run'

'Saving water and having a good infrastructure is important. Leaks that are not fixed have costs in the long term in that more water has to be supplied to replace that which is wasted through leaks.'

'Leakage management needs to be properly focused and quality of repairs and replacement mains needs to be guaranteed by internal and external suppliers. Reducing leaks is a priority.'

'It may cost more now but surly [sic] it is also an investment in the infrastructure which will save money down the road.'⁶⁴²

(1035) Reflecting customers' stated preferences and willingness to pay for improvements in leakage, Anglian's WRMP set an ambitious leakage reduction target of **142MI/d by 2025**. This represents a 40MI/d (**22%**) reduction compared to Anglian's 2017/18 baseline.⁶⁴³ Anglian's SDS ambition is to reduce leakage by 50% by 2050.⁶⁴⁴

⁶³⁹ Customer Engagement Channels and Questions, page 10 (SOC034). Be the Boss consultation, available at: <http://www.h2oletsgo.com/quiz/>.

⁶⁴⁰ Anglian Be the Boss Consultation, page 7 (SOC320).

⁶⁴¹ ICS Valuation Completion Report, page 75 (SOC038).

⁶⁴² 'Let's Talk Leaks', quotes taken from feedback received through Anglian's Online Community from 30 April to 8 May 2018.

⁶⁴³ September 2018 Plan, page 64 (SOC001).

⁶⁴⁴ September 2018 Plan, page 54 (SOC001).

2.4 Leakage in practice

How does Anglian detect and fix leaks?

Anglian goes beyond using active leakage control which only targets visible leaks, to constantly innovating with new leak-detection technologies such as thermal imaging drones (which identify differences in soil temperature which could be caused by water escaping from a pipe), acoustic noise logging, satellite imagery and analytics and smart meters to help locate otherwise elusive leaks in a time- and cost-efficient way.

Anglian also has a pressure calming programme to reduce leakage, reduce pressure transients and prevent mains bursts. In collaboration with Cranfield University, Anglian developed a predictive forecast model to assess where burst water mains are likely to be observed based on environmental data science modelling of weather, soil, and infrastructure variables.

Leak detection allows Anglian to prioritise repairs and fix small leaks early before they result in a burst pipe, disrupt supply and become more costly to fix. Such solutions are more costly in the short-term but cheaper in the long-term.

After a leak is detected, technicians will investigate and repair.

Anglian's Integrated Leakage and Pressure Management provides a visualisation platform for the whole leakage process, including from effective targeting of high areas of leakage, deployment of field resources and resolution.

Controlling leaks is therefore a combination of labour (e.g. technicians) and technology (e.g. noise loggers). As set out in the PwC Report submitted to Ofwat, marginal cost of leakage reduction (both the cost of maintaining and renewing assets and operational costs) increases as companies further reduce leakage. This is because the as "*low hanging fruit*" (i.e. leaks that are more easily detected and resolved) is addressed first, or as companies first exhaust lower-cost means of reducing leakage before exploring more costly means of reducing leakage'.⁶⁴⁵ As a result, finding and fixing harder to detect leaks will cost more than average as the technology (e.g. drones, smart meters) and labour (fixes will take longer) required to do so will be more expensive.⁶⁴⁶

In addition, due to the level of leakage being low, each fix on average gives a smaller benefit in terms of leakage reduction, so more fixes are required in order to achieve a 1Ml/d saving than previously.

3 Ofwat's FD base allowance insufficiently captures the costs of maintaining Anglian's achieved level of leakage in AMP7

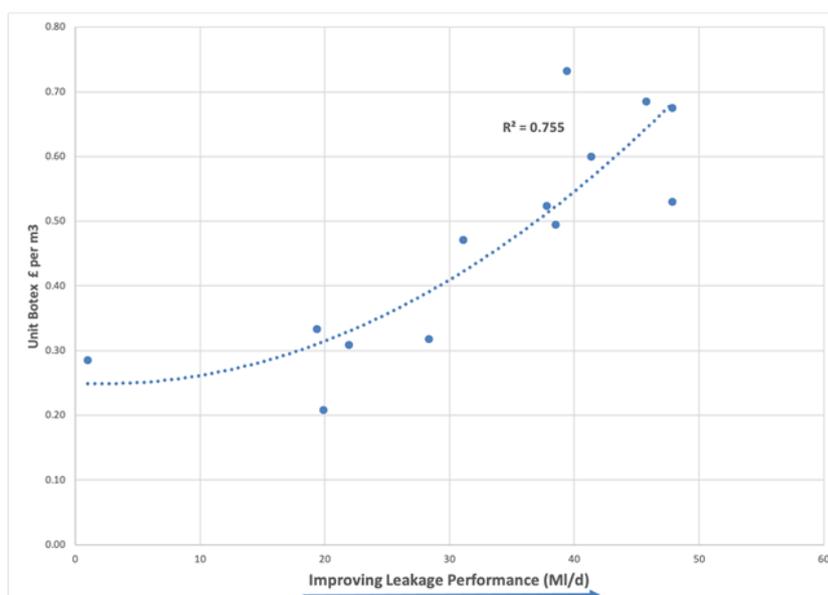
(1036) Base expenditure reflects the costs of maintaining existing levels of service. For leakage, this means reflecting the costs of maintaining Anglian's AMP6 outturn level of leakage as base for AMP7. As the industry leader, this entails costs which are higher than the industry average.

(1037) Figure 78 below reports the marginal costs of leakage reduction based on historical reported performance. It shows that the marginal cost of leakage increases as leakage performance improves:

⁶⁴⁵ PwC Leakage Report, page 15 (SOC417).

⁶⁴⁶ Information available at <http://ourperformance.anglianwater.co.uk/outcome-resilient.html>.

Figure 78 Marginal costs of leakage reduction – Anglian historical cost and service performance



Source: ICS Consulting, Report on Ofwat's PR19 FD Overall level of stretch across costs, outcomes and allowed return on capital appendix, Figure 3, page 10 (SOC280)

(1038) Ofwat's approach and rationale on leakage base expenditure was subject to numerous (often inconsistent) changes throughout PR19.⁶⁴⁷ Whilst Ofwat initially admitted that maintaining Anglian's frontier level of performance inevitably required increased base costs, it ultimately failed to make the corresponding allowances. In particular:

- (i) At IAP, Ofwat allowed **£55 million** in partial acceptance of Anglian's cost adjustment claim of **£148 million**. Anglian noted in its response that Ofwat's calculation included an arithmetic error (Ofwat's calculation at IAP incorrectly used Log10 instead of natural log in Ofwat's model). Had Ofwat corrected this error, the allowance would have risen to **£126 million**.
- (ii) At DD, Ofwat revised its approach and **rejected Anglian's cost adjustment claim in full** on the basis that: (i) it considered that the modelled base allowance enabled Anglian to achieve upper quartile levels; and (ii) Anglian's frontier performance was recognised through the allowance made for leakage Enhancement expenditure in the supply/demand balance feeder model and in the determination of the stretching PC level, beyond which the Company can receive outperformance payments.
- (iii) At FD, Ofwat still rejected Anglian's cost adjustment claim but allowed a £50.2 million uplift (**£24.5 million** of which was leakage driven) to Anglian's 'Botex Plus' allowances on the basis of adjusting for alternative specifications to its econometric models, so implicitly admitting the insufficiency of the base allowance. While the recognition that the existing models are inadequate was welcome, Anglian considers the quality of the alternative specification models to be low and the additional allowance made on their basis to be insufficient. Within these models, the coefficients of the additional variables are not significantly different to zero and as such add no significant explanatory power to the models. Further, although the two leakage models suggested that Anglian should receive an extra £98 million, this allowance was averaged out with three other models (for growth, average pumping head and length of mains) which had

⁶⁴⁷ For more details on the changes in Ofwat's approach on base expenditure throughout the PR19 process, please refer to IAP Response, Leakage Focus Area, pages 108 to 120 (SOC104) and DD Representation, Leakage Focus Area, pages 220 to 229 (SOC168).

a much smaller influence on costs and resulted in a diluted allowance of £50.2 million of which the leakage model contributes £24.5 million.⁶⁴⁸

(iv) The final leakage Botex funding gap was **£112.4 million**.⁶⁴⁹

(1039) Anglian is unable to maintain its current levels of leakage with the existing base allowance. This shortfall is further exacerbated by the incorrect opex-capex split which Ofwat's FD has applied and which results in an artificial opex gap that increases the difficulty of maintaining current leakage performance.⁶⁵⁰ As illustrated by the case study above, whilst Anglian employs state-of-the-art technology to spot possible leaks (e.g. hydrophones which detect leak noises) which is typically capex, investigating, excavating and fixing these leaks after having detected them is opex-intensive as it largely relies on technicians conducting more on-site visits and fixing smaller leaks. The FD therefore affects its whole leakage programme, but places particular limitations on Anglian's ability to rectify leaks once they have been detected.

4 Ofwat's FD Enhancement allowance is insufficient in capturing the costs of driving down the leakage frontier further

(1040) As explained in Section 3, base costs reflect the costs of maintaining leakage at Anglian's AMP6 outturn level.

(1041) Anglian's AMP7 Enhancement costs of £77 million reflect the costs of reducing leakage further.

(1042) The difference in costs associated with performing at different levels of leakage has been demonstrated through UKWIR (UK Water Industry Research)'s Long-term Leakage Goals' Report.⁶⁵¹ As illustrated in Figure 79 below, the costs of reducing leakage increase as baseline levels of leakage are reduced further as opportunities to reduce leakage through means such as pressure management and customer metering become more limited, and further reductions must be achieved through mains renewal.

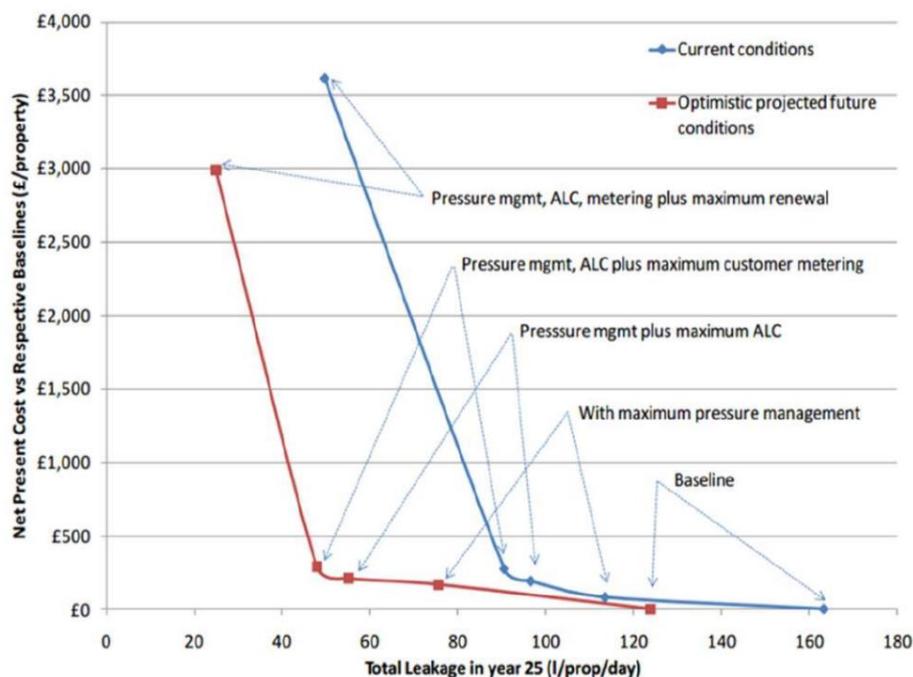
⁶⁴⁸ Alternative models for growth, average pumping head and length of mains resulted respectively in an allowance of £10.6 million, £82.6 million and £9.7 million. Ofwat's email to Anglian on growth allowances (SOC355).

⁶⁴⁹ This figure represents the gap between Anglian's cost adjustment claim (£136.9million) and the leakage-driven element of the base adjustment (£24.5 million), resulting in a £112.4 million gap.

⁶⁵⁰ See **Chapter E.5: Misallocation of opex and capex**.

⁶⁵¹ UKWIR Leakage Report (SOC416).

Figure 79 UKWIR's Long-term Leakage Goals Report



Source: UKWIR Leakage Report (SOC416)

- (1043) Being the frontier company for leakage means that the marginal cost of further improvements is greater than that of the industry average or the industry median. As illustrated in Figure 79 above, this is evidenced by UKWIR's Long-term Leakage Goals report which found that leakage control costs rise gradually until the point where pressure management, metering and find and fix have reached their limit and mains renewal becomes the only way of achieving further leakage savings at a much-increased level of cost.⁶⁵²
- (1044) This report highlights two specific factors consistent with Anglian's experience of driving down leakage. First, the activity associated with reducing leakage changes at lower levels of leakage (as illustrated by the case study in Section 3 above). Second, the costs associated with the different activity profile to achieve lower levels of leakage increase at those lower levels. So, the marginal cost of leakage increases at lower levels of leakage.
- (1045) Ofwat's approach to leakage Enhancement needs in PR19 can be summarised as follows:
- (i) At IAP, Enhancement allowances were made to companies operating either beyond Upper Quartile level or proposing reductions greater than 15% at AMP7 based on industry median costs. As Anglian is reducing leakage beyond Upper Quartile level, it qualified for and received an Enhancement allowance of **£36.5 million** calculated on the basis of the industry median unit cost.
 - (ii) At DD, Ofwat changed its approach and instead applied a company-specific challenge for companies with a unit cost greater than the median industry level. Following this change, Anglian's Enhancement allowance was **£69.2 million**.
 - (iii) At FD, Ofwat maintained the company-specific challenge based on Anglian's unit cost being above the industry median and ultimately made a **£71.4 million** Enhancement allowance to Anglian.

⁶⁵² UKWIR Leakage Report, page 44 (SOC416).

(iv) The final leakage Enhancement funding gap was **£5.3 million**.

- (1046) The FD, and particularly Ofwat's application of an efficiency challenge on the basis of unit costs being greater than the industry median, does not reflect the higher marginal costs of reducing leakage when leakage is already at a low level, which depends on companies' current leakage positions, i.e. that costs are significantly higher than the industry median unit cost for decreasing leakage beyond Upper Quartile level.
- (1047) The use of industry averages to derive the costs of delivering leakage performance at the frontier is inappropriate as it fails to recognise the nature of activities and related costs associated with reducing leaks at the frontier compared to the average or median.

5 Ofwat's ODIs for leakage are manifestly wrong and do not reflect customer views

- (1048) Performance Commitment Levels (PCLs) reflect the particular level of service that companies pledge to deliver to customers. PCLs are accompanied by ODIs which set out underperformance penalties if companies do not meet their PCLs and outperformance payments for going beyond the stretching PCLs and delivering additional value for customers. Leakage performance is calculated as a three-year average of annual values of total leakage in MI/d (megalitres per day). The PCL in each year is expressed as a percentage reduction from the baseline 2019-2020 three-year average value.
- (1049) Anglian set its **PCL at a 15% reduction in the performance of the England and Wales upper quartile** for leakage length of main (targeting **166 MI/d**) by the end of the AMP.⁶⁵³ In acceptability testing of Anglian's Plan, 82% of household customers agreed that this was a stretching PC.⁶⁵⁴
- (1050) Anglian's ODI reward rate was informed by what customers were willing to pay for. These values were derived from its robust and innovative societal valuation workstream and the application of the results to ODIs was challenged robustly by the CEF.⁶⁵⁵ 78% of customers in the 'Be the Boss' survey supported enhanced rewards for leakage, and the online community supported a bill impact of up to £4 to shift the frontier on leakage.⁶⁵⁶ Due to Anglian's industry leading performance, it proposed that an **enhanced reward rate (+£0.94 million/ML/d)** should apply at performance **beyond Anglian's PCL**, in line with Ofwat's methodology for enhanced rewards for leading performance and sharing of best practice.⁶⁵⁷ Under Anglian's proposed PCL, this reward rate would only be achieved by stretching its already frontier performance and its Plan set out its strategy for sharing its learning with the industry.⁶⁵⁸
- (1051) Anglian actively shares best practice on how it delivers strong leakage performance and operates an open-door policy for bilateral sharing with other companies. For instance, the Company has hosted teams from various other water companies. Anglian is also actively involved in UKWIR projects. Anglian's future communication strategy for leakage includes a multi-channel approach, using established information sharing platforms in the industry, through to international conferences, speaker opportunities, bespoke reports, trade and consumer media coverage, social media and bespoke case study documents for specific audience groups.

⁶⁵³ September 2018 Plan, page 193 (SOC001).

⁶⁵⁴ Accent Acceptability Testing Outline Business Plan page 32 (SOC047).

⁶⁵⁵ See **Chapter G: ODIs**.

⁶⁵⁶ Accent Acceptability Testing Outline Business Plan, page 10 (SOC047).

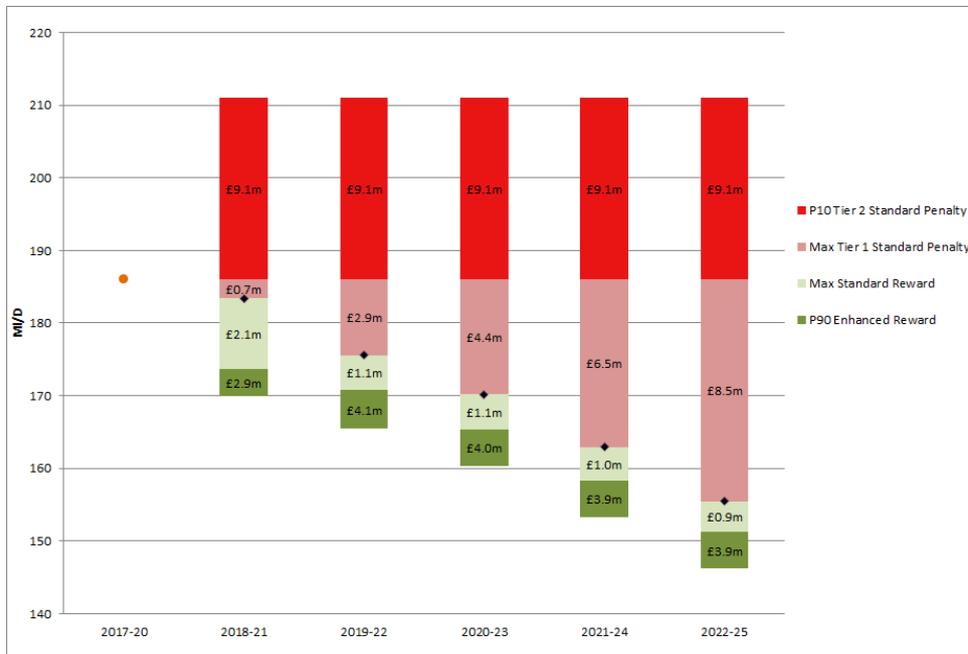
⁶⁵⁷ In its Final Methodology, Ofwat stated that (i) the threshold for the enhanced outperformance payments should be set at the performance level of the current leading company, or preferably higher, and (ii) enhanced outperformance payments will depend on how companies explain that they will share the knowledge behind their success with companies across the sector by end of the price review period. See PR14 Final Methodology Appendix 2, page 85 (SOC283).

⁶⁵⁸ For more details on Anglian's strategy to share best practices, please refer to the September 2018 Plan, page 195 (SOC001).

(1052) Anglian proposed a deadband between its AMP6 outturn performance and Anglian's PCL in the view that it should not face a penalty for improving performance from its already industry leading level, and to provide protection against a situation of trying and failing to shift the leakage frontier.

(1053) Figure 80 below shows the FD position for the leakage PCL and ODIs.

Figure 80 Anglian's Final Determination PC and ODIs



Source: Anglian FD Outcomes PCs Appendix, page 11 (SOC233)

(1054) Figure 80 above highlights the unreasonable nature of the FD. Irrespective of the funding shortfall Anglian faces, Ofwat's calibration of the leakage ODI creates a scenario where Anglian could be pushing the frontier but incurring penalties for so doing. It is only for significant improvements beyond the current frontier, for which Anglian is insufficiently funded, that Anglian can avoid such penalties. Perversely, demonstrating the incoherence of the framework, other companies would receive rewards for delivering poorer leakage performance in their respective leakage ODIs.

(1055) Anglian highlighted that its PC and ODI package reflects the priority that customers place on leakage reduction and their willingness to pay for further reductions in leakage. Customers agreed that Anglian should be able to earn rewards for delivering the stretching level of performance set out in the Plan.

(1056) At FD, Ofwat increased the stretch of Anglian's PCL to align with its funding approach and set it to Anglian's WRMP level (i.e. a 16.4% reduction over AMP7).⁶⁵⁹ Ofwat proposed a glidepath to reaching a PCL of **153MI/d** (three-year average) by the end of AMP7.

(1057) Ofwat set an underperformance rate of **-£0.28 million per MI/d** for performance between AMP6 outturn and PCL. On outperformance rate, Ofwat disagreed with Anglian's proposed rate which included the incremental costs needed to increase leakage reduction beyond frontier level and limited it to **+£0.22 million per MI/d**.⁶⁶⁰

⁶⁵⁹ Anglian FD Outcomes PCs Appendix, page 11 (SOC233).

⁶⁶⁰ Anglian FD Delivering Outcomes for Customers Additional Information Appendix, page 5 (SOC237).

6 Impact of Ofwat's overall approach on leakage

- (1058) The result of Anglian's FD is that by not allowing the vast majority of Anglian's base adjustment costs, the (also insufficient) Enhancement expenditure allowance will instead be required to support the maintenance of current levels of leakage. Anglian does not expect customers to see improvements, unless totex is reallocated from (and to the detriment of) other parts of the business. Anglian therefore expects an ODI penalty, along with poorer outcomes for customers and the environment, because the FD militates against it achieving its PCL.
- (1059) Ofwat's FD compromises Anglian's ability to meet its WRMP obligations. It will also have a negative impact on the environment as the reduction in leakage allowance increases Anglian's reliance on other measures to ensure supply meets demand in its region. Coupled with the additional pressures on supply and demand management in the FD (e.g. smart metering and WRMP challenges), Anglian will require more abstraction from the environment than would otherwise be necessary to guarantee supply/demand balance. Growth exacerbates this need by increasing demand, so all else being equal, more water will need to be abstracted if Anglian does not reduce leakage further during AMP7. In the long-term, Ofwat's FD ultimately compromises the resilience of Anglian's long-term water supplies.
- (1060) Ofwat's approach also makes it harder for Anglian to deliver its customers' preference for it to maintain its leading position on leakage. Customers are also concerned that if Anglian is perceived to not 'be doing its bit' to manage demand through reducing leakage, other customers will be less inclined to reduce their own consumption, which will cause further environmental harm.⁶⁶¹
- (1061) Customers have told Anglian that leakage is a top priority and that they view it as wasteful. By not recognising the true cost of pushing the sector frontier on leakage (let alone maintaining it), the FD reduces the available investment to reduce leakage and increases the distribution input required to meet demand. It also runs counter to the expectations that customers have set for Anglian in AMP7 and their willingness to pay for further improvements.
- (1062) Its overall effect on leakage exemplifies the ways in which the FD compromises Anglian's ability to meet its statutory obligations and is inconsistent with its duties to secure long-term resilience, further the consumer objective, secure that water companies can finance the proper carrying out of their statutory functions and contribute to the achievement of sustainable development. Additionally, Ofwat's approach seems inconsistent with best regulatory practice (including the principles under which regulatory activities shall be transparent, targeted, accountable, proportionate and consistent).
- (1063) Moreover, by failing properly to fund and incentivise Anglian to continue pushing the frontier of leakage reduction, Ofwat's FD is in contradiction with its own leakage reduction objective which is shared by the Anglian,⁶⁶² Government, customers, and more recently the National Audit Office.⁶⁶³

7 Request to the CMA

- (1064) Ofwat's view is that: (i) Anglian's allowance for maintaining its current performance is reflected in the modelled Botex costs and the base adjustment uplift of £25 million through the alternative model specifications driven by the use of additional leakage variables; and (ii) Anglian's Enhancement

⁶⁶¹ In the PR14 Willingness to Pay survey, leaks were the second most frequently reported service incident (in the past 5 years) for both household and business respondents. Qualitative research suggests leakage is an 'emblematic issue' for water companies (a sign that the Company is not 'doing their bit'). Customers also regard leaks as wasteful of a precious natural resource. Across evidence streams, some customers also worry that if the Company does not mend leaks this may be a disincentive to customers to save water. Customer Research and Engagement (August 2018) - 'supply meets demand' Section, page 186 (SOC033).

⁶⁶² September 2018 Plan, page 161 (SOC001).

⁶⁶³ NAO Water Supply and Demand Management Report (SOC269).

allowance of £71 million, coupled with the ODI package, will allow it to build on this position and reach Anglian's PCL of 153M/d.

- (1065) However, Ofwat has failed to understand the increasing marginal costs of: (i) maintaining Anglian's frontier performance; and (ii) further reducing leakage beyond such level.
- (1066) This is despite: (i) Ofwat acknowledging at IAP and FD that lower levels of leakage do require greater costs to maintain than higher levels of leakage; and (ii) robust evidence – including expert reports such as PwC's report on funding leakage reduction⁶⁶⁴ – illustrating the relationship between increasingly improving levels of leakage and increasing costs.
- (1067) Ofwat's alternative FD model specifications do not appropriately reflect the additional marginal cost of maintaining leakage at Anglian's industry leading level. The insufficient allowance for base expenditure directly impacts the level of leakage Anglian will be able to maintain during AMP7. Ofwat's insufficient base allowances mean that the required Enhancement expenditure, which was partially allowed, will have to be diverted to maintaining rather than improving performance (i.e. Enhancement allowances will have to be used for base costs), thus exposing Anglian to the risk of: (i) not achieving its PCL and thus being subject to underperformance penalties; (ii) clawback of Enhancement expenditure which was intended to protect customers against non-delivery; (iii) not delivering against customers' preference to continue driving down the level of leakage; and (iv) increased pressure on the supply-demand balance in the region.
- (1068) In tying the leakage PCL to totex and making the errors highlighted above, Ofwat has set a PCL which is unachievable and does not reflect Anglian's frontier position.
- (1069) Consequently, Anglian requests:
- (i) a base cost adjustment of £137 million⁶⁶⁵ required to maintain leakage at Anglian's industry-leading AMP6 outturn performance;
 - (ii) the full Enhancement expenditure required to deliver a further 30M/d of leakage reduction (23M/d from leakage enhancement) at a cost of £77 million;
 - (iii) a highly stretching PCL of 166M/d (a 15% improvement on the forecast industry Upper Quartile); and
 - (iv) an ODI mechanism as set out in Anglian's Plan, with:
 - (a) penalties for deteriorating performance, and not for improving performance from Anglian's already leading position (i.e. apply a deadband between current performance and PCL); and
 - (b) an enhanced reward beyond Anglian's PCL reflecting the extent to which this performance is beyond industry upper quartile and the benefits this would have for customers outside of Anglian's region through knowledge sharing.
- (1070) Table 34 below sets out Ofwat and Anglian's respective positions on leakage.

⁶⁶⁴ PwC Leakage Report, pages 5 and 15 (SOC417).

⁶⁶⁵ This is the updated figure as provided in DD Representation (SOC168).

Table 34 Table comparing Ofwat's and Anglian's positions on leakage⁶⁶⁶

	Area	Anglian's Plan	Ofwat's IAP	Ofwat's DD	Ofwat's FD
Botex	Base cost adjustment allowance	£148m ⁶⁶⁷	£55m	£0m	£25m
Enhancement	Enhancement expenditure	£77m	£37m	£69m	£71m
PC and ODIs⁶⁶⁸	End AMP7 PCL	-6.2% - 166 MI/d	-17% - 142 MI/d	-7.8% - 169.6 MI/d	-16.4% - 153 MI/d
	ODIs	Deadband between AMP6 and PCL. (177MI/d)	No deadband Explanation required as to why Anglian rates differ from industry average	No deadband Reward of £0.22m/MI/d to apply to performance beyond PCL	No deadband Reward of £0.22m/MI/d to apply to performance beyond PCL.
	Reward / penalty	Reward of £0.94m/MI/d applies to performance beyond PCL. Penalty of £0.37m/MI/d applies from AMP6 outturn (177MI/d) and above.	<i>n/a</i> ⁶⁶⁹	Penalty rate of £0.84m/MI/d to apply between AMP6 outturn performance and PCL. Penalty rate of £0.37m/MI/d from AMP6 outturn and above.	Penalty rate of £0.28m/MI/d to apply between AMP6 outturn performance and PCL. Penalty rate of £0.37m/MI/d from AMP6 outturn and above.

⁶⁶⁶ For more details on the changes in Ofwat's approach on base expenditure throughout the PR19 process, please refer to IAP response, Leakage Focus Area, pages 108 to 120 (SOC104) and DD Representation, Leakage Focus Area, pages 220 to 229 (SOC168).

⁶⁶⁷ This figure corresponds to Anglian's original September 2018 Plan (SOC001). The figure has since been updated to £137 million based on new information on costs and performance.

⁶⁶⁸ % reductions are used in the table to facilitate comparison between Anglian's proposed PCL and Ofwat's PCL on a like-for-like basis.

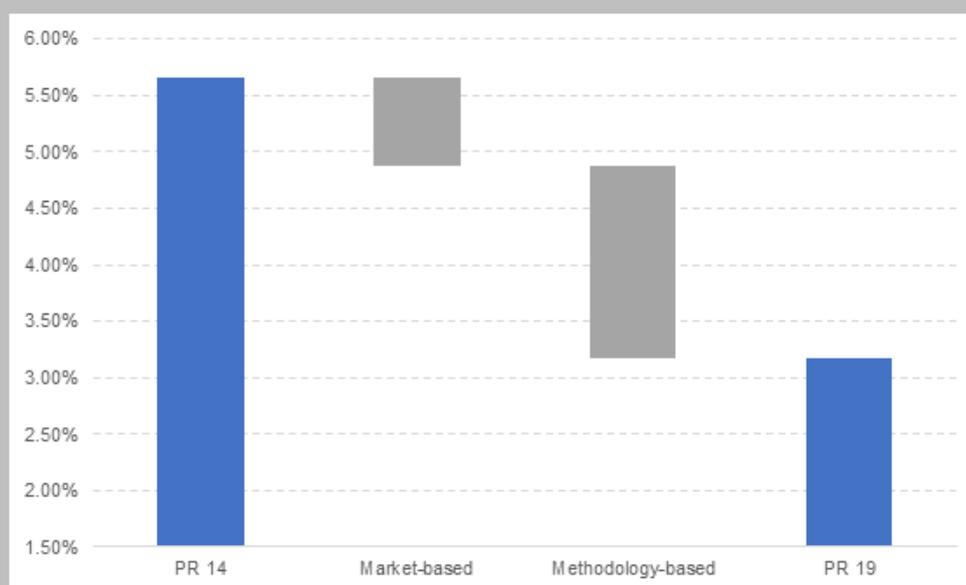
⁶⁶⁹ Ofwat did not propose specific ODI rates at IAP. See Ofwat's Detailed Actions for Delivering Outcomes for Customers, page 7 (SOC418).

Chapter I: Weighted Average Cost of Capital

1 Overview

- (i) Analysis of the various building blocks of the weighted average cost of capital (WACC) shows that Ofwat's Final Determination position of 1.92% for wholesale WACC (RPI-real) is too low.
- (ii) Given that financing decision-making takes place over a longer time horizon than each price control period (e.g. debt financing may be up to 30 years' maturity), the CMA has stressed the need for *'the application of a consistent approach to setting the assumptions which form the basis of the calculation of the cost of capital.'*⁶⁷⁰
- (iii) At Final Determination, Ofwat assumed a WACC of 1.92% at the wholesale level (RPI-real). This is lower than the Draft Determination estimate by 16 basis points and is the lowest since the sector's privatisation 30 years ago. Anglian recognises that the low estimate of WACC is partly due to changes in the market. A material part of the WACC reduction, however, is the result of several fundamental methodological changes (and in Anglian's view, methodological flaws), particularly in respect of the estimates of Total Market Return (TMR) and the cost of embedded debt.

Figure 81 Proportion of the change in the allowed cost of equity between PR14 and PR19 driven by market-based and methodology-based factors



Source: KPMG Cost of Capital Report, Figure 1 (SOC422)

Cost of equity

- (iv) The allowed return on equity is too low, primarily as a result of underestimating the TMR. Ofwat has estimated the TMR to be 5.47% (RPI-real). This represents a reduction of 128 basis points since PR14 when Ofwat already reduced the TMR to deal with the increase in the RPI formula effect.⁶⁷¹ The further reduction is primarily a result of changes in Ofwat's methodology:
 - (a) Ofwat has changed the inflation series it relies on to deflate historical returns from retail price index (RPI) to consumer price index (CPI), which has a c.100 basis point impact

⁶⁷⁰ Bristol (2015) para.10.6 (SOC275).

⁶⁷¹ PR14 Risk and Reward Guidance, page 12 (SOC419).

on TMR for PR19. The Office for National Statistics (ONS) has stated that the historical estimates of CPI are not intended for official use, and that an error has been identified in the estimates modelled back to 1947. In any event, since PR14 there has been no further material change in the ONS methodology towards the calculation of the RPI that would justify a second revision to Ofwat's approach for addressing the increase in the RPI formula effect.

- (b) Ofwat incorrectly averaged the historic equity market returns.
- (c) Ofwat removed the upward adjustment that should be applied in historical *ex ante* approaches to account for the higher volatility of share prices relative to dividend growth. This removal is based on analysis commissioned by Ofwat which applies to a different time period and on a different definition of dividend growth to those used in the historical *ex ante* studies that Ofwat has relied on.
- (d) Ofwat's estimate contradicts evidence from the dividend discount models it has used, which suggest that the expected TMR has not decreased. Furthermore, Ofwat has used an estimate of the TMR that is lower than supported by dividend discount models produced by Ofwat's own consultants.
- (v) Additionally, the methodology used to estimate the RFR is not appropriate for the regulation of a sector dominated by long-life assets. There is no allowance for the volatility of the risk-free rate, which is internally inconsistent with the methodology for indexing the cost of new debt.
- (vi) The equity beta places too much weight on daily estimates measured over the short-term, and does not correctly control for statistical inaccuracies in the estimate.

Cost of debt

- (vii) Ofwat's allowance for embedded debt is too low, for the following reasons:
 - (a) It has deducted 25bp from the benchmark iBoxx index on the basis of an outperformance effect. These outperformance effects only exist on the yields of shorter tenor bonds. This is inconsistent with the reason for using the iBoxx index in the first place, which was to reflect the average debt maturity within the sector.
 - (b) The 15-year trailing average used for the benchmark iBoxx index excludes 25% of Anglian's debt that had been efficiently raised at a time when market interest rates were higher than today.
 - (c) Ofwat inappropriately excluded all swaps from its cross-check of the cost of embedded debt across the sector. It failed to demonstrate that exclusion of swaps was a good approximation of excluding debt that was inefficiently incurred. It is inconsistent for Ofwat to exclude swaps from the analysis whilst including inflation-linked bonds.
- (viii) The allowance of the cost of new debt is also too low, as the assumed outperformance relative to the benchmark iBoxx index of 15bp for new debt is based on the same flawed assumptions driving the 25bp outperformance assumed for embedded debt.

Request to the CMA

- (ix) The CMA will carry out its own assessment in this area. Anglian contends that the evidence will show that the correct range of WACC for Anglian on the basis of the notional capital structure is 2.5-2.9%.
- (x) Anglian believes a point estimate of 2.5% for the wholesale WACC would be the appropriate way to balance the twin objectives of affordability and financeability, and can be achieved if the

balance of risk and return across the determination as a whole is addressed in line with Anglian's Draft Determination Representation. At this level, whilst credit metrics would remain weak, Anglian would be financeable in the round.

- (xi) If the balance of risk and return cannot be addressed in line with the Draft Determination Representation position, then the WACC will need to be towards the upper end of the range to ensure financial metrics above the minimum Baa1 thresholds can be maintained as a buffer against the increase in asymmetric downside risk in the Final Determination.

(1071) The remainder of the chapter is structured as follows: Section 2 introduces the WACC framework as applied in economic regulation; Section 3 argues that the TMR has been significantly underestimated; Section 4 argues the RFR follows a methodology that is inappropriate for the regulation of long-lived assets; Section 5 argues that the equity beta has been underestimated; Section 6 argues that the allowance for cost of embedded debt is insufficient and incorrectly calculated; Section 7 argues that the allowance for cost of new debt is incorrectly calculated; Section 8 summarises the asymmetric risk of underestimating the cost of capital; and Section 9 provides Anglian's view of the correct WACC range.

2 Components of the WACC

(1072) At each price review, Ofwat determines the allowed return on capital (i.e. the WACC) which reflects the opportunity cost faced by debt and equity investors in a firm with a 'notional' financial structure. The WACC is a weighted average of the Cost of Equity ('CoE') and Cost of Debt ('CoD') where the weighting is based on the notional level of gearing (60% in PR19) which reflects the use of each type of financing in the notional company's capital structure.

2.1 Cost of Equity

(1073) The Cost of equity ('CoE') is the return required to induce the marginal investor to purchase equity in the water sector. Ofwat has used the capital asset pricing model ('CAPM') described by the following equation:

$$\text{CoE} = \text{RFR} + (\text{TMR} - \text{RFR}) * \beta$$

Where:

- (i) RFR is the risk-free return i.e. the expected return from investing in riskless assets.
- (ii) TMR is the total market return, which is the return expected by investors from a suitably diversified portfolio of equities.
- (iii) β is the equity beta, which is a measure of the systematic riskiness of equity assets of the sector in question, relative to the market as a whole.

(1074) The resultant CoE captures the return investors can expect on the market portfolio, given the systematic risks taken (measured by beta). It therefore directly estimates the opportunity cost to investors from investing in a water company because it estimates what return investors can expect to achieve on the market portfolio, if they take risks commensurate with those in the regulated firm(s).

(1075) Anglian has engaged with the CMA on the correct approach to setting the CoE, including arguments that the estimates of the TMR and RFR have been significantly underestimated, in the ongoing appeal of the Civil Aviation Authority's price determination for NATS (En Route) Limited ('NATS (2020)'). The outcome of the NATS (2020) is likely to have a significant impact on other sectors.

(1076) Anglian, along with Northumbrian Water and Wessex Water, commissioned Professor Alan Gregory to produce a report on Setting the Cost of Equity in UK Price Controls which was submitted as a third-party representation in *NATS (2020)*.⁶⁷² Professor Gregory and KPMG also provided expert evidence on behalf of Anglian at a third-party hearing before the CMA.⁶⁷³

2.2 Cost of Debt

(1077) Cost of debt ('CoD') is the expected return for debt providers, given the risks of providing debt capital. The common data points used to measure CoD are:

- (i) actual interest rates on the debt issued by UK water companies; and
- (ii) yields (i.e. expected return on investment) on traded debt instruments with comparable credit ratings to the notional firm. These yields are ordinarily observed from iBoxx indices which combine the yields on multiple corporate debt instruments with certain similar characteristics, into a single index.

(1078) Given that water companies issue long-term debt and have existing debt facilities that will remain in place through PR19, the CoD has to account for the cost of such 'embedded debt'. The CoD is based on a weighted average of the cost of new debt and the cost of embedded debt. At PR19, Ofwat has assumed that the ratio of embedded debt to new debt is 80:20.

(1079) The allowance for new debt is based on purely forward-looking estimates, while a trailing average of the above data points are used to calculate the cost of embedded debt.

3 Allowed return on equity: Total Market Return

(1080) The allowed return on equity set by Ofwat in the Final Determination (FD) is too low, primarily because Ofwat's assumption for the TMR is incorrect. Anglian has commissioned a report from KPMG to estimate the correct cost of capital for PR19.⁶⁷⁴

3.1 Ofwat's position in the FD

(1081) Ofwat's estimate of TMR is its view of the return investors expect from being invested in a diversified basket of UK equities. In PR19, Ofwat has estimated TMR to be 6.5% in CPIH terms and 5.47% in RPI terms.

(1082) Ofwat derived the point estimate drawing on three approaches:

3.1.1 'Ex-post' approaches: 5.5–5.6% (RPI-real)

(1083) Ofwat used 'ex post' returns from the Dimson, Marsh, and Staunton Yearbook ('DMS'). Ofwat first adjusted the dataset to account for inflation and then calculated an 'average' over the period to produce an estimate for expected TMR. The inflation adjustment used historical estimates of the CPI that were produced by the ONS (Office for National Statistics) for research purposes.

(1084) The first approach to averaging used the Jacquier, Kane, and Markus ('JKM') estimator of future equity market returns, which is a weighted average of the geometric and arithmetic average return. This approach yielded a range of: 5.5–5.7% (RPI-real)

(1085) The second averaging approach applied an uplift to the geometric average return. The size of the uplift (0.4-1.5%) was based on analysis undertaken by PwC on behalf of the CAA. Ofwat claimed that this

⁶⁷² Anglian Cost of Equity *NATS (2020)* Submission (SOC420).

⁶⁷³ See Anglian Cost of Equity *NATS (2020)* Hearing Presentation (SOC421).

⁶⁷⁴ KPMG Cost of Capital Report (SOC422).

approach was consistent with a report on the regulatory cost of equity by Wright et al (2018), commissioned by members of the UKRN⁶⁷⁵ although this uplift is lower than the adjustment of up to two percentage points recommended. This approach yielded a range of: 4.5–5.6% (RPI-real).

3.1.2 'Ex-ante' approaches: 4.6-5.6% (RPI-real)

- (1086) The two 'ex ante' approaches were based on the same underlying DMS data and ONS estimates of historical CPI.
- (1087) The first approach used a modified Fama-French style Dividend Discount Model ('DDM') inferring expected returns as the sum of average historical dividend yields and the average real rate of dividend growth. This gave values of 4.6% and 5.5% (RPI-real) when applied over the periods 1990-2018 and 1900-2018 respectively.
- (1088) The second approach used a 'decompositional approach' similar to that used in the DMS Yearbook, whereby historical returns are adjusted to remove 'good luck' events that the analyst deems unlikely to be repeated. This gave a range of 4.9-5.6% (RPI-real).

3.1.3 Forward-looking analysis: 5.0-5.8% (RPI-real)

- (1089) In the FD Ofwat decided to focus on DDM evidence because other forward-looking evidence was either more subjective (finance practitioner surveys) or not recent enough (market-to-asset ratios).
- (1090) Ofwat used five-year average results from DDMs produced by PwC (5.8%, RPI-real) and Europe Economics (5.1-5.5%, RPI-real). The difference between the PwC and Europe Economics models is primarily due to the use of different data sources for share buybacks and different ways of calculating dividend growth forecasts.

3.2 Ofwat's position in context

3.2.1 PR14 Methodology

- (1091) At PR14, Ofwat estimated a TMR of 6.75% (RPI-real) based on a review of historical and forward-looking evidence. Ofwat reduced the TMR compared to the 7.40% used in PR09, citing three reasons:
- (i) commentators such as Dimson, Marsh, and Staunton had been suggesting that equity returns achieved historically may have been caused by factors which were unlikely to be repeated;
 - (ii) monetary policy and investor appetite had reduced yields on government and corporate bonds; and; and
 - (iii) an increase in the RPI formula effect since the PR09 review.⁶⁷⁶

The last of these factors is particularly relevant to the PR19 review, where Ofwat is proposing an additional reduction to the TMR largely due to a further change in the approach to deflating historical equity returns. Since PR14 there has been no further material change in the ONS methodology towards the calculation of the RPI that would justify a second revision to Ofwat's approach for addressing the increase in the RPI formula effect.

- (1092) The PR19 estimate was a reduction of 128 basis points from PR14. This has impacted the allowed return on equity by 90 basis points. The reduction in TMR appears to be primarily a consequence of deflation resulting from the use of unreliable estimates of historical CPI.

⁶⁷⁵ Wright et al (2018) (SOC423).

⁶⁷⁶ PR14 Risk and Reward Guidance (SOC419).

(1093) Ofwat has made several other methodological changes that all act in the same direction of reducing the TMR estimate, including changing the approach to averaging historical data and removing the upward adjustment that has previously been applied to the historical 'ex ante' approach.

3.2.2 Regulatory precedent

(1094) In 2014, the Competition Commission (CC) published its final determination in the Northern Ireland Electricity Limited appeal ('*NIE (2014)*'). It undertook an in-depth analysis of the TMR using evidence of both historical *ex post* and historical *ex ante* returns. It derived a range of 5.0-6.5% (RPI-real) for the TMR and selected a point estimate of 6.5%. The CC considered that the weight of evidence tended to support numbers between 5.5% and 6.5%, and was less confident with the 5.0% estimate at the bottom end of the TMR range.⁶⁷⁷

(1095) The CMA in *Bristol Water (2015)* and the Utility Regulator in *GD17 (2016)*⁶⁷⁸ adopted the TMR estimate used by the CC in *NIE (2014)*.

3.2.3 Shift in regulatory approach

(1096) There has been a shift in the approach of UK sector regulators in 2019. Similar to Ofwat, the CAA estimated a TMR of 5.4% (RPI-real) compared to 6.25% in 2014. Ofgem used a TMR of 5.25-5.75% (RPI-real) in the Sector Specific Methodology Decision for RIIO-T2 and GD2.⁶⁷⁹ Ofcom used a TMR of 5.7% (RPI-real) in the BCMR (2019) statement.⁶⁸⁰

(1097) The changes in methodology appear to be motivated in part by an academic study into the regulatory cost of equity by Wright et al (2018) commissioned by members of the UKRN.⁶⁸¹

(i) Wright noted that the TMR should be based on long-run historic averages and should be 6-7%. However it is not clear on the inflation basis for this estimate. In the Sector Specific Methodology Consultation for RIIO-T2 and GD2, Ofgem asked Professor Stephen Wright to clarify that this range was expressed in CPI-real terms, and that the equivalent RPI-real range was 5-6%. This range is 50 to 150 bps lower than the CC's previous estimate of 6.5% in real RPI terms.

(ii) The reduction is driven by the choice of inflation indices and the approach to averaging historical returns. Wright has introduced a new approach to deflating historical UK equity returns by using an ONS historical CPI series based on estimated data before 1989. To express this in RPI-real terms a wedge of 100bp between forecast RPI and CPI inflation is deducted. An uplift is applied to the geometric average of historical returns to convert them into an arithmetic average for use in the CAPM. Wright exercises judgment to recommend an uplift smaller than the two percentage points he and other authors had recommended in 2003.

(1098) Figure 82 summarises the impact of how the change in methodology by Ofwat has created a step change in the TMR relative to the last time Wright and Smithers considered the evidence in 2014,⁶⁸² and the CC's decision on a 6.5% TMR in *NIE (2014)*.

⁶⁷⁷ *NIE (2014)*, paras. 13.187 (SOC424).

⁶⁷⁸ *GD17 (2016)*, para. 10.23 (SOC425).

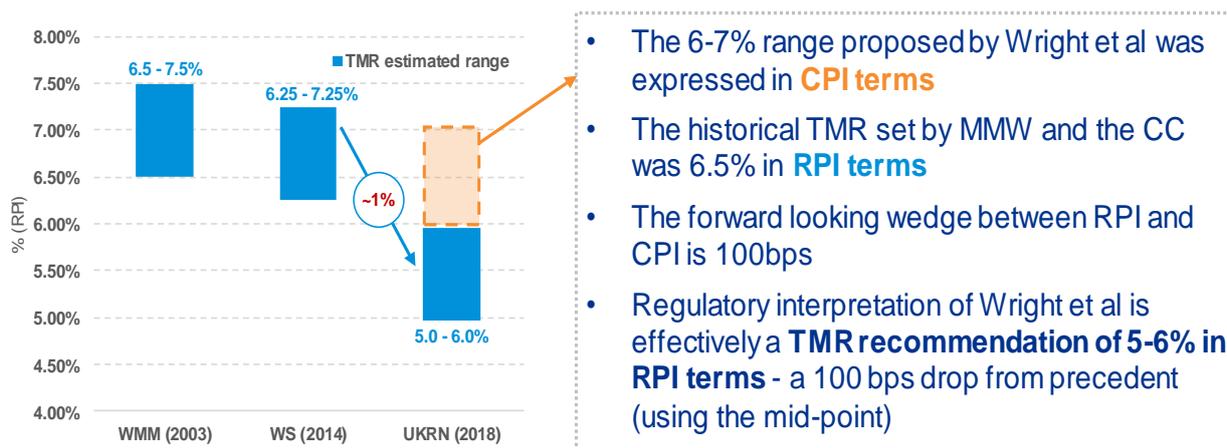
⁶⁷⁹ Ofgem RIIO-2 Methodology, page 42 (SOC426).

⁶⁸⁰ See https://www.ofcom.org.uk/_data/assets/pdf_file/0028/154594/pimr-bcmr-llcc-final-statement-annexes-1-25.pdf

⁶⁸¹ Wright et al (2018) (SOC433).

⁶⁸² Wright and Smithers (2014), page 11 (SOC428).

Figure 82 Ofwat PR19 TMR estimate is inconsistent with past methodology



Source: Anglian Cost of Equity NATS (2020) Hearing Presentation, slide 6 (SOC421)

(1099) Ofwat also considered long-run historical estimates based on DDMs (historical *ex ante* approach), from PwC and Europe Economics, market to asset ratios and survey evidence.

3.3 Ofwat's methodology is flawed

(1100) The most robust approach to estimating TMR is to use long-run historical *ex post* returns (from 1900 to the present day) as a proxy for investors' forward-looking expectations of TMR. This approach looks through short-term periods of volatility where required equity returns may be higher or lower than the long-run average.

(1101) When using historical *ex post* returns, the key judgments are what historical inflation series to use to deflate nominal returns and the approach to averaging the annual returns.

3.3.1 Office for National Statistics' historical CPI inflation is unreliable

(1102) In the first instance, Ofwat's assumptions for inflation are flawed resulting in a significant overestimate of inflation in historical TMR figures (and thus underestimate of TMR). Ofwat's decision is based on a calculation of historical real TMR using the ONS CPI series based on estimated data before 1989 that was originally developed for research purposes. Due to the assumptions used in their construction, the ONS has been clear that *'these estimates are not National Statistics'*⁶⁸³ and they are not intended for official use.

(1103) CPI inflation was first published in 1997. Afterwards, estimates of the CPI back to 1988 were produced. In 2018 the ONS identified and corrected an error in the estimates back to 1988: *'In developing the [CPIH] series, we identified an error in the calculation of the modelled CPI historical estimates. This does not affect the CPI National Statistic series published from 1997. The affected part of the series is between 1988 and 1996, which was modelled later, after the introduction of CPI in 1997. As the series was modelled after the event, the data have never been used for any policy or uprating purposes. We will be revising the series to correct this error.'*⁶⁸⁴

(1104) The analysis in Wright et al (2018), upon which Ofwat bases its assessment of the TMR, was published before this error was identified and must therefore be based on erroneous data that does not reflect this correction by the ONS.

⁶⁸³ ONS Modelling the CPI Back Series (2013), page 3 (SOC429).

⁶⁸⁴ ONS CPIH Historical Series 1988 to 2004 (2018), page 2 (SOC430).

- (1105) Although the ONS has now corrected the estimates of the CPI for the period 1988 to 1996, the modelled estimates for the CPI between 1947 and 1987 were themselves based on modelled estimates for the CPI between 1988 and 1996. These estimates have not yet been updated to reflect the new estimates of the CPI for the period 1988-1996, and therefore cannot be considered reliable for policy making.
- (1106) It noted: '*The ONS previously published indicative modelled estimates for the CPI between 1947 and 1987. These estimates are for analytical purposes only and are not intended for official uses. The models used were based on the subsequently revised CPI modelled data for 1988 to 1996. The ONS will therefore produce new indicative estimates for the CPI between 1947 and 1987 alongside the planned CPIH estimates, based on the corrected CPI data. This will give users a consistent set of modelled indices. These new estimates will be published by the end of 2020.*'⁶⁸⁵
- (1107) One way to illustrate the unreliability of the estimates of historical CPI is to examine the 'wedge' between RPI and CPI inflation over time. Since 1989 there has been a positive 'wedge' of 73bp between RPI and CPI inflation rates.⁶⁸⁶ Prior to 1989, the estimated 'original' CPI series in the Bank of England Millennium data book produces a lower wedge between RPI and CPI inflation. Working back in time, for the period 1950 – 1988 the wedge is 24bp and for the period 1915-1949 the wedge is negative 123bp. The wedge is on average close to zero over the period 1900-2018, which produces the counterintuitive result that the real TMR is the same whether deflated using the historical RPI or CPI series.
- (1108) It seems unlikely that the wedge could be so much lower than the 73bp observed since 1989. A significant proportion of the wedge is due to the different way the changes in prices of various goods and services are averaged in the calculation of RPI and CPI. This creates a positive 'formula effect' between RPI and CPI inflation. The estimated CPI series therefore is likely to be an upwardly biased estimate of historical CPI inflation and therefore understates the real TMR derived from the data.
- (1109) The approach followed by all regulators until the publication of the Wright et al (2018) report, is to make use of the longer time series of published data that exists for the RPI, with actual data published since 1947 and estimates for the period 1870–1947 based on the 1947 definition of the RPI.
- (1110) The use of the RPI series has the advantage of using the actual measure of inflation that was being reported and acted on by investors. To impose today's view on inflation back over time therefore serves to impose a different measure of inflation on the UK economy than was being reported and acted upon. If reported inflation had been measured differently in the past, it is possible that investors may have made different asset allocation decisions, which in turn could have impacted returns. It follows that for internal consistency if one is aiming to deflate historical returns then the most appropriate inflation series to use is the one that was the reported National Statistic for the longest part of the historical period.
- (1111) Furthermore, because RPI is available for the longest part of the period, in the form of reported, actual data it does not have to be estimated using data and assumptions made today. The RPI series is therefore not as heavily influenced by practitioner assumptions, current day data inadequacies and possible hindsight bias in interpretation.
- (1112) Pre-1947, the only inflation data that exists relies on estimates and academic analysis of historical data and is therefore imperfect. KPMG has therefore used both available series, (COLI and CED) as approximations for RPI inflation pre-1947 to calculate the TMR, placing most weight on the CED.⁶⁸⁷
- (1113) The conclusion that RPI is the most appropriate series to use historically is consistent with O'Donoghue et al (2004) who noted when discussing post 1947 inflation '*The decision is clear-cut. The retail prices*

⁶⁸⁵ ONS Developing CPIH and CPI historical estimates between 1947 and 1987 (2019) (SOC431).

⁶⁸⁶ KPMG Cost of Capital Report, para 4.2.15 (SOC470).

⁶⁸⁷ KPMG Cost of Capital Report, para. 4.2.38 (SOC470).

*index (RPI) is the preferred index over this period. It is of the correct index form; it is available monthly back to June 1947; and it is the most familiar measure of inflation in the UK.*⁶⁸⁸

- (1114) Regulators have raised a concern about the structural increase in RPI inflation created when in 2010 the ONS changed the methodology for the collection of clothing prices. In PR14 Ofwat made a downward adjustment to the TMR because of this concern. Such an adjustment may be unwarranted due to the inherent uncertainty in the historical inflation data. Wright and Smithers (2014) expressed their concern about making such an adjustment to the TMR: *'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.'*⁶⁸⁹
- (1115) Moreover, the structural change in RPI in 2010 is under review by the UK government and may be reversed during the forward-looking time horizon. Should this happen, the regulator will need to adjust the real return.
- (1116) KPMG concludes that no adjustment is required to the historical RPI series (or the real TMR derived in RPI terms) for the change in RPI in 2010.
- (1117) Therefore, as the historical estimates of CPI are likely to lead to upward biased estimates of CPI inflation, *ex post* and *ex ante* approaches to estimating the CPIH-real TMR for use in PR19 should use the official RPI series to deflate historical data and then add an estimate of the forecast RPI-CPIH wedge.

3.3.2 Ofwat used a downward-biased estimate of the TMR due to incorrect averaging of historical equity market returns

- (1118) In the second instance, Ofwat's calculation of the average of historic returns is flawed. Ofwat's primary approach has been to use the JKM estimator for averaging historic returns. Ofwat has also placed some weight on recommendations from Wright et al (2018) on how to average historical equity market returns (i.e. estimate TMR from the long-run geometric averages, adjusted upwards by 1-2%).
- (1119) Ofwat's approach diverges from that of the CMA which has previously considered simple and overlapping arithmetic averages, as well as the Blume unbiased estimator, in addition to the JKM estimator.
- (1120) KPMG has followed an approach that places weight on simple and overlapping arithmetic averages, as well as the Blume unbiased estimator, in addition to the JKM estimator.⁶⁹⁰ This is consistent with the CC's approach in *NIE (2014)*.
- (1121) Corporate finance textbooks recommend the arithmetic average and work by Cooper (1996) has proved analytically that an unbiased estimate of the discount rate to use in capital budgeting will be at least as high as the arithmetic average.⁶⁹¹
- (1122) Table 35 below presents TMR estimates based on historical returns using reported RPI since 1947 and both available series (COLI and CED) as approximations for RPI inflation pre-1947. It shows the arithmetic average together with the averaging approaches used by the CC in *NIE (2014)* for both a 10-year and a 20-year holding period.

Table 35 Results based on the historical *ex post* data

Averaging approach	Holding period (years)	CC NIE	COLI/RPI basis	CED/RPI basis

⁶⁸⁸ O'Donoghue et al (2004) (SOC432).

⁶⁸⁹ Wright and Smithers (2014) (SOC428).

⁶⁹⁰ KPMG Cost of Capital Report, para 4.2.36 (SOC470).

⁶⁹¹ Cooper (1996) (SOC436).

Arithmetic average	-	7.1%	6.98%	6.63%
Blume (1974) adjusted	10	6.9%	6.85%	6.50%
Blume (1974) adjusted	20	6.8%	6.69%	6.35%
JKM (2005) unbiased estimator	10	n/a	6.91%	6.57%
JKM (2005) unbiased estimator	20	n/a	6.75%	6.42%
JKM (2005) MSE estimator	10	6.6%	6.59%	6.27%
JKM (2005) MSE estimator	20	6.1%	6.11%	5.82%
Non-overlapping returns	10	6.8%	7.18%	6.77%
Non-overlapping returns	20	6.9%	7.45%	7.07%
Rolling average	10	6.4%	6.73%	6.42%
Rolling average	20	6.7%	6.78%	6.46%

Source: KPMG Cost of Capital Report, Table 3 (SOC470)

3.3.3 Historical *ex ante* approaches do not support a reduction in TMR

- (1123) Historical *ex ante* approaches as applied in Fama and French (2002),⁶⁹² Vivian (2007),⁶⁹³ and Gregory (2011)⁶⁹⁴ apply an upward adjustment to historical average dividend yields to account for the higher volatility of share price growth relative to dividend growth. Gregory (2011) estimates the size of the Fama-French (2002) bias-adjustment to be 1.3%.
- (1124) Ofwat has departed from precedent by removing the bias-adjustment on the basis of PwC analysis, which concludes that dividends are more volatile than prices once buybacks (a form of shareholder distribution) are included in the dividend volatility analysis. However, KPMG explains that this is not a reliable means upon which to conclude that dividend yield will be more volatile than price volatility going forwards.⁶⁹⁵
- (1125) KPMG explains that an upward adjustment of 1.0-1.3% is required to estimates of the expected market return calculated based on averages of historical dividend yields plus averages of forecast growth in dividends or earnings. This produces an estimate of 6.4-6.6% (RPI-real) for the TMR based on current dividend yields.⁶⁹⁶
- (1126) The second *ex ante* approach applied by KPMG is based on the decomposition of historical equity returns approach from the DMS Yearbook. This produces an estimate of 6.9% (RPI-real).⁶⁹⁷
- (1127) The final *ex ante* approach considered by KPMG is to apply the reasoning used by the CC in *NIE (2014)*. The CC interpreted the nearly 100bp difference between the long-run average dividend yield, and the dividend yield in 2015 as evidence that *ex ante* return expectations may have fallen by around 100bp. KPMG explains that extending this logic to today would imply an increase in expected returns of 60bp relative to *NIE (2014)*, given that this is the amount by which the dividend yield has increased over this period.⁶⁹⁸

⁶⁹² Fama-French (2002) (SOC437).

⁶⁹³ Vivian (2005) (SOC438).

⁶⁹⁴ Gregory (2011) (SOC439).

⁶⁹⁵ KPMG Cost of Capital Report, para. 4.3.19 (SOC422).

⁶⁹⁶ KPMG Cost of Capital Report, para. 4.2.42 (SOC422).

⁶⁹⁷ KPMG Cost of Capital Report, para. 4.2.44 (SOC422).

⁶⁹⁸ KPMG Cost of Capital Report, para. 4.2.45 (SOC422).

(1128) KPMG notes that the lower end of the 5.0-6.5% TMR range used by the CC in *NIE (2014)* was derived from dividend discount approaches. KPMG further notes that the CC implied that a 75bp uplift should be applied to the lower end of this range to account for the volatility of share price growth. On this basis, the TMR range used by the CC in *NIE (2014)* would be 5.75-6.5%.⁶⁹⁹ Increasing the lower end of this range by 60bp to reflect the amount by which the dividend yield has increased since *NIE (2014)* would result in a range of 6.35-6.5%.⁷⁰⁰

3.3.4 Forward-looking evidence does not support a reduction in TMR

(1129) Ofwat's decision contradicts evidence from the dividend discount models that suggest that expected TMR has not decreased. Dividend discount models applied consistently over time, do not indicate a reduction in the TMR over the last 10-years. This can be seen in work undertaken by PwC on behalf of Ofwat.⁷⁰¹

Figure 83 Nominal equity market discount rate based on PwC DDM analysis



Source: PwC Updated Dividend Discount Model Analysis for PR19, Figure 1 (SOC260)

(1130) In terms of the level of TMR rather than the change over time, Ofwat refers to PwC and Europe Economics analysis based on a Dividend Discount Model. Even the five-year averages that Ofwat has reported from these models support a higher TMR than Ofwat has assumed.

- (i) The PwC model cited supports a higher TMR (5.9%, RPI-real) than that assumed by Ofwat.
- (ii) One of the Europe Economics models also supports a higher TMR (5.6%, RPI-real) than that assumed by Ofwat.
- (iii) The other Europe Economics model is based on forecasts of UK GDP growth, which are lower than the growth rate of dividends and share buybacks. This model produces downward biased estimates (5.1%, RPI-real) of the total market return as share prices and dividend yields will be determined by forecasts of growth in dividends and share buybacks rather than UK GDP growth.

(1131) The updated spot estimates of TMR from the PwC and Europe Economics models were higher than the five-year averages. The spot estimates were not reported by Ofwat in the FD, but for completeness are summarised below.

⁶⁹⁹ KPMG Cost of Capital Report, para. 4.2.46 (SOC422).

⁷⁰⁰ KPMG Cost of Capital Report, para. 4.2.46 (SOC422).

⁷⁰¹ PwC Dividend discount model analysis for PR19, Figure 1 (SOC260).

- (i) PwC (dividend and buyback growth): 7.2% (RPI-real)
- (ii) Europe Economics (dividend and buyback growth): 6.8% (RPI-real)
- (iii) Europe Economics (GDP growth): 5.4% (RPI-real)

3.4 Conclusion

- (1132) Ofwat's erroneous approach to setting the TMR and cost of equity has impacted Anglian's financeability. (See **Chapter J: Financeability**).
- (1133) Correcting the inflation biases in Ofwat's decision, following the CMA approach to averaging the historical returns, and taking a more balanced view of forward-looking evidence would support a TMR of 6.25% (RPI-real), instead of Ofwat's assumption of 5.47%.

4 Allowed return on equity: Risk Free Rate

- (1134) Ofwat's methodology used for determining the risk-free rate assumption is inappropriate for the regulation of long-lived assets, which further contributes towards the allowed return on equity being too low.

4.1 Ofwat's position in the FD

- (1135) In the DD, Ofwat considered evidence from both nominal and RPI-linked gilt yields at 10-year and 20-year maturities to construct estimates of the risk-free rate at Ofwat's chosen 15-year investment horizon.
- (1136) In the FD, Ofwat used as a point estimate a forecast of the average yield of 15-year RPI-linked gilts over 2020-2025. The forecast was based on a one-month average of yields during September 2019 plus a market-implied increase in interest rates.
- (1137) Ofwat rejected a number of concerns regarding the RFR estimate.
- (i) In relation to gilt yields being distorted downward by scarcity and regulatory requirements, Ofwat considered there was no justification for discounting some motivations in the price discovery process as distortions without providing a clear rationale why this is appropriate.⁷⁰²
 - (ii) In relation to a negative real RFR being inconsistent with economic theory, Ofwat refers to Wright et al (2018) and a literature review undertaken by Europe Economics, and concludes that a negative RFR is not inconsistent with economic theory.⁷⁰³
 - (iii) In relation to taking a longer trailing average to smooth out volatility, Ofwat states that to rely on such averages is to implicitly assume a degree of reversion towards historical rates. Ofwat considers that the evidence does not support such mean reversion.⁷⁰⁴

4.2 Ofwat's position in context

4.2.1 PR14 Methodology

- (1138) At PR14 Ofwat used a range of 0.75-1.25% (RPI-real) for the RFR, with a point estimate of 1.25%. This was based on spot yields on index-linked gilts, adjusted for forward-looking expectations. The 10-year historical average of index-linked gilt yields resulted in a similar value. Spot yields were around zero at the time.

⁷⁰² Allowed Return on Capital Technical Appendix, page 33 (SOC244).

⁷⁰³ Allowed Return on Capital Technical Appendix, pages 34 to 35 (SOC244).

⁷⁰⁴ Allowed Return on Capital Technical Appendix, page 36 (SOC244).

4.2.2 Regulatory precedent

- (1139) The CC in *NIE (2014)* adopted a range of 1.0-1.5% for the RPI-real RFR. It noted that the lower end of the range was well above the prevailing short-term interest rates. The CC considered that there was some justification for an uplift to take account of the uncertain effects of quantitative easing. The CC considered that the range allowed for the possibility that rates might rise during the price control period. The CC adopted a WACC estimate at the upper end of the range, which implied an RFR of 1.5%.
- (1140) The CMA in *Bristol Water (2015)* used a 1.25% RFR as this was within the 1.0-1.5% range used in *NIE (2014)* and was aligned with both the value used by Ofwat in PR14 and the value used by Bristol Water. The Utility Regulator in *GD17 (2016)*⁷⁰⁵ adopted the 1.25% RFR estimate used by the CMA in *Bristol Water (2015)*.

4.3 Ofwat's methodology is flawed

4.3.1 Ofwat uses a spot estimate of a volatile gilt yield to determine the RFR assumption to apply to long-lived assets, which will be fixed for a five-year period

- (1141) Ofwat has updated the RFR since Draft Determination (DD) to reflect falls in yields on RPI-linked gilts. Rather than consider an average over a defined period, Ofwat has used the spot estimate from 30 September 2019 (see below). This approach represents a non-trivial change from previous regulatory practice, as noted by Wright et al (2018).⁷⁰⁶ This change in approach to setting the RFR has not been tested at the CMA.
- (1142) Ofwat should have had regard to longer-term forward-looking equilibrium estimates of the RFR. This includes the central conclusion from the Bank of England, which is that although the forward-looking equilibrium rate will be below long-term historical levels, it is nonetheless positive at 0.5% (CPI-real), which translates into -0.5% (RPI-real).⁷⁰⁷ It would be appropriate in the context of a five-year price control to set the fixed allowance for the RFR somewhere between the forward-looking equilibrium rate and current rates. This would reflect reversion back to the equilibrium rate.
- (1143) Yields on the 15-year inflation-linked gilt have been highly volatile since the DD and FD. Ofwat reduced the RFR assumption by 96bp over the seven-month period between the two Determinations. In the period since the FD the yield on the 15-year inflation-linked gilt has varied within a range of 80bp, indicating that the volatility of this parameter remains high.

⁷⁰⁵ *GD17 (2016)*, para. 10.21 (SOC425).

⁷⁰⁶ Wright et al (2018), page 8 (2018) (SOC423).

⁷⁰⁷ KPMG Cost of Capital Report, para. 4.5.22 (SOC422).

Figure 84 15-year inflation-linked gilt yields between July 2018 and January 2020



Source: KPMG Cost of Capital Report, Figure 3 (SOC422)

- (1144) Adopting a spot yield plus an expected increase based on forward rates provides no allowance for the volatility in government bonds yields. As the RFR assumption is not indexed but is instead fixed for the five-year period, this presents a material risk that the RFR will increase above the number assumed by Ofwat. This would deter investment, with negative impacts on customers, particularly given the long-lived nature of the assets.
- (1145) Ofwat has recognised this uncertainty in another part of the PR19 approach to setting the allowed rate of return. An indexation approach has been introduced for the allowance for the cost of new debt. It is inconsistent to address the uncertainty of interest rates in one part of the allowed return calculation but not another.
- (1146) An uplift should therefore be added to the current market expectations of the RFR to account for the volatility of yields and the possibility that rates could increase above the fixed allowance during the five-year price control period. This would be consistent with CMA precedent.

4.4 Conclusion

- (1147) Ofwat's erroneous approach to setting the RFR assumption has contributed to an underestimate of the allowed return on equity, which has impacted Anglian's financeability. (See **Chapter J: Financeability**).
- (1148) Ofwat should have had regard to longer-term forward-looking equilibrium estimates of the RFR. A glidepath from current market rates to an equilibrium RFR points to a reasonable estimate of the long-run RFR of around -1.50% to -0.80% in RPI terms.

5 Beta

5.1 Ofwat's position in the FD

- (1149) Ofwat considered 0.58-0.66 to be a plausible range for the raw equity beta. This was based on OLS and GARCH estimates of the betas for a market capitalisation weighted portfolio of Severn Trent and United Utilities using daily data and estimation windows of two and five years.
- (1150) Ofwat used the simple average of two- and five-year gearing for the portfolio of Severn Trent and United Utilities to convert the raw equity betas into an unlevered beta. 54.2% was the gearing assumed for this purpose.
- (1151) Ofwat choose a point estimate of 0.29 for the unlevered beta.

5.2 Ofwat's position in context

- (1152) In *Bristol Water (2015)*, the CMA considered a range of sampling frequencies (including daily, weekly and monthly) and horizons (from latest day to five-year averages).⁷⁰⁸ A point estimate was then selected based on the range of evidence from these different sampling approaches.⁷⁰⁹
- (1153) In the light of subsequent empirical evidence, in the Energy Market Investigation the CMA used long-run betas estimated on the basis of low frequency (monthly and quarterly) data.⁷¹⁰

5.3 Ofwat's methodology is flawed

- (1154) Ofwat's beta estimate relies too heavily on higher frequency estimates, including daily betas and shorter time horizons, including two-year betas, which are less suitable for regulatory purposes.
- (1155) KPMG highlights research findings that high frequency beta estimates are more likely to be biased downwards than low frequency estimates and concludes that most weight should be placed on monthly betas.⁷¹¹
- (1156) A time horizon of five years should be used to provide the longest run of data since the most recent structural break, which KPMG considers to be the PR14 price review.
- (1157) Estimates of beta are well-known to be uncertain and may suffer from a degree of statistical instability. KPMG reports that a standard method of making such adjustments is to weight the estimated beta and the market average beta according to their relative variances. KPMG emphasises that this adjustment should not be mischaracterised as 'mean reversion' to the market average beta, rather this is a method for dealing with 'noisy' estimates and trying to correct those estimates for statistical inaccuracies.⁷¹²
- (1158) The raw equity beta from listed comparators adopting a monthly sampling frequency and five-year time horizons supports a beta range of 0.70 to 0.72, with the latter being Vasicek adjusted. Using daily data over the same five-year period produces an estimate of 0.66.⁷¹³

5.4 Conclusion

- (1159) Ofwat's erroneous approach to setting the RFR assumption has contributed to an underestimate of the allowed return on equity, which has impacted Anglian's financeability. (See **Chapter J: Financeability**).

⁷⁰⁸ *Bristol (2010)*, Appendix 10.1, paras. 87 to 96 (SOC345).

⁷⁰⁹ *Bristol (2015)*, Appendix 10.1, paras. 87 to 96 (SOC275).

⁷¹⁰ CMA Energy market investigation Appendix 9.12, para. 48 (SOC435).

⁷¹¹ KPMG Cost of Capital Report, para. 4.6.7 (SOC422).

⁷¹² KPMG Cost of Capital Report, para. 4.6.18 (SOC422).

⁷¹³ KPMG Cost of Capital Report, para. 4.6.22 (SOC422).

(1160) Ofwat should have placed more weight on betas estimated over a five-year period and using monthly data. Weight should also have been placed on estimates that include a Vasicek adjustment.

6 Cost of Embedded Debt

(1161) Ofwat's allowance for the cost of embedded debt is insufficient and incorrectly calculated.

6.1 Ofwat's position in the FD

(1162) Ofwat's allowance for the cost of embedded debt has the stated aim of covering the efficient cost of debt financing over 2020-2025 for debt issued prior to 2020 and retained on the balance sheet of a company with the notional financial structure.⁷¹⁴

(1163) Ofwat used a 'benchmark index approach' to calculate a point estimate, using a 15-year trailing average of yields on the iBoxx A/BBB non-financials 10yrs+ indices (which Ofwat noted had fallen from DD to FD). This was adjusted down by 25 basis points to reflect the sector's alleged ability to outperform the iBoxx A/BBB, resulting in a point estimate of 4.47% nominal (1.43% in RPI terms).

(1164) The 'balance sheet approach' was used as a cross check to consider the appropriateness of the point estimate. This was calculated using company-reported data on debt and other financial instruments, based on water companies' actual cost of debt. This analysis focused on 'pure debt' i.e. fixed, floating-rate and index-linked instruments, excluding 'non-standard instruments' and swaps.

(1165) Ofwat considered the main function of swaps to be company-specific risk management which may provide stability to cashflows (thus benefiting shareholders), but it was unclear what the benefits were to customers. Further, the 'bespoke' nature of swaps made it difficult to assess if they had been efficiently incurred and there was a risk that swaps would be used to mitigate risks arising from high risk financial arrangements unrelated to the notional financial structure.⁷¹⁵

(1166) Ofwat has set a single cost of embedded debt for the sector and ignores Anglian's actual efficiently incurred embedded cost of debt.

6.2 Ofwat's position in context

6.2.1 PR14 Methodology

(1167) There are two changes to Ofwat's 'benchmark index approach' since PR14. First, Ofwat has increased the trailing average in PR19 to 15 years instead of the 10-year trailing average used at PR14. Ofwat considered that this change better reflects the issuance profile of the sector. Second, Ofwat has increased the deduction from the average of the iBoxx A- and BBB-rated indices to 25 basis points instead of the 15 basis points deducted at PR14.

6.2.2 Regulatory precedent

(1168) In *British Gas (2015)*, the CMA recognised the principle that when using an index to determine the allowance for the cost of debt, the length of the averaging period should reflect the timing of when companies issued debt: *'DNOs did issue debt prior to 2004, at a time when prevailing rates were higher and more comparable with the higher rates in 2008 to 2010 which are retained in the trombone for longer. Therefore, while the trombone did not reflect the actual timing of DNO debt issuance, the trombone appears to be a reasonable proxy for the embedded debt costs of DNOs.'*⁷¹⁶

⁷¹⁴ Allowed Return on Capital Technical Appendix, page 85 (SOC244).

⁷¹⁵ Allowed Return on Capital Technical Appendix, page 87 (SOC244).

⁷¹⁶ *British Gas (2015)*, page 144 (SOC434).

- (1169) In *Bristol (2015)*, the CMA observed that both '*debt and equity investors make long-term financing decisions, including debt financing of up to 30 years' maturity*'.⁷¹⁷ The CMA started by reviewing notional debt costs across the industry and then reviewed Bristol Water's actual cost of embedded debt. The CMA considered that the latter provided a cross-check as to whether the notional level derived from industry costs was reasonable for a company such as Bristol Water. Bristol had incurred lower debt costs than a notional water company and the CMA noted that in that context using the higher notional costs would result in higher bills for customers and could be argued to be greater than necessary to fulfil its financial duty.⁷¹⁸ The CMA decided to give weight to both the notional cost of embedded debt and the actual cost of debt raised by Bristol Water.
- (1170) The CMA in its Provisional Findings in *NATS (2020)* based the cost of embedded debt on the existing bond issued by NATS, stating that: '*The cost of embedded debt is unambiguous – in line with the Parties we used the 5.40% initial yield to maturity of NATS existing bond*'.⁷¹⁹
- (1171) The CMA deflated the 5.40% yield using updated forecasts for RPI inflation (2.78%) over the five years of RP3 (2020-2024), which produced an RPI-deflated cost of embedded debt of 2.55%.⁷²⁰

6.3 Ofwat's methodology is flawed

6.3.1 The application of the outperformance adjustment is inappropriate in the circumstances

- (1172) In the FD, Ofwat has made a 25bp deduction to the iBoxx yields under the 'benchmark index' approach to reflect outperformance of yields at issuance.
- (1173) Outperformance only appears if the yields on water company bonds are not compared with the iBoxx indices on a like-for-like basis. NERA and KPMG have shown that once the credit rating and tenor of water company bonds is controlled for, there is no outperformance.⁷²¹
- (1174) KPMG analysis shows that bonds with tenor within five years of the weighted average tenor of the constituents of the relevant iBoxx index experience no outperformance on yields at the issuance date when compared with the iBoxx index of appropriate creditworthiness. Bonds issued with shorter tenor than the index had lower yields at the issuance date, and bonds issued with longer tenor had higher yields.

⁷¹⁷ *Bristol (2015)*, para. 10.6 (SOC275).

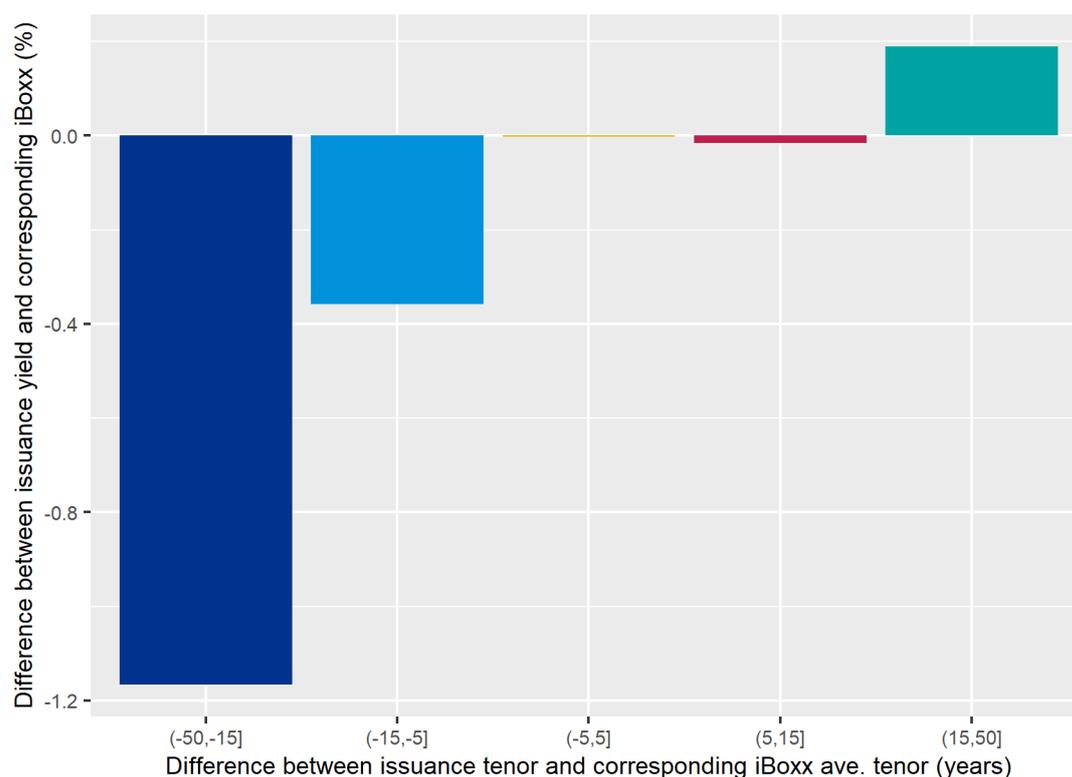
⁷¹⁸ *Bristol (2015)*, para. 10.104 (SOC275).

⁷¹⁹ Provisional Findings *NATS (2020)*, para. 12.154 (SOC440).

⁷²⁰ Provisional Findings *NATS (2020)*, paras. 12.153 to 12.154 (SOC440).

⁷²¹ See NERA Response to Ofwat's Halo Effect for PR19 (SOC057); KPMG Cost of Capital Report (SOC422).

Figure 85 Differences in water bond yields relative to the appropriate iBoxx index by tenor bucket



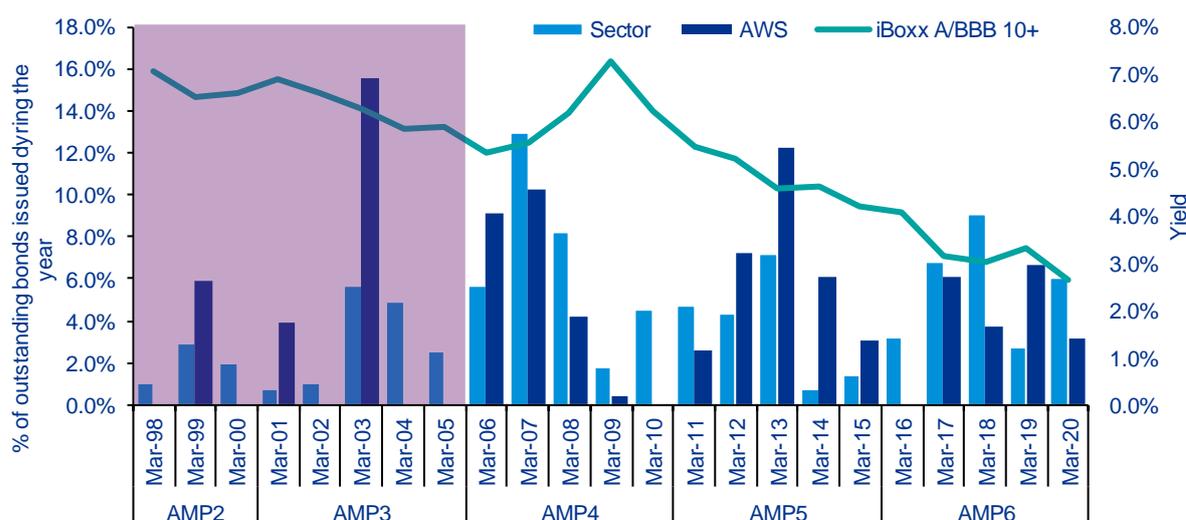
Source: KPMG Cost of Capital Report, Figure 7 (SOC441)

- (1175) The 25bp adjustment made by Ofwat is based on an average tenor that is significantly shorter than the average weighted tenor of the relevant iBoxx index. The adjustment is therefore internally inconsistent with Ofwat's statement that the iBoxx indices with a tenor of ten or more years are reflective of the average debt maturity profile of the sector.
- (1176) The 25bp deduction is also based on bonds that on average had higher credit ratings at issuance than BBB+/Baa1 and is therefore inconsistent with the credit rating being targeted at PR19.

6.3.2 The trailing average excludes a large amount of efficiently raised debt

- (1177) Anglian's debt has been held through multiple price review periods, including PR14. Over 20% of the debt issued by the sector and 25% of the debt issued by Anglian was issued before 2005 and is therefore not captured by the 15-year trailing average used by Ofwat.

Figure 86 Issuance profile of Anglian Water Services (AWS) and the sector



Source: KPMG Embedded Debt Report, Figure 1 (SOC441)

- (1178) In *British Gas (2015)*, the CMA recognised the principle that when using an index to determine the allowance for the cost of debt, the length of the averaging period should reflect the timing of when companies issued debt: *'DNOs did issue debt prior to 2004, at a time when prevailing rates were higher and more comparable with the higher rates in 2008 to 2010 which are retained in the trombone for longer. Therefore, while the trombone did not reflect the actual timing of DNO debt issuance, the trombone appears to be a reasonable proxy for the embedded debt costs of DNOs.'*⁷²²
- (1179) Ofwat is now setting an allowance for the cost of debt using a 15-year trailing average that covers only 75% of the debt that Anglian has outstanding. This results in an allowance that is below the cost of debt efficiently incurred by Anglian, which directly contradicts Ofwat's duty to enable the Company to finance its functions.

6.3.3 Exclusion of certain financial instruments leads to distorted incentives

- (1180) Under the 'balance sheet approach' used as a cross-check, Ofwat appears to implicitly use a 'customer benefits' test to exclude more swaps and other non-standard instruments. It noted that the 'bespoke' nature of swaps made it difficult to assess if they had been efficiently incurred but failed to sufficiently demonstrate that exclusion of all swaps is a good approximation of excluding debt that was inefficiently incurred.
- (1181) Ofwat incorrectly characterises swaps as 'bespoke' products that are tools of financial engineering. First, swaps are a commoditised financial product whose terms (i.e. the ISDA Master Agreement) are pre-printed and universally used in the swap market. The contractual terms of a swap are the opposite of bespoke and are far more standardised than any other financial instrument – such as loans, bonds or private placements. Secondly, the commercial terms such as duration, payment dates and swapped rates are also standardised and can be benchmarked against public and widely available swap curves. Thus it is straightforward and market testable as to whether the swap was efficiently incurred.
- (1182) Ofwat fails to consider that customers benefit from swaps as they de-risk the Company. They remove the interest rate risk and align the Company's debt service payments with its RPI-linked revenues. The swaps are an intrinsic part of the financing strategy and achieve the same outcome from a risk hedging perspective as issuing an inflation-linked bond. At certain points in time, swaps were the only way to

⁷²² *British Gas (2015)*, page 144 (SOC434).

achieve inflation-linked exposure. It is inconsistent for Ofwat to exclude swaps from the analysis whilst including inflation-linked bonds.

- (1183) The impact of excluding all swaps is to underestimate the allowance for the cost of embedded debt by 50bp under the 'balance sheet approach' cross-check. This can be seen from the initial Europe Economics report on the cost of capital, where the industry cost of debt is estimated to be 4.86% (nominal) if most swaps are included and 4.36% if all swaps are excluded.⁷²³ Applying this 50bp uplift to the 4.65% sector median cost of debt used in the FD implies a sector-wide cost of embedded debt of 5.15%, including all swaps apart from eight that were assessed to be particularly expensive. Therefore, the 'balance sheet approach' cross-check suggests that the 4.47% nominal cost of embedded debt resulting from Ofwat's 'benchmark index approach' is miscalibrated.

6.3.4 Actual cost of embedded debt should be accepted as long as it was incurred efficiently ex ante

- (1184) The financeability duty requires that the redetermination be based on the cost of capital of Anglian as a standalone entity and reflect its embedded cost of debt as long as it was efficiently incurred *ex ante*.
- (1185) This principle is compatible with the CMA's position in *Bristol (2015)* and the Provisional Findings in *NATS (2020)* where the actual cost of debt was factored into the analysis. The latter case is particularly relevant as the cost of embedded debt was based on a single long-term bond (23 years tenor at the issuance date) issued by NATS in 2003.
- (1186) Anglian's cost of embedded debt is 4.97% nominal (1.91% in RPI terms). This estimate has been independently calculated by KPMG, and is consistent with the data tables that Anglian submitted as part of its business plan.
- (1187) KPMG has independently assessed the efficiency of the more expensive tranches of debt and swaps, and concluded that these were efficient given the market conditions at the time: *'When compared to the wider sample of index-linked bonds issued in the same time period, the pricing of AWS's pre-2002 issuances appears to be competitive. There is no evidence to suggest that long dated debt raised prior to the 2002 refinancing was mispriced.'*⁷²⁴
- (1188) KPMG has also assessed that the issuance of long-term debt in 2002 was justified: *'The issuance of long-dated 20Y+ debt was justified at this time based on regulatory guidance and the dynamics of the regulatory framework, expectations from lenders and macroeconomic conditions prevailing at the time.'*⁷²⁵
- (1189) KPMG has considered whether any of the debt instruments should be excluded from the analysis following the CMA methodology in *Bristol Water (2015)*. KPMG considers that a consistent application of the *Bristol Water (2015)* methodology implies that it is not appropriate to exclude debt instruments on the basis that they represent non-operational debt if the issuance of these instruments has not contributed to an increase in the cost of debt. KPMG compares the Anglian cost of debt in 2002 and 2020 against a counterfactual scenario where non-securitised financing options are adopted. KPMG finds that the cost of debt would have been more expensive in this counterfactual scenario and therefore it is not appropriate to exclude any of the Anglian debt instruments from the calculation of the 4.97% nominal (1.91% in RPI terms) cost of embedded debt.

⁷²³ Europe Economics Initial Assessment of Cost of Capital, Table 9.2 11 (SOC442).

⁷²⁴ KPMG Embedded Debt Report, para. 5.3.10 (SOC441).

⁷²⁵ KPMG Embedded Debt Report, para. 5.2.3 (SOC441).

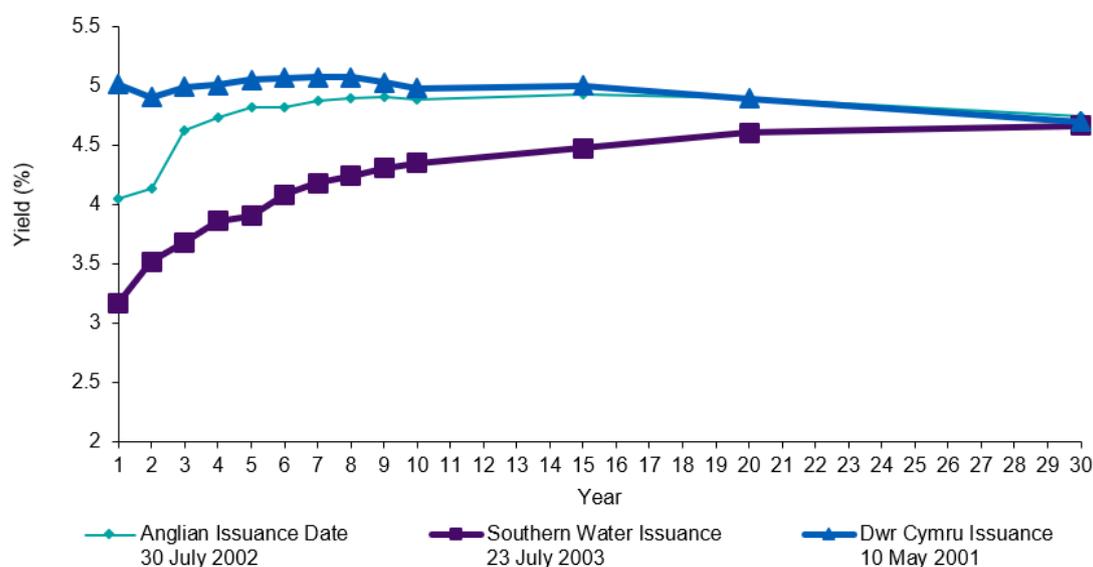
6.4 Anglian's financial structure was *ex ante* efficient and has led to customer benefits

6.4.1 Anglian made use of swaps and long-term debt for reasons of efficiency

- (1190) Companies set treasury policies to balance a range of considerations. There is no uniquely 'correct' financial structure for a water company at any given point in time. Companies that choose to raise relatively short-term debt will see costs reduce when interest rates decline, whereas companies that raise longer-term debt will see less of a reduction. Conversely, when interest rates increase, companies with longer-term debt will see less of an increase. The strategy of raising longer-term debt therefore leads to more stable outcomes.
- (1191) Anglian's actual cost of embedded debt is considerably above the Ofwat allowance for the cost of embedded debt, although efficiently procured. This is largely the result of the long-term financing strategy adopted by the Company.
- (1192) In the 2000s, nominal interest rates were high and real WACC low. Anglian used RPI-linked debt to bridge the gap between nominal costs and real funding. Given the limited market for RPI-linked debt at the time, swaps were used to provide the same effect as issuing an RPI-linked bond.
- (1193) These instruments were beneficial since they matched Anglian's RPI-linked revenue to an RPI-linked debt obligation. Ofwat has itself recognised the benefit of RPI-linked debt – it assumed 33% RPI-linked debt in the notional company.
- (1194) Some of Anglian's debt and swap portfolio is long-term and had 20+ years maturity at issuance. Raising long-term debt and swaps reduced interest rate risk and refinancing risk by matching the long-term nature of the assets and the recovery of the invested capital with the term of the liabilities. This was noted in the pre-sale report issued by S&P: *'the financing plan includes long-dated debt maturities, which reduce refinancing risk.'*⁷²⁶
- (1195) In 2002, issuing long-term debt was considered to be particularly beneficial since the prevailing yield curve was flat or inverted such that long-term debt was no more expensive, and in some cases cheaper, than shorter-term debt. The debt was priced off the prevailing yield curve which could not have foreseen the Global Financial Crisis, the macro-economic response of the long-term quantitative easing and the resulting unprecedented low interest rates (or even negative interest rates for some sovereign issues).

⁷²⁶ S&P Presale Report (2002) (SOC443).

Figure 87 Yield curves at point of issuance for Aligned Companies in the water sector⁷²⁷



Source: KPMG Embedded Debt Report, Figure 7 (SOC441)

- (1196) None of this means that Anglian's debt was inefficiently incurred at the time, and Anglian's motivations are clearly evidenced in contemporaneous board documents which state: *'given the large requirement for long-dated debt to fund the regulated water business, plus the long-term nature of many of its assets, it is currently AWG's policy to reduce interest rate risk by maintaining a substantial proportion of funding at long-term rates of interest.'*⁷²⁸

6.4.2 Issuance of long-term debt in 2002 was consistent with regulatory policy at the time

- (1197) The PR99 final determination significantly reduced the allowed cost of debt. Press reports from the time reference the severity of the 1999 price review and restructuring options were considered by several other water companies. It was therefore necessary for the business to refinance.
- (1198) Regulatory policy at the time was generally supportive of issuing long-term debt and was not prescriptive about the investment horizon. In a 2001 speech, Philip Fletcher commented on Ofwat's statutory duty to ensure that efficient companies could finance the proper discharging of their functions: *'The key here is how efficient the company has been in structuring and managing its finances... Given the exceptionally long lives of system assets, this would suggest the need for a relatively long average duration and an interest rate structure aimed at maintaining a broadly stable real interest cost over time.'*⁷²⁹

6.4.3 Customer benefits

- (1199) Customers have benefited in four ways from the financing choices made by Anglian.
- (1200) First, Anglian customers have benefited as the Aligned Company structure enabled Anglian to finance a significant amount of investment, which has enabled market-leading service levels and levels of resilience.⁷³⁰

⁷²⁷ Securitised companies that have debt programmes structured to enhance regulatory protections (Aligned Companies).

⁷²⁸ See KPMG Embedded Debt Report, para. 6.2.3 (SOC441).

⁷²⁹ Oxera Capital Structure of Water Companies (2002), page 6 (SOC445).

⁷³⁰ Aligned Debt Programme Paper (SOC446).

- (1201) Second, the Aligned Debt Programmes (such as Anglian's) have driven regulatory innovations such as dividend lock-up and enhanced ring-fencing which Ofwat has subsequently replicated in regulated companies' licence provisions. (See **Chapter K: Gearing outperformance sharing mechanism**)
- (1202) Third, the refinancing undertaken by Anglian in 2002 reduced financing costs,⁷³¹ and the Aligned Debt Programme implemented by Anglian encouraged the reduction of financing costs across the industry. Other companies introduced similar structures and issued relatively cheap debt. The costs of these debt issuances have been reflected in the evidence base used in price control determinations over the last 20-years, which has reduced the charges paid by all water company customers.
- (1203) This has been recognised by Ofwat: *'The refinancing trend began following the 1999 price review. Between 2004 and 2007, the pace of this increased, largely because the companies were able to take advantage of long tenor debt available at very cheap rates. While the availability of this cheap debt allowed the companies to outperform our assumptions at the 2004 price review, customers benefit from this cheaper financing over time through the price setting process.'*⁷³²
- (1204) The prevalence of water company bonds in the iBoxx indices means that the customer benefit is likely to extend into other regulated sectors due to the widespread adoption of iBoxx indices as a reference point for setting the allowed return on debt.
- (1205) Fourth, the Aligned Company structure has lowered the tax payable by Anglian. As set out in Section 3.2.2 of **Chapter K: Gearing outperformance sharing mechanism**, Ofwat's approach to tax ensures that this tax saving is passed on to customers.

6.5 Conclusion

- (1206) Ofwat is setting an allowance for the cost of debt of 4.47% nominal (1.43% in RPI terms). Anglian's cost of efficiently incurred embedded debt is 4.97% nominal (1.91% in RPI terms). The PR19 allowance is therefore 50bp below the cost of debt efficiently incurred by Anglian, which directly contradicts Ofwat's duty to enable the Company to finance its functions.
- (1207) Ofwat should have allowed Anglian to recover the cost of its efficiently incurred debt. A 20-year trailing average period for the benchmark iBoxx A- and BBB-rated indices would reflect the period over which Anglian has raised long-dated debt. This results in a cost of debt allowance of 2.05% in RPI terms, compared with Anglian's actual efficiently incurred cost of embedded debt of 1.91%.

7 Cost of New Debt

7.1 Ofwat's position in the FD

- (1208) Ofwat's methodology has shifted from PR14 to now indexing the cost of new debt rather than setting a fixed allowance. This shift in approach is in part a response to a report from the National Audit Office, which highlighted the outperformance that water companies had been able to earn through refinancing in a lower interest rate environment.⁷³³
- (1209) Ofwat will deduct 15 basis points from the benchmark iBoxx index to account for presumed outperformance by water companies.

⁷³¹ KPMG Embedded Debt Report, paras. 5.3.17 to 5.3.23 (SOC441).

⁷³² Ofwat Financeability and financing the asset base (2011), page 36 (SOC447).

⁷³³ NAO Economic Regulation of the Water Sector (SOC336).

7.2 Ofwat's methodology is flawed

- (1210) The deduction of 15bp from the benchmark iBoxx index is based on the same flawed reasoning and analysis used to make a 25bp deduction from the cost of embedded debt (as set out in Section 6.3.1). The issuance yields of bonds with tenor within five years of the average weighted tenor of the constituents of the relevant iBoxx index, exhibit no outperformance on yields when compared with the iBoxx index of appropriate creditworthiness.
- (1211) Furthermore, Ofwat's approach assumes companies will be able to issue at yields lower than those that would be paid on Baa1 bonds. This is inconsistent with the financeability assessment (See **Chapter J: Financeability**), which shows that Anglian would not be able to achieve even the lower end of a Baa1 rating, and consequently would raise debt at higher yields than a solid Baa1 rating and not the lower yields that are funded in the average A/BBB-rated allowance for the cost of new debt.

7.3 Conclusion

- (1212) Ofwat's approach to setting the cost of new debt allowance is inconsistent with the capital and financial structure assumptions that have been made for the notional company and will result in the notional company being underfunded for its cost of debt relative to the Baa1 target credit rating.
- (1213) Furthermore, the assessment of financeability for the notional company demonstrates that Anglian would not be able to achieve a Baa1 credit rating on the basis of the notional capital structure (see **Chapter J: Financeability**). This will result in Anglian not being funded for its cost of capital.
- (1214) Ofwat should have set the allowance for the cost of new debt by reference to the average of the iBoxx A and BBB non-financials 10yrs+ indices without any deductions. This would result in an allowance for the cost of new debt that is consistent with the target credit rating of Baa1.

8 Asymmetric consequences of underestimating the cost of capital

- (1215) Due to the asymmetric consequences of underestimating the cost of capital compared to overestimating it, the point estimate should be drawn from the higher end of the range. Ofwat should have had regard to the asymmetric risks and the cost of under-estimating the cost of capital. While over-estimating the cost of capital will result in customers paying more for their bills, under-estimating will lead to underinvestment in the infrastructure. Given the importance of water as a utility, underinvestment can lead to harm to customers and the wider economy that is more material than the modest harm arising from higher bills.
- (1216) This has been recognised by regulators in previous cases. In *NIE (2014)*, the CC selected a point estimate at the top of the range derived from applying the CAPM to market data.
- (1217) In *Bristol (2015)* the CMA noted that in several areas it made '*prudent upward adjustments ... relative to observable market evidence*' and that this gave '*some assurance that even accounting for the inherent potential errors in market observations, this was a reasonable WACC.*'⁷³⁴
- (1218) This is of particular relevance in this case where Ofwat has made a series of significant changes in its methodology since PR14. In particular, given that the shift in methodology towards the estimation of TMR results from a particular interpretation of the recommendations of one paper rather than changes in market conditions, Ofwat should have been especially cautious in determining the WACC and should have selected a WACC towards the higher end of the range.
- (1219) There is no sound theoretical basis for adjusting the WACC downwards to take account of expected outperformance, either explicitly through selecting a point estimate at the lower end of the range, or

⁷³⁴ *Bristol (2015)*, para 10.192 (SOC275).

implicitly through using a range at the low end of what is supported by the evidence. The appropriate way of addressing the issue of expected outperformance (should one exist on a forward-looking basis) is by recalibrating the cost allowances and performance commitments.

9 Request to the CMA

- (1220) This chapter has explained how in assuming a wholesale WACC of 1.92% (RPI-real) for the notional company, Ofwat has made a number of material errors. The CMA will carry out its own assessment in this area. Anglian contends that the correct range of WACC for Anglian on the basis of the notional capital structure is in the range of 2.5-2.9% as supported by KPMG analysis.
- (1221) If the balance of risk and return is addressed in line with the DD Representation, a point estimate of 2.5%, would be the appropriate way to balance the twin objectives of affordability and financeability. At this level, the credit metrics still look weak, but Anglian's inclusion of £36 million of legacy rewards from AMP6 would make the plan financeable in the round. If the balance of risk and return is not addressed in line with the DD Representation, then the WACC will need to be towards the upper end of the range. This is because the balance of risk in the FD requires the Company to target financial metrics above the minimum Baa1/BBB+ thresholds to provide a buffer against the increase in asymmetric downside risk in the FD. The precise point within the range will depend on the degree to which the balance of risk is improved relative to the FD.

Chapter J: Financeability

1 Overview

- (i) Ofwat's conclusion that the Final Determination provides for Anglian to be financeable at the notional capital structure is incorrect. This conclusion rests on unjustified assumptions and adjustments, both in the financial aspects of Ofwat's assessment and also more fundamentally in the balance of risk and return that the Final Determination imposes on the Company. Nine water companies have already been downgraded by at least one of the rating agencies. The cause is not coronavirus: it is Ofwat's approach to regulating the industry.
- (ii) Ofwat has a statutory duty to secure that the regulated companies '*are able (in particular, by securing reasonable returns on their capital) to finance the proper carrying out of their functions*'.⁷³⁵ Ofwat has noted that this duty includes assessing whether allowed revenues (relative to efficient costs) are sufficient for the company to finance its investment on reasonable terms and to deliver its activities in the long-term, while protecting the interests of existing and future customers.⁷³⁶
- (iii) The financeability assessment is designed to act as a last check that when all the individual components of the Final Determination are taken together (WACC, totex, PAYG, RCV run-off etc.), an efficient company will be able to generate sufficient cash flow to meet its financing needs.
- (iv) The assessment of financeability in practice means ensuring that regulated companies can maintain a solid investment grade rating (Baa1/BBB+ as issued by the major credit rating agencies Fitch, Moody's and S&P). Credit ratings provide a market benchmark and determine the terms on which companies can attract financing and are linked to a range of factors including an assessment of the water sector as a whole (e.g. if there is a stable regulatory environment) as well as the specific features which affect the creditworthiness of each relevant company (e.g. the impact of the price control process on each company). These factors, in turn, influence how rating agencies assess the key credit metrics, and the minimum thresholds required to meet a particular rating.
- (v) In the water sector, credit rating agencies focus particularly on the adjusted cash interest cover ratio (AICR) and funds from operations to net debt (FFO/Net Debt) ratios as key credit metrics for evaluating and assigning credit ratings to regulated companies. AICR is the ratio of free cash flow to meet interest payments (after meeting costs that have been expensed and RCV run-off) against the cost of interest payments. FFO/Net Debt is the ratio of cash flow from operations against a company's net debt. Both metrics assess the 'headroom' a company has to respond to unforeseen credit events without impairing its ability to fulfil its debt obligations. Ofwat has also focused on these two metrics in its assessment.⁷³⁷

Ofwat's approach to financeability
- (vi) In assessing whether the Final Determinations for the regulated companies complied with the financeability duty, Ofwat:

⁷³⁵ Section 2(2A), WIA91.

⁷³⁶ PR19 Final Methodology, page 187 (SOC314).

⁷³⁷ Aligning Risk and Return Technical Appendix, page 78 (SOC242): 'We take account of the key financial metrics targeted by each company and therefore may place more emphasis on the level of the adjusted interest cover ratio or funds from operations to net debt in our assessment of financeability of the notional capital structure for that company.'

- (a) considered that a company would be financeable if it achieved the equivalent of a Baa1 credit rating (a rating two notches above the minimum investment grade rating). This was in line with companies' targeted ratings. It was also internally consistent since Ofwat calculated the WACC using iBoxx indices that assumed a company would maintain a comfortable Baa1 credit rating. Ofwat held that its assessment of the impact of the Final Determination on key credit metrics should be assessed 'in the round' such that falling short on a specific metric should not necessarily call into question a company's financeability. In practice Ofwat has focused on gearing, adjusted interest cover, and FFO/Net Debt: by its calculation, all companies would have financial ratios that in the round are consistent with a Baa1 rating);
 - (b) identified financeability concerns for 12 companies (including Anglian) as the projected AICR was not above the 1.50x threshold required for a Baa1 rating. It used adjustments to the natural PAYG (pay as you go) rate to 'bring forward' revenues from future AMPs so that the companies would have sufficient cash flow to stay financeable. On Ofwat's own assessment, companies only just met the lower end of the AICR range required for a Baa1 rating (despite rating agencies' typical recommendation that companies target the middle of the range to deal with shocks); and
 - (c) did not account for the misallocation of opex as capex (details more fully set out in **Chapter E.5: Misallocation of opex and capex**) when calculating financial ratios. Anglian would actually incur an additional c.£157 million of opex and consequently have less revenue available during AMP7, including to service its debt obligations.
- (vii) However, when Ofwat fails to consider that the financeability assessment of a company assuming the notional capital structure can indicate a problem with the calibration of regulatory parameters, it undermines the use of the assessment as a cross check on the ability of companies to raise finance at the regulator's estimate of the WACC. This weakens an important tool of the regulatory regime for checking whether the calculation of the WACC is consistent with the calibration of risk and return for its decision as a whole.
- Flaws in Ofwat's financeability assessment**
- (viii) Ofwat's conclusion that the Final Determination provides for Anglian to be financeable at the notional capital structure is flawed:
 - (ix) First, Anglian falls well short of meeting the thresholds to maintain a Baa1 rating under the key credit metrics AICR and FFO/Net Debt on the basis of the notional capital structure. Instead of addressing the allocation of insufficient allowable returns, Ofwat applied a number of artificial and unjustified adjustments and assumptions to conclude that Anglian was financeable on a notional basis:
 - (a) Ofwat advanced revenues of £80 million from future price controls to address potential long-term financeability issues (extending into future AMPs) for Anglian. This was effectively applying a short-term solution for a long-term problem – it stores up problems for future price controls. Further, the advancement of PAYG revenues has not even succeeded on its own terms as the rating agencies have stated that they will discount such when assessing regulated companies' creditworthiness. Debt investors will act based on the credit analysis of rating agencies rather than that undertaken by Ofwat.
 - (b) Ofwat has also overstated the revenues that will be available in AMP7 by c.£157 million. In calculating Anglian's financial ratios for the purpose of the financeability assessment, Ofwat did not account for the fact that it had misallocated opex in the Final

Determination and Anglian would consequently have lower allowed revenues (including to service its debt obligations). Details of the opex misallocation are more fully set out in **Chapter E.5: Misallocation of opex and capex**.

- (c) Furthermore, Ofwat has underestimated the cost of embedded debt in assessing financeability for the reasons (as set out in **Chapter I: Weighted Average Cost of Capital**). The practical effect is that Anglian carries an additional cost which it cannot recoup from customers, and in turn means that Anglian has less revenue to meet its debt obligations.
- (x) Second, even if Ofwat's adjustments and assumptions were correct, **there is insufficient headroom in relation to the key credit metrics to conclude that Anglian is financeable on the basis of the notional capital structure**. Under Ofwat's own calculations, Anglian would have an AICR of only 1.50x (the lowest end of the 1.50x-1.70x range required for a Baa1 rating) while its FFO/Net Debt of c.9.5% is already below the 10% threshold needed for a Baa sub factor rating on the Moody's scale. At the same time, the significant increase in the totex efficiency challenge relative to PR14, and the asymmetric downward skew in Anglian's regulatory incentives and cost-sharing ratios means that there is a significant risk of underperformance which would trigger a downgrade (and worsen the terms on which Anglian can borrow). It is not credible for Ofwat to contend that it is neutral to assume no outperformance or underperformance is neutral given where Ofwat has put the bar in the Final Determination.

Significant gap in financeability

- (xi) Stripping out artificial and unjustified adjustments and assumptions in Ofwat's assessment, Anglian's projected metrics fall significantly below the credit metrics needed to maintain a Baa1 rating on the basis of the notional capital structure:
- (xii) Anglian's AICR is approximately 1.06x on a notional basis and thus significantly below the minimum 1.50x indicated by credit rating agencies as necessary to maintain a Baa1 (or equivalent) rating, and also below the 1.30x threshold currently required for a Baa2 rating. This is before taking into account the implications of a negative skew and asymmetry on totex and outcome delivery incentives (ODIs) which will result in a further deterioration of the projected AICR on a mean expected basis.
- (xiii) Anglian's FFO/Net Debt ratio is approximately 8% on a notional basis, and likewise significantly below the minimum 10% indicated by credit rating agencies as necessary to maintain a Baa1 (or equivalent) rating
- (xiv) In practical terms, the credit metrics show that Anglian will not be able to access financing on the terms assumed by Ofwat and will face a significantly higher cost of capital than allowed for under the Final Determination. This conclusion is reinforced by the response of credit rating agencies which have downgraded companies in response to the Final Determinations. Nine water companies have already been downgraded by at least one of the rating agencies.⁷³⁸ In addition, Northumbrian Water remains on review for possible downgrade. Ofwat's price control, in particular its assumptions on the cost of capital, have thus not survived contact with the real world. It fails the key market test for financeability: how rating agencies and lenders will assess the creditworthiness of the business.

⁷³⁸ Including Welsh Water, Severn Trent, Bristol Water, Wessex Water, SES Water, Anglian Water, United Utilities, Affinity Water and Thames Water.

(xv) Third, the fact that Anglian is not financeable on a notional basis under the Final Determination stems from **Ofwat's failure to achieve the correct balance between allowed revenues, expenditure and risk**. Overall, the Final Determination exposes Anglian to the certainty of underfunding in some activities, alongside risk without the prospect of reward in others, as set out in **Chapter D: Risk and return**, and throughout this Statement of Case.

Request to the CMA

(xvi) To address financeability, the CMA needs therefore to correct the balance of the Final Determination overall. Anglian requests that this should be done by:

(a) correcting the wholesale WACC which should be between 2.5%-2.9% on an RPI basis (rather than 1.92% under the Final Determination) for the reasons set out in the **Chapter I: Weighted Average Cost of Capital**; and

(b) correcting the allowed expenditure so that the Final Determination provides sufficient revenues to achieve the infrastructure spending needed as set out (in **Chapter B.3: Anglian's Plan and how it was built**).

(xvii) Where precisely the WACC needs to be set within the possible range of 2.5% - 2.9% depends on the extent to which the CMA will redress the downside skew and symmetry inherent in ODIs and cost-sharing rates.

(1222) The remainder of this chapter is structured as follows: Section 2 summarises the framework for the financeability assessment; Section 3 summarises key aspects of Ofwat's approach to financeability; Section 4 demonstrates why the findings are incompatible with the financeability duty; Section 5 demonstrates how the reaction of the credit rating agencies evidences the flaws in Ofwat's approach to financeability; Section 6 outlines the negative consequences of a lower credit rating; and Section 7 outlines the necessary remedies.

(1223) The chapter should also be read alongside Oxera's Financeability Report which sets out the economic analysis and underlying data in further detail.⁷³⁹

2 Ofwat's approach to financeability in the Final Determination (FD)

(1224) Consistent with precedent, Ofwat has assessed financeability on the basis of the notional capital structure (i.e. modelling financeability based on each regulated company's allowed revenues and expenditure in the context of the notional company).

(1225) Ofwat has also assumed that each company:

(i) has a gearing of 60% and an opening proportion of 33% RPI-linked debt (consistent with the notional company); and

(ii) will be able to achieve the benchmarks set out in the FD, i.e. that it will not overperform or underperform in relation to its performance commitments.

(1226) Ofwat's approach to assessing financeability was characterised by three important assumptions that permeate its financeability assessment:

(i) that companies should target a Baa1 rating and that they would be able to raise financing 'as if they have Baa1 rating;

⁷³⁹ Oxera Financeability Report (SOC448).

- (ii) that credit ratios needed to be assessed 'in the round'; and
- (iii) that PAYG adjustments are an appropriate response to financeability constraints.

2.1 Ofwat considered that companies should target a Baa1 rating and assumed that companies would be able to raise financing 'as if' they have a Baa1 rating

(1227) Ofwat conducted its financeability assessment on the basis that the notional company should have a credit rating of Baa1 (or equivalent) which was the target rating proposed by all companies. Figure 88 below summarises how Ofwat conducted the financeability assessment.

Figure 88 Slide from Ofwat's presentation to the CMA

Bringing it all together		Credit ratings and outlook as at 7 February 2020			
Company	Moody's	S&P	Fitch	Actual gearing as at 31 March 19	
Anglian Water	Baa1 ↓	A- ↓	A ↓	78.6%	<p>A credit rating is an evaluation of the credit risk. It can influence the cost of debt for a company and its ability to raise finance</p> <p>Most companies are required to use all reasonable endeavours to maintain an investment grade credit rating; in practice we expect companies to maintain headroom against the minimum of investment grade</p> <p>We carry out our financeability assessment on a notional basis drawing from the approach adopted by the credit rating agencies</p> <p>The financeability assessment in our determination targeted a credit rating two notches above the minimum of investment grade (Baa1 / BBB+)</p> <p>Credit ratings vary between companies on an actual basis for a variety of reasons, with most companies on negative watch or review for downgrade</p> <p>As at 7 February 2020, four credit ratings have been confirmed since our determinations:</p> <ul style="list-style-type: none"> • Moody's has downgraded Dŵr Cymru to A3 from A2; and Fitch has retained Dŵr Cymru's A rating • Moody's has downgraded Severn Trent Water from A3 to Baa1 • Moody's has retained the A3 credit rating for United Utilities
Dŵr Cymru	A3 →	A ↓	A →	56.0%	
Northumbrian Water	Baa1 ↓	BBB+ ↓		66.8%	
Severn Trent Water	Baa1 →	BBB+ →		63.7%	
Southern Water	Baa3 →	BBB+ ↓	BBB+ ↓	68.8%	
Thames Water	Baa1 ↓	BBB+ ↓		81.9%	
United Utilities	A3 →	A- ↓	BBB+ →	64.8%	
Wessex Water	A3 ↓	BBB+ ↓	BBB+ ↓	64.7%	
Yorkshire Water	Baa2 ↓	A- →	A ↓	75.8%	
Affinity Water	Baa1 ↓	A- ↓		79.7%	
Bristol Water	Baa1 ↓			64.6%	
Portsmouth Water	Baa1 ↓	BBB ↓		66.3%	
SES Water	Baa1 ↓	BBB+ ↓		60.9%	
South East Water	Baa2 →	BBB →		78.5%	
South Staffs Water	Baa2 ↓	BBB+ ↓		70.6%	

Key	
→	Stable outlook
↓	Negative outlook

Credit ratings are based on the long-term issuer credit rating. Where this is not available current credit ratings are based on the senior debt instrument.

Source: Ofwat's Second CMA Teach In, slide 31 (SOC449)

(1228) Ofwat, in turn, based its estimate of the WACC on iBoxx index ratings that assumed regulated companies would achieve the upper end of Baa1 credit rating. Put more simply, Ofwat has assumed that Anglian and other regulated companies will be able to raise financing on terms available to a company with the upper end of Baa1 rating or higher (on a notional basis).

2.2 Ofwat considered that credit ratios needed to be assessed 'in the round'

(1229) Ofwat reviewed the suite of financial ratios incorporated in the financial models, with a focus on gearing, interest cover ratios and FFO/Net Debt. Ofwat said these metrics should be 'assessed in the round' – or, put more practically, falling short on a particular credit metric would not necessarily mean the relevant company will be considered unfinanceable.⁷⁴⁰

(1230) The main credit metrics considered by rating agencies are quantitative metrics, though the extent to which they impact the final rating is dependent on a range of considerations including the quality of the regulatory regime and the company's business profile.

⁷⁴⁰ Aligning Risk and Return Technical Appendix, page 67 (SOC242).

- (1231) Interest cover ratios (AICR for Moody's and PMICR for Fitch) are a key metric. Moody's Rating Methodology provides that the AICR is its preferred metric to assess leverage and coverage for water companies, since allowed revenues are determined using a building block approach and the components are consistently available from an independent source.⁷⁴¹ Similarly, Moody's October 2019 Sector In-Depth report⁷⁴² contains more discussion of the AICR than any other measures of credit quality, and AICR and net debt to RCV are the two metrics that Moody's focuses on when specifying what could lead to a rating upgrade or downgrade.⁷⁴³ Fitch has similarly noted that PMICR is a key indicator of change in quality, and especially suitable for utility companies.⁷⁴⁴
- (1232) FFO/Net Debt (designed to assess the rate at which a company can repay its debt) is also considered by both Moody's⁷⁴⁵ and S&P.⁷⁴⁶
- (1233) Following the publication of Ofwat's PR19 methodology and the subsequent consultation on introduction of the gearing outperformance sharing mechanism, both Moody's and Fitch revised their financial ratio guidance in response to increased risk and regulatory uncertainty.
- (1234) Moody's foresaw *'increasing risk of future political interference in the design of the regulatory framework'* and downgraded its assessment of predictability and stability in the UK water regulatory regime from Aaa to Aa. Further, given its *'changed views around the stability and predictability of the regulatory regime'* companies would have to exhibit stronger interest coverage ratios to maintain the same credit quality. It increased the minimum AICR required to obtain a Baa1 rating from 1.40x to 1.50x.⁷⁴⁷ The maximum RCV gearing decreased from 75% to 72%. Fitch similarly factored in a reduction in the *'long-term predictability of the regulatory framework'* and increased the minimum PMICR threshold by 0.1x.⁷⁴⁸
- (1235) Both agencies advise targeting the 'middle' of the AICR range for a Baa1/BBB+ rating. EY has advised that under the S&P rating methodology a BBB+/A- credit rating at 60% gearing would require FFO/Net Debt of at least 10%.⁷⁴⁹ Moody's has advised a range of 10-15% for a Baa rating for this sub-factor, which maps to an overall rating in the Baa1-Baa3 range.⁷⁵⁰
- (1236) Ofwat noted at FD that the guidance issued by credit rating agencies *'does not necessarily imply a minimum requirement for individual financial ratios for a target credit rating'*.⁷⁵¹ However, even in its FD, Ofwat appears to have placed most emphasis on the AICR threshold. It used PAYG adjustments (as set out below) to ensure that each notional company would have an AICR of at least 1.50x – the minimum required for a Baa1 rating.

2.3 Ofwat considered PAYG adjustments as the appropriate response to financeability constraints

- (1237) Ofwat has used PAYG adjustments to address financeability constraints, i.e. by 'bringing forward' allowed revenues from future periods to address regulated companies' inability to finance themselves on the basis of the PR19 price control. It should be noted that Ofwat's assessment assumed that 33%

⁷⁴¹ Moody's Rating Methodology, page 18 (SOC450).

⁷⁴² Moody's Rock of Low Returns Meets Hard Place of Covenants (SOC451).

⁷⁴³ See for example Moody's Downgrades Severn Trent Water to Baa1, Plc to Baa2 (SOC453).

⁷⁴⁴ Fitch PMICR Report (2007) (SOC454); Fitch PMICR Report (2019) (SOC455).

⁷⁴⁵ Moody's Rating Methodology, page 4 (SOC450).

⁷⁴⁶ S&P Methodology, Table 19 (SOC456).

⁷⁴⁷ Moody's Proposals Undermine Stability and Predictability of the Regime, pages 4 to 5 (SOC457).

⁷⁴⁸ Fitch Revises Outlook on 3 UK Water Holding Companies (July 2018) (SOC459).

⁷⁴⁹ EY Report on Target Credit Ratings, page 18 (SOC056).

⁷⁵⁰ Moody's Rating Methodology, page 21 (SOC450).

⁷⁵¹ Aligning Risk and Return Technical Appendix, page 97 (SOC242).

of debt was RPI-linked; if it had been linked to CPIH, even larger financeability adjustments would have been required.

- (1238) At PR14 Ofwat allowed companies to propose their own PAYG and RCV run-off rates for the first time (and thus adopt rates that differed from the 'natural' rate). This allowed companies to (re)allocate allowed expenditure between different AMPs (i.e. to move allowed revenues between price control periods).
- (1239) To prevent companies from using this mechanism to buffer themselves against a lower cost of capital, Ofwat assessed if it was appropriate to 'bring forward' revenue against these criteria: (i) quality of customer engagement; (ii) bases of engagement; (iii) proportionality to the financeability or customer requirement; and (iv) evidence of net benefit to customers such as lower cost of debt in future price controls.⁷⁵² Ofwat set out a similar approach in its PR19 Methodology, where it stated that companies would have to explain clearly the potential departure from natural rates, how they have accounted for customer views and the work on the likely path of bills beyond 2025.⁷⁵³
- (1240) However, at FD Ofwat made PAYG adjustments for 12 companies where it considered that higher cash flows are required to improve the financeability of the notional company.⁷⁵⁴ Most of these companies, including Anglian, did not request PAYG adjustments and Ofwat did not require evidence that their customers support the resulting bill profiles.⁷⁵⁵
- (1241) Anglian did not propose PAYG advancements in PR19 since rating agencies had made it clear that they would 'see through' any such adjustment. Anglian's preference for using the 'natural' PAYG rate was also driven by its customer engagement process where customers expressed a clear preference to maintain intergenerational equity by matching the profile of bills over time to the profile of services delivered by the assets.⁷⁵⁶
- (1242) At FD, Ofwat concluded that Anglian's notional company would be financeable on the basis of a reasonable allowed return on capital, but only if £80 million of revenue was advanced through PAYG adjustments.

3 Ofwat's findings in the FD are incompatible with its Financeability Duty

- (1243) Ofwat has a duty to ensure that water companies can finance the proper carrying out of their functions (in particular through securing reasonable returns on capital). The CMA has previously noted that when '*assessing financeability, it is good regulatory practice to consider the views of the credit rating agencies, and by implication, the financial ratios they partially base their views on*'.⁷⁵⁷
- (1244) Notwithstanding Anglian's Board concluding that it was not possible to provide an assurance that Anglian was financeable either on a notional or actual basis based on Ofwat's DD, Ofwat subsequently concluded in its FD that '*the revenues allowed in [Ofwat's] final determination ... [were] sufficient for Anglian Water to meet its obligations and commitments ... on the basis of the notional structure*'.⁷⁵⁸ In particular, Ofwat found in relation to the key credit metrics that:
- (i) Anglian's AICR ratio would be 1.50x on a notional basis (an AICR ratio of 1.50x is (just) consistent with Baa1 rating (or equivalent))

⁷⁵² PR14 Financeability and Affordability, pages 25 to 26 (SOC458).

⁷⁵³ PR19 Final Methodology, page 187 (SOC314).

⁷⁵⁴ Aligning Risk and Return Technical Appendix, page 67 (SOC242).

⁷⁵⁵ Aligning Risk and Return Technical Appendix, page 54 (SOC242).

⁷⁵⁶ Customer Engagement Channels and Questions, page 12 (SOC034): In relation to the RCV run off rate, '*23% pay more now to help future customers 71% everyone pays for what they use, when they use it 6% pay less now and leave more for future customers to pay*.'

⁷⁵⁷ *Bristol (2015)*, para. 11.24 (SOC275).

⁷⁵⁸ Anglian's FD, page 79 (SOC234).

- (ii) Anglian's FFO/Net Debt ratio would be 9.49% on a notional basis (EY has advised that under the S&P rating methodology a BBB+/A- credit rating at 60% gearing would require FFO/Net Debt of at least 10%,⁷⁵⁹ and Moody's has advised a range of 10-15% for a Baa rating for this sub-factor, which maps to an overall rating in the Baa1-Baa3 range.⁷⁶⁰

(1245) However, Ofwat's assessment of financeability and, in particular, its calculation of the key financial metrics underpinning companies' credit ratings suffers from two flaws.

3.1 Ofwat's FD does not deliver financial metrics compatible with a credit rating of Baa1 or higher for Anglian's notional company

(1246) First, Ofwat's FD does not in fact deliver AICR and FFO/Net Debt ratios for Anglian on a notional basis that would enable it to maintain a Baa1 credit rating (or equivalent) and thus raise financing at the rates as if it were a Baa1-rated company.

(1247) During the PR19 process, Anglian has submitted analyses demonstrating that the notional company was not financeable based on Ofwat's own models.⁷⁶¹

(1248) However, instead of addressing the underlying flaws in the balance between allowed revenues and expenditure which mean that the FD did not provide sufficient revenues for Anglian to be financeable on a notional basis, Ofwat resorted to three inappropriate adjustments / assumptions:

3.1.1 Inappropriate use of PAYG adjustments to ensure financeability

(1249) In the first instance, Ofwat identified a financeability constraint and advanced £80 million of revenue into AMP7 from future price control periods by increasing the PAYG rate above the natural level. This raises three problems: (i) it is not justified because PAYG adjustments should not be used to address long-term problems rather than short-term problems; (ii) it is not a workable solution because the rating agencies have made clear that they will look through such adjustments in their assessment of creditworthiness; and (iii) it is contrary to the customers' expressed preferences to maintain the natural rate. For all these reasons, Anglian did not seek such an adjustment at PR19.

(1250) The use of PAYG advancements to address financeability concerns has rightfully previously been restricted to situations where it averages out atypical finance needs. The Competition Commission (CC) has considered an advancement of revenue from future periods and concluded that this *'might be appropriate if the financeability problem was temporary, for example, due to a short-term spike in capital expenditure.'*⁷⁶²

(1251) Ofwat has argued that the financeability problem in PR19 is also temporary and more acute since it is based on: (i) a high share of return coming through inflation of RCV rather than the real WACC; and (ii) the sector having a relatively high cost of embedded debt compared to the cost of equity.

(1252) Ofwat is, however, incorrect that the causes of the low estimate of WACC and thus financeability concerns linked to the low WACC are temporary. Ofwat's PR19 cost of capital methodology has introduced several structural changes that if maintained for AMP7 and beyond will entail a permanent reduction in the return from real WACC, implying a higher share of the return coming through inflation of RCV rather than the real WACC. While the move to consumer price index (CPI) from retail price index (RPI) may improve cash returns, this does not solve the issue of lower cash returns due to the lower real WACC. Further, companies will continue to have an RPI-linked portion of RCV on their balance sheets which means the ratio of cash return to inflationary return for that portion of the RCV is likely to

⁷⁵⁹ EY Report on Target Credit Ratings, page 18 (SOC056).

⁷⁶⁰ Moody's Rating Methodology, page 21 (SOC450).

⁷⁶¹ Notional Company Financeability (April 2019) (SOC134); Notional Company Financeability (August 2019 update) (SOC199).

⁷⁶² *Bristol (2010)* Appendix O, page 16 (SOC345).

continue to be low. The mismatch between the allowed cost of equity and the allowed cost of debt is likely to continue straining the interest cover ratios and financeability of the notional company. Ofwat is using a short-term solution – PAYG – to address a potentially long-term problem and thus storing up even greater problems for future price controls.

- (1253) In addition, Ofwat's use of PAYG adjustments to address financeability has not even succeeded on its own terms as the credit rating agencies have refused to accept it as a bona fide measure to solve financeability concerns. As set out in Section 5 below, Ofwat's advancement of revenues using PAYG has not been successful as the credit rating agencies have opted to 'look through' such adjustments and exclude the PAYG adjustment from their calculation of key credit metrics.

3.1.2 Failure to account for the misallocation of opex as capex

- (1254) In the second instance, Ofwat overstated the revenues available to Anglian to service its debts by c.£157 million over AMP7.
- (1255) Regulated companies recover their allowed costs in two ways: (a) PAYG where customers pay for the costs in the same year that they are incurred, and (b) non-PAYG where the costs are added to the RCV and recovered over a longer period through the RCV run-off. As a rule, the former is used to fund opex and the latter used to fund capex. The split between capex and opex thus determines the 'natural' rate of PAYG and RCV run-off.
- (1256) As more fully set out in **Chapter E.5: Misallocation of opex and capex**, Ofwat's approach at FD has resulted in a significant misallocation of opex as capex. This results in less revenue being available during AMP7 than should be the case (too little revenue is classified as PAYG). Ofwat, however, has not accounted for this misallocation while assessing financeability. This results in an underestimate of opex and an overestimate of the revenues available to service debt in AMP7. The consequences are twofold: on the one hand, the flawed opex/capex split means that significantly less revenues will actually be available during AMP7 than should be the case; on the other, Ofwat has overstated the credit metrics.
- (1257) The practical effect is clear: Anglian will have significantly less revenues during AMP7 than should be the case, even under Ofwat's own financeability assessment.

3.1.3 Underestimation of cost of embedded debt

- (1258) In the third instance, Ofwat has calculated the AICR based on the allowance for the cost of debt that Ofwat has determined in the FD (which underestimates the true cost of embedded debt). **Chapter I: Weighted Average Cost of Capital** explains why this is below the efficient cost of debt for Anglian.
- (1259) The outperformance effect Ofwat has assumed in reducing the allowance for embedded debt by 25bp from the benchmark iBoxx index is based on the yields of shorter tenor bonds, but it is then assumed to apply generally. This is inconsistent with the reason for using the iBoxx index in the first place, which was to reflect the average debt maturity within the sector.
- (1260) The 15-year trailing average used for the benchmark iBoxx index excludes 25% of the debt that has been efficiently raised by Anglian at a time when market interest rates were higher than today. Ofwat does not adequately account for market conditions from 2000 to 2005 when companies were raising long-term debt.
- (1261) Ofwat has inappropriately excluded all swaps from its cross-check of the cost of embedded debt across the sector. Ofwat has not demonstrated that the excluded costs were inefficiently incurred. It is inconsistent for Ofwat to exclude swaps from the analysis whilst including inflation-linked bonds.
- (1262) The combination of these errors results in a cost of embedded debt at 4.47% (nominal); correcting the cost of embedded debt to (i) remove the 25bps adjustment for the outperformance wedge; and (ii) extend

the trailing average period to 20Y increases the cost of embedded debt implied by iBoxx to 5.11%. This is 14bps higher than Anglian's efficiently incurred cost of embedded debt (4.97%).

(1263) In consequence, Ofwat's assessment of financeability has been based on an underestimate of the cost of debt and, in turn, has overestimated Anglian's performance under the key credit metrics of AICR and FFO/Net Debt.

3.2 In-built risk/reward skew and other findings in the FD will affect the credit rating of Anglian's notional company

(1264) The second fundamental flaw in Ofwat's methodology is due to the imposition of performance commitments with an asymmetric downward skew across the sector, asymmetric and downside skewed cost-sharing ratings, and the lack of any headroom in key credit metrics for Anglian. As set out in **Chapter D: Risk and return:**

- (i) Anglian cannot be considered financeable given that the expected returns are materially lower than the required returns on *ex ante* basis.
- (ii) Ofwat's FD significantly underfunds Anglian's base requirements (by £251 million), because of a narrow reliance on models that fail to recognise the costs Anglian faces. It also does not adequately fund Anglian's enhancement plan (a shortfall of £161 million).
- (iii) It also leaves Anglian exposed to significant contingent costs (£190 million) with respect to its Elsham scheme and metaldehyde programme by offering a reconciliation mechanism which has no practical effect for these schemes.
- (iv) This overall near-certainty of low returns is exacerbated by the 'at risk' elements of the package being strongly skewed towards penalties rather than rewards. The ODI package is not coherent (being based on inconsistent company forecasts and ignoring customer views) and will penalise even if the company delivered significant improvements in performance. High penalties relative to low rewards and unattainable targets translate into a pronounced downside skew, where companies are expected to trigger penalties even if improving performance levels for customers
- (v) The cost-sharing mechanism provides Anglian with only a small proportion (35%) of any underspend while exposing it to the majority of any overspend (65%).

(1265) The additional unfunded costs and expected losses from ODI mechanisms materially reduce expected equity returns relative to both the required returns and Ofwat's allowed returns. This will also result in a further deterioration of credit metrics for the notional company.

(1266) Taken together these factors mean that it is not credible to work on an assumption that Anglian would be able to maintain a Baa1 (or equivalent) credit rating on a notional basis (and thus obtain financing on such terms) even ignoring all the errors in the FD set out in Section 3.1 above and working on Ofwat's own calculations of the key credit metrics.

3.2.1 No headroom for key credit metrics

(1267) Anglian has, in the first instance, no headroom to allow for any degree of underperformance whilst maintaining the credit metrics needed for Baa1 rating.

(1268) While a negative skew in potential performance against regulatory assumptions would not necessarily undermine the position that Anglian and other companies could achieve a Baa1 credit rating on a notional basis, this only holds if there is a significant buffer to allow for any potential underperformance and unforeseen shocks. However, even on Ofwat's calculations, Anglian would have:

- (i) an AICR ratio of 1.50x which is at the very bottom of what is permitted to retain a Baa1 rating and would not allow for any unforeseen shocks (or indeed the realisation of any of the

asymmetric risks created by the FD). Both Moody's and Fitch advise targeting the 'middle' of the AICR range of 1.50x-1.70x to achieve a Baa1 rating.

- (ii) an FFO/Net Debt ratio of approximately 9.5% which is significantly below the 10% needed by the credit rating agencies to maintain a Baa1 (or equivalent credit rating).

(1269) As set out below, Ofwat has introduced more risk at PR19 than in previous price reviews. In this scenario, aiming for the bottom of the range of AICR will, in itself, lead to a downgrade and increased costs.

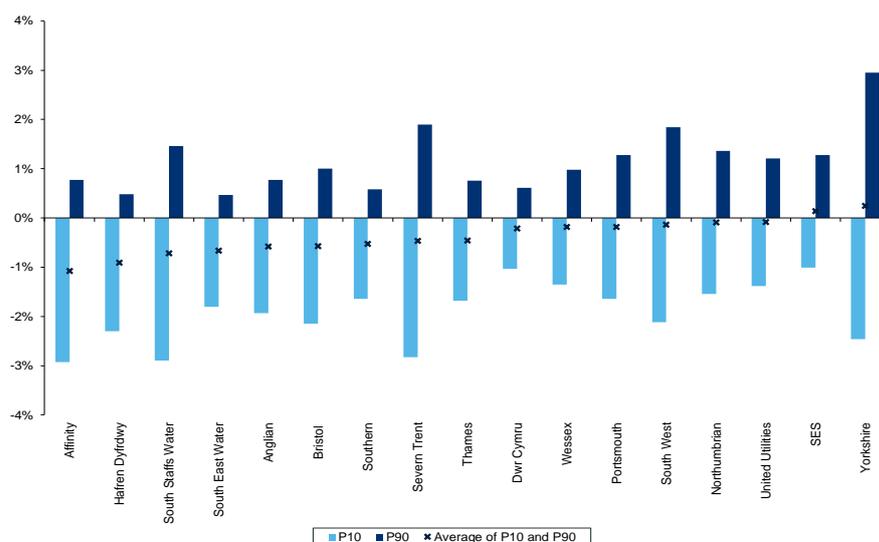
3.2.2 Negative skew in performance commitments

(1270) **Chapter D: Risk and return** sets out in detail how Anglian faces a significant risk of underperformance. Indeed, as Ofwat itself acknowledges that the risk ranges for some companies 'extend below a return on regulatory equity of zero' in relation to the potential effects of the regulatory incentives.⁷⁶³ More specifically, the asymmetry is particularly seen in the following:

- (i) The increase in Totex efficiency challenge relative to PR14 is negatively skewed towards underperformance.
- (ii) The Totex cost-sharing rates are negatively skewed. Anglian would receive no more than 35% of the benefits of any outperformance but would pay at least 65% of the costs of any underperformance, against Ofwat's allowances.⁷⁶⁴
- (iii) The stretching Performance Commitments mean that there is a downward skew on ODIs as well.

(1271) The regulatory incentives create a situation where average performance, even if improving from the base position, will result in a significant penalty. Figure 89 below shows that the industry overall faces a negatively skewed outcome on ODIs and that Anglian has the fifth most negatively skewed package. The net position on penalties or rewards is strongly skewed towards penalties, with a very stretching performance being expected across the board in order to avoid penalties. Rewards can only be earned where a step change in performance is delivered. However, the funding allowed by Ofwat in the FD does not enable companies to make this step change.

Figure 89 Expected ODI outperformance/underperformance as a percentage of RoRE (%)



Source: Oxera Financeability Report, Figure 6.1 (SOC448)

⁷⁶³ Aligning Risk and Return Technical Appendix, page 36 (SOC242).

⁷⁶⁴ Anglian's FD, page 47 (SOC231).

(1272) Anglian therefore has limited scope to deliver returns higher than the cost of equity, but there is scope for *significantly* lower returns even if the company improves performance. The level of returns is unprecedentedly low even in the scenario where the company meets all the targets in the FD. In the downside scenario, returns on equity may be negative. This severely impairs the ability of the company to recover from adverse shocks through internally generated capital, and significantly aggravates the financeability of the notional company. It is not credible for Ofwat to assume that the notional company will meet its cost allowances and performance commitments given that its FD results in a significant risk of underperformance.

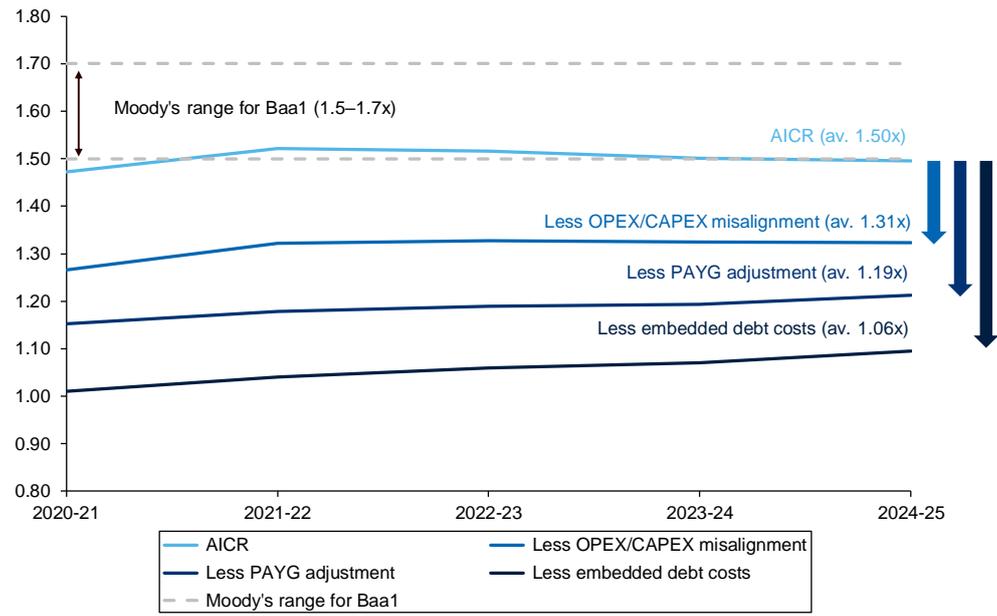
4 Anglian's performance on key credit metrics (on a notional basis)

(1273) Ofwat concluded that the FD results in Anglian having an AICR of 1.50x and an FFO/Net Debt ratio of 9.5% on a notional basis. However, as set out in Section III, Ofwat has overstated the ratios due to three factors: (i) inappropriate use of PAYG adjustments; (ii) misallocation of opex as capex; and (iii) incorrect assessment of embedded debt costs.

(1274) Accounting for the incremental effect of these factors, a proper calculation shows that Anglian's performance is significantly below the thresholds required to maintain a Baa1 rating. (Oxera's Financeability report sets out details of the calculation.)

(1275) In the first instance, Anglian's AICR at the notional level of gearing is 1.06x, far below Moody's 1.50x-1.70x for a Baa1 rating, as well as below the 1.30x threshold for a Baa2 rating.

Figure 90 Correcting the AICR calculation in the Anglian FD Financial Model

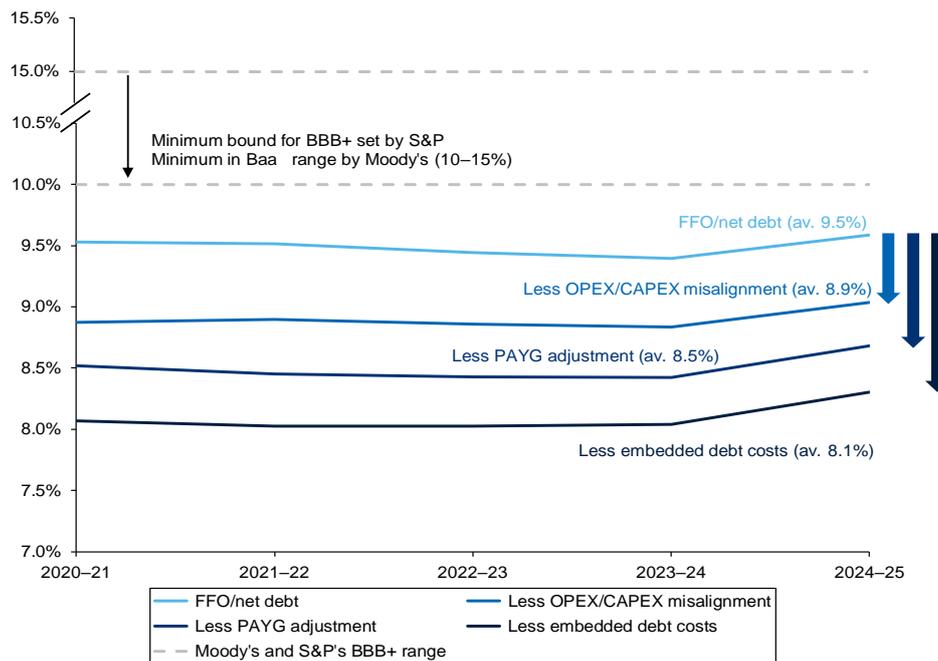


Source: Oxera Financeability Report, Figure 5.1 (SOC448) Note: The adjustments are cumulative

(1276) In the second instance, Anglian's FFO/Net Debt ratio is in fact 8.1% which is below Moody's minimum threshold for a Baa1 rating.⁷⁶⁵

⁷⁶⁵ Moody's Rating Methodology, page 21 (SOC450).

Figure 91 Correcting the FFO/Net Debt in Anglian's FD Financial Model



Source: Oxera Financeability Report, Figure 5.2 (SOC448) Note: The adjustments are cumulative

(1277) On the basis of the above, Anglian is likely to be downgraded to below Baa1, with a risk of a further downgrade, particularly as rating agencies will take asymmetric risks into account.

5 Reaction of the credit rating agencies shows that Ofwat's financeability assessment is flawed

(1278) The flaws in Ofwat's financeability assessment are practically manifested in the reaction of the credit rating agencies.

5.1 Rejection of the use of PAYG adjustments to address financeability

(1279) Two of the three rating agencies have publicly stated that they do not see PAYG advancement as credit-enhancing, and have stated that such adjustments would be excluded from their calculation of credit metrics while making rating decisions. Moody's has made the distinction between the switch to CPIH on the one hand (a permanent change that applies to all companies in a similar way) and PAYG and RCV run-off rates, on the other, which can change between periods, distorting comparability between companies and over time. It said that it *'will continue to remove the regulatory depreciation as well as excess PAYG to calculate company-specific AICR ratios.'*⁷⁶⁶

(1280) Fitch acknowledged that Ofwat has increased PAYG rates and proposed lower dividends to improve financeability of 12 companies but said that it *'will however adjust its PMICR to align accounting treatment of opex with the regulatory treatment if companies use the PAYG rate above the accounting level.'*⁷⁶⁷ On 30 January 2020, Fitch confirmed in its analysis of Welsh Water that changes to PAYG and RCV run-off rates *'do not markedly improve Fitch's key ratios'*.

5.2 Downgrading of the water sector in response to Ofwat's final determinations

⁷⁶⁶ Moody's Ofwat Tightens the Screws Further, page 1 (SOC349).

⁷⁶⁷ Fitch Ofwat Price Review Intensifies Pressure (SOC348).

- (1281) Moody's put the majority of the sector on review for downgrade.⁷⁶⁸ It noted that the rating review reflects the '*anticipated pressure on companies' financial metrics, particularly interest coverage*' and that for some companies '*the deterioration could be commensurate with a ratings downgrade in excess of one notch*'.⁷⁶⁹
- (1282) S&P noted that the 11 companies that have accepted the outcome of the FD will see lower regulatory returns from April 2020, higher pressure on operating performance and a likely deterioration of credit metrics with an average decline in FFO/Net Debt from 150bps-200bps. It lowered by one notch the ratings of debt issued by Affinity Water, Sutton and East Surrey Water, United Utilities, Wessex Water and Dwr Cymru.⁷⁷⁰
- (1283) More broadly in response to Ofwat's FDs, nine water companies have already been downgraded by at least one of the rating agencies.⁷⁷¹ In addition, Northumbrian Water remains on review for possible downgrade. This illustrates that Ofwat's FD has a negative impact on the ability of regulated companies to maintain their credit ratings (and in turn access capital on the same terms as before).
- (1284) On 26 February 2020, Moody's placed Anglian on a negative outlook after confirming its Baa1 rating, suggesting that the rating will continue to be under pressure even if the CMA fully allows Anglian's investment plan.⁷⁷²
- (1285) On 17 March 2020, Fitch downgraded Anglian's class A debt rating from A to A-, and the class B rating from BBB+ to BBB. Fitch has stated that it does not expect a favourable outcome from the CMA process to be sufficient to maintain Anglian's credit quality.⁷⁷³

6 A lower credit rating would *de facto* create a higher cost of capital than Ofwat has allowed for and would have other negative consequences

- (1286) While Ofwat recognises the need for an efficiently financed company to maintain a strong credit rating (Baa1 or equivalent), it does not achieve this in practice. Our analysis has highlighted that:
- (i) Credit rating agencies do not recognise PAYG adjustments as credit enhancing;
 - (ii) Ofwat has misallocated opex and capex, which means that Anglian is being allowed to recover a lower proportion of totex through PAYG (compared to the proportion of opex to totex); and
 - (iii) Ofwat does not recognise the efficiently incurred embedded debt cost of Anglian.
- (1287) The financial ratios that result after accounting for the above are significantly below the benchmarks associated with a Baa1 credit rating and Anglian is likely to be downgraded to Baa2. The significant challenges posed by the various components of the FD (totex efficiencies and ODIs, for example) add to the risk of downside on returns and ratios, further deteriorating Anglian's financial resilience. A lower credit rating would have the following implications:

6.1 A higher cost of capital

- (1288) Ofwat's FD is internally inconsistent. It has estimated the WACC based on iBoxx indices that target the upper end of a Baa1 rating. For Ofwat's assessment to be internally consistent, the metrics of the

⁷⁶⁸ Namely, Anglian Water, Welsh Water, Northumbrian Water, Severn Trent, Thames Water, Yorkshire Water, Wessex Water (Wessex Water Services Finance Plc), Affinity Water, Bristol Water, Portsmouth Water, South Staffs Water, and SES Water. Moody's Reviews 12 UK Water Groups for Downgrade (SOC452).

⁷⁶⁹ Moody's Reviews 12 UK Water Groups for Downgrade (SOC452),

⁷⁷⁰ S&P Four Water Companies Downgraded (February 2020) (SOC461).

⁷⁷¹ Including Welsh Water, Severn Trent, Bristol Water, Wessex Water, SES Water, Anglian Water, United Utilities, and Affinity Water.

⁷⁷² Moody's Confirms Ratings of Anglian Water with Negative Outlook and Downgrades Osprey (SOC462).

⁷⁷³ Fitch Downgrades Anglian Water and Osprey (SOC460).

notional company should be at the upper end of the range required to achieve a Baa1 rating (e.g. its AICR should be at the upper end of the 1.50x-1.70x range). However, the ratios of the notional and actual company will in fact be significantly below the threshold and will not support a Baa1 rating.

(1289) As discussed above, the lack of financeability is likely to lead to a downgrade. A downgrade will increase the cost of raising debt. For example, if the notional company has a rating below Baa1, the cost of raising debt is higher by 41-54bp than for the notional company with a Baa1 rating, and could be as high as 79-168bp in times of significant uncertainty in capital markets.⁷⁷⁴ Access to finance can be much more challenging at lower ratings further affecting company financeability

6.2 Other negative consequences: liquidity and attractiveness of the sector to potential investors

(1290) A lower rating would have other negative consequences. Underfunding the cost of new debt will narrow the available pool of capital as investors such as insurance companies face restrictions or additional capital charges from holding lower rated debt, limiting Anglian's access to debt markets. This will be more acute at times of capital market stress. Anglian may have to hold additional liquidity reserves, which will come at additional cost relative to operating with an efficient capital structure.

(1291) In summary, Ofwat is not enabling an efficiently financed company to earn the appropriate rate of return in the long run and, as such, has not ensured that an efficiently financed company can finance its functions. This will have negative consequences for the willingness of investors to invest in the sector, leading to an inefficiently high cost of capital in the near future during a period where the climate emergency necessitates an increase in investment to meet net zero carbon goals.

7 Request to the CMA

(1292) The financeability assessment tests whether the FD has achieved the correct balance between allowed revenues and allowed costs (including the cost of capital). The reasons why the FD renders Anglian not financeable on a notional basis thus stem from Ofwat's decisions in relation to the key elements of Anglian's price control, in particular:

- (i) Ofwat has not allowed for sufficient expenditure to maintain and develop Anglian's infrastructure (See **Chapter B.3: Anglian's Plan and how it was built**); and
- (ii) Ofwat has provided for too low a cost of capital (see **Chapter I: Weighted Average Cost of Capital**).

(1293) To ensure Anglian is financeable on a notional basis, the CMA must adjust one or both of these factors in its redetermination. In relation to WACC, the correct range for the weighted average cost of capital is between 2.5% and 2.9%. Similarly, in relation to wholesale expenditure, Anglian has set out why Ofwat has awarded it insufficient revenues to deliver the necessary maintenance and expansion to its infrastructure to meet the challenges ahead. There is, however, ultimately a balance between the different elements of the price control such that no item can be analysed entirely in isolation.

(1294) Finally, Anglian notes that through the price review process, it has assessed financeability by including legacy rewards from the previous AMP. Legacy rewards are rewards for outperformance in the last price control period that the company is allowed to recover and pass on to shareholders. Ofwat does not account for these rewards in its financeability assessment. Ofwat's early view of WACC (which was higher than the FD) did not achieve a Baa1 rating for the notional company. However, Anglian proposed accounting for the expected legacy rewards so that it could achieve notional ratios at the very bottom of

⁷⁷⁴ NERA Recovery of Debt Costs Report, page 2 (SOC463).

the Baa1 range.⁷⁷⁵ The Anglian Board has made clear (since submission of its business plan) that in order to ensure that customer interests are protected, it would not seek to fund this reward through an increase in bills. Instead, the company was committed to achieving financeability by taking the rewards through a smaller reduction to RCV, thereby reducing leverage and foregoing dividend income over AMP7.⁷⁷⁶

⁷⁷⁵ Notional Company Financeability (August 2019 update) (SOC199).

⁷⁷⁶ IAP Revised Board Assurance Statement (SOC110).

Chapter K: Gearing outperformance sharing mechanism

1 Overview

- (i) Ofwat introduced a mechanism for sharing the alleged gearing outperformance in its July 2018 document '*Putting the Sector in balance: position statement on PR19 business plans*' (the '**mechanism**'). This mechanism is unjustified: Ofwat's belief that a benefit is available to 'share' with customers flies in the face of established financial theory. The mechanism is unnecessary: Anglian's financial structure is efficient and benefits customers. The mechanism will cause harm by diminishing scope for companies to choose efficient financial structures, as well as through the regulatory uncertainty Ofwat creates by abandoning its own longstanding position that this is a matter for companies to decide.
- (ii) The mechanism: (a) requires companies with a gearing above 70% to share with customers 50% of the alleged 'financial outperformance difference' (calculated as the difference between notional cost of equity and actual cost of debt) for all gearing above 65%; and (b) has a glidepath which provides that the 'trigger point' for application of the mechanism will initially be 74% in the period 2020-2021 and reduce by 1% for each year thereafter ending at 70% for the period 2024-2025.
- (iii) **In summary**, there is no basis for Ofwat's introduction of the mechanism under PR19 for the following reasons:
- The mechanism is unjustifiable in principle**
- (iv) Ofwat erred in its assessment that a higher gearing per se has a negative impact on the financial resilience of the Company; the assessment is based on over-simplistic assumptions and not supported by the evidence:
- (a) The relationship between the level of gearing and financial resilience cannot be assessed in isolation as financial resilience is also driven by other important factors. In particular, Ofwat has failed to distinguish between Aligned Companies (securitised companies) that have Aligned Debt Programmes structured to enhance regulatory protections and companies that raise debt on an unsecured or unregulated corporate basis. A level of gearing which may be perceived as 'high' for a company with corporate debt on an unsecured or unregulated basis may be regarded as 'moderate' for an Aligned Company.
- (b) Ofwat's conclusion that gearing above 70% is 'high' and gives rise to unacceptable levels of risk compared to a gearing of 60% is arbitrary and not grounded in any evidence. Indeed, Ofwat offers no explanation for why its own notional geared company (60%) does not expose customers and/or taxpayers to unacceptable levels of risk whereas a gearing of 65% is sufficiently problematic to merit intervention.
- (c) The assumed linear relationship between a regulated company's level of gearing and the associated level of risk (in other words, that an increase in gearing from 65% to 70% or from 70% to 75% leads to a corresponding reduction in the level of financial resilience) is not plausible. This is not to say that gearing could not reach levels where it would affect financial resilience; but as long as companies have sufficient headroom (an issue which Ofwat carefully ensures in its review), limited variation in gearing is unlikely to have a material impact on financial resilience. For example, Anglian's own Aligned Debt Programme contains a distribution lock up if gearing exceeds 85%. In recent times, Anglian has reduced its level of gearing from

c.82% (March 2016) to c.78% (March 2020). This change in gearing will have had no noticeable effect on risk from the perspective of Anglian's debt holders (with the same applicable to all interested parties).

- (v) Ofwat ignored the countervailing benefits to customers delivered by Aligned Companies such as Anglian:
 - (a) Aligned Debt Programmes have delivered significant benefits for customers, in particular driving regulatory innovations such as dividend lock-up and enhanced ring-fencing which Ofwat has subsequently replicated in regulated companies' licence provisions.
 - (b) Water companies already share with customers the tax benefits that accrue from higher gearing. Ofwat's contention that these benefits are not relevant is not credible given the intended effect of the mechanism is to force companies to reduce their levels of gearing and thereby eliminate a tax benefit for customers.
- (vi) The mechanism rests on the mistaken assumption that there is a 'benefit' from higher levels of gearing which can be 'shared' with customers whereas the practical effect would be to deprive shareholders of part of the allowed return on equity:
 - (a) Rather than providing a 'financial benefit', higher gearing reflects a different risk/return choice for shareholders. Aligned Companies' structures do not alter the overall cost of capital but instead operate as a risk transfer mechanism by which the risk is transferred from debt holders and customers to shareholders.
 - (b) Ofwat's conclusion cuts across established economic and financial theory (in particular, the Modigliani-Miller theorem) which shows that the overall cost of capital is not affected by the level of gearing. Despite this, Ofwat did not adduce any evidence to demonstrate that this well-established theorem does not hold in the water sector and failed even to address the fact that regulators including the CMA had previously found that Modigliani-Miller was applicable in regulated industries.

Anglian's real world performance shows the mechanism is unjustified

- (vii) Anglian's own experience over the last 20 years following implementation of its Aligned Debt Programme shows that the mechanism is unjustified:
 - (a) Anglian demonstrated the 'real world' resilience of its structure, notably during the financial crisis, where Anglian's Baa1 credit rating and its corporate family credit rating remained stable (Anglian has thus consistently maintained a strong investment grade credit rating);
 - (b) Anglian's Aligned Debt Programme has helped to drive operational performance with Anglian being one of the best-performing companies in the sector;
 - (c) Anglian's shareholders have also shown their long-term commitment to the sector, not least through a conservative dividend policy in AMP6, and an AMP7 plan to pay no dividends to shareholders outside the Anglian Water Group;
 - (d) Anglian has, in any case, significant headroom within its Aligned Debt Programme to *increase* its gearing without increasing its risk profile.

The introduction of the mechanism undermines the stability of the regulatory regime

- (viii) The imposition of the mechanism marks a sharp divergence from established regulatory practice, which was not signposted, and undermines the stability of the UK regulatory regime:
- (a) Ofwat has until PR19 endorsed the established regulatory position that water companies are free to select their own capital structures. By introducing the mechanism, Ofwat has overturned this longstanding regulatory principle – common across the UK regulators – without adhering to the principle that the reversal of regulatory principles must be particularly well-justified and proportionate.
 - (b) In this regard, the glidepath set out in the Final Determination does not account for the magnitude of the regulatory change imposed. Anglian's gearing is currently c.78% and it will not be able to benefit from the glidepath without having to significantly alter its capital structure in the period 2020-2021. The glidepath does not, therefore, provide Anglian with sufficient time to adjust in a proportionate manner to the introduction of the mechanism.
 - (c) More broadly, Ofwat's approach to introducing the mechanism calls into question the stability of the UK regulatory regime, in turn reducing the attractiveness of the sector for investors (and ultimately raising costs for customers). Moody's has, for example, cited the reduced stability of the regulatory regime as a factor in its downgrading of a number of water companies and putting others on negative watch.

Request to the CMA

- (ix) Anglian therefore requests that the CMA acts to uphold the credibility of the regulatory system by not imposing this unnecessary and unjustified mechanism.

(1295) The remainder of this chapter is structured as follows: Section 2 sets out the mechanism, Ofwat's case and the background to its introduction; Section 3 explains why the mechanism is not justified in principle or in relation to Anglian; Section 4 explains that, in any case, the way in which Ofwat introduced the mechanism, in particular the timetable, breaches principles of good regulatory practice; and Section 5 explains what the CMA should do.

2 The mechanism, Ofwat's case and background to its introduction

2.1 The mechanism

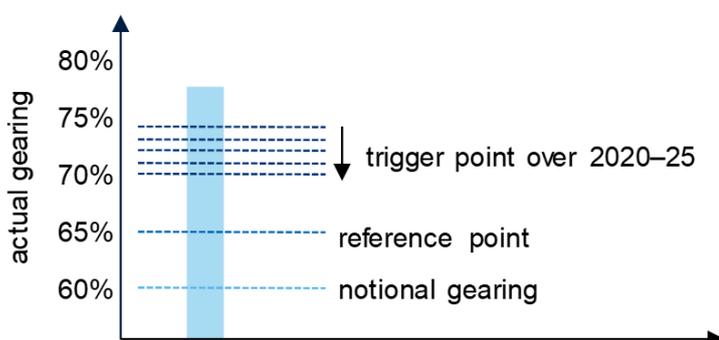
(1296) The mechanism provides that companies with gearing levels above a 'trigger point' must share 50% of the difference between the notional nominal cost of equity and the actual nominal cost of debt for the proportion of gearing that is above a reference point of 65% (the '**Gearing Penalty**'). The mechanism has two separate elements:

- (i) the 'trigger point' which determines procedurally whether a company is subject to the Gearing Penalty; and
- (ii) the calculation of the Gearing Penalty which determines the quantum that the company must pay to customers.

(1297) At Final Determination (FD), Ofwat introduced a glidepath to smooth the mechanism over PR19. The glidepath provides that: (a) the trigger point for application of the mechanism will initially be 74% (rather

than 70%) in the first year of AMP7; and (b) the trigger point will reduce by 1% for each year so that it is 70% in the last year of AMP7.

Figure 92 Ofwat's glidepath mechanism (the blue bar represents Anglian's level of gearing)



Source: Oxera, based on Aligning Risk and Return Technical Appendix (SOC242)

(1298) The calculation of the Gearing Penalty under the mechanism is as follows:

$$\text{Financial outperformance adjustment} = \text{gearing difference} \times \text{financing outperformance difference} \times \text{sharing rate (50\%)}^{777}$$

(1299) Note that the trigger point is irrelevant for the calculation of the Gearing Penalty: if a regulated company's gearing is above the trigger point, the Gearing Penalty applies in full.

(1300) Based on Anglian's projected gearing over AMP7, the mechanism would impose a c.£40 million cost over the period on Anglian. This penalty represents 0.5% of Anglian's RCV and will adversely impact its financial resilience.⁷⁷⁸

2.2 Ofwat's justification for the mechanism

(1301) Ofwat sets out its justification for the introduction of the mechanism in its Back in Balance April Consultation⁷⁷⁹ and Back in Balance July position statement.⁷⁸⁰ At FD, Ofwat largely reiterated these justifications, and noted that introducing a glidepath would provide companies with marginal incentives to de-gear.

(1302) The basis for the introduction of the mechanism, in principle, as well as Ofwat's justification for its immediate introduction in PR19 has three elements:

2.2.1 Higher gearing results in potential customer harm (and ultimately harm for taxpayers) and reduced ability to adapt to regulatory change

(1303) The first pillar of Ofwat's case is that higher levels of gearing may result in unacceptable levels of risk for shareholders and reduce financial resilience (since there is a higher risk of default). This in turn would transfer some risks to customers and potentially taxpayers.

⁷⁷⁷ The 'gearing difference' is the relevant company's actual gearing (as reported in their Annual Performance Report) versus the reference point of 65% while the 'financing outperformance difference' is the notional cost of equity minus the actual cost of debt.

⁷⁷⁸ The estimation analysis is prepared by Anglian and reviewed by Oxera. The gearing difference is estimated using the average gearing of 78.8% over AMP7 and the reference point of 65%; the financing outperformance difference is the notional nominal cost of equity of 6.27% minus the average actual cost of debt of 4.9%. The average of the closing RCVs over AMP7 is £8,848 million. This amounts to an estimated cost of £42.6 million.

⁷⁷⁹ Ofwat Back in Balance April Consultation (SOC464).

⁷⁸⁰ Ofwat Back in Balance July Position Statement (SOC465). See also Anglian Back in Balance Response (SOC466); Anglian Investors Back in Balance Response (SOC467); Anglian Back in Business Alternative Response (SOC468).

- (1304) On the one hand, Ofwat contends that the risk stems from the increased prospect of default which both directly and indirectly increases risk.⁷⁸¹ Its most straightforward justification is that there is an increased prospect of default which allegedly results in an increased risk of service interruption.
- (1305) On the other hand, Ofwat contends that the risk to customers and taxpayers stems from *de facto* moral hazard whereby the UK Government would have to bail out water companies in the event of financial trouble, and Ofwat would have to re-open its price mechanism, given its financing functions duty.⁷⁸²
- (1306) Further, Ofwat contends that high gearing may reduce the ability of companies to adapt to changes to regulatory arrangements that are required in customer interests⁷⁸³ although it does not elucidate further on why this is the case.

2.2.2 Highly geared structures do not result in customer benefits

- (1307) According to Ofwat, there is no countervailing benefit for customers (and ultimately taxpayers) which outweighs the potential harm of highly geared structures. Ofwat acknowledges that equity investors might bear the increased risk (and returns) of such structures, but is still concerned about how *'interests of customers are taken into account in such arrangements'*.⁷⁸⁴
- (1308) Accordingly, Ofwat claims that the mechanism strikes the right balance between the interests of the investors and those of the customers given it requires the water companies to share any increased financial benefits with the customers. Hence, the interests of customers are appropriately taken into account.

2.2.3 There is a financial benefit from higher levels of gearing for shareholders that can be shared with customers

- (1309) In its initial consultation, Ofwat took the view that water companies' shareholders benefit from higher levels of gearing through higher returns i.e. that there is a 'financial benefit' for shareholders that can be shared with customers. Ofwat did not address this question in full in its position paper, at Draft Determination (DD) or FD.
- (1310) Ofwat addresses the concern raised by water companies that there is no 'financial benefit' to be shared with customers by contending that: *'[e]quity investors benefit from higher equity returns that are associated with their increased risk, but there is no substantive benefit passed to customers.'*⁷⁸⁵ More specifically, Ofwat rebuts water companies' concerns that the mechanism is not compatible with established economic theory according to which the companies' overall cost of capital is invariant to gearing levels (i.e. the Miller-Modigliani theorem) on the following grounds:
- (i) Ofwat contends, in the first instance, that the Miller-Modigliani theorem is not relevant as it is a theoretical model based on purely theoretical assumptions, which in fact shows how the 'real world' differs from theory. Ofwat observes that the lack of correlation between the theorem and the reality had been also recognised by the theorem's authors, who noted that *'the attraction of the theorem is not in saying that in an idealised world capital structures do not matter, but in turning it on its head and studying systematically why in the real world capital structures do matter'*.⁷⁸⁶

⁷⁸¹ Ofwat, Back in Balance: July Position Statement, page 47 (SOC465).

⁷⁸² *Ibid.*

⁷⁸³ Aligning Risk and Return Technical Appendix, pages 126 to 7 (SOC242).

⁷⁸⁴ Ofwat, Back in Balance: July Position Statement, page 47 (SOC465).

⁷⁸⁵ Aligning Risk and Return Technical Appendix, pages 126 to 7 (SOC242).

⁷⁸⁶ Ofwat, Back in Balance: July Position Statement, page 46 (SOC645).

- (ii) Building on its rejection of Miller-Modigliani theorem, Ofwat also contends – in effect – that the industry is prone to moral hazard and thus shareholders consider themselves potentially insulated from the increased risk of higher gearing because they expect a bailout / reopening of the price control/bailout. Ofwat contends that the industry is not subject to the Miller-Modigliani theorem given that it is not a 'competitive' market where competitive constraints in the form of customer switching are exercised. Instead, the industry involves the provision of '*monopoly services*' where the lack of competitive constraints is replaced by government/regulatory intervention which can take various forms including a sharing mechanism.⁷⁸⁷

2.3 Ofwat's position in context

2.3.1 Departure from regulatory precedent

- (1311) The mechanism is a novel regulatory measure which marks the first time that Ofwat has sought to intervene in regulated companies' ability to select their own capital structure. This is a sharp divergence from established regulatory practice, which was not signposted and for which Ofwat makes no appropriate allowance.
- (1312) In PR04 and PR09, Ofwat had been supportive of companies choosing their own capital structures.⁷⁸⁸ At PR14, Ofwat considered potential issues with highly leveraged water companies but concluded that '*[it did] not consider there is a need for further regulatory intervention in relation to capital structures*'.⁷⁸⁹ Even earlier, in its 2011 discussion paper, Ofwat took the position that it is for the management and investors of a water company to decide its optimal financial structure.⁷⁹⁰
- (1313) The CMA/CC have echoed this position in various precedents.⁷⁹¹ In *Bristol Water (2015)*, the CMA noted that it was for the shareholders and the management of the company to determine the most efficient financial structure (including its levels of gearing) and '*not for the regulator to second-guess*'.⁷⁹² Ofwat's approach is also in contrast to other UK regulators. Ofgem, for example, is agnostic to the capital structure of the companies. In the current price review (RIIO-2), it has introduced more targeted mechanisms to deal with risks to financeability and high returns on equity, not seeking to regulate the financial structure.⁷⁹³

2.3.2 The mechanism was introduced after publication of the Final Methodology

- (1314) In its 2016 consultation on the approach to cost of debt for PR19, Ofwat specifically rejected a similar sharing mechanism for securitised structures based on three observations:
 - (i) a sharing mechanism runs against the principle that shareholders should bear the costs associated with the securitised arrangements and, hence, might '*confuse the responsibility for bearing [such] costs*';
 - (ii) a sharing mechanism renders the customer benefits dependent on the specific capital structures of the water companies; and

⁷⁸⁷ Ofwat, Back in Balance July Position Statement, page 48 (SOC465).

⁷⁸⁸ PR04 FD, page 230 (SOC469): '*the actual capital structure that companies choose is a matter for their own management and the markets*'. PR09 FD, page 141 (SOC394): '*it is for companies, their shareholders and management to determine the most efficient financing structure to meet their circumstances within the price setting package*'

⁷⁸⁹ PwC PR14 Cost of Capital Report (SOC470).

⁷⁹⁰ Ofwat Financeability and financing the asset base (2011) (SOC447).

⁷⁹¹ *Bristol (2010)*, paras. 10.10, 10.21 (SOC345); *SONI (2017)*, para. 7.306; *Firmus Energy (2017)*, para. 7.81 (SOC472).

⁷⁹² *Bristol (2015)*, paras. 10.93, 10.27, 10.132 (SOC275).

⁷⁹³ Ofgem RIIO-2 Framework (SOC471).

(iii) a sharing mechanism creates unnecessary confusion while at the same time introduces *'additional complexity into setting the cost of capital'*.⁷⁹⁴

(1315) In its PR19 Cost of Debt Consultation, Ofwat also recognised that customers are already protected from any risks the securitised structures might create through its notional financing approach as well as its financial monitoring framework.⁷⁹⁵

(1316) The mechanism was introduced after publication of the PR19 Final Methodology in a highly politicised environment. The consultation on the mechanism followed a public exchange of letters between Michael Gove, the Minister for the Environment, Food and Rural Affairs at the time, and Jonson Cox, the Chairman of Ofwat, on the need to target water and sewerage companies with business models which, as they allege, have led to public mistrust in the industry.⁷⁹⁶ Jonson Cox set out Ofwat's plans to improve the water sector, which involved amongst other measures, the adoption of measures that would *'lead to a progressive reduction of the highly leveraged balance sheets'* and likely render securitisation structures *'redundant'*. He also said that Ofwat will take action to *'reduce what companies can reap from high gearing and to require them to share benefits in the form of lower bills'*.⁷⁹⁷

3 The mechanism is unjustifiable in principle

(1317) Ofwat's basis for introduction of the mechanism is untenable in principle and rests on three mistaken assumptions: (i) more highly geared structures inherently pose a higher risk for customers and/or taxpayers; (ii) there is no benefit to customers that accrues from companies with more highly geared structures; and (iii) there is a financial benefit from more highly geared structures which can be shared with customers (over and above the tax benefits which are already shared).

3.1 Relatively higher levels of gearing do not necessarily mean increased risk for the company or the customers and/or taxpayers

(1318) First, Ofwat's position that there is an inherently increased – and unacceptable – risk for customers and/or taxpayers from water companies employing more highly geared structures does not withstand scrutiny. As a starting point, the levels of gearing cannot be considered meaningfully in isolation of other factors. Whether a level of gearing is 'high' depends on a number of factors, most importantly on a company's debt structure. A gearing which may be perceived as 'high' for a company with corporate debt on an unsecured or unregulated basis may be regarded as 'moderate' for a company with an Aligned Debt Programme.

(1319) In addition, Ofwat's case is contradictory. On the one hand, Ofwat alleges that the risk to customers arises due to the risks that arise from the prospect of default, while on the other it alleges that the risk arises due to moral hazard (i.e. the prospect of bailout and hence no default). It cannot be both but Ofwat postulates a range of theoretical risks without explaining why any of these are sufficiently concrete to justify the conclusion that higher levels of gearing impose unacceptable levels of risk.

3.1.1 Ofwat's analysis does not take into account the financial resilience and regulatory aligned features of Aligned Debt Programmes

(1320) In the first instance, Ofwat's 'one-size-fits-all' approach to assessing the purported risk associated with higher gearing is mistaken. Ofwat has, most crucially, failed to distinguish between Aligned Companies that have a single debt platform that has been structured so as to align with, and enhance, the regulatory

⁷⁹⁴ Ofwat PR19 Cost of Debt Consultation, page 20 (SOC473).

⁷⁹⁵ Ofwat PR19 Cost of Debt Consultation, page 20 (SOC473).

⁷⁹⁶ See Defra Letter to Ofwat (January 2017) (SOC474); Ofwat Letter to Defra (January 2018) (SOC475); Ofwat Letter to Defra (April 2018) (SOC274); Defra Letter to Ofwat (April 2018) (SOC476).

⁷⁹⁷ Ofwat Letter to Defra (April 2018) (SOC274).

protections contained in the WIA91 and the Company's licence conditions (i.e. an Aligned Debt Programme) and companies that raise corporate debt on an unsecured or unregulated basis. Ofwat has previously assessed the operational and financial resilience of Aligned Companies and concluded that such structures are, in principle, robust.⁷⁹⁸

(1321) The Aligned Debt Programme Paper explains the credit rationale of Aligned Debt Programmes in detail and how they have been structured so as to align with, and enhance, the protections contained in the WIA91 and Anglian's Instrument of Appointment.⁷⁹⁹ It also sets out the credit enhancement provisions in the Aligned Debt Programmes that provide for increased financial resilience.

(i) Aligned Companies have de-risking features

(1322) An Aligned Debt Programme contains structured finance provisions which provide Aligned Companies' debt holders and, in turn, their customers with higher levels of protection against the risk of default (leaving aside the protections against such risks which are already built into the regulatory framework).

(1323) As more fully set out in the Aligned Debt Programme Paper, the features of an Aligned Debt Programme help de-risk an Aligned Company from an operational, regulatory, financial and administrative perspective, compared to a similar company with unregulated corporate debt:

(i) Additional ring-fencing measures: The regulatory ring-fence is codified and substantially strengthened by the addition of a security ring-fence, business separation provisions, and a corporate ring-fence.

(ii) De-risking covenants: The Aligned Company is restricted so that it only conducts the regulated water business in a prudent manner.

(iii) Monitoring and protection: Aligned Debt Programmes include 'trigger events' that function as an early warning should the company face financial distress or a potential event of default. The regime provides that the Aligned Company goes into a full lock-up until the trigger event is remedied and it produces and implements a remedial plan. It also includes de-risking covenants and requires the Aligned Company to conduct regular credit health-checks, monitoring and compliance certifications.

(iv) Contractual dividend restrictions: Aligned Companies differ significantly from listed companies in their freedom to distribute dividends. Aligned Companies have contractual dividend restrictions which prohibit any dividend being paid until audited financial statements have been published, a compliance certificate has been delivered and all financial ratios (including look-forward ratios) have been tested and complied with taking into account the payment of the proposed dividend. In other words, an Aligned Company is restricted from prejudicing financial resilience by paying a dividend. Further, an Aligned Company is more insulated from the drive to reward shareholders – unlike a lower geared listed company whose dividend policy is driven by market expectations. Severn Trent has communicated to the market that dividends will grow by at least CPIH in AMP7,⁸⁰⁰ and United Utilities has adopted a policy of paying at least a 4% dividend on the equity portion of the RCV.⁸⁰¹

(1324) Credit rating agencies have recognised the benefits of Aligned Debt Programmes, allowing a 1-notch uplift above comparable unsecured and uncovenanted water and sewerage companies for these structural considerations.⁸⁰² Moody's noted in 2018 that '*restrictions imposed on the companies and*

⁷⁹⁸ Ofwat Financing Networks Paper (2006) (SOC477); Ofwat Financeability and financing the asset base (SOC447).

⁷⁹⁹ Aligned Debt Programme Paper (SOC446).

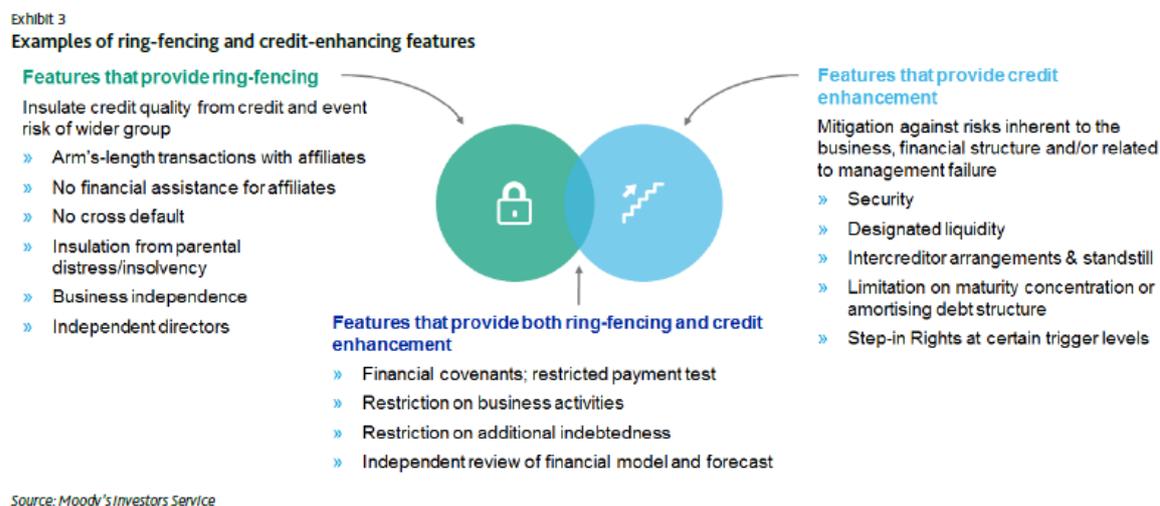
⁸⁰⁰ Severn Trent AMP7 Dividend Policy (SOC478).

⁸⁰¹ United Utilities Dividend Policy (SOC479).

⁸⁰² Moody's Rating Methodology (SOC450).

additional creditor rights associated with highly covenanted financial structures mitigate a range of risks, including those associated with higher leverage'.⁸⁰³ Figure 93 below sets out the ring-fencing and credit enhancing features identified.

Figure 93 Benefits of Aligned Debt Programme



Source: Moody's Report Covenanted Financing Structures Help Mitigate Growing Risks, Exhibit 3 (SOC137)

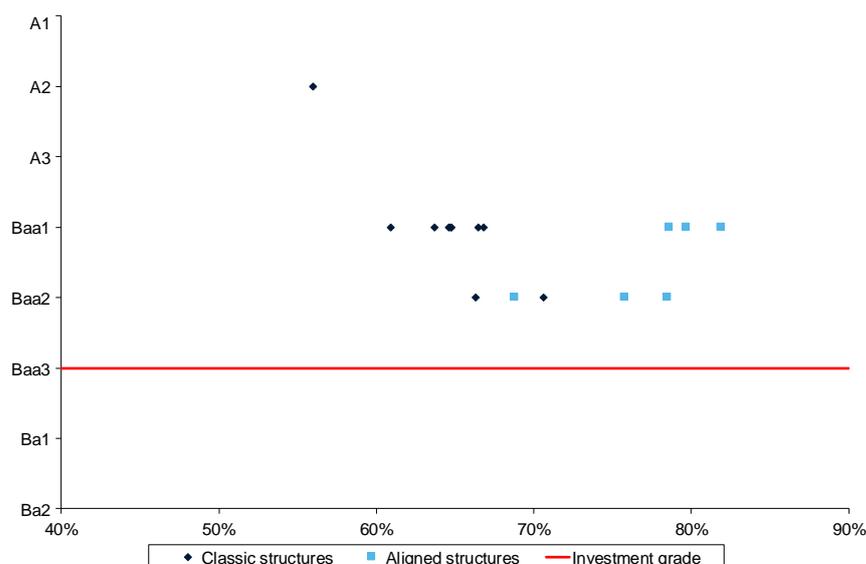
- (1325) The report also noted that while recent press commentary has accused Aligned Companies of focusing on financial engineering rather than operational performance, companies like Anglian and Yorkshire Water have '*consistently been among the strongest performers in the sector*'.⁸⁰⁴
- (1326) In the case of Anglian, the credit metric thresholds for a Baa1 credit rating support a higher level of gearing. For example, Moody's requires Anglian to meet an adjusted cash interest cover ratio (AICR) threshold of $\geq 1.30x$ to meet a Baa1 credit rating while Wessex Water (which has a standard corporate debt model) has to meet a threshold of $\geq 1.50x$.⁸⁰⁵
- (1327) The additional resilience provided by Aligned Debt Programmes (relative corporate debt) is illustrated in Figure 94 below, which shows that these models allow for higher gearing at credit ratings that are comparable to companies with standard corporate debt models. It also shows that there is no correlation between gearing and credit ratings.

⁸⁰³ Moody's Report Covenanted Financing Structures Help Mitigate Growing Risks, page 5 (SOC137).

⁸⁰⁴ Moody's Report Covenanted Financing Structures Help Mitigate Growing Risks, page 5 (SOC137).

⁸⁰⁵ The thresholds for the Aligned Companies and standard corporate debt models are assumed from the latest credit rating decisions issued on 5 March 2020 by Moody's. See Moody's Confirms Ratings of Anglian Water with Negative Outlook and Downgrades Osprey (SOC462).

Figure 94 Credit ratings of regulated water companies, 2019



Note: Hafren Dyfrdwy's (HDD) credit rating is the 2018 credit rating. South West and Hafren's licences require them to maintain financial ratios that are equivalent to an investment grade credit rating. Moody's considers that the covenanted structure of Dwr Cymru (WSH) has substantial differences from the structure of the rest of the companies in the sector. When credit rating agencies have given different credit ratings to a company, the lowest credit rating given is shown above

Source: Oxera, based on Ofwat's Financial Monitoring Report 2018–19 (SOC480). Aligned and non-aligned groups are defined as per Moody's Rock of Low Returns Meets Hard Place of Covenants (SOC451). Moody's, Dwr Cymru Update Following Outlook Change to Negative, page 8 (SOC481)

(ii) Aligned Companies can better deal with financial distress

(1328) While the regulatory framework provides protection against the risk of default, Aligned Debt Programmes are structured to facilitate and allow Ofwat and the company to better deal with any financial distress, event of default or *force majeure* that occurs, without having to also deal with defaulted or accelerated debt. All the debt is on a common debt platform and there needs to be consensus among creditors before any enforcement or legal action is taken. A contractual standstill is built into the package to prevent an insolvency event and a special administration; in fact, an 18-month debt service liquidity is permanently available to be used in the event of a payment default in the case of Anglian (as more fully set out in the Aligned Debt Programme Paper).

(1329) A lower geared company with corporate debt (i.e. a Non-Aligned Company) will have virtually none of these features. A single debt provider can force the company into special administration immediately upon an event of default or non-payment. This would also cross-default all other financial indebtedness. And because there is no debt-service liquidity, debt providers have few alternatives in the case of non-payment. Accordingly, Non-Aligned Companies see a 'hair-trigger' and a 'domino-effect' in the event of financial distress and is hence detrimental to customers, irrespective of its relative leverage level.

(1330) These key differences between Aligned Companies and Non-Aligned Companies with corporate debt in an event of default are summarised in Table 36 below:

Table 36 Comparison of Aligned Companies and companies issuing ordinary corporate debt

	Aligned Companies	Non-Aligned Companies
Common Action Clauses	Creditor consensus needed before enforcement	Single creditor can immediately enforce on an event of default
Standstill Period	Standstill Periods in the event of Payment Default	No standstill provisions

(iii) Aligned Companies offer significantly higher levels of customer protection

- (1331) The protections afforded by Aligned Companies mean that they carry a significantly lower-risk and their customers are better protected than companies with similar levels of gearing (but without the same protections) and, indeed, often companies with lower levels of gearing.
- (1332) Customers benefit from the de-risking features and the financial distress provisions set out above. Further, water companies cannot – as Ofwat contends – preserve pay-outs to shareholders to the detriment of investment expenditure. Licence conditions require companies to pay dividends only in accordance with a dividend policy approved by their board, and the dividends declared or paid will not impair the ability of the company to finance its business.⁸⁰⁶
- (1333) Aligned Companies in the water sector have their gearing limited by financial ratios and covenants in their securitisation documents, including Anglian's Security Trust and Intercreditor Deed and Anglian's Common Terms Agreement. Non-Aligned Companies with corporate debt do not have similar contractual limitations on their gearing levels and have the ability to raise debt to whatever level the debt mandates will provide.
- (1334) Further, refinancing risk is controlled and mitigated in Aligned Companies which have 'maturity bucket' covenants that set a maximum percentage of debt that can fall due for refinancing in any two-year period and over any AMP. Non-Aligned Companies have no such limitations and are free to take on significant refinancing risk in search of cheaper cost of debt. Anglian currently has significant headroom before it exposes customers to increased levels of risk under its contractual gearing covenants (further details are provided in Section 4.1 below).

3.1.2 Ofwat's assumption that gearing above 70% gives rise to unacceptable levels of risk for customers is arbitrary and not supported by the evidence

- (1335) In the second instance, Ofwat's conclusion that gearing above 70% is 'high' and leads to unacceptable risk is arbitrary and not supported by evidence.
- (1336) Given that companies employ a mix of debt and equity to fund their businesses (and thus 'gearing' is a good idea in principle), Ofwat's entire case rests on the premise that it is best placed to determine the appropriate levels of gearing. However, Ofwat fails to put forward a case for why gearing above 70%, or indeed 80%, gives rise to unacceptable levels of risk whereas its own notional gearing of 60% does not. Ofwat offers no explanation for why its own notional company (with 60% gearing) does not expose customers and/or taxpayers to unacceptable levels of risk whereas a gearing of 65% is sufficiently problematic to merit intervention.
- (1337) Financial risk is, in fact, driven by a far wider range of factors than gearing. Indeed, while it is a truism that financial risk increases with higher levels of gearing for companies with an ordinary corporate debt programme (all else equal), gearing per se is not determinative of a company's creditworthiness. As Moody's methodology observes, water companies' *'generally stable and predictable cash flows ... create significant capacity to incur debt financing.'*⁸⁰⁷ Ofwat's failure to explain the exam question of why gearing above 65% gives rise to unacceptable levels of risk whereas 64.9% does not is, in short, telling evidence of the absence of any meaningful increase in financial risk which can be attributed to increases in gearing from 60% to 65% and, indeed, 70% and 80%.
- (1338) Ofwat's position also cuts across the existing – and properly grounded – basis for ensuring that regulated companies do not incur too much financial risk: the regulatory requirement that companies maintain an investment grade credit rating (as set out in **Chapter J: Financeability**, Ofwat has targeted Baa1 for all

⁸⁰⁶ Condition I.12, Anglian's Licence (SOC297).

⁸⁰⁷ Moody's Rating Methodology, page 16 (SOC450).

companies on a notional basis). The investment grade credit rating obligation provides a market-based mechanism that assesses financial risk in the round rather than isolating one factor – gearing – as being particularly important for assessing financial resilience.

3.1.3 Highly geared water companies operate in an environment with sufficient regulatory safeguards

- (1339) In the third instance, the regulatory regime for the water industry already contains a range of safeguards that seek to incentivise regulated water companies under the RPI-x framework while protecting the interests of customers.
- (1340) The regulatory regime under the WIA91 imposes a financial and regulatory ring-fence around the activities of water companies to ensure that a water company's choices around its level of gearing (or indeed any other activities) do not pose a risk for its customers and, ultimately, taxpayers. These conditions are set out in the licences of the water companies.
- (1341) The ring-fence conditions are similar (although not identical) for each company.⁸⁰⁸ The regulatory ring-fence is supplemented by a series of provisions that are designed to protect its integrity and ensure that it offers services to a high standard for customers.⁸⁰⁹
- (1342) In a similar vein, the regulated company must use '*all reasonable endeavours*' to ensure that it maintains '*at all times an issuer credit rating which is an Investment grade rating*.' Cash lock-up provisions in the licence restrict the company from paying dividends if it does not have an investment grade credit rating or has an investment grade credit rating but is on review for a possible rating downgrade.⁸¹⁰
- (1343) The regulatory ring-fence is reinforced by the price control regime which requires that, in each control period, the regulated entity should define its performance commitments and outcome delivery incentives (ODIs). Each performance commitment is linked to an ODI, which rewards or penalises the regulated entity for overdelivering or underdelivering its performance commitments targets, accordingly. Hence, the regulated entity is not only accountable for delivering services to a high standard but also incentivised to outperform its performance commitments targets.⁸¹¹
- (1344) Furthermore, the regulatory ring-fence is also reinforced by unilateral commitments on the part of the regulated companies. Indeed, as mentioned in **Chapter B.1: About Anglian**, in April 2019, the CEOs of all water companies in England and Wales signed a Public Interest Commitment,⁸¹² by which they committed to delivering wider benefits to the society including five goals to tackle leakage, carbon emissions, plastics, affordability and social mobility by 2030. Anglian was the first water company to change its articles of association to fully reflect this commitment.⁸¹³
- (1345) The substance of the regulatory regime is thus designed to ensure that companies cannot game the system to extract value from the company on a non-arm's length basis (not least because this would not be a viable option regardless of whether companies are under financial pressure or not).

⁸⁰⁸ See for example, Condition I.13, Anglian's Licence (SOC297). Anglian's ring-fence requires that it must '*at all times act in the manner calculated to ensure that it has adequate (a) financial resources and facilities; (b) management resources; and (c) systems of planning and internal control, to enable it to secure the carrying out of the Regulated Activities including investment programme necessary to fulfil its obligations under the Appointment*.'

⁸⁰⁹ The licence conditions provide that: (a) the regulated entity is prohibited from providing cross-guarantees and loans, transferring assets to associated companies outside the ring-fence (Conditions I.7 and I.8) or entering into agreements with cross-default obligations, i.e. where its liability is linked to the default of a third-party (Condition I.11); (b) all dealings of a regulated entity with associated companies should be on arm's length terms (Conditions I.4 and I.8); and (c) the regulated entity should set on a yearly basis service-level targets and report to Ofwat on its quality of services compared to the targets set (Condition J).

⁸¹⁰ Condition I.32, Anglian's Licence (SOC297).

⁸¹¹ PR19 Final Methodology Appendix 2 (SOC411).

⁸¹² Public Interest Commitment (SOC288).

⁸¹³ Anglian's Articles of Association (SOC267).

- (1346) In addition, the regulatory regime provides Ofwat with robust enforcement tools to ensure that companies comply with their regulatory and statutory obligations.⁸¹⁴ Ofwat can take a number of actions ranging from seeking informal undertakings from companies deemed to be in breach through to enforcement orders, financial penalties and, ultimately, special administration. For instance, Ofwat is entitled under Anglian's Licence to: (i) solicit information regarding service levels; (ii) require additional target service-levels; and (iii) impose specific measures for the achievement of the target service-levels. Ofwat, moreover, is an active enforcer.⁸¹⁵
- (1347) In short, the regulatory regime already provides significant protection – and dissuasive effect – on companies to ensure that they appropriately manage their capital structures.

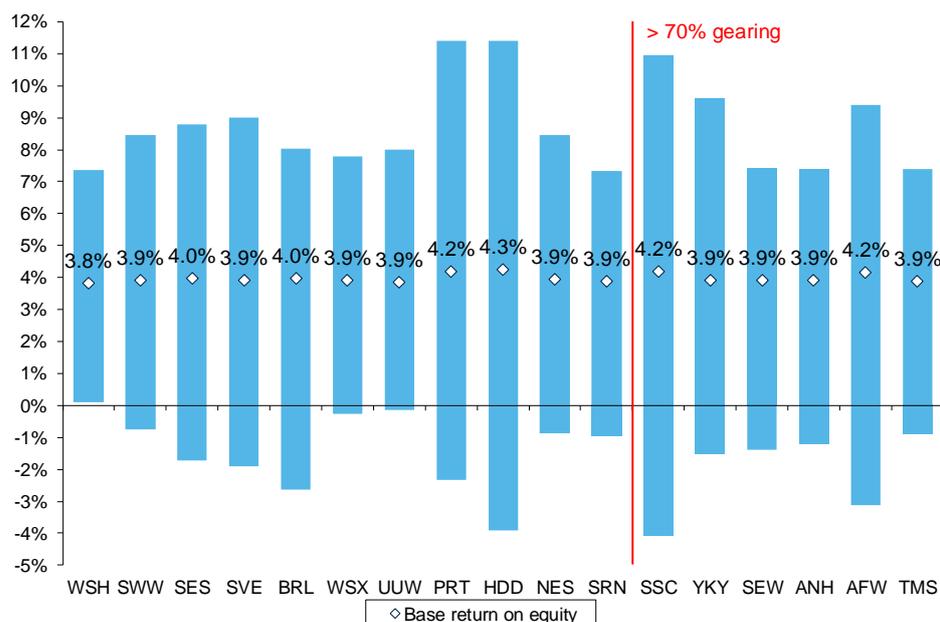
3.1.4 Higher gearing does not necessarily result in increased risk aversion

- (1348) In the fourth instance, the evidence also indicates that higher levels of gearing do not translate into increased risk aversion (as alleged by Ofwat). Ofwat's contention that higher levels of gearing may prevent regulated companies from seeking to stretch themselves is thus not grounded in the evidence.
- (1349) By way of background, the range of return on regulated equity (RoRE) in a company's plan illustrates the willingness of a company to take risks. Indeed, the wider the range, the more risks the company is willing to take. At FD, Ofwat performed a risk analysis of the different mechanisms incentivising companies to outperform the targets set by Ofwat. If these mechanisms were successful, Ofwat allowed the companies to earn a higher return on equity. Conversely, any underperformance was penalised. Indeed, Ofwat assessed the cumulative effect of these upside or downside risks on the RoRE. One would have expected a risk averse company to exhibit narrower ranges of RoRE as its gearing increased. However, as shown in Figure 95 below, highly geared companies have a risk range similar or even wider (e.g. Affinity Water and Yorkshire Water) to the one of companies with lower gearing. This demonstrates – in principle – that higher gearing does not necessarily result in increased risk aversion. The same holds true for all risks assessed by Ofwat, namely the risks associated with total expenditure, financing costs and ODIs.

⁸¹⁴ Ofwat's Approach to Enforcement (SOC483).

⁸¹⁵ Ofwat's Penalty on Southern Water (SOC484): Ofwat agreed a commitments package with Southern Water for breaches of its statutory and licence provisions of £123 million on top of a £3 million penalty; Ofwat's Penalty on Thames Water (SOC485): Ofwat agreed a commitments package with Thames Water for breaches in relation to leakage of £120 million (with a nominal £1 penalty)

Figure 95 Ofwat's FD – risk range calculated as % of regulatory equity



Notes: 1) The risk analysis is performed at the assumed notional level of gearing; hence, the risk ranges are comparable measures of underlying business risk and ambition across companies with different levels of gearing. 2) Companies are ranked according to their FY 2018-19 actual gearings from left (low gearing) to right (high gearing)

Source: Oxera analysis from Ofwat's PR19 final determinations

3.1.5 Higher gearing does not necessarily impair water companies' ability to adjust to regulatory change

- (1350) Finally, there is no basis for Ofwat's assertion that water companies with higher gearing have an impaired ability to adjust to regulatory change. While Ofwat does not offer any explanation of why this is the case beyond the statement itself, it is worth noting that it would be of course circular for Ofwat to contend that that the mechanism itself – which is a significant change in Ofwat's regulatory position – requires water companies with gearing above the threshold to alter their capital structures.
- (1351) Conversely, Aligned Companies enjoy greater flexibility in their dividends policy than listed companies. Both Severn Trent and United Utilities, following Ofwat's FD, committed to increasing dividends by CPIH annually over AMP7 (2020-2025).⁸¹⁶
- (1352) Further, Aligned Debt Programmes include amendment mechanisms that allow an Aligned Company to respond to any regulatory changes. This is in contrast to ordinary corporate debt that would require consent from every debt provider to make similar changes.

3.2 Highly geared Aligned Companies provide significant benefits which are shared with customers

- (1353) The second set of Ofwat's assertions, namely that customers already share in the benefits from more highly geared Aligned Companies also do not hold.

⁸¹⁶ Severn Trent AMP7 Dividend Policy (SOC478): 'The Severn Trent Plc Board has reviewed the Final Determination alongside current performance and, taken together with other market considerations, is pleased to announce that the dividend policy for AMP7 will be growth of at least CPIH'; United Utilities Dividend Policy (SOC479): 'the board announces that the group will target growing its dividend per share by CPIH inflation each year from 2019-20 through to 2024-2025'.

3.2.1 Aligned Companies' protective features provide benefits with customers

(1354) The Aligned Debt Programme Paper sets out the protective features and credit enhancement measures of Aligned Debt Programmes. The most significant benefits are summarised below:

- (i) Enhancement of Aligned Companies' credit/financial resilience and ring-fence measures.
- (ii) Aligned Companies' ability to: (a) raise longer dated debt and Class B subordinated debt; and (b) access a wider universe of debt holders.
- (iii) Aligned Companies' obligation to project their financial ratios on a 12-month look-forward basis coupled with the continuous monitoring of their financial resilience by the Security Trustee.
- (iv) Protection against secondary taxes through tax covenants in the single debt platform and the Tax Deed of Covenant.
- (v) Prohibition of dividend distribution upon the occurrence of certain trigger events.

(1355) It follows from the above that securitisation arrangements transfer risk from debt holders and customers to shareholders. Hence, shareholders do not enjoy any additional benefit that could be shared with customers. Instead, customers already share in the benefits from Aligned Companies through the extensive protective and credit enhancement measures.

3.2.2 Aligned Companies share tax benefits with customers

(1356) Ofwat countered the argument that customers benefit from the existing mechanism for clawing back tax benefits where a company increases gearing levels by arguing that '*any benefits customers receive for lower tax allowances as a result of a companies' choice of capital structure should not be seen as a direct benefit against which this revised approach to sharing financing outperformance should be assessed*'.⁸¹⁷

(1357) Companies usually realise some benefits from higher leverage since interest is a tax deductible expense and as such creates a tax saving benefit, i.e. the debt tax shield. However, Ofwat's policy approach to tax ensures that customers also benefit from the tax allowances resulting from higher gearing. When a company's gearing is above the notional level, Ofwat calculates tax allowances on the basis of the expected interest payments under its actual financial structure (rather than the notional structure). It also claws back tax benefits at subsequent price reviews when a company increases its gearing levels.⁸¹⁸

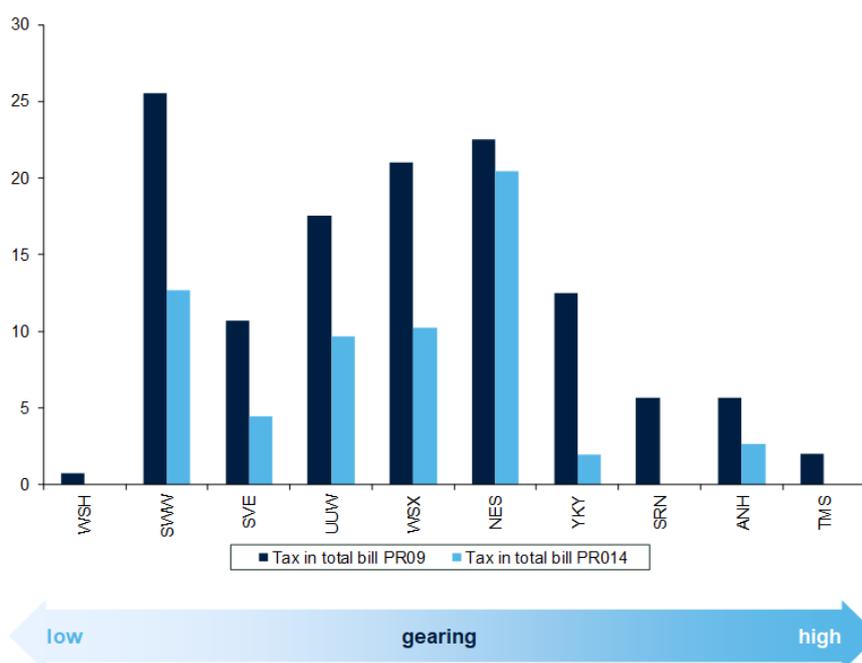
(1358) While there are different factors that affect the cash tax component of an average bill, the most important factor is the interest charge of the business that can be deducted from profits to reduce the tax exposure. Therefore, customers of highly geared Aligned Companies receive a direct and material benefit from securitisation, through a reduction in their bills. These benefits will be lost if the companies reduce their gearing to the level of the notional company.

(1359) Figure 96 below shows that customers served by Aligned Companies show much lower payments towards the 'tax component'. In fact, during PR14, customers of Aligned Companies paid between £0-3 towards tax compared to customers of other companies that paid up to £20.

⁸¹⁷ Ofwat Back in Balance July Position Statement, page 44 (SOC465).

⁸¹⁸ PR19 Final Methodology, page 185 (SOC314).

Figure 96 Indicative tax component of average bill in PR09 and PR14 for water and sewerage companies



Note: The companies are ordered by their average gearing over 2015-2019, in ascending order, with WSH having the lowest average gearing (57%) and TMS having the highest average gearing (83%). Given there is no separate tax allowance on the retail side reported in the corresponding final determination, the wholesale tax allowance was taken as a proportion of the total wholesale and retail allowed revenue

Source: Anglian's analysis based on Ofwat's PR09 and PR14 final determinations, reviewed by Oxera

3.2.3 Aligned Companies' enhanced alignment with the regulatory framework

- (1360) It should be noted that many of the ring-fencing licence modifications that have been introduced since 2001 when the first Aligned Debt Programme (Welsh Water's) was established, have been based on provisions of the Aligned Debt Programmes.
- (1361) Ofwat has previously observed that highly geared structures are '*potentially less flexible and more vulnerable to cost shocks*' but has not tried to prevent '*any such market-led structures*'.⁸¹⁹ It has instead sought to modify the licences that have wanted to introduce such structures to strengthen the ring-fencing provisions. Such modifications are designed to enable Ofwat to regulate companies within larger groups, and provide reassurance that the companies remain able to finance their regulated activities.
- (1362) In 2007, Ofwat introduced a new Condition F into the licences of Anglian, Thames Water and Surrey and East Sutton Water. These included 'cash lock up' provisions (i.e. preventing payments such as dividends) if the Company did not have an investment grade credit rating or was on review for a possible downgrade or was on 'credit watch' or 'rating watch' with a negative designation or was changed from stable or positive to negative.⁸²⁰ These licence modifications were in line with the clauses in the companies' underlying securitisation documents.
- (1363) In 2019, Ofwat signalled its intent to update the licences of all water companies to include similar cash lock-up provisions and the 'most up to date' ring-fencing certificates provisions.⁸²¹ The ring-fencing

⁸¹⁹ Ofwat Financeability and financing the asset base (2011), para. 118 (SOC447).

⁸²⁰ SES Licence Modification (2007) (SOC486); Thames Licence Modification (2007) (SOC487); and Anglian Licence Modification (2007) (SOC488).

⁸²¹ Ofwat Strengthening the Regulatory Framework, pages 12 to 15 (SOC490).

certificates requirements have been a part of Anglian's licence conditions since 2007.⁸²² Ofwat's proposed cash lock-up conditions are in line with Anglian's financing documents and licence conditions.⁸²³

(1364) Customers therefore have benefitted (and are still benefitting) from regulatory innovations pioneered by Aligned Companies (and often then copied by Ofwat).

3.3 Relatively higher gearing does not generate a 'financial benefit' for the shareholders

(1365) Thirdly, and finally, Ofwat's assumption that shareholders obtained a 'financial benefit' is also incorrect. Absent a 'benefit' for shareholders, the mechanism is untenable as it would result in shareholders receiving a return below the cost of equity all else equal (once the alleged benefit is deducted).

3.3.1 Ofwat's approach to the alleged benefit is flawed

(1366) As a starting point, the CMA and other UK regulators have consistently held that the overall cost of capital is invariant to gearing level (i.e. there is no benefit accruing to shareholders that can be shared with customers from higher levels of gearing). The CMA in *Firmus Energy (2017)*, agreed with the UR that '*reducing gearing from 55% to 45% will have an immaterial impact on pre-tax WACC*'.⁸²⁴ Similarly, in both *Bristol (2015)* and *NIE (2014)*, the CMA has noted that '*after taking into account the tax shield from more debt, the WACC is not very sensitive to the level of gearing*'.⁸²⁵

(1367) Given that the mechanism is contrary to established economic theory and regulatory precedent, one would have expected that Ofwat would seek to demonstrate that there is in fact a benefit that can be shared in the water industry to refute the challenge that the mechanism is a fundamental breach of the principle that the price control must allow for companies to earn sufficient returns on their capital to finance their activities. Ofwat, however, has not even attempted to do so. Rather, Ofwat has simply set out arguments for why in the abstract the Miller-Modigliani theorem may not always be applicable across the board and offers no evidence on why it is not applicable to the water sector.

(1368) This is problematic for two reasons. The obvious reason is that there is no grounding for the mechanism. The second reason is that Ofwat has no grounding for its estimation of the amount to be shared but has instead implicitly predicated the mechanism on the assumption that shareholders benefit 100% from increases in gearing (i.e. there is no 'loss' whatsoever due to higher cost of equity). Put differently, even in the hypothetical scenario where there is some potential 'net' benefit for shareholders from higher levels of gearing, it would be necessary to quantify such a net to determine how much can be shared. Ofwat has simply assumed the opposite of the Miller-Modigliani theorem: the cost of equity is simply invariant to the level of gearing.

(1369) Similarly, the securitisation arrangements of the Aligned Companies do not provide additional benefits to the shareholders. Contrary to Ofwat's allegation in its April 2018 consultation that '*the covenants in such arrangements allow companies to achieve a lower cost of debt (and a lower cost of equity)*'⁸²⁶ in practice, securitisation arrangements merely re-allocate risk from debt holders to shareholders. Indeed, as reported by Moody's in 2019,⁸²⁷ the restrictive covenants improve the credit position of the operating company at the cost of holding companies, which risk dividend distribution lock-ups. For example, Moody's has recently downgraded the senior secured ratings of Anglian's unregulated holding company, Anglian Water (Osprey) Financing plc. This is evidence that the holding company bears the risk

⁸²² Conditions F6.1 and I.17-I.24, Anglian's Licence (SOC297).

⁸²³ Conditions I.30-I.33, Anglian's Licence (SOC297); See also Anglian Strengthening the Regulatory Framework Response (SOC490).

⁸²⁴ *Firmus Energy (2017)*, para. 7.121 (SOC472).

⁸²⁵ *Bristol (2015)*, para. 10.26; *NIE (2014)*, para. 13.28 (SOC275).

⁸²⁶ Ofwat Back in Balance: April Consultation, page 15 (SOC464).

⁸²⁷ Moody's Rock of Low Returns Meets Hard Place of Covenants, page 10 (SOC451).

associated with insufficient cash flow from the regulated business to service its debt.⁸²⁸ Accordingly, covenanted financial structures re-allocate risk from debt holders to shareholders above and beyond established economic theory, which as noted by Ofwat, does not '*reflect the benefits of securitisation arrangements*'.⁸²⁹

3.3.2 Higher gearing does not generate a 'financial benefit' for the shareholders

- (1370) Ofwat's conclusions are also at odds with academic work showing that the cost of capital is largely invariant to the level of gearing.
- (1371) The key point of departure for capital structure analysis is the theory developed by Modigliani and Miller in a 1958 paper.⁸³⁰ Their key conclusion is that the cost of capital for a given company is fixed and independent from its financing structure, no matter what the relative weights of debt and equity are. This is because the cost of equity increases when a company gears up, compensating the effect of taking on cheaper financing in the form of debt. However, this result was based on very stringent assumptions (such as the absence of taxation, perfect information, etc.). In later papers, Modigliani and Miller themselves (and other authors) sought to relax these assumptions and conclude on whether there was indeed an optimal capital structure.
- (1372) Oxera's 2002 report on the capital structure of water companies carried out an extensive review of academic literature and classified the factors that may affect the capital structure decision under four categories: tax effects, asymmetry of information, risk redistribution, and risk reduction.⁸³¹ The report covered several theories that attempt to explain how companies make their financing choices, and to predict, based on a company's characteristics, which financing structure it will adopt. Such theories include the 'pecking-order theory', which states that firms prefer internal finance first (e.g. retained earnings), then issue debt from the safest to the riskiest type and raise equity as a last resort means of financing.⁸³² Elsewhere, the 'trade-off' theory argues that a firm's financial structure results from a trade-off between tax benefits derived from gearing up and costs of financial distress associated with higher debt. According to this theory, firms with safe and tangible assets will tend to gear up as their debt is backed up by safer assets.⁸³³
- (1373) Overall, the theories suggest that many parameters drive managers' financing decisions and thus a company's financial structure depends on managerial choices rather than on a theoretical optimum that could be determined *ex ante*. Oxera's 2002 report concluded that '*the results in this paper point consistently to the view that leverage is a derivative rather than a fundamental variable which reflects, rather than determines, the underlying risks and performance of a firm*'.⁸³⁴ Or, in the words of Brealey, Myers and Allen '*Is There a Theory of Optimal Capital Structure? No. That is, there is no one theory that can capture everything that drives thousands of corporations' debt vs. equity choices. Instead there are several theories, each more or less helpful, depending on each particular corporation's assets, operations, and circumstances*'.⁸³⁵
- (1374) In conclusion, the financial structure of a company should ultimately be left for the management and investors to decide. This decision will be a function of multiple parameters, including (for example) the sector in which the Company operates, its financial performance, and its development opportunities. As

⁸²⁸ Moody's Confirms Ratings of Anglian Water with Negative Outlook and Downgrades Osprey (SOC462).

⁸²⁹ Ofwat Back in Balance April Consultation, page 15 (SOC464).

⁸³⁰ Modigliani Miller (1958), pages 261 to 97 (SOC491).

⁸³¹ Oxera Capital Structure of Water Companies, page VI (SOC445).

⁸³² Brealey, R.A., Myers S.C. and Allen F., Principles of Corporate Finance, Chapter 18, How Much Should a Corporation Borrow?, Section 4.

⁸³³ *Idem*, Chapter 18, Section 3, pages 458 to 460.

⁸³⁴ Oxera Capital Structure of Water Companies, page VI (SOC445).

⁸³⁵ Brealey, R.A., Myers S.C., Allen F., Principles of Corporate Finance, Chapter 18, page 465.

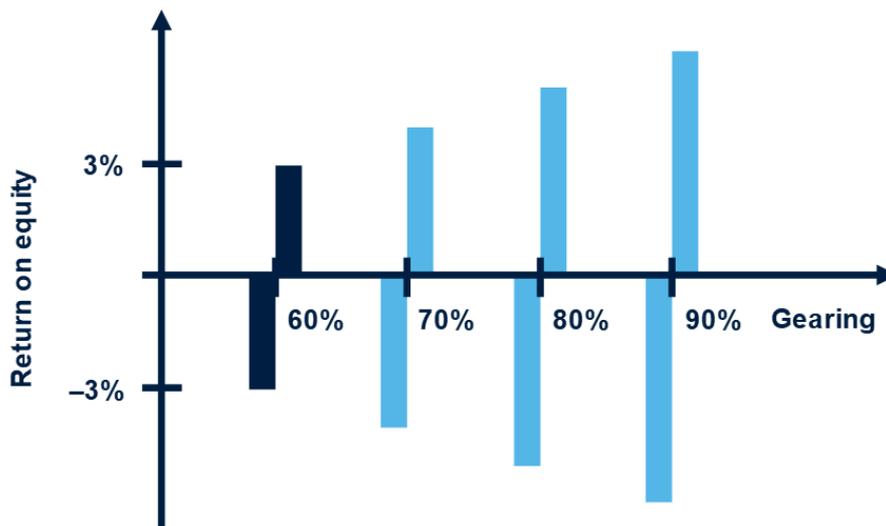
a result, imposing capital structure control can only be detrimental to the Company's functioning. Such restriction of decision-making may impede the ability of the Company to serve the interests of its customers.

3.3.3 'Real world' evidence points towards absence of correlation between cost of capital and level of gearing

(1375) In addition, the evidence of 'real world' conditions – contrary to Ofwat's general assertions on lack of applicability – supports the position that cost of capital in the water sector is invariant to the level of gearing.

(1376) In fact, the greater the gearing the greater the impact on the RoRE of any deviations in performance relative to the Company's business plan. This is because any overperformance or underperformance is divided over a smaller equity base. Figure 97 below illustrates how an overperformance or underperformance, which is equivalent to a 3% RoRE at the notional gearing of 60%, translates into a higher range of potential RoRE at higher levels of gearing. This figure also suggests that empirically the impact of gearing on the risk to shareholders is observed by the variance in realised returns (in £ terms).

Figure 97 Impact of gearing on RoRE in £ terms



Source: Oxera

(1377) The impact of gearing on RORE is symmetrical across overperformance and underperformance scenarios and reflects the shareholders' choice to accept a higher risk. In exchange for such higher risk, the shareholders expect to earn a higher rate of return on average across all scenarios, including the scenario where a company's results are identical to its business plan. Therefore, in the latter scenario, RORE is much higher when a company's gearing increases. This demonstrates that shareholders earn only what they expected to earn as a compensation for their higher exposure to risk. There is no additional benefit generated for the shareholders.

3.3.4 Ofwat seemingly acknowledges the absence of any benefit for the shareholders

(1378) Finally, Ofwat even implicitly seems to recognise that investors' higher returns when investing in more highly geared companies are coupled with higher levels of risk. Ofwat recognises that *'[e]quity investors benefit from higher equity returns that are associated with their increased risk'*⁸³⁶ i.e. that investors' higher returns when investing in more highly geared companies are coupled with higher levels of risk which, in turn, means that the accepted effect of the mechanism is to deprive investors of an appropriate

⁸³⁶ Aligning Risk and Return Technical Appendix, pages 126 to 127 (SOC242).

level of return (i.e. that it is inherent to the mechanism that shareholders are likely to receive a below cost of equity return if all else is equal). As set out in Section 4.2 below, shareholders have actually accepted additional risk in practice and have been obliged to inject equity in certain situations.

(1379) In any event, higher gearing reflects a different risk/return choice for shareholders. The securitised structures do not provide any additional benefit to shareholders; instead, they operate as a risk transfer mechanism by which the risk is transferred from debt holders and customers to shareholders.

4 The mechanism is not justifiable for Anglian's financial structure

(1380) Furthermore, leaving aside the lack of justification for the mechanism, Anglian's own position demonstrates that the mechanism is not justifiable for Anglian's structure.

4.1 Anglian has significant headroom in terms of gearing

(1381) First, Anglian's own structure and level of gearing reveals the fallacy that gearing above 70% is 'high' and exposes customers to unacceptable levels of risk. This can be seen in two ways.

(1382) Anglian's Aligned Debt Programme contains a series of covenants which limit the Company's ability to borrow, including covenants on its level of gearing. These covenants provide an indication of the level at which the market – and debt holders – considers that debt levels may pose concerns. The triggering gearing level in Anglian's Aligned Debt Programme is, however, 85% whereas Anglian's current gearing is 78%.

(1383) In addition, Anglian's credit rating with the major credit rating agencies, notably Moody's, S&P and Fitch, has consistently been at investment grade since privatisation. Indeed, as shown in Table 37 below, Anglian's credit rating has remained at Baa1, notwithstanding that its gearing level is in the upper quartile of gearing levels. The market does not, therefore, consider that Anglian's gearing level exposes debt holders to greater levels of risk.

Table 37 Credit ratings and gearing levels

Company	Gearing 2018-19	Latest Credit Rating (Moody's)
Anglian Water Services	78.6%	Baa1
Dwr Cymru Cyfyngedig	56.0%	A3
Northumbrian Water	66.8%	Baa1 (under review for downgrade)
Severn Trent Water	63.7%	Baa1
Southern Water Services	68.8%	Baa3 (Southern Water Services (Finance) Limited) ¹
South West Water	58.9%	Not rated
Thames Water Utilities	81.9%	Baa2
United Utilities Water	64.8%	A3
Wessex Water Services	64.7%	Baa1 (Wessex Water Services Finance plc) ²
Yorkshire Water Services	75.8%	Baa2

Note: The table has been updated on 30 March 2020. Where not specified, credit ratings refer to the issuer rating of OpCo. ¹ The rating for Southern Water Services Limited has been withdrawn.² The regulated business – Wessex Water Services Limited (WWSL) – is not rated by Moody's. Fitch rates WWSL one notch lower (BBB) than Wessex Water Services Finance (BBB+)

Source: Gearing estimates for financial year 2018-19 are based on Aligning Risk and Return Technical Appendix (SOC242). Credit ratings are based on the information from Moody's website

(1384) As such, the evidence strongly indicates that Anglian's gearing level does not give rise to undue and unacceptable levels of risk.

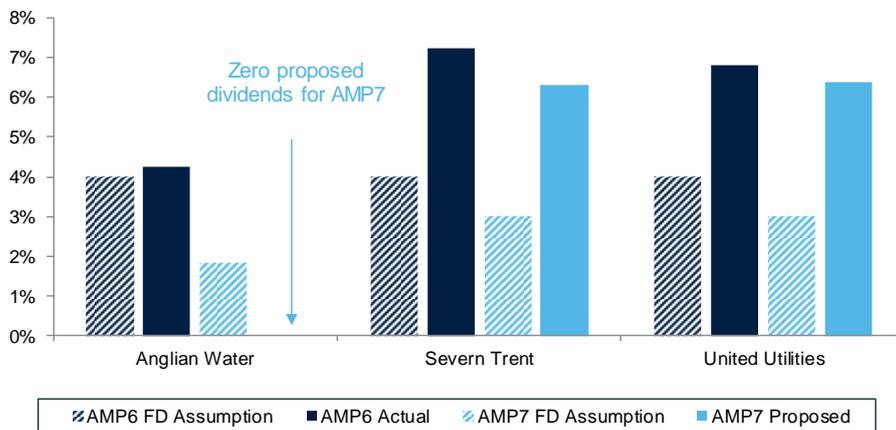
4.2 Anglian has a dividend policy that supports resilience

(1385) Second, Anglian has consistently demonstrated the financial resilience of its capital structure over the last 18 years, and, most notably, during the financial crisis. Ofwat has also noted that *'companies across the sector – including those with securitised structures – have withstood the more difficult economic backdrop that has resulted from 'the credit crunch''*.⁸³⁷ As required by Ofwat,⁸³⁸ Anglian in its recent business plan, modelled the impact of the downside risks on its financial performance and its ability to repay debt and maintain an investment grade credit rating. The model showed that Anglian is resilient to five of the six stress tests and one of the two scenarios selected.⁸³⁹ To resolve the failed tests, Anglian suggested, amongst other solutions, equity injections by its shareholders. This solution has also been regarded by Ofwat as the *'appropriate response of investors in such structures, [which] demonstrates that they are able to respond to external pressures'*.⁸⁴⁰

(1386) It is in the interests of Anglian's shareholders to inject equity in order to restore a sustainable capital structure given they would bear the losses in case of the Company's default. Anglian's shareholders' willingness to restore Anglian's capital structure has been demonstrated on various occasions.

(1387) Over the first four years of AMP6, Anglian has paid a dividend yield on regulated equity that averaged 4.2%. For comparison, the base dividend yield on regulated equity assumed in the PR14 Final Determination was 4%, and over this period Anglian generated operational outperformance of over 2% of regulated equity in addition to the base return on equity of 5.65% (RPI-real). Anglian has also reduced the dividend yield over AMP6 to support the capital structure and the planned investment programme. This illustrates that Anglian has followed a conservative dividend policy relative to the equity value created by the business. The dividend yields on regulated equity paid by the two 'pure play' listed water companies provide additional points of comparison, and demonstrate that Anglian has followed a conservative dividend policy relative to market benchmarks, ensuring that the necessary investment was undertaken.

Figure 98 AMP6 and AMP7 dividend yield on regulated equity



Source: Oxera analysis based on Ofwat PR14 and PR19 final determinations; Ofwat's Financial Monitoring Report 2018–19 (SOC480); September 2018 Plan page 277 (SOC001); Severn Trent AMP7 Dividend Policy (SOC478); United Utilities Dividend Policy (SOC479)

(1388) For AMP7, the Anglian Water Final Determination assumes a 1.84% dividend yield under the notional capital structure. However, Anglian has announced its intention to reduce gearing over time, and the

⁸³⁷ Ofwat Financeability and financing the asset base (2011), para. 119 (SOC447).

⁸³⁸ Ofwat's Expectations on Long-Term Viability Statements (SOC492).

⁸³⁹ Arup Resilience Assessment, page 12 (SOC054).

⁸⁴⁰ Ofwat Financeability and financing the asset base (2011), para. 119 (SOC447).

base plan is for no dividend payments to shareholders outside the Anglian Water Group.⁸⁴¹ This compares with Ofwat's guidance that companies should use a base dividend yield of 3% unless RCV growth exceeds 10% in real terms, in which case a lower base dividend yield is assumed. The two 'pure play' listed water companies have Final Determinations that use Ofwat's 3% base dividend yield. Furthermore, the dividend policies announced to the market indicate that both Severn Trent and United Utilities intend to pay dividend yields on regulated equity of over 6%. This further underlines the conservative nature of the Anglian dividend policy relative to market benchmarks, and the resilience that this provides to the capital structure and the preservation of investment and a growing RCV.

4.3 Anglian has amended its intercreditor agreement when required

- (1389) Third, Anglian's own financial structure and Aligned Debt Programme contains a series of features which ensure that it has higher levels of protection from default (and thus ensure Anglian's position is better than companies with lower levels of gearing). For example, Anglian's Aligned Debt Programme has mechanisms that enable Anglian to amend its Security Trust and Intercreditor Deed ('**STID**') and/or Common Terms Agreement ('**CTA**'), each of which binds all its debt finance creditors.
- (1390) Under the STID, Anglian can make a STID proposal in response to regulatory change, which if passed by the Majority Creditors will automatically bind all creditors, even if they voted against it. Anglian has proposed a total of 13 STID Proposals since it established its Aligned Debt Programme and each one has been passed and approved. Equally, under the CTA, Anglian can amend its financial ratios contained within the Financial Covenants, Trigger Events or Events of Default following a price review or material change in the regulation of the water industry, that each of the Financial Guarantor and the Security Trustee (acting on the interests of the Majority Creditors) agrees. Accordingly, these mechanisms protect customers and taxpayers (to the extent that any such protection is needed).

4.4 Anglian has a proven track record of delivering services to a high standard

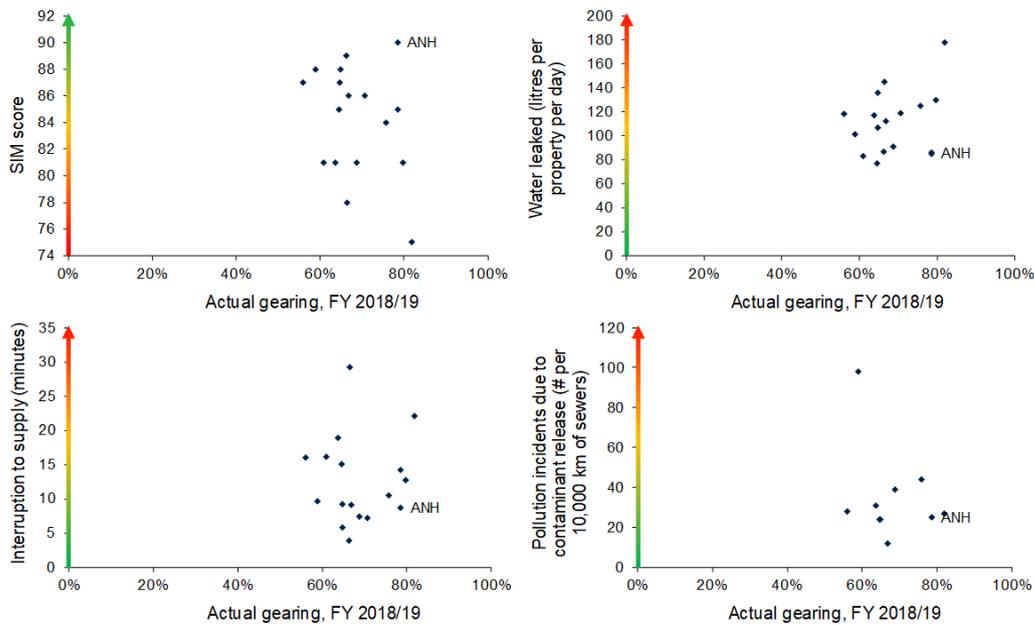
- (1391) Finally, Anglian with its relatively higher level of gearing compared to some water and sewerage companies, has a proven track record of delivering services to a high standard. As shown in Figure 99 below, several performance indicators of Anglian are better than those of companies with lower gearing. In fact, Anglian earned eight ODI payments for outperforming its performance commitments targets between FY 2015/16 and FY 2018/19 while receiving only one penalty for underperformance (namely mean zonal compliance where the performance commitment is 100% and therefore extremely hard to achieve).⁸⁴²
- (1392) Accordingly, Figure 99 below clearly demonstrates that there is no link between the level of gearing and the performance of a company as a water and wastewater service provider. Most notably, Anglian with its relatively high gearing, achieved in 2019 (for the second year in a row) the best customer satisfaction score of all water companies in England and Wales, some of which have considerably lower gearing.⁸⁴³

⁸⁴¹ September 2018 Plan, page 277 (SOC001).

⁸⁴² Anglian's 2019 Annual Report, page 67 (SOC301).

⁸⁴³ This is measured by the service incentive mechanism (SIM) score. Ofwat Customer Service Report Press Alert (SOC309).

Figure 99 Anglian's performance based on selected indicators, FY 2018-19



Note: Among the four indicators presented above, three (leakage, interruption to supply and pollution incidents) received ODI outperformance payments. However, the exact metrics reported in the graph may be different from those used by companies to measure the same indicators. This is because companies do not use consistent metrics

Source: Oxera analysis, based on Ofwat's PR19 Final Determination and Discover Water data

5 In any case, the introduction of the mechanism goes against the principles of best regulatory practice

5.1 Principles of best regulatory practice

(1393) Finally, even if the mechanism were justifiable in principle, its introduction in PR19 without giving water companies sufficient time to adjust their capital structures is inconsistent with the principles of best regulatory practice, including that regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed.⁸⁴⁴

(1394) As the CMA and, indeed, Ofwat have previously observed, significant departures from regulatory precedent require a particularly high standard of reasoning and justification.⁸⁴⁵ In fact, it is well-established that any revision of previous regulatory determinations – particularly those with significant financial implications – should be *'well-reasoned, properly signalled, subject to fair and effective consultation, clear and understood, and, normally, forward-looking'*.⁸⁴⁶ Revisions *ex ante* without sufficient signposting can only be taken in very exceptional circumstances following an appropriate period of consultation.

(1395) The principles of best regulatory practice guarantee a stable and predictable regulatory environment enabling all those affected to make long-term decisions with sufficient confidence.⁸⁴⁷ The CMA has also held that the *'stability, predictability and transparency of the regulatory regime'*⁸⁴⁸ are decisive factors for

⁸⁴⁴ See Section 2(4) of the WIA91, which provides that Ofwat must have regard to the principles of best regulatory practice when exercising its powers and functions.

⁸⁴⁵ *NIE (2014)*, para. 13.191 (SOC424); *Bristol (2015)*, para. 8.31 (SOC275).

⁸⁴⁶ *Phoenix Gas (2012)*, para. 9.112 (SOC352).

⁸⁴⁷ BIS, Principles for Economic Regulation, page 5 (SOC351).

⁸⁴⁸ *Phoenix Gas (2012)*, para. 8.85 (SOC352).

investment decisions. Hence, if the regulator is perceived to behave inconsistently not only the predictability of the regulatory system is weakened but also the trust and confidence of the investors are eroded. To say the least, companies' incentives inevitably become short-termist while at the same time investment is disincentivised in the water sector as well as more widely in all UK regulatory sectors.

5.2 The mechanism is contrary to the principles of best regulatory practice

(1396) As set out above, the introduction of the mechanism marks a sharp divergence from established regulatory practice and, hence, goes against the principle of regulatory consistency. Both Ofwat and the CMA have repeatedly held that regulated companies are free to select their own financial structure (at their own risk) under RPI-x regulatory framework, which provides the regulated companies an incentive to outperform the regulatory control.⁸⁴⁹ Ofwat has expressly acknowledged that if it were to intervene in the financial structures of the regulated companies that would be seen as '*contrary to [the] incentive-based regulatory framework [namely RPI-x regulation], where the companies and their investors must take ownership of the risks arising from their choice of capital structure*'.⁸⁵⁰

(1397) Yet, Ofwat introduced the mechanism contrary to various principles of best regulatory practice:

- (i) The mechanism goes against the principle that departures from regulatory precedent should be targeted only when action is needed; in particular, companies' freedom to select their financial structure. Ofwat failed to demonstrate what has changed in the water sector since PR14 that justifies this intervention. Instead, it only observes that a delay would be to the detriment of customers and the customer duty.⁸⁵¹
- (ii) The mechanism goes against the principles that regulation should be transparent and changes proposed should be forward-looking, properly signalled and subject to fair consultation; in particular, the mechanism has a *de facto* retrospective effect since it impacts the regulated companies' historic financing decisions. As previously held by the CMA, any *ex ante* effect should only be accepted in exceptional circumstances following sufficient consultation. Even if it is accepted that such circumstances currently exist (which they do not), Ofwat failed to appropriately signpost the mechanism, which was only introduced after the Final Methodology. Ofwat's purported signalling of the mechanism through its early view of cost of capital, which was underpinned by a lower notional gearing level than for PR14, and its 2017 report, in which it encouraged companies to consider their corporate and financial resilience,⁸⁵² clearly falls below the high threshold set by the CMA. It also evidences that, in reality, the mechanism was the result of political pressure rather than evidence-based policy making; a fact that undermines even further the investability in the sector given the increasing risk of future political interference in the design of the regulatory framework.
- (iii) The mechanism goes against the principle that regulatory activities should be proportionate and accountable. In particular, all major credit rating agencies give strong weight to the nature of the regulatory environment when assessing the credit rating of a regulated company.⁸⁵³ Both Moody's and Fitch have taken the view that the mechanism evidences an increasing regulatory risk for UK water companies, which adversely affects the stability and predictability of the regulatory system to Aa from Aaa.⁸⁵⁴ If investors share the same view as the credit rating

⁸⁴⁹ *SONI (2017)*, para. 7.306 (2017) (SOC494); *Firmus Energy (2017)*, para. 7.81 (SOC472); *Bristol (2015)*, paras. 10.3, 10.27 (SOC275); *Bristol (2010)*, paras. 10.12, 10.21 (SOC345); *British Telecommunications (2012)* para. 1.352 (SOC495).

⁸⁵⁰ Ofwat Financeability and financing the asset base (2011) page 40 (SOC447).

⁸⁵¹ Ofwat Back in Balance: July Position Statement, page 9 (SOC465).

⁸⁵² Ofwat Back in Balance July Position Statement, page 57 (SOC465).

⁸⁵³ Moody's and Fitch Rating assess the stability and predictability of the regulatory environment as part of the business profile of the regulated entity. For reference, see Moody's, Rating Methodology (SOC450); Fitch Rating Criteria (SOC496).

⁸⁵⁴ Moody's Proposals Undermine Stability and Predictability of the Regime (SOC457).

agencies, then they might expect higher returns to compensate for this increasing risk, which will result in a higher cost of debt and equity. These additional costs would be borne by all UK water companies, and not only by the highly geared ones.

- (1398) Undeniably, the water companies' downgrades showcase Ofwat's erroneous assumptions that there is a prospect for industry outperformance of the benchmark index in PR19 and that the mechanism improves the investability of the sector. Instead, Ofwat appears to be accepting lower credit ratings for regulated companies as a price to pay for large reductions in customer bills without appreciating the long-term consequences, including the adverse impact on the Aligned Companies⁸⁵⁵ ability to meet their financial covenants.⁸⁵⁶
- (1399) Finally, the mechanism is not proportionate and well-reasoned. Indeed, Ofwat seems to neglect the fact that a gearing intervention of this magnitude is associated with disproportionate costs. As widely accepted, significant de-gearing requires either repayment of debt from cashflow or a significant equity injection. However, the deterioration in the predictability and stability of the regulatory environment is expected to adversely affect the investability of the sector limiting, to say the least, the investors' appetite to inject additional capital. Accordingly, with limited opportunities for equity injections and lower returns in AMP7, the mechanism becomes an unsuitable tool for any de-gearing in the sector in the long-term.
- (1400) Ofwat did, however, introduce a glidepath to smooth the mechanism over PR19. Yet, this does not accurately reflect the impracticality and costs of reducing gearing in a short period of time. Anglian is a good example of the glidepath's failure to ensure a smooth transition. In particular, if it chooses to prepay its debt to adjust its gearing below the 'trigger point', Anglian incurs break costs (i.e. a 'make whole' payment for fixed rate bonds or debt, and a 'make to market' costs for swaps), which are exorbitant in the current low interest rate environment.

6 Request to the CMA

- (1401) Anglian submits that the gearing outperformance sharing mechanism is in violation of the principle that the choice of capital structure is a matter for each regulated company. Further, given the manifest flaws with Ofwat's rationale for introduction of the mechanism as well as the absence of any case to support its introduction, Anglian submits that the mechanism cannot be retained in the redetermination.

⁸⁵⁵ Securitised companies that have debt programmes structured to enhance regulatory protections (Aligned Companies).

⁸⁵⁶ Moody's Rock of Low Returns Meets Hard Place of Covenants (SOC451).

Appendix 1: Index of Annexes

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1 Response to para. 41 of the First Day Letter		
1.1 PR19 Business Plan		
1.1.1 Anglian's PR19 Business Plan (submitted 3 September 2018)		
SOC001	September 2018 Plan	Anglian Water, Our Plan 2020-2025 (3 September 2018)
SOC002	September 2018 Plan Data Tables	Anglian Water, PR19 Data Tables (updated June 2018)
SOC003	September 2018 Plan Appointee Data Tables Commentary	Anglian Water, PR19 Appointee Data Tables Commentary (3 September 2018)
SOC004	September 2018 Plan Water Data Tables Commentary	Anglian Water, PR19 Water Data Tables Commentary (3 September 2018) <i>[Confidential - Redacted version provided to other parties]</i>
SOC005	September 2018 Plan Wastewater Data Tables Commentary	Anglian Water, PR19 Wastewater Data Tables Commentary (3 September 2018)
SOC006	September 2018 Plan Retail Data Tables Commentary	Anglian Water, PR19 Retail Data Tables Commentary (3 September 2018)
SOC007	September 2018 Plan Bill Waterfall Model	Anglian Water, PR19 Bill Waterfall Model (updated 30 July 2018)
SOC008	September 2018 Plan Financial Model	Anglian Water, PR19 Financial Model (3 September 2018)
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SOC011	September 2018 Plan Bioresources RCV allocation tables	Anglian Water, Bioresources RCV Allocation Tables
SOC012	CEF Summary (September 2018)	Anglian Water, Customer Engagement Forum: Executive Summary
SOC013	Business Plan Presentation Pro-forma	Anglian Water, PR19 Business Plan Presentation Pro-forma (updated 31 August 2018)
SOC014	IAP Pro-forma	Anglian Water, Initial Assessment of Business Plans – pro forma
SOC015	Business Plan Presentation Pro-forma Guidance	PR19 Business Plan Presentation Pro-forma Guidance Tables (updated 31 August 2018)

Ref. No.	Short Name	Full Name
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SOC017	Affordability and vulnerability feedback from online community	Annex 6a. Anglian Water, Exploring affordability and vulnerability support increase: Feedback from the love every drop online community (6 July 2018)
SOC018	Experian Household income and affordability	Annex 6b. Experian, Household income and affordability (August 2018)
SOC019	Anglian Customer Debt Position	Annex 6c. Anglian Water, Anglian Water Customer Debt Position (July 2018)
SOC020	DWI Final Decision Letters	Annex 7a. DWI Final Decision Letters (30 May 2018)
SOC021	EA Nitrate Schemes Letter	Annex 7b. Environment Agency Nitrate Schemes Letter (21 December 2017)
SOC022	Water Industry Cost Modelling Initial Results	Annex 10a. Water Industry Cost Modelling: Anglian's approach and initial results (September 2017)
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SOC028	KPMG DPC Eligibility Assessment	Annex 11c. KPMG, Anglian Water Direct Procurement for Customers: DPC Eligibility Assessment (August 2018)
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SOC033	Customer Research and Engagement (August 2018)	Annex 12c. Anglian Water Customer Research and Engagement Synthesis (14 August 2018)

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SOC036	Wellbeing Valuation of the impact of roadworks and flooding	Annex 12f. Valuation of the impact of roadworks and flooding using the Wellbeing Valuation (27 February 2018)
SOC037	Societal Valuation Programme	Annex 12g. Anglian Water's Societal Valuation Programme (August 2018)
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SOC052	Final PC Definitions	Annex 13l. Anglian Water, Final AMP7 Performance Commitment Definitions (September 2018)
SOC053	Systems Approach to Resilience	Annex 14a. Anglian Water, A Systems approach to resilience shocks and stresses (September 2018)
SOC054	Arup Resilience Assessment	Annex 14b. Arup, Anglian Water PR19 Resilience Assessment update (21 August 2018)
SOC055	Reckon Report on Natural RCV Run-off Rate	Annex 15a. Reckon, Evidence on natural rate of RCV run-off (14 August 2018)
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SOC057	NERA Response to Ofwat's Halo Effect for PR19	Annex 15c. NERA, A response to Ofwat's Halo effect for PR19 (July 2018)
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SOC059	September 2018 Plan Financial Model Annex	Annex 15e. PR19 Financial Model Annex (August 2018)
SOC060	Deloitte Financial Assurance Release Letter (July 2018)	Deloitte, Release of PR19 business plan assessment reports for Anglian Water (20 July 2018) <i>[Confidential – not provided to other parties]</i>
SOC061	Deloitte Financial Assurance Report (August 2018)	Deloitte, Anglian Water PR19 Assurance Support: Summary Status (31 August 2018) <i>[Confidential – not provided to other parties]</i>
SOC062	Deloitte Financial Assurance Support Letter (August 2018)	Deloitte, PR19 Assurance Support (31 August 2018)
SOC063	Jacobs Technical Assurance	Jacobs, Anglian Water: Technical Assurance Executive Summary (31 August 2018)
SOC064	September 2018 Plan Board Assurance Statement	Anglian Water, PR19 Board Assurance Statement (13 August 2018)
1.1.3 Updates to September 2018 Plan Data tables & financial models (28 September 2018)		
SOC065	28 September 2018 update summary	Anglian Water, Summary of Updates to Data Tables and Financial Models (28 September 2018)
SOC066	September 2018 Plan Data Tables Updated (28 September 2018)	Anglian Water, PR19 Data Tables (updated 28 September 2018)
SOC067	September 2018 Plan Financial Model Updated (28 September 2018)	Anglian Water, PR19 Financial Model (updated 28 September 2018)
SOC068	September 2018 Plan Financial Model (with minor adjustments) Updated (28 September 2018)	Anglian Water, PR19 Financial Model (with minor adjustments) (updated 28 September 2018)

Ref. No.	Short Name	Full Name
1.1.4 Updates to September 2018 Plan Data tables post-query process (November 2018)		
SOC069	September 2018 Plan Data Tables Updated (November 2018)	Anglian Water, PR19 Data Tables (updated November 2018)
1.1.5 Preliminary Submissions made before the September 2018 Plan		
(i) Bioresources RCV Allocation (20 September 2017)		
SOC070	Bioresources RCV Report	Anglian Water, Economic Asset Valuation for the Bioresources RCV Allocation at PR19 (20 September 2017)
SOC071	Bioresources RCV Allocation Tables	Anglian Water, Bioresources RCV Allocation Tables (20 September 2017)
SOC072	Bioresources RCV Board Assurance Statement	Anglian Water, Economic Asset Valuation for the Bioresources RCV Allocation at PR19: Board Assurance Statement (20 September 2017)
(ii) Water Resources RCV Allocation (31 January 2018)		
SOC073	Water Resources RCV Submission Narrative	Anglian Water, Economic Asset Valuation for the Water Resources RCV Allocation at PR19 (31 January 2018)
SOC074	Water Resources RCV Data Tables	Anglian Water, Water Resources RCV Data Tables (31 January 2018)
SOC075	Water Resources RCV Board Assurance Statement	Anglian Water, Water Resources RCV Allocation at PR19: Board Assurance Statement (24 January 2018)
(iii) Early Submission: Cost adjustments claims ('CAC') (3 May 2018)		
SOC076	CAC Early Submission	Anglian Water, Cost adjustment early submission claim (3 May 2018)
SOC077	CAC Catchment Management	Anglian Water, Cost adjustment early submission claim ANH01 - Catchment Management (3 May 2018)
SOC078	CAC Humber Bank	Anglian Water, Cost adjustment early submission claim ANH02 - Humber Bank (3 May 2018)
SOC079	CAC Strategic Interconnectors	Anglian Water, Cost adjustment early submission claim ANH03 - Strategic Interconnectors (3 May 2018)
SOC080	CAC Water Efficiency	Anglian Water, Cost adjustment early submission claim ANH04 - Water Efficiency (3 May 2018)
SOC081	CAC Leakage 172	Anglian Water, Cost adjustment early submission claim ANH05 - Leakage 172 (3 May 2018)

Ref. No.	Short Name	Full Name
SOC082	CAC Leakage 142	Anglian Water, Cost adjustment early submission claim ANH06 - Leakage 142 (3 May 2018)
SOC083	CAC Smart Metering	Anglian Water, Cost adjustment early submission claim ANH07 - Smart Metering (3 May 2018)
SOC084	CAC Phosphorus Removal, No Deterioration	Anglian Water, Cost adjustment early submission claim ANH08 - Phosphorus removal, no deterioration (3 May 2018)
SOC085	CAC Phosphorus Removal, Good Economic Standing	Anglian Water, Cost adjustment early submission claim ANH09 - Phosphorus removal, Good Economic Standing (3 May 2018)
SOC086	CAC Flow Compliance	Anglian Water, Cost adjustment early submission claim ANH10 - Flow compliance (3 May 2018)
SOC087	CAC Sludge Transport	Anglian Water, Cost adjustment early submission claim ANH11 - ANH Sludge Transport (3 May 2018)
SOC088	Sludge Transport Impact	Anglian Water, Report on the impact of sludge transport for Anglian Water (3 May 2018)
SOC089	Customer Research and Engagement (March 2018)	Anglian Water, Customer Research & Engagement Synthesis (March 2018)
SOC090	Anglian WINEP Spreadsheet	Anglian Water, WINEP Spreadsheet
(iv) Early Submission: Performance Commitments (3 May 2018)		
SOC091	PC Definitions Cover Letter	Anglian Water, Early submission – Performance Commitments Definitions (3 May 2018)
SOC051	Proposed PC Definitions	Anglian Water, Our Proposed Performance Commitment Definitions (3 May 2019)
SOC092	PCs Table	Anglian Water, Performance Commitment table (May 2018)
(v) First PR14 reconciliation (27 July 2018)		
SOC093	First PR14 Reconciliation Business Plan Data Tables	Anglian Water, Business Plan Data Tables (PR14 Reconciliation, 27 July 2018)
SOC094	First PR14 Reconciliation Information Commentary	Anglian Water, PR14 Reconciliation Information (27 July 2018)
SOC095	First PR14 Reconciliation WRFIM Calculations Spreadsheet	Anglian Water, Reconciliation WRFIM Calculations Spreadsheet (PR14 Reconciliation, 27 July 2018)
SOC096	First PR14 Reconciliation RRFIM Retail Calculations Spreadsheet	Anglian Water, Reconciliation RRFIM Retail Calculations Spreadsheet (PR14 Reconciliation, 27 July 2018)

Ref. No.	Short Name	Full Name
SOC097	First PR14 Reconciliation Totex Menu	Anglian Water, Reconciliation Totex Menu (PR14 Reconciliation, 27 July 2018)
SOC098	First PR14 Reconciliation RCV Adjustments Feeder Model	Anglian Water, Reconciliation RCV adjustments feeder model (PR14 Reconciliation, 27 July 2018)
SOC099	First PR14 Reconciliation Revenue Adjustments Feeder Model	Anglian Water, Reconciliation Revenue adjustments feeder model (PR14 Reconciliation, 27 July 2018)
SOC100	Deloitte Release Letter (20 July 2018)	Deloitte, Release of PR19 business plan submission assessment reports for Anglian Water Services Limited (20 July 2018) [Confidential – not provided to other parties]
SOC101	Deloitte PR14 Reconciliation Data Tables	Deloitte, Anglian Water Price Review 2019 – PR14 Reconciliation Data Tables (27 July 2018) [Confidential – not provided to other parties]
SOC102	Jacobs Technical Assurance PR14 Reconciliation	Jacobs, Anglian Water PR19: PR14 Technical Assurance Executive Summary (26 July 2018)
1.2 Formal Submissions		
1.2.1 Formal Submissions: Anglian's submissions after the September 2018 Plan and before the response to the Interim Assessment of Business Plan		
(i) Trading and procurement (10 September 2018)		
SOC103	Trading and Procurement Code	Anglian Water, Trading and Procurement Code (10 September 2018)
1.2.2 Formal Submissions: Anglian's response to Ofwat's Interim Assessment of Business Plan (the 'IAP Response')		
(i) IAP Response (3 April 2019)		
SOC104	IAP Response	Anglian Water, IAP Response (April 2019) [Confidential - redacted version provided to other parties]
SOC105	IAP Data Tables	Anglian Water, Data Tables (IAP Response April 2019)
SOC106	IAP Wastewater Data Tables Commentary	Anglian Water, Wastewater Data Tables Commentary (IAP Response April 2019)
SOC107	IAP Water Data Tables Commentary	Anglian Water, Water Data Tables commentary (IAP Response April 2019) [Confidential - Redacted version provided to other parties]
SOC108	IAP Appointee Data Tables Commentary	Anglian Water, Appointee Data Tables Commentary (IAP Response April 2019)
SOC109	IAP Retail Data Tables Commentary	Anglian Water, Retail Data Tables Commentary (IAP Response April 2019)

Ref. No.	Short Name	Full Name
SOC110	IAP Revised Board Assurance Statement	Anglian Water, PR19 Revised Board Assurance Statement (IAP Response April 2019)
SOC111	IAP Deloitte Financial Assurance Support Letter (March 2019)	Deloitte, PR19 Data Table Resubmission Assurance Support (29 March 2019)
SOC112	IAP Bill Waterfall Model	Anglian Water, Bill Waterfall Model (28 January 2019)
SOC113	IAP Financial Model	Anglian Water, PR19 Financial Model (IAP Response April 2019)
SOC114	IAP Template Action Tracker	Anglian Water, Template action tracker (IAP Response April 2019)
SOC115	IAP Revenue Adjustments Feeder Model	Anglian Water, Revenue Adjustments Feeder Model (July 2018)
SOC116	IAP RCV Adjustments Feeder Model	Anglian Water, RCV Adjustments Feeder Model (June 2018)
SOC117	IAP Totex Menu	Anglian Water, Totex Menu (17 May 2016)
(ii) Appendices to IAP Response (3 April 2019)		
SOC118	IAP Appendices Contents	Anglian Water, Contents page to Appendices to IAP Response
SOC119	Incling Ofwat LED Feedback Report	Appendix 3a. Incling, Ofwat Feedback on AW's 2020-25 plan (22 March 2019)
SOC120	Incling Executive Pay Report (March 2019)	Appendix 3b. Incling, Executive Pay (26 March 2019)
SOC121	Accent Headline Findings	Appendix 3c. Accent, Headline Findings (25 March 2019)
SOC122	Anglian Customer Board Draft Minutes	Appendix 3d. Anglian Water Customer Board, Draft Minutes (1 March 2019)
SOC123	Strategic Regional Solutions Joint Company Statement (March 2019)	Appendix 4a. Joint Statement on strategic regional solution development (25 March 2019)
SOC124	IAP Amber WINEP schemes	Appendix 4b. Amber WINEP schemes (22 March 2019)
SOC125	Saal & Nieswand Assessment of Ofwat Cost Modelling (March 2019)	Appendix 5a. Professor David Saal and Dr Maria Nieswand, A Review of Ofwat's January 2019 Wholesale Water and Wastewater Botex Cost Assessment Modelling for PR19 (March 2019)
SOC126	Reckon Review of IAP Enhancement Opex	Appendix 5b. Reckon, Review of the treatment of Enhancement opex in Ofwat's PR19 initial assessment of business plans (7 March 2019)
SOC127	Earwaker Review of Ofwat's Frontier Shift	Appendix 5c. John Earwaker, A Review of Ofwat's Approach to estimating frontier shift (March 2019)

Ref. No.	Short Name	Full Name
SOC128	Vivid Economics Enhancement Cost Assessment Modelling (March 2019)	Appendix 5d. Vivid Economics, Enhancement Cost Assessment Modelling for the PR19 Initial Assessment of Plans (March 2019)
SOC129	WWW Models Audit Log (March 2019)	Appendix 5e. 190325 WWW models audit log (25 March 2019)
SOC130	WW models audit log (March 2019)	Appendix 5f. 190325 WW models audit log (25 March 2019)
SOC131	KPMG Smart Metering Benchmarking	Appendix 5g. KPMG, Smart metering investment case review - Benchmarking (July 2018)
SOC132	KPMG Strategic Pipeline Scheme Review	Appendix 5h. KPMG, Review of Anglian Water's market testing for the Strategic Pipeline Scheme (29 March 2019)
SOC133	NERA Report on Leakage Reduction Funding	Appendix 6a. NERA, Assessing Ofwat's Funding and Incentive Targets for Leakage Reduction (26 March 2019)
SOC134	Notional Company Financeability (April 2019)	Appendix 8a. Notional Company financeability
SOC135	Social Impact Report 2017-18	Appendix 8b. Social Impact Report 2017-18 (13 February 2018)
SOC056	EY report on Target Credit Ratings	Appendix 8c. EY, Target credit ratings for water companies at PR19 (13 February 2018)
SOC136	Shareholder Comfort Letter	Appendix 8d. Anglian Water Shareholder Letter of Comfort (27 March 2019)
SOC137	Moody's Report Covenanted Financing Structures Help Mitigate Growing Risks	Appendix 8e. Moody's, Covenanted Financing Structures Help Mitigate Growing Risks (9 October 2018)
SOC138	Jacobs IAP Technical Assurance	Appendix 10a. Jacobs, IAP Technical Assurance Executive Summary (29 March 2019)
SOC139	Deloitte IAP Final Report (March 2019)	Appendix 10b. Deloitte, Post-IAP Assurance Support Final Report (29 March 2019) [Confidential - not provided to other parties]
SOC140	Deloitte Final Assurance Release Letter (March 2019)	Appendix 10c. Deloitte, Release of PR19 business plan re-submission assessment report: for Anglian Water Services Limited (28 March 2019) [Confidential - not provided to other parties]
SOC141	KPMG DPC IAP response (March 2019)	Appendix 11a. KPMG, Direct Procurement for Customers: IAP response (22 March 2019)
SOC142	KPMG DPC IAP response (April 2019)	Appendix 11a. KPMG, Direct Procurement for Customers: IAP response (10 April 2019)

Ref. No.	Short Name	Full Name
1.2.3 Formal Submissions: Anglian's submissions after the IAP Response and before the Draft Determination Representations		
(i) IAP Action: Unplanned Outages ODI (15 May 2019)		
SOC143	Submission on Unplanned Outages	Anglian Water, ANH.OC.A29: Unplanned Outages (15 May 2018)
SOC144	IAP Data Tables – Updated (May 2019)	Anglian Water, Data Tables – Updated (Unplanned Outages Response, 15 May 2019)
SOC145	Annual Performance Report Table: Unplanned Outages	Anglian Water, Annual Performance Report Tables (15 May 2019)
SOC146	Jacobs Unplanned Outage Summary Audit	Jacobs, D.7 Unplanned Outage: Summary Audit Report (April 2019)
SOC147	IAP Template Action Tracker Updated (May 2019)	Anglian Water, Template Action Tracker – Updated (Unplanned Outages Submission, 15 May 2019)
(ii) Representations on the fast track Draft Determinations (24 May 2019)		
SOC148	Representation on fast track DDs	Anglian Water's representation on the fast track draft determinations (24 May 2019)
(iii) Submissions on Past delivery actions (24 May 2019)		
SOC149	Submission on Past Delivery Actions (May 2019)	Anglian Water, Response to ANH.PD.B1 and ANH.PD.B2 (24 May 2019)
SOC150	IAP Template Action Tracker Updated (May 2019)	Anglian Water, Template Action Tracker – Updated (Past delivery actions submission, 24 May 2019)
(iv) Follow up to 20 April 2019 Meeting (31 May 2019)		
SOC151	Letter to Ofwat (31 May 2019)	Anglian Water, Follow-up to our 30 April Meeting (31 May 2019)
SOC152	Edge Analytics New Housing Developments Report	Edge Analytics, New Housing Developments: A Geographical Profile (May 2019)
SOC153	Bush & Earwaker Capital Maintenance Report (May 2019)	Dr Harry Bush and John Earwaker, Providing appropriate regulatory funding for capital maintenance activity: ensure capital sustainability and service resilience (May 2019)
SOC154	Supplementary Paper to the Bush & Earwaker Capital Maintenance Report	Prof Chris Binnie, Peer Review and Supplementary paper on the 'Providing appropriate regulatory funding for capital maintenance activity: Ensuring capital sustainability and service resilience' report by Dr. Harry Bush CB and John Earwaker (28 May 2019)
SOC155	Vivid Economics Adjusting log-log Predictions for IAP Enhancement Models	Vivid Economics, Adjusting log-log Predictions for IAP Enhancement Models (May 2019)

Ref. No.	Short Name	Full Name
SOC156	Vivid Economics Enhancement Modelling Phase II Report	Vivid Economics, PR19 Enhancement Modelling Phase II Report
(v) Capital maintenance cost adjustment claim (7 June 2019)		
SOC157	Capital Maintenance Requirements CAC	Anglian Water, Capital Maintenance Requirements Cost Adjustment Claim (7 June 2019)
(vi) Bid assessment framework (12 July 2019)		
SOC158	Bid Assessment Framework cover letter	Anglian Water, Bid Assessment Framework – Action ANH.CMI.A4 (12 July 2019)
SOC159	Bid Assessment Framework	Anglian Water, Bid Assessment Framework (12 July 2019)
SOC160	Template Action Tracker Updated (12 July 2019)	Anglian Water, Template Action Tracker (12 July 2019)
(vii) Second PR14 reconciliation (July 2019)		
SOC161	Second PR14 Reconciliation Business Plan Data Tables Past Delivery	Anglian Water, PR14 Reconciliation Business Plan Data Tables Past Delivery (July 2019)
SOC162	Second PR14 Reconciliation Submission	Anglian Water, PR14 Reconciliation Submission (July 2019)
SOC163	Second PR14 Reconciliation Retail Calculations Spreadsheet	Anglian Water, PR14 Reconciliation Retail Calculations Spreadsheet (July 2019)
SOC164	Second PR14 Reconciliation Totex Menu	Anglian Water, PR14 Reconciliation Totex Menu (17 May 2016)
SOC165	Second PR14 Reconciliation WRFIM Calculations Spreadsheet	Anglian Water, PR14 Reconciliation WRFIM Calculations Spreadsheet (11 June 2019)
SOC166	Second PR14 Reconciliation RCV Adjustments Feeder Model	Anglian Water, PR14 Reconciliation RCV Adjustments Feeder Model (June 2018)
SOC167	Second PR14 Reconciliation PD011 Revenue Adjustments Feeder Model	Anglian Water, PR14 Reconciliation PD011 Revenue Adjustments Feeder Model
1.2.4 Formal Submissions (DD Representations)		
(i) Draft Determination Representations ('DD Representations') (30 August 2019)⁸⁵⁷		
SOC168	DD Representation	Anglian Water, PR19 Draft Determination Representation (August 2019, republished November 2019)
SOC169	DD Supplementary Evidence	Anglian Water, PR19 Draft Determination Supplementary Evidence (August 2019, republished

⁸⁵⁷ Please note that some documents submitted as part of Anglian's DD representations on 30 August 2019 were republished in November 2019 to correct errors in content. Versions included here are the November 2019 republished versions. For a list of changes please see Republication of DD Representation Change Log (SOC188).

Ref. No.	Short Name	Full Name
		November 2019) [Confidential - redacted version provided to other parties]
SOC170	DD Board Assurance Statement	Anglian Water, PR19 Draft Determination Board Assurance Statement (August 2019)
SOC171	DD Growth Expenditure Deep Dive	Anglian Water, PR19 Draft Determination Deep Dive on Growth Expenditure (August 2019, republished November 2019)
SOC172	DD Outcomes Technical Appendix	Anglian Water, PR19 Draft Determination Outcomes Technical Appendix (August 2019)
SOC173	DD Leakage CAC	Anglian Water, PR19 Draft Determination Leakage Cost Adjustment Claim (August 2019)
SOC174	DD Sludge Transport CAC	Anglian Water, PR19 Draft Determination Sludge Transport Cost Adjustment Claim (August 2019)
SOC175	DD Smart Metering CAC	Anglian Water, PR19 Draft Determination Smart Metering Cost Adjustment Claim (August 2019)
SOC176	DD Data Tables	Anglian Water, PR19 Draft Determination Representation (August 2019)
SOC177	DD Data Table Commentary	Anglian Water, Draft Determination: Data Tables Commentary (August 2019)
SOC178	DD Financial Model	Anglian Water, PR19 Financial Model (August 2019)
SOC179	DD RCV Adjustments Feeder Model	Anglian Water, PR19 RCV Adjustments Feeder Model (August 2019)
SOC180	DD Revenue Adjustments Feeder Model	Anglian Water, PR19 Revenue Adjustments Feeder Model (August 2019)
SOC181	DD Totex Menu	Anglian Water, PR19 Totex Menu (August 2019)
SOC182	DD Third-party Adjustments	Anglian Water, Third party adjustments - update (August 2019)
SOC183	DD Developer Services Data Request	Anglian Water, PR19 Developer Services Data Request (August 2019)
SOC184	DD Outcomes Data Template	Anglian Water, Draft Determination Representation Outcomes Data Template (August 2019)
SOC185	DD Company Representation Pro-forma	Anglian Water, Draft Determination Company Representation pro forma (August 2019)
SOC186	DD Growth Deep Dive Anglian Site-specific mains benchmarking	Appendix 1 Growth Deep Dive Anglian site-specific mains benchmarking
SOC187	CEF Response to DD	Customer Engagement Forum, Response to Ofwat's Draft Determination on Anglian Water's Business Plan (August 2019)

Ref. No.	Short Name	Full Name
SOC188	Republication of DD Representation Change Log	Anglian Water, Republication of Draft Determination Representation Documents (November 2019)
(ii) Appendices to DD Representations (30 August 2019)		
SOC189	Incling Research on Executive Pay (August 2019 update)	Appendix 3a Incling Research on Executive Pay (August 2019)
SOC190	Accent Acceptability Research Report	Appendix 3b Accent Acceptability Research Report (August 2019)
SOC191	Bush & Earwaker Capital Maintenance Report (August 2019)	Appendix 4a. Dr Harry Bush and John Earwaker, Providing appropriate regulatory funding for capital maintenance activity: ensure capital sustainability and service resilience (August 2019)
SOC192	KPMG Review of Anglian's PR14 Approach to Investment	Appendix 4b KPMG, Review of Anglian's Approach to Investment in PR14 (23 June 2014)
SOC193	DD Investment Area Summaries	Appendix 4c Investment Area Summaries (August 2019)
SOC194	Comments on Ofwat's DD Wholesale Water and Wastewater Modelling	Appendix 7a Comments on Ofwat's Application of Wholesale Water Cost Assessment Modelling in its PR19 Draft Determination (August 2019)
SOC195	Reckon Note on Enhancement Opex (19 June 2019)	Appendix 8a Reckon Note on enhancement opex (19 June 2019)
SOC196	Vivid Economics Enhancement Cost Assessment Modelling (August 2019)	Appendix 8b Vivid Economics, Enhancement cost assessment modelling for PR19 (August 2019)
SOC197	Vivid Economics Log Model Prediction Error (August 2019)	Appendix 8c Vivid Economics: Log model prediction error (August 2019)
SOC198	Letters of support for Partnership Funding	Appendix 8d Letter of support for Partnership Funding (August 2019)
SOC199	Notional Company Financeability (August 2019 update)	Appendix 9a Notional Company Financeability – Update (August 2019)
SOC200	Economic Insight Financeability of the Notionally Efficient Firm	Appendix 9b Economic Insight, Financeability of the Notionally Efficient Firm: top-down analysis (August 2019)
SOC201	Reckon Review of Ofwat's Treatment of Growth Expenditure	Appendix 10a Reckon, Review of Ofwat's treatment of growth-related expenditure in PR19 Draft Determinations (August 2019)
SOC202	Vivid Economics Enhancement Growth Report (August 2019)	Appendix 10b Vivid Economics, Enhancement growth cost assessment at PR19 (August 2019)
SOC203	Strategic Regional Solution Joint Company Statement (30 August 2019)	Appendix 11a Strategic Regional Solution Joint Company Statement (August 2019)

Ref. No.	Short Name	Full Name
SOC204	Revised draft WRMP	Appendix 11b Anglian's revised draft WRMP 2019 (August 2019)
SOC205	Revised draft WRMP Customer and Stakeholder Engagement	Appendix 11c Anglian's revised draft WRMP 2019 supporting technical - Customer and stakeholder engagement (August 2019)
SOC206	Revised Draft WRMP Options Appraisal	Appendix 11d Anglian's revised draft WRMP 2019 supporting technical - Options Appraisal
SOC207	Revised Draft WRMP Supply Side Option Development	Appendix 11e Anglian's revised draft WRMP 2019 supporting technical - Supply side Option Development (August 2019)
SOC208	Letter to Ofwat re WRMP (20 August 2019)	Appendix 11f Ofwat letter WRMP 20 August 2019
SOC209	Letter to Ofwat re DPC (29 May 2019)	Appendix 13a Letter to Ofwat 29 May 2019
1.2.5 Formal Submissions (After DD Representations)		
(i) IAP Action: Systems Resilience (22 August 2019)		
SOC210	Anglian Systems Resilience Submission	Anglian Water, Systems Thinking: Response to ANH:LR:A2 (22 August 2019)
(ii) IAP Action: Drainage and Wastewater Plan (30 August 2019)		
SOC211	DWMP Implementation Plan	Anglian Water, DWMP Implementation Plan (30 August 2019)
SOC212	WRLTP Overview	Anglian Water, Overview: Our Water Recycling Long-Term Plan: Response to ANH:CMI:A3 (30 August 2019)
(iii) Further submissions (October 2019)		
SOC213	Capital Maintenance CAC	Anglian Water, Capital Maintenance: Cost Adjustment Claim (17 October 2019)
SOC214	Capital Maintenance Investment Summaries	Anglian Water, Capital Maintenance: Investment Summaries (17 October 2019)
SOC215	Growth submission	Anglian Water, PR19 and Growth submission (17 October 2019)
SOC216	Growth Offsite Cost Breakdown	Annex 1 Anglian Water Growth offsite cost breakdown (17 October 2019)
SOC217	Growth Cases Studies (October 2019)	Annex 2 PR19 growth cases studies (17 October 2019)
SOC218	Growth New Connections	Annex 3 New connections (17 October 2019)
SOC219	WRMP Response to Ofwat Queries (16 October 2019)	Anglian Water, WRMP - Response to Ofwat Queries from 7 October 2019 (16 October 2019)

Ref. No.	Short Name	Full Name
SOC220	WRMP Least Worst Regret Analysis	Anglian Water, WRMP - Least Worst Regret Analysis (provided to the Environment Agency on 25 September 2019)
SOC221	WRMP Single Source Resilience Methodology	Anglian Water, WRMP - Single Source Resilience Methodology (provided to the Environment Agency on 19 September 2019)
SOC222	WRMP Response to Ofwat Queries (August 2019)	Anglian Water, WRMP - Further Information, Response to Queries from 18 October email (22 October 2019)
1.3 Presentations		
SOC223	Presentation of September 2018 Plan to Ofwat	Anglian Water, Our Plan Presentation to Ofwat (24 September 2018)
SOC225	Presentation of DD Representation to Ofwat	Anglian Water, PR19 Draft Determination Representation (9 October 2019)
1.4 Financial models		
SOC008	September 2018 Plan Financial Model	Anglian Water, PR19 Financial Model (3 September 2018)
SOC009	September 2018 Plan Financial Model (with minor adjustments)	Anglian Water, PR19 Financial Model (with minor adjustments) (3 September 2018)
SOC059	September 2018 Plan Financial Model Annex	Anglian Water, Annex 15e. PR19 Financial Model Annex (August 2018)
SOC065	28 September 2018 update summary	Anglian Water, Summary of Updates to Data Tables and Financial Models (28 September 2018)
SOC067	September 2018 Plan Financial Model Updated (28 September 2018)	Anglian Water, PR19 Financial Model (updated 28 September 2018)
SOC068	September 2018 Plan Financial Model (with minor adjustments) Updated (28 September 2018)	Anglian Water, PR19 Financial Model (with minor adjustments) (updated 28 September 2018)
SOC113	IAP Financial Model	Anglian Water, Financial Model (IAP Response April 2019)
SOC108	IAP Appointee Data Tables Commentary	Anglian Water, Appointee Data Tables Commentary (IAP Response April 2019)
SOC178	DD Financial Model	Anglian Water, PR19 Financial Model (30 August 2019)
SOC177	DD Data Table Commentary	Anglian Water, Draft Determination: Data Tables Commentary (August 2019)

Ref. No.	Short Name	Full Name
2 Ofwat's Final Determination (December 2019)		
2.1 Key documents		
SOC226	Ofwat's Overview of FDs	PR19 final determinations: Overview of final determinations
SOC227	Ofwat's Report on its Application of Defra's SPS	PR19 final determinations: UK Government priorities and our 2019 price review final determinations
SOC228	Ofwat's PR19 FD Policy Summary	PR19 final determinations: Policy summary
SOC229	Ofwat's Overall Stretch Appendix	PR19 final determinations: Overall stretch on costs, outcomes and cost of capital policy appendix
2.2 Anglian Water Final Determination		
SOC230	Notification of Anglian's FD	Notification of the PR19 FD of Price Controls for Anglian Water
SOC231	Anglian's FD (or 'the FD')	PR19 final determinations: Anglian Water Final Determination
2.3 Appendices to the Anglian Final Determination		
SOC232	Anglian FD Cost Efficiency Appendix	PR19 final determinations: Anglian Water - Cost efficiency appendix
SOC233	Anglian FD Outcomes PCs Appendix	PR19 final determinations: Anglian Water - Outcomes performance commitment appendix
SOC234	Anglian FD Accounting for Past Delivery Appendix	PR19 final determinations: Anglian Water - Accounting for past delivery appendix
SOC235	Anglian FD Allowed Revenue Appendix	PR19 final determinations: Anglian Water - Allowed revenue appendix
SOC236	Anglian FD Cost Efficiency Additional Information Appendix	PR19 final determinations: Anglian Water - Cost efficiency additional information appendix
SOC237	Anglian FD Delivering Outcomes for Customers Additional Information Appendix	PR19 final determinations: Anglian Water - Delivering outcomes for customers additional information appendix
SOC238	Anglian FD Delivering Outcomes for Customers Final Decisions	PR19 final determinations: Anglian Water - Delivering outcomes for customers final decisions
SOC239	Anglian FD Accounting for Past Delivery	PR19 final determinations: Anglian Water - Accounting for past delivery
SOC240	Anglian FD Aligning Risk and Return	PR19 final determinations: Anglian Water - Aligning risk and return
2.4 Technical Appendices to Ofwat's Final Determinations		

Ref. No.	Short Name	Full Name
SOC241	Delivering Outcomes for Customers Policy Appendix	PR19 final determinations: Delivering outcomes for customers policy appendix
SOC242	Aligning Risk and Return Technical Appendix	PR19 final determinations: Aligning risk and return technical appendix
SOC243	Securing Cost Efficiency Technical Appendix	PR19 final determinations: Securing cost efficiency technical appendix
SOC244	Allowed Return on Capital Technical Appendix	PR19 final determinations: Allowed return on capital technical appendix
SOC245	Ofwat's Methodology for the Classification of Bioresources Costs and Revenues	PR19 final determinations: Ofwat's methodology for the classification of bioresources costs and revenues
SOC246	Targeted Controls, Markets and Innovation Final Decisions	PR19 final determinations: Targeted controls, markets and innovation final decisions
SOC247	Strategic Regional Water Resource Solutions Appendix	PR19 final determinations: Strategic regional water resource solutions appendix
SOC248	Havant Thicket Appendix	PR19 final determinations: Havant Thicket appendix
SOC249	Delivering Customer Value in Large Projects	PR19 final determinations: Delivering customer value in large projects
SOC250	Ofwat's Approach to Regulating Developer Services	PR19 final determinations: Our approach to regulating developer services
SOC251	Accounting for Past Delivery Technical Appendix	PR19 final determinations: Accounting for past delivery technical appendix
SOC252	Significant Scrutiny Companies Application of Lower Cost Sharing Rates and Outcome Delivery Incentive Cap	PR19 final determinations: Significant scrutiny companies - Application of lower cost sharing rates and outcome delivery incentive cap
SOC253	Securing Long-term Resilience	PR19 final determinations: Securing long term resilience
SOC254	C-Mex and D-Mex Policy Appendix	PR19 final determinations: Customer measure of experience (C-Mex) and developer services measure of experience (D-Mex) policy appendix
SOC255	Business Retail Market Representations	PR19 final determinations: Business Retail Market Representations
SOC256	Reporting Guidance Common PCs for the Priority Service Register	PR19 final determinations: Reporting guidance - Common performance commitment for the Priority Service Register
2.5 Additional documents		
SOC257	Defra's SPS (or 'SPS')	Defra, The Government's strategic priorities and objectives for Ofwat (September 2017)

Ref. No.	Short Name	Full Name
SOC258	Europe Economics The Allowed Return on Capital for the Water Sector at PR19 Report	Europe Economics, The Allowed Return on Capital for the Water Sector at PR19 - Final Advice (December 2019)
SOC259	Europe Economics RPE and Frontier Shift Report	Europe Economics, Real Price Effects and Frontier Shift - Final Assessment and Response to Company Representations (December 2019)
SOC260	PwC Dividend discount model analysis for PR19	PwC, Dividend discount model analysis for PR19 (October 2019)
SOC261	BMG Survey approach for C-MeX and D-MeX	BMG, Survey approach for C-MeX and D-MeX: Recommendations for the PR19 final determinations
SOC262	Jacobs Review of Water UK Service Levels for PR19 D-MeX Incentive	Jacobs, Review of Water UK Service Levels for PR19 D-MeX Incentive
SOC263	Ofwat: Driving Transformational Innovation in the Sector	Ofwat, Time to act, now: Driving transformational innovation in the sector (December 2019)
SOC264	PR19 FD Glossary	PR19 final determinations: Glossary
3 Chapter A: Executive Summary		
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SOC266	Drinking Water 2019 Q2 Report	The Chief Inspector of Drinking Water, Drinking Water 2019 Quarter 2 April - June 2019, (2019)
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SOC270	NIC Preparing for a Drier Future Report	National Infrastructure Commission, Preparing for a Drier Future - England's water infrastructure needs, (April 2018)
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SOC283	PR14 Final Methodology Appendix 2	Ofwat, Setting price controls for 2015-20, Final price control determination notice: policy chapter A2 - outcomes, (December 2014)
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SOC291	Ofwat's RCV	Ofwat, Regulatory capital values – Update of the PR14 PCVs for publication in Spring 2019, (May 2019)
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SOC298	Ofwat's BLTG 2014	Ofwat, Board leadership, transparency and governance (January 2014)
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SOC335	Edge Analytics Housing Growth Outlook (February 2020)	Edge Analytics, Anglian Water Housing Growth Outlook, (February 2020)
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SOC346	IAP Company Categorisation	Ofwat, PR19 Initial Assessment of Plans: Anglian Water Company Categorisation, (January 2019)
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SOC349	Moody's Ofwat Tightens the Screws Further	Moody's, Sector In-depth – Regulated Water Utilities: Ofwat tightens the screws further (July 2019)
SOC350	Defra Better Regulation	Defra, Better Regulation Framework - Guidance, (August 2018)
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SOC356	Ofwat FD WWW Model	Ofwat, Final Determinations wholesale wastewater Master data, (December 2019)
SOC357	Ofwat Anglian FD CAC Feeder Model	Ofwat, FD Cost adjustment claims feeder model Anglian Water, (December 2019)
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SOC360	Ofwat's email to Anglian on alternate model specifications	Email from Aoife McNall, Ofwat to Darren Rice, Anglian on alternate model specifications (12 February 2020)
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SOC367	Anglian's Growth Obligations (March 2020)	Anglian's statutory and regulatory obligations to facilitate growth (March 2020)
SOC368	Northumbrian Developer Charging Arrangements	Northumbrian Water, Developer Charging Arrangements 2020-21 (31 January 2020)
SOC369	Vivid Economics Growth Report (March 2020)	Vivid Economics, Growth cost assessment for the PR19 references, Draft Report, (March 2020)
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SOC369A 3	Vivid Economics Growth Report (March 2020) Water DoFile Regression Specifications	Vivid Economics, Growth cost assessment for the PR19 references, Water Models, Regression specifications (March 2020)
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SOC369A 12	Vivid Economics Growth Report (March 2020) Water DoFile Test Drop companies	Vivid Economics, Growth cost assessment for the PR19 references, Water Models, Drop companies test (March 2020)
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SOC369A 14	Vivid Economics Growth Report (March 2020) Water DoFile Test Model Assumptions	Vivid Economics, Growth cost assessment for the PR19 references, Water Models, Model assumptions sensitivity test (March 2020)
SOC369A 15	Vivid Economics Growth Report (March 2020) Water DoFile Test Smoothing	Vivid Economics, Growth cost assessment for the PR19 references, Water Models, smoothing test (March 2020)
SOC369A 16	Vivid Economics Growth Report (March 2020) Water Master	Vivid Economics, Growth cost assessment for the PR19 references, Water Models, Master (March 2020)
SOC369B 1	Vivid Economics Growth Report (March 2020) Wastewater DoFile Data Processing	Vivid Economics, Growth cost assessment for the PR19 references, Wastewater Models, Data processing (March 2020)
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SOC369B 7	Vivid Economics Growth Report (March 2020) Wastewater Input Data Reallocations	Vivid Economics, Growth cost assessment for the PR19 references, Wastewater Models, Reallocations (March 2020)
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SOC371	EA Planning Guideline Interim Update	Environment Agency, Water Resources Planning Guideline: Interim update (July 2018)
SOC372	Government's Growth Needs Assessment	Government, Housing and economic needs assessment, (February 2020)
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SOC393	Ofwat, Initial CMA Submission <i>Bournemouth Water / Pennon Group plc</i>	Ofwat, Ofwat's initial submission to the Competition and Markets Authority following the acquisition of Bournemouth Water Investments Limited by Pennon Group plc, (June 2015)
SOC394	PR09 FD	Ofwat, Future water and sewerage charges 2010-15: Final Determinations (November 2009)
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SOC395	First Economics Real Input Price Inflation	First Economics, Real Input Price Inflation, (February 2018)
SOC396	First Economics Water Industry Productivity Improvement	First Economics, Productivity improvement in the water and sewerage industry in England since privatisation (September 2017)
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SOC400	First Economics Frontier Productivity Growth	First Economics, Frontier Productivity Growth, A report prepared for Anglian Water, (February 2018)
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SOC401	Anglian Opex / Capex spreadsheet	Anglian Water, Opex / Capex spreadsheet (March 2020)
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SOC403	Ofwat's email to Anglian on comparing costs and service	Ofwat's response to Anglian email, Query on Ofwat analysis comparing costs and service, (5 March 2020)
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SOC407	<i>Bristol (2015)</i> Appendix 9.1	CC, Bristol (2015), Appendix 9.1 - Outcome Delivery Incentives
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SOC410	IAP Test Question Assessment	Ofwat, IAP Anglian Water Test Question assessment, (January 2019)
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SOC413	CEF Economics and Valuation Sub-Group Report	Anglian Water Customer Engagement Forum, Annex 8 Economics and Valuation Sub-Group, Response to Anglian Water's Business Plan 2020-25, August 2018
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SOC420	Anglian Cost of Equity NATS (2020) Submission	Gregory A., Setting the Cost of Equity in UK Price Controls, prepared for Anglian's third party submission in the NERL appeal (2019)
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SOC427	KPMG Release Letter	KPMG, Release Letter, (2 April 2020)
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SOC430	ONS CPIH Historical Series 1988 to 2004 (2018)	Office for National Statistics, Consumer Prices Index including owner occupiers' housing costs (CPIH) historical series: 1988 to 2004, (14 December 2018).
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SOC432	O'Donoghue et al (2004)	O'Donoghue, J., Goulding, L., and Allen, G., 'Consumer Price Inflation since 1750', Office for National Statistics (March 2004)
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SOC440	Provisional Findings in NATS (2020)	CMA, Provisional Findings, NATS (En Route) Plc / CAA Regulatory Appeal (2020)
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SOC443	S&P Presale Report (2002)	Standard & Poor's, Presale: Anglian Water Services Financing PLC - €10 Bil Global Secured Medium-Term Note Program, (April 2002)
SOC445	Oxera Capital Structure of Water Companies (2002)	Oxera, The Capital Structure of Water Companies, prepared for Ofwat, (October 2002)
SOC446	Aligned Debt Programme Paper	Underlying principles and analysis of Aligned Debt Programmes
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18 Chapter J: Financeability		
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SOC451	Moody's Rock of Low Returns Meets Hard Place of Covenants	Moody's, Regulated water utilities & energy networks – UK: Rock of low returns meets hard place of covenants, (8 October 2019)

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SOC452	Moody's Reviews 12 UK Water Groups for Downgrade	Moody's, Moody's reviews 12 UK water groups for downgrade (20 December 2019)
SOC453	Moody's Downgrades Severn Trent Water to Baa1, Plc to Baa2	Moody's, Moody's downgrades Severn Trent Water to Baa1, Plc to Baa2, (January 2020).
SOC454	Fitch PMICR Report (2007)	Fitch, Post-Maintenance Interest Coverage Ratios for UK Regulated Utilities (28 February 2007).
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SOC456	S&P Methodology	Standard and Poor, Corporate Methodology, (19 November 2013)
SOC457	Moody's Proposals Undermine Stability and Predictability of the Regime	Moody's, Regulated Water Utilities UK: Regulator's proposals undermine the stability and predictability of the regime, (May 2018)
SOC458	PR14 Financeability and Affordability	Ofwat, PR14 Final price control determination notice: Policy Chapter A8 -financeability and affordability (December 2014)
SOC459	Fitch Revises Outlook on 3 Holding Companies (July 2018)	Fitch Revises Outlook on 3 UK Water Holding Companies to Negative (5 July 2018)
SOC460	Fitch Downgrades Anglian Water and Osprey	Fitch Ratings, Fitch Downgrades Anglian Water and Osprey, (March 2020).
SOC461	S&P Four Water Companies Downgraded (February 2020)	S&P, Four UK-based water utilities downgraded on tougher regulations; two put on watch negative; four outlooks negative (25 February 2020)
SOC462	Moody's Confirms Ratings of Anglian Water with Negative Outlook and Downgrades Osprey	Moody's, Moody's confirms ratings of Anglian Water with negative outlook and downgrades Osprey, (26 February 2020)
SOC463	NERA Recovery of Debt Costs Report	NERA, PR19: Ofwat's DD does not allow recovery of efficient debt costs, prepared for Anglian Water, (October 2019)
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SOC465	Ofwat Back in Balance July Position Statement	Ofwat, Putting the Sector Back in Balance: Position Statement on the PR19 Business Plans, (July 2018)
SOC466	Anglian Back in Balance Response	Anglian's response to Ofwat's Putting the Sector Back in Balance Consultation, (May 2018)

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SOC467	Anglian Investors Back in Balance Response	Anglian's investor group's response to Ofwat's Putting the Sector Back in Balance Consultation, (May 2018)
SOC468	Anglian Back in Balance Alternative Response	Anglian, Alternative to Ofwat's Putting the Sector Back in Balance Consultation Proposals, (May 2018)
SOC469	PR04 FD	Ofwat PR04, Future water and sewerage charges 2005-10, (December 2004)
SOC470	PWC PR14 Cost of Capital Report	PwC, cost of capital for PR14: Methodological considerations, (July 2013)
SOC471	Ofgem RIIO-2 Framework	Ofgem, RIIO-2, Framework Decision, Our Approach to setting price control for GB Gas and electricity networks, (July 2018)
SOC472	<i>Firmus Energy (2017)</i>	CMA, Firmus Energy (Distribution) Limited v Northern Ireland Authority for Utility Regulation, Final Determination (26 June 2017)
SOC473	Ofwat PR19 Cost of Debt Consultation	Ofwat, Water 2020: consultation on the approach to the cost of debt for PR19, (September 2016)
SOC474	Defra Letter to Ofwat (January 2017)	Letter from the Secretary of State Michael Gove to Jonson Cox, (31 January 2017)
SOC475	Ofwat Letter to Defra (January 2018)	Letter from Jonson Cox to the Secretary of State Michael Gove, (31 January 2018)
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SOC478	Severn Trent AMP7 Dividend Policy	Severn Trent, Q3 Trading Update and AMP7 Dividend Policy, (28 January 2020)
SOC479	United Utilities Dividend Policy	United Utilities, United Utilities acceptance of Final Determination and dividend policy update, (29 January 2020)
SOC480	Ofwat's Financial Monitoring Report 2018-19	Ofwat, Financial monitoring report 2018–19 charts and underlying data, (January 2020)
SOC481	Moody's Dwr Cymru Update Following Outlook Change to Negative	Moody's, Dwr Cymru Cyfyngedig - Update following outlook change to negative (September 2018)
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SOC487	Thames Licence Modification (2007)	Modification of the conditions of appointment of Thames Water Utilities Limited, (November 2007)
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SOC489	Ofwat Strengthening the Regulatory Framework	Ofwat, Conclusions on strengthening the regulatory ring-fencing framework, (July 2019)
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SOC491	Modigliani Miller (1958)	Modigliani, F. and Miller, M., The Cost of Capital, Corporate Finance, and the Theory of Investment, American Economic Review, 48:3, 1958
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SOC494	<i>SONI (2017)</i>	CMA, SONI Limited v Northern Ireland Authority for Utility Regulation, Final Determination (10 November 2017)
SOC495	<i>British Telecommunications (2012)</i>	CMA, British Telecommunications plc v Office of Communications, Reference under section 193 of the Communications Act 2003, Determination (11 June 2012)
SOC496	Fitch Rating Criteria	Fitch, Corporate rating criteria, (February 2019)