

Completed acquisition by Pennon Group plc of Bristol Water Holdings UK Limited

Decision on duty to refer

ME/6946/21

Please note that [✂] indicates figures or text which have been deleted or replaced in ranges at the request of the parties or third parties for reasons of commercial confidentiality.

Introduction

1. On 3 June 2021, Pennon Group plc (**Pennon**) acquired the entire share capital of Bristol Water Holdings UK Limited and its subsidiaries, including Bristol Water plc (**Bristol Water**) (the **Merger**). Pennon and Bristol Water are together referred to as the **Parties** or, for statements referring to the future, the **Merged Entity**.
2. Pennon and Bristol Water are water utility companies, and each provide water services to household customers in England and Wales. The supply of water and sewerage services to household customers is a regulated market which in England and Wales is characterised by regional suppliers who hold regional monopolies within set sub-national regions. The market is regulated by Ofwat. Mergers between water enterprises (defined under section 35(1) of the Water Industry Act 1991 (**WIA91**) as an enterprise carried on by a water undertaker or sewerage undertaker appointed under section 6 of the WIA91) are subject to a separate review process to the normal regime under the Enterprise Act 2002. The review of water mergers is conducted by the Competition and Markets Authority (**CMA**) pursuant to the provisions of the WIA91.
3. Under the WIA91, as amended by the Water Act 2014, if the CMA believes that it is or may be the case that a completed Merger is a merger of two or more water enterprises (**water merger**), it is under a duty to refer the Merger to a phase 2 investigation unless the CMA believes that:

- (a) the turnover of the water enterprise being taken over, and that of at least one of the water enterprises already belonging to the person making the takeover, is less than £10 million; or
 - (b) the Merger has not prejudiced, and is not likely to prejudice, the Water Services Regulation Authority's (**Ofwat**) ability, in carrying out its functions, to make comparisons between water enterprises; or
 - (c) the Merger has prejudiced or is likely to prejudice Ofwat's ability to make comparisons between water enterprises, but the prejudice is outweighed by relevant customer benefits (**RCBs**) relating to the Merger.
4. In reaching its decision on whether a water merger has prejudiced or is likely to prejudice Ofwat's ability to comparatively regulate the water industry, the CMA must request and consider Ofwat's opinion on whether the merger has prejudiced or is likely to prejudice its ability, in carrying out its functions, to make comparisons between water enterprises; and, if so, whether the prejudice is outweighed by RCBs.
5. The CMA believes that both Pennon and Bristol Water are water enterprises and that, as a result of the Merger, have ceased to be distinct. Accordingly, a water merger has taken place. The CMA also believes that the relevant turnover of both Pennon and Bristol Water is over £10 million.

Assessment

6. The CMA assessed whether the Merger has prejudiced or would be likely to prejudice Ofwat's ability, in carrying out its functions, to make comparisons between water enterprises.
7. Ofwat uses comparisons to perform a number of functions, including during its periodic price reviews for setting price limits¹ and service quality requirements, and between price reviews for monitoring and enforcement and spreading best practice. A water merger could affect Ofwat's ability to make comparisons in a number of ways across each of these functions. Therefore, consistent with the CMA's guidance on the assessment of water mergers¹, the CMA considered a number of factors for the purposes of assessing the Merger's impact, including:

¹ [Water and sewerage mergers: CMA49 \(Water Mergers Guidance\)](#)

- (a) the extent to which the Merger involves overlaps; and whether the Merger involves the loss of an independent comparator;
 - (b) the extent to which the Merger will change benchmarks;
 - (c) the number and quality of independent observations that remain;
 - (d) whether the Merger leads to the loss of a company with important similarities and/or differences for comparisons; and
 - (e) whether Ofwat could amend its approach to reduce the impact of the loss of a comparator.
8. In carrying out its assessment, the CMA has considered the views of Pennon, Ofwat and other third parties on: (i) the appropriate approach for determining any realistic adverse impact, based on the factors listed above; and (ii) the significance of that impact for the purposes of determining whether it amounts to prejudice. The level of customer detriment arising, in the form of increases in the allowed regulated revenues suppliers can recover through customer bills, as identified by any quantitative analysis, is only one factor in the assessment of whether any adverse impact is significant enough to amount to prejudice. Ofwat's regulation is intended to secure the achievement of a range of primary and secondary duties, including for example, that water companies can finance their activities and to further resilience and sustainability objectives.ⁱⁱ
9. Consistent with the Water Mergers Guidance,² in reaching its decision the CMA placed significant weight on Ofwat's opinion on whether the Merger is likely to prejudice its ability, in carrying out its functions, to make comparisons between water enterprises. Ofwat submitted that it believed the Merger was likely to prejudice its ability to make comparisons between water enterprises, and it provided detailed reasons to support this conclusion.
10. Pennon provided the CMA with a report analysing the impact of the Merger. On the basis of its review of the evidence and the submissions made by Pennon and Ofwat, the CMA finds that:
- (a) The Merger is likely to have an adverse impact on Ofwat's ability to regulate wholesale base water costs for water companies.ⁱⁱⁱ While the CMA found that the Merger would have a limited impact on the statistical

² [Water Mergers Guidance](#).

performance of Ofwat's wholesale base cost models, the CMA also found that the Merger could potentially prejudice Ofwat's ability to set the industry cost allowance. The CMA assessed whether removing a company from Ofwat's set of comparators could affect Ofwat's ability to make comparisons by removing a high or low performing company from Ofwat's benchmarks. The CMA reviewed the submissions put forward by Pennon and Ofwat who disagreed on the best approach for determining the impact of the Merger. Pennon estimated the impact of the Merger on the base cost allowance using both static and forward-looking approaches, while Ofwat submitted that the static analysis was the most informative. The CMA gave weight to both approaches put forward by Pennon and Ofwat and found that there was a realistic prospect of prejudice to Ofwat's ability to make comparisons.

- (b) The CMA also found that the Merger could potentially prejudice Ofwat's ability to set companies' cost allowance by impacting the relationship between costs and cost drivers, resulting in the under or overfunding of individual companies. The CMA found that the Merger will lead to some material changes in the estimated allowances for some companies. Consequently, the CMA finds that this would have a detrimental impact on Ofwat's ability to set companies' cost allowances.
- (c) The CMA also assessed whether the Merger may affect the precision with which Ofwat estimates companies' cost allowances. This, in turn, affects the confidence Ofwat has in the results of the wholesale base cost models. Pennon, Ofwat and the CMA looked at a range of methods for estimating the statistical loss in precision. The CMA concluded that while the results were mixed, overall the quantitative evidence indicated that the merger could lead to a loss of precision.
- (d) The CMA also looked at how the Merger would impact on enhancement costs, particularly lead standards and metering enhancements. While both Pennon and Ofwat disagreed on the appropriate methodology to assess the impact on enhancement costs, the CMA noted that both Pennon and Ofwat acknowledged that the Merger increases lead standards and metering enhancement expenditure costs. Pennon and Ofwat also disputed the appropriate method for assessing the impact of the Merger on the supply/demand balance model. The CMA again however noted that both Pennon and Ofwat acknowledged that the Merger would have a detrimental impact on the model, which may lead to the industry being

overfunded or underfunded to address the critical issue of supply/demand balance.

- (e) The CMA further looked at whether the Merger would lead to the loss of a company with important similarities or differences to the remaining companies. This could affect Ofwat's ability to make comparisons across companies that are operating in similar circumstances and facing similar issues, or across companies with important differences. The CMA's analysis found that both Pennon and Bristol Water possess important similarities to other water companies within the industry that are used by Ofwat to make comparisons. The CMA therefore considers that the loss of a company with important similarities indicates that the Merger will likely have a detrimental impact on Ofwat's ability in carrying out its functions to use comparative regulation.
- (f) In addition, the CMA assessed whether the Merger would impact Ofwat's ability to set outcome targets for certain Performance Commitments (PCs) together with a package of financial and reputational Outcome Delivery Incentives (ODIs). After consideration of the evidence submitted by Pennon and Ofwat, the CMA did not consider that the Merger is likely to adversely impact Ofwat's ability to use PCs and ODIs as part of its comparative regulation of the market.
- (g) Pennon submitted to the CMA that in light of a detriment to Ofwat's ability to make comparisons, as a result of the Merger, Ofwat should be able to amend its approach to reduce the impact of the loss of a comparator. Pennon submitted that it is possible for Ofwat to regulate effectively with a far smaller number of comparators than are currently available for water services. Given the level of prejudice to Ofwat's ability to make comparisons (identified in (a) to (e) above) that may be brought about by the Merger, the CMA did not consider it credible that Ofwat could plausibly switch to an alternative approach absent a substantial re-evaluation of its methodology.
- (h) Both Pennon and Ofwat agreed that the Merger is unlikely to have a meaningful detriment on Ofwat's ability to regulate the cost of retail activities. The CMA accepted this position and did not conduct its own analysis into whether the Merger would have an impact on the number of independent comparators in the residential retail service area.

- (i) Pennon also submitted consumer research conducted in June 2021 with customers of South West Water, Bournemouth Water, Pennon's household water utility brands,³ and Bristol Water. Pennon submitted that 'the research shows that customers support a merger between Bristol Water and South West Water'. The CMA found that the survey conducted possessed significant flaws in its methodology. The CMA therefore did not place weight on this evidence.
 - (j) Lastly, the CMA assessed a range of benefits put forward by Pennon that it suggested would outweigh any detrimental impact of the Merger on Ofwat's ability to comparatively regulate the market. The CMA ultimately found that there was insufficient evidence to conclude at Phase 1 that the potential RCBs would outweigh the adverse impacts of the Merger.
11. For the reasons set out above the CMA believes that it is or may be the case that a merger of two or more water enterprises has taken place (otherwise than as a result of the carrying into effect of arrangements that have been the subject of a reference by virtue of section 32(a) of the WIA91) and it does not appear to the CMA that the exclusion of small mergers under section 33 of the WIA91 applies in this case.
 12. In addition, the CMA does not believe that the Merger has not prejudiced, and is not likely to prejudice, the ability of Ofwat in carrying out its functions by virtue of the WIA91, to make comparisons between water enterprises. Nor does it believe that the prejudice in question is outweighed by RCBs relating to the Merger.

Conclusion

13. The CMA is therefore considering whether to accept undertakings under section 33D of the WIA91. Pennon has until 31 December 2021 to offer an undertaking to the CMA that might be accepted by the CMA. If no such undertaking is offered, then the CMA will refer the Merger pursuant to section 32 of the WIA91, as amended by The Water Act 2014.
14. The CMA's assessment in this decision under the WIA91 is unrelated to its separate assessment of the merger's effects on competition in the non-household retail water services market. The CMA approved the transaction on

³ Pennon acquired Bournemouth Water in 2015.

competition grounds under the Enterprise Act 2002 in a separate phase 1 decision on 5 November 2021.

ASSESSMENT

The Parties and transaction

15. Pennon is a water utility company listed on the London Stock Exchange.⁴ Pennon is active in the supply of water and sewerage services to household and non-household customers⁵ (**NHH customers**).⁶ Pennon operates as a water and sewerage undertaker in the South West of England through South West Water, but only operates as a water undertaker in the Bournemouth region through Bournemouth Water. South West Water and Bournemouth Water operate under a single Instrument of Appointment under the WIA91, where South West Water is the appointee in respect of both businesses.⁷
16. Bristol Water is a water utility company and is active in the supply of water and sewerage services to household customers and NHH customers. Bristol Water is a water-only undertaker that supplies water to a population of 1.2 million in the city of Bristol and surrounding regions.⁸
17. Pursuant to a Sale and Purchase Agreement dated 3 June 2021, Pennon acquired the entire share capital of Bristol Water Holdings UK Limited and its subsidiaries (including Bristol Water).⁹

Jurisdiction

18. Each of the Parties are water undertakers appointed under Section 6 of the WIA91. The CMA therefore considers each of the Parties to be water enterprises as defined under section 35(1) of the WIA91. Each Party generated a relevant turnover in excess of £10 million in their most recent

⁴ Final Merger Notice submitted by the Parties to the CMA on 16 September (**FMN**), paragraph 25 and 26.

⁵ NHH customers include businesses, charities, and public sector organisations.

⁶ Pennon supplies NHH customers through Pennon Water Services Limited, a joint venture with South Staffordshire plc, of which Pennon has an 80% stake.

⁷ FMN, paragraph 48

⁸ Bristol Water supplies NHH customers through Water 2 Business Limited, a joint venture with Wessex Water Limited which is a retailer in the NHH market. Bristol Water has a 30% stake in Water 2 Business Limited. The following entities are also part controlled by Bristol Water and are active in services related to the water industry: Bristol Wessex Billing Services Limited (trading as Pelican), a joint venture with Wessex Water which provides billing services to each of its parent companies; and Searchlight Collections Limited (Searchlight), a wholly-owned subsidiary of Pelican, which provides debt collection services to Bristol Water and Wessex Water

⁹ FMN, paragraph 23.

financial years, therefore the turnover test as set out at section 33(1) of the WIA91 is met.¹⁰ As a result of the Merger both Pennon and Bristol Water have ceased to be distinct.

19. The CMA therefore believes that it is or may be the case that arrangements are in progress or in contemplation which, if carried into effect, will result in a merger between two or more water enterprises (ie a water merger).
20. The Merger completed on 3 June 2021. The initial period for consideration of the Merger as defined in section 34ZA(3) of the Enterprise Act 2002 started on 28 October 2021 and the statutory 40 working day deadline for a decision is therefore 22 December 2021.¹¹

Counterfactual

21. The CMA assessed the impact of the Merger on Ofwat's ability to carry out comparisons against the situation that would prevail in the absence of the Merger. Consistent with its approach to general Phase 1 merger investigations,¹² the CMA believes the most cautious realistic counterfactual is a situation where the Merger is assumed not to have occurred and the two firms continue to operate under independent ownership.¹³

Background

22. The water industry was de-nationalised in 1989 when the public owned suppliers of water and sewerage services were privatised and became either water and sewerage companies (**WaSCs**) or water only companies (**WoCs**) both of which became collectively known as water (and sewerage) undertakers.
23. Today, there are 11 WaSCs, and six WoCs operating within England and Wales. Within its area of operation, each water company is a virtual monopoly, and domestic customers have no choice of supplier.

¹⁰ FMN, paragraph 2. Each of South West Water and Bristol Water have relevant turnover of over £10 million.

¹¹ The four month period mentioned in section 24 was extended by the CMA via notices issued under section 25(2) of the Act. The CMA and the Parties also agreed to extend the period by 20 working days, pursuant to section 25(1) and 32(4) of the Act.

¹² The [Merger assessment guidelines \(CMA129\) – 2021 revised guidance](#), from paragraph 3.12. See [Mergers: Guidance on the CMA's jurisdiction and procedure](#) (CMA2), January 2014, Annex D).

¹³ See CMA's counterfactual in [Severn Trent / Dee Valley](#), para 20.

24. The regulator for the market, Ofwat, has a set of primary and secondary duties^{14iv} and functions. One of the functions is to set price limits every five years, determining the maximum companies can charge customers for water and wastewater services. Ofwat also monitors the performance of the water companies to ensure that they deliver the required services and improvements in quality. The regional monopolisation of the market drives the need for Ofwat's comparative approach to regulating the sector.

Framework for assessment

25. The CMA's assessment in this decision under the WIA91 is unrelated to its separate assessment of the merger's effects on competition in the non-household retail water services market. The CMA approved the transaction on competition grounds under the Enterprise Act 2002 in a separate phase 1 decision on 5 November 2021.
26. The framework for assessment set out below is consistent with the approach taken in Severn Trent/Dee Valley.¹⁵ For the purposes of its Phase 1 assessment of a water merger, the CMA has interpreted the statutory test as requiring it to:
- (a) first, assess the impact of the Merger on Ofwat's ability to make comparisons between water enterprises and assess whether there is a realistic prospect that the impact is adverse; and
 - (b) second, consider whether any adverse impact, either individually or in combination with any other adverse impact(s), is significant enough to amount to prejudice.
27. In the present case, in order to address (a) and (b) above, the CMA has considered the views and evidence provided by Pennon, Bristol Water, Ofwat, and third parties both on: (i) the appropriate approach for determining any realistic adverse impact; and (ii) the significance of that impact for the purposes of determining whether it is significant enough to amount to

¹⁴ Ofwat's duties for most of its work as the economic regulator of the water sector are laid down in sections 2 and 3 of the WIA91 as amended. These duties include, among others, to: further the consumer objective to protect the interests of consumers; secure that water companies properly carry out their statutory functions; secure that water companies can (in particular through securing reasonable returns on their capital) finance the proper carrying out of their statutory functions; further the resilience objective to secure the long-term resilience of water companies' water supply and wastewater systems; in the long term meet the need for water supplies and wastewater services; promote economy and efficiency by water companies in their work; and contribute to the achievement of sustainable development (see [Our duties - Ofwat](#))

¹⁵ [Severn Trent Dee Valley Final Decision](#), Paragraph 30-31.

prejudice, consistent with the Water Mergers Guidance,¹⁶ (and, where relevant, Ofwat's Statement of Methods).¹⁷

28. The CMA has assessed the impact of the Merger in the following areas:
- (a) wholesale base costs;
 - (b) enhancement costs;
 - (c) loss of a company with important similarities and differences;
 - (d) performance commitments (PCs) and outcome delivery incentives (ODIs);
 - (e) consumers' views; and
 - (f) retail residential.
29. The CMA has followed the Water Mergers Guidance and, where relevant, it considered relevant factors such as:¹⁸
- (a) the extent to which the Merger involves overlaps;¹⁹ and whether the Merger involves the loss of an independent comparator;
 - (b) the extent to which the Merger will change benchmarks;
 - (c) the number and quality of independent observations that remain;
 - (d) whether the Merger leads to the loss of a company with important similarities²⁰ and/or differences²¹ for comparisons; and
 - (e) whether Ofwat could amend its approach to reduce the impact of the loss of a comparator.

¹⁶ [Water Mergers Guidance](#).

¹⁷ [Ofwat's approach to mergers and statement of methods](#), pages 12 and 13.

¹⁸ [Water Mergers Guidance](#), paragraph 4.15.

¹⁹ For example, a WOC taking over wastewater activities would not be expected to prejudice Ofwat's ability to make comparisons with other water companies.

²⁰ In particular by reducing the number or quality of comparators operating in similar circumstances to other water companies.

²¹ For example, the loss of a comparator that might provide good examples of leading or best practice across the sector.

30. The CMA has also considered whether the Merger may lead to relevant customer benefits' (**RCBs**).²²
31. The CMA notes that its Phase 1 assessment will place significant weight on Ofwat's opinion on whether the Merger is likely to prejudice Ofwat's ability to make comparisons between water enterprises, and that, where Ofwat considers that a merger is likely to lead to prejudice, but the Parties disagree with its analysis, and a detailed analysis is required for the CMA to take a decision, the CMA would typically expect a case to progress to Phase 2.²³ The CMA similarly will place significant weight on Ofwat's opinion on whether any prejudice identified is outweighed by any RCBs relating to the Merger.²⁴

The extent to which the Merger involves overlaps and the loss of an independent comparator

32. The Merger involves overlaps in the provision of: (i) wholesale water services; (ii) retail household services; and (iii) retail non-household services. Given these overlaps, the CMA therefore believes that the Merger involves the loss of an independent comparator and meets the criteria identified at paragraph 29(a) above. Therefore, the following sections discuss Pennon's submissions, Ofwat's opinion, and the CMA's assessment, taking into account any third party evidence, with respect to the factors outlined in paragraphs 29(b) to 29(e).
33. This decision does not cover the impact of the Merger on the market for non-household retailers which was assessed separately under the Enterprise Act 2002.

Wholesale water base costs

34. Ofwat sets a funding allowance (totex) to cover forecasted necessary costs for each water company, covering both base expenditure, which covers routine costs that companies incur, and enhancement expenditure, which covers the costs of enhancing the capacity or quality of the services provided by the water companies.

²² At Phase 1, the CMA may decide not to make a merger reference under section 32 of WIA91 if it believes that the RCBs in relation to the water merger outweigh any prejudice to Ofwat's ability to make comparisons.

²³ [Water Mergers Guidance](#), paragraph 4.25.

²⁴ [Water Mergers Guidance](#), paragraph 5.14.

35. During Ofwat's Price Review in 2019 (PR19), base cost modelling was the first building block of Ofwat's methodology to reach a view on each company's totex allowance for wholesale water base costs. Ofwat used econometric models with the companies' historical costs as the dependent variables and cost drivers, such as the size of the network, as independent variables. These econometric models estimate how much it would cost the averagely efficient water company to cover base operations over the next five years, given the company's forecast cost drivers.
36. Ofwat wanted to set cost allowances for a more than averagely efficient water company. Ofwat therefore made an efficiency catch-up challenge adjustment to the modelled costs. Ofwat built a ranking of the companies, from most efficient to least efficient.²⁵ This ranking was based on comparing the companies' historic costs in 2014/15 to 2018/19 with the costs the model predicted they should have incurred. Ofwat chose the fourth most efficient company to be the benchmark company. The CMA redetermination used the same approach but used the costs in 2015/16 to 2019/20 and chose the upper quartile company (75th percentile²⁶).
37. The CMA has assessed the Merger impact on the:
- (a) statistical performance of the wholesale base cost models;
 - (b) industry cost (totex) allowance;
 - (c) companies' cost (totex) allowance; and
 - (d) precision of the wholesale base cost models.
38. For each of the above, the CMA has summarised the evidence submitted by Pennon and Ofwat. This is followed by the CMA's assessment of each factor.

Impact on statistical performance of the cost models

39. Standard statistical diagnostic tests provide useful guidance on the performance of econometric models. The CMA notes that these tests were used for model selection purposes in PR19.²⁷ For this reason, the CMA has

²⁵ For more details see Ofwat (May 2020), [Reference of the PR19 final determinations: Cost efficiency – response to common issues in companies' statements of case](#), paragraph 6.1-6.8.

²⁶ The fourth most efficient company was a tougher benchmark than the 75th percentile.

²⁷ For additional details see Ofwat (March 2018), [Cost assessment for PR19: a consultation on econometric cost modelling Appendix 1 – Modelling results](#), pages 3 and 4; and CEPA (March 2018), [PR19 Econometric Benchmark Models](#), page 52 and Table 6.1.

examined the impact of the Merger on certain relevant statistical diagnostic tests.

40. The CMA notes that Pennon has not provided a view on the impact of the Merger on the statistical performance of the cost models.²⁸

Ofwat's view

41. Ofwat submitted that its estimated changes to the base cost, after rerunning the model with South West Water and Bristol Water as a single comparator, were driven by changes in the coefficients of explanatory variables within the cost models and these changes were in turn driven by the loss of variation as a result of the merger.²⁹ Ofwat estimated the impact of the Merger on the coefficients and found that the population density and booster stations per length of mains (used as a measure of topography) changed by up to [0-5]% across the five cost models.³⁰ Ofwat submitted companies with atypical densities were more likely to be affected by the Merger at future controls.³¹
42. Ofwat submitted the reduction in the number of observations may also be expected to affect the degree of correlation between the explanatory variables (ie increase multicollinearity). Ofwat submitted that higher multicollinearity makes it harder to disentangle which cost driver is impacting costs. Ofwat noted that this is due to the fact that cost drivers are highly correlated.³² Ofwat estimated the impact of the Merger on the degree of multicollinearity by examining the variance inflation factor (VIF) in each of the models.³³ Ofwat found that the VIF increased for three specifications by maximum of [0-5]%, but decreased for two specifications by maximum of [0-5]%.³⁴
43. In addition, Ofwat submitted:³⁵
 - (a) important cost drivers already display high levels of multicollinearity;

²⁸ This is not strictly required by the Water Mergers Guidance. See [Water Mergers Guidance](#), paragraph 4.25.

²⁹ Ofwat opinion on the merger of Pennon and Bristol Water, dated 24 November 2021, (**Final Ofwat Opinion**) Table A2.30.

³⁰ Final Ofwat Opinion, Table A2.10.

³¹ Final Ofwat Opinion, paragraph A2.30.

³² Final Ofwat Opinion, paragraph A2.28.

³³ Final Ofwat Opinion, paragraph A2.29. VIF is a measure used to quantify the severity of multicollinearity in an econometric model. The higher the VIF, the higher the degree of multicollinearity.

³⁴ Final Ofwat Opinion, Table A2.9.

³⁵ Final Ofwat Opinion, paragraph A2.29.

- (b) any increase in multicollinearity should be treated with caution and is an indication of a potential degradation in the ability of the models to delineate the effects of different cost drivers;
- (c) the models that increased in multicollinearity account for more costs, so this may be of more concern; and
- (d) the degradation of the treated water distribution (disaggregated) and wholesale water (combined) models means the multicollinearity issue cannot be resolved by shifting more weight to disaggregated models or combined models.

CMA assessment

44. The CMA has considered Ofwat's view that there is an increase in multicollinearity in the wholesale water and treated water distribution models. Although the CMA agrees that a percentage increase in multicollinearity should be treated with caution, the CMA also considers it relevant to take into account the absolute value of the VIF. The CMA understands that models with a VIF of less than 10 would not be evidence of multicollinearity.³⁶ Ofwat has stated in a PR19 consultation that they use a rule of thumb, where a VIF of more than 4 indicates medium risk and a VIF of more than 10 indicates harmful collinearity. No model specification used by Ofwat at PR19 or the CMA at its redetermination has a VIF that exceeds 10 except for those that use a squared density term. This does not change when the CMA accounts for the Merger.
45. The CMA also conducted additional statistical diagnostic tests by comparing the regression results for the Merger and a non-merger scenario.³⁷ The CMA found that, following the Merger, all the coefficients of the cost drivers were statistically significant at the [0-5]% level.³⁸ The magnitudes of the coefficients changed by less than [X] percentage points (consistent with Ofwat's results)

³⁶ The Stata 16 manual states that most analysts rely on informal rules of thumb applied to the VIF; see Chatterjee and Hadi (2012). According to these rules, there is evidence of multicollinearity if i) the largest VIF is greater than ten (some choose a more conservative threshold value of 30) or ii) the mean of all the VIFs is considerably larger than one.

³⁷ The CMA compared its model pre-Merger scenario with the post-Merger scenario where the Merger hypothetically occurred in 2016/17 using data provided by Ofwat.

³⁸ The weighted average population density and square of weighted average population density is jointly statistically significant at the 5% level in both the non-Merger and Merger scenarios.

and the signs of the coefficients did not change. The overall R-squared did not change substantially.

46. The CMA's view based on the evidence received is that that the Merger will not have a substantial detrimental impact on the statistical performance of Ofwat's models in this regard.

Impact on industry cost allowance

47. In this section, the CMA considers whether the loss of a comparator resulting from the Merger could affect Ofwat's ability to make comparisons by removing a high or low performing company from Ofwat's set of comparators, which could substantially change the efficiency benchmark and the industry cost allowance.
48. Ofwat's Statement of Methods outlines two approaches that can be used to estimate impact of the Merger on benchmarks.³⁹ The static approach estimates what might have been the impact on Ofwat's previous price controls (eg PR19 or the CMA redetermination), had the regulator been considering a merged firm rather than South West Water and Bristol Water separately. The forward-looking approach (named the change-in-performance analysis in Ofwat's submissions for this Merger) estimates the impact of the Merger on the efficiency benchmark in future price control periods (PR24 to PR44), based on the probability of changes in relative performance of the Parties.

Pennon's view

49. Oxera, Pennon's advisors,⁴⁰ estimated the impact of the Merger on the base cost allowance arising from a change in the efficiency challenge using both static and forward-looking approaches.
- (a) Oxera's core static approach estimated the Merger to have an impact on the base cost allowance that ranges from [X] over 5 years.⁴¹ The CMA notes that Oxera found the base cost allowance [X].⁴²

³⁹ [Ofwat's approach to mergers and statement of methods](#), page 13.

⁴⁰ Where the CMA makes reference to submissions made by Oxera, these should be interpreted as referring to submissions on behalf of Pennon.

⁴¹ Pennon, The Case for the Merger of Bristol Water and South West Water, Merger Impact Assessment dated 25 October 2021, Table 3 (**Final Merger Impact Assessment**).

⁴² Oxera, *Annex A: cost benchmark (8 October 2021)*, page 12, submitted as part of the Merger Impact Assessment

(b) Oxera's core forward-looking approach estimated the Merger to have an impact on the base cost allowance that ranges from [X] over 25 years.⁴³

50. The range of results depend on several underlying assumptions including cost performance of the Merged Entity, the benchmark assumption, and whether or not 2019/20 data is included.⁴⁴ Oxera found that [90-100]% of its forward-looking modelling scenarios (using the PR19 models) estimated a decrease in the base cost allowance.⁴⁵
51. Pennon submitted that the static modelling should be considered with substantial caveats as it does not account for any probability of companies changing ranks.⁴⁶

Ofwat's view

52. Ofwat submitted the static analysis was the most informative.⁴⁷ Ofwat agreed with Oxera's static approach with zero assumed cost savings, which found an increase in the base cost allowance using the existing models.⁴⁸ Ofwat used an alternative static approach which accounted for changes to the cost models in addition to changes in the efficiency benchmark (which was the only parameter considered by Pennon⁴⁹).⁵⁰ Ofwat's model estimated [X] in base cost allowance of between [X] and [X] over 5 years (the range of results depends on whether 2019/20 data is included and the benchmark assumption).⁵¹
53. Ofwat stated that Oxera's forward-looking approach had a tendency to find a decrease in the base cost allowance from the loss of a comparator and that this is a counterintuitive result.⁵² Ofwat submitted that in the forward-looking model, companies were more likely to perform below the sector benchmark in future price controls, and so the merger was more likely to lead to a loss of a

⁴³ Final Merger Impact Assessment, Table 4.

⁴⁴ In response to the CMA's questions, Oxera re-estimated all forward-looking models treating Severn Trent and Hafren Dyfrdwy as separate companies (as assumed in the static model). Oxera found [X] [40-50]% of its forward-looking models showed the Merger **increased** industry base cost allowance (down from [90-100]%). See Oxera (5 November 2021), "Estimated impact of the merger under the assumption of a 17-company industry structure", Table 2.1 (response to the CMA's Request for Information dated 26 October 2021)

⁴⁵ Final Merger Impact Assessment, paragraph 8.15.

⁴⁶ Final Merger Impact Assessment, paragraph 8.33.

⁴⁷ Final Ofwat Opinion, paragraph A2.3.

⁴⁸ Final Ofwat Opinion, paragraph 3.17.

⁴⁹ Final Merger Impact Assessment, paragraph 8.30.

⁵⁰ Final Ofwat Opinion, paragraph 3.28.

⁵¹ Final Ofwat Opinion, Table A2.6.

⁵² Final Ofwat Opinion, paragraph 3.26.

company below the benchmark – which in turn leads to a more challenging benchmark that decreases the base cost allowance across the sector.⁵³ Ofwat submitted that Oxera found [redacted] in the base cost allowance because of underlying assumptions which contradict Pennon’s statement that the Merger will deliver a high performing company (for example, Oxera assigned a [70-80]% probability to an outcome in which the Merged Entity is not upper quartile [redacted]).⁵⁴

54. Ofwat also submitted the forward-looking approach is highly sensitive to input assumptions.⁵⁵ Indeed, Ofwat modified some of the assumptions used by Oxera in its forward-looking approach and found the base cost allowance increased by between [redacted] and [redacted] over 25 years. Ofwat noted that the changes that make the most significant difference between Oxera’s⁵⁶ and Ofwat’s⁵⁷ forward-looking models are:⁵⁸

(a) Number of comparators used. Oxera’s approach used only 16 comparators excluding Dee Valley in the pre-PR19 period and excluding Hafren Dyfrdwy in the post-PR19 period. Ofwat’s approach included these comparators. Ofwat submitted that Dee Valley should be included in the pre-PR19 period as this was used in the calculation of efficiency scores at PR19. Ofwat also submitted that it is not infeasible and an option that Hafren Dyfrdwy could be used as an independent comparator for determining the catch-up challenge at future price controls.⁵⁹ In addition, Ofwat noted that [90-100]% of the difference between Oxera’s [redacted] reduction industry base cost allowance and Ofwat’s [redacted] increase was due to the number of comparators used.⁶⁰

(b) Calculation of the probability of rank changes.⁶¹ Ofwat used a revised approach which included using the most recently available data and 17 comparators.

⁵³ Final Ofwat Opinion, paragraph 3.26.

⁵⁴ Final Ofwat Opinion, paragraph 3.23.

⁵⁵ Final Ofwat Opinion, paragraph 3.25.

⁵⁶ Reference to Oxera model 1.1 (CMA data version) with Merger impact of [redacted]. Submitted as part of the Final Merger Impact Assessment.

⁵⁷ Reference to Final Ofwat Opinion, paragraph 3.24.

⁵⁸ Final Ofwat Opinion, paragraph A4.35

⁵⁹ Final Ofwat Opinion, paragraph A4.45

⁶⁰ Final Ofwat Opinion, paragraph A4.46

⁶¹ Final Ofwat Opinion, paragraph A4.36-A4.42

55. Ofwat also estimated an alternative forward-looking analysis and found a cumulative increase in base cost allowance over 25 years to be [X].⁶²

Pennon's response

56. Pennon submitted that Ofwat had significantly downplayed the forward-looking approach and that this departed from Ofwat's Statement of Methods and from precedent.⁶³
57. Pennon disagreed with Ofwat's view that the forward-looking approach should be given less weight relative to the static approach.⁶⁴ Pennon submitted that:
- (a) The forward-looking approach enables the examination of a wide range of assumptions, and it is therefore unsurprising that the results created a range of outcomes.⁶⁵
 - (b) The static approach is also highly sensitive to input assumptions and has a wider range of outcomes than the forward-looking approach.⁶⁶
58. Pennon noted that Ofwat's view that the forward-looking approach had a tendency to find a decrease in the base cost allowance to be unfounded for the following reasons:⁶⁷ (i) Ofwat's Statement of Methods was followed; (ii) Oxera's results used actual data on rank changes to construct the probabilities; (iii) Ofwat's published probabilities were used.⁶⁸ Also, Pennon submitted that the tendency to find a decrease in base cost allowance was addressed by estimating a sensitivity that used the same probability of changing ranks for each future price review.⁶⁹

⁶² Final Ofwat Opinion, paragraph 3.26, Table 2.

⁶³ Pennon's response to CMA Issues Letter, submitted to the CMA on 6 December 2021 (**Pennon's response to CMA Issues Letter**), paragraph 9(iii)

⁶⁴ Pennon's response to CMA Issues Letter, paragraph 56

⁶⁵ Pennon's response to CMA Issues Letter, paragraph 57

⁶⁶ Pennon's response to CMA Issues Letter, paragraph 56(i)

⁶⁷ Pennon's response to CMA Issues Letter, paragraph 58

⁶⁸ Pennon's response to CMA Issues Letter, paragraph 59

⁶⁹ Pennon's response to CMA Issues Letter, paragraph 60. Pennon refers to "Model 1.6" (see Oxera, *Annex A: cost benchmark (8 October 2021)*, section 3.3.4, submitted as part of the Merger Impact Assessment).

59. Pennon submitted that the static approach assumed the Merger resulted in a loss of an upper quartile company⁷⁰, which biased it toward finding an increase in the base cost allowance.⁷¹
60. Pennon considered that Ofwat’s alternative forward-looking approach (which estimated [X] in base cost allowance over 25 years to be [X]) had significant shortcomings as it assumed, absent the merger, South West Water and Bristol Water remain in their current positions until PR44 and the Merger will have no effect on company performance.⁷²

CMA assessment

61. Pennon and Ofwat disagreed on the weight the CMA should give to the static and forward-looking approaches.
62. The CMA believes that the static approach provides a useful starting point for its assessment. However, the CMA has also considered the forward-looking approach as this attempted to account for the probability of changes in relative performance of companies. This approach delivers a broad range of predictions – from [X] according to Oxera to [X] according to Ofwat – and some of these predictions are consistent with an adverse effect on consumers. The CMA understands that a substantial portion of the difference between Oxera’s and Ofwat’s estimated Merger impact is driven by several assumptions including:
 - (a) Whether or not to include 2019/20 data in the underlying dataset. The inclusion of 2019/20 data provides a more forward-looking model with additional data. However, the exclusion may be reasonable as 2019/20 data was not used to estimate the cost allowance for most water companies at PR19. Both the inclusion and exclusion of 2019/20 data are potentially reasonable.
 - (b) Whether or not to include Dee Valley in the pre-PR19 period and Hafren Dyfrdwy in the post-PR19 period.⁷³ The CMA found that the option to

⁷⁰ Pennon refers to this as “Scenario C” where the merged company is not a benchmark company, but at least one of South West Water and Bristol Water would not have become a benchmark company in the absence of the merger.

⁷¹ Pennon’s response to CMA Issues Letter, paragraph 56(v)

⁷² Pennon’s response to CMA Issues Letter, paragraph 62-63

⁷³ The CMA acknowledges that this reconciliation: the underlying dataset included 2019/20 data, the model used an upper quartile benchmark and the probability of rank changes were calculated by Oxera, there is a [60-70]% probability that the merged entity will match the rank of South West Water.

include Hafren Dyfrdwy as a comparator in future price reviews is an available option and is feasible, however, the CMA is uncertain whether or not this will be implemented. As such, both the assumptions of including and excluding Hafren Dyfrdwy appear reasonable.

(c) Whether to use an upper quartile or upper quintile benchmark. It is uncertain what benchmark may be used in future price reviews, and for this reason both benchmarks are potentially plausible.

63. The CMA found that despite the differences in the estimates, both Oxera's and Ofwat's forward-looking models are based on some reasonable assumptions. However, the CMA is concerned that some of Oxera's and Ofwat's estimates of the probability of changes in relative performance may not be plausible. For example, in PR19, South West Water was upper quartile, Bristol Water was non-upper quartile, and the simulated merged entity would have been non-upper quartile; and yet the forward-looking approach only predicts that this non-merger and merger scenario will apply in PR24 with less than [10-20]% probability for Oxera's model and less than [20-30]% probability for Ofwat's models. These probabilities seem too low given there is agreement between Ofwat and Oxera that rankings are broadly persistent over time.⁷⁴ Nevertheless, given that both Oxera's and Ofwat's forward-looking models are based on reasonable assumptions, the CMA found the results for the forward-looking model indicate a range of plausible estimates which include a detriment.

64. The CMA takes into account Pennon's view that the static approach is sensitive to input assumptions. The CMA also acknowledges that the static approach has a tendency to find an increase in the base cost allowance following the loss of an upper quartile company, however, this result is driven by the underlying data (ie loss of an upper quartile company if the merger were to take place in PR19 with no cost savings). As there is agreement from Ofwat and Oxera that rankings are broadly persistent over time, it is sensible to put some weight on the static approach.⁷⁵ Moreover, the direction of the static approach with no cost savings is less driven by assumptions and

⁷⁴ See Final Ofwat Opinion, paragraph A4.24 and Oxera, *Annex A: cost benchmark (8 October 2021)*, page 28, submitted as part of the Merger Impact Assessment. The CMA notes that Pennon and Ofwat do not agree on direction of the change in efficiency of a recently merged entity, however, for the purposes of the forward-looking model with no cost savings the CMA does not consider this to be relevant. See Final Ofwat Opinion, Annex A3 and Oxera, *Annex A: cost benchmark (8 October 2021)*, page 3, submitted as part of the Merger Impact Assessment

⁷⁵ See Final Ofwat Opinion, paragraph A4.24 and Oxera, *Annex A: cost benchmark (8 October 2021)*, page 28, submitted as part of the Merger Impact Assessment

therefore it is reasonable to put more weight on this approach in the context of a Phase 1 inquiry.

65. In Pennon/Bournemouth, the CMA put less weight on the results of the static analysis compared with the forward-looking approach.⁷⁶ In this case, given the sensitivity of the forward-looking approach to input assumptions and the CMA's concerns as to whether these assumptions are plausible, the CMA has given weight to both the static and forward-looking approaches for its assessment at Phase 1.
66. Based on the above evidence, the CMA's view is that the Merger could potentially prejudice Ofwat's ability to carry out its functions through use of comparative regulation.

Impact on companies' cost allowance

67. In this section the CMA considers whether the Merger could affect Ofwat's ability to make comparisons by removing a company from Ofwat's set of comparators. The CMA considers that this could impact the relationship between costs and cost drivers resulting in the under or overfunding of individual companies. In the following sections the CMA sets out Ofwat's opinion, Pennon's response to the CMA's Issues Letter, and, finally, has set out its own views on this aspect of the Merger.

Ofwat's view

68. Ofwat submitted Oxera's cost benchmark approach focused on the industry average impacts which failed to examine the impact on individual companies.⁷⁷ Ofwat submitted the purpose of the cost assessment was to derive an allowance for each company that provided each with sufficient funding to enable them to provide resilient services and to meet their statutory obligations.⁷⁸ Ofwat submitted that, as a result of the Merger:⁷⁹
 - (a) Ofwat's models may generate significantly more funding for some companies than is appropriate leading customers to pay more than is necessary and resulting in excessive returns for companies.

⁷⁶ [Pennon Bournemouth Final Decision Appendix E](#), paragraph 27, page 69.

⁷⁷ Final Ofwat Opinion, paragraph 3.6.

⁷⁸ Final Ofwat Opinion, paragraph 3.6.

⁷⁹ Final Ofwat Opinion, paragraph 3.8.

- (b) Ofwat's models may provide too little funding for some companies, in which case companies would have insufficient funding to undertake their functions resulting in companies failing to invest in necessary infrastructure or harm to investor confidence in the sector (due to lower returns).
69. Ofwat submitted that the PR19 cost models provide the best indication of the costs required by the water companies as these models have been developed over time, been subject to significant scrutiny by companies during their development, and have been reviewed by the CMA and were largely unchanged.⁸⁰
70. Ofwat's static models assessed the Merger impact on individual company cost allowances. Ofwat re-ran the models combining data from South West Water and Bristol Water.⁸¹ In one scenario, Ofwat combined the information from 2016/17 to reflect the fact that Ofwat would have three years of combined data at PR24. In a second scenario, Ofwat combined the information from 2011/12 (the entire available period) as an indication of what might happen at future price controls from PR29 and beyond.
71. Ofwat also considered scenarios which accounted for Pennon's proposed efficiency savings and that future costs for companies were likely to change.⁸²
72. Ofwat found that there were meaningful changes to the cost estimates of [redacted] and of [redacted].⁸³ Ofwat predicted that [redacted] based on the CMA models, with [redacted] when using the PR19 models.⁸⁴ Ofwat predicted [redacted] [0-5]% based on the CMA models, and [0-5]% [redacted] when based on the PR19 models.⁸⁵
73. Ofwat submitted this is substantial as their price review methodology allowed companies to make special factor cost claims which amounted to more than 1% of totex.⁸⁶

⁸⁰ Final Ofwat Opinion, paragraph 3.7.

⁸¹ Final Ofwat Opinion, paragraph 3.31.

⁸² Final Ofwat Opinion, paragraph 3.31.

⁸³ Final Ofwat Opinion, paragraphs 3.32 and A2.12.

⁸⁴ Final Ofwat Opinion, Table A2.2.

⁸⁵ Final Ofwat Opinion, Table A2.2 and paragraph A2.12.

⁸⁶ Final Ofwat Opinion, paragraph 3.33.

Pennon's response

74. Pennon submitted that comparing non-merger and merger cost predictions does not give insight into the Merger's impact on the accuracy of the models.⁸⁷ Pennon reasoned that there is no evidence to suggest that the Merger could introduce or increase the level of bias in Ofwat's modelling because Ofwat's models produced unbiased coefficient estimates regardless of the number of observations.⁸⁸ Pennon also submitted that the changes in cost allowances for companies occur as a result of the dataset changing rather than a modelling problem.⁸⁹
75. Pennon also submitted that the Merger's impact on estimated coefficients was not material because the impact was (i) in line with previous changes, for example, between PR19 final determination and the CMA redetermination⁹⁰ and (ii) within the confidence interval around the coefficient when South West Water and Bristol Water are modelled separately.⁹¹ Pennon also submitted that the Merger impact on the confidence width⁹² for the coefficient of each cost driver does not increase and in some cases even decreases.⁹³
76. Pennon submitted that the Merger impact on cost allowances for [X] was (i) materially smaller than changes throughout the PR19 process as new data and modelling approaches were utilised⁹⁴ and (ii) orders of magnitude smaller than the uncertainty of the cost prediction⁹⁵.
77. Pennon also noted that if Ofwat was concerned about company-specific precision, it should use stochastic frontier analysis.⁹⁶

CMA assessment

78. In general, the CMA accepts that re-estimating a model on a different sample will result in different parameter estimates, and that without any additional information it is impossible to say whether these new estimates are statistically 'better' or 'worse' than the old ones (in the sense of being closer or

⁸⁷ Pennon's response to CMA Issues Letter, paragraph 24

⁸⁸ Pennon's response to CMA Issues Letter, paragraph 9(i)

⁸⁹ Pennon's response to CMA Issues Letter, paragraph 9(i)

⁹⁰ Pennon's response to CMA Issues Letter, paragraph 30(i)

⁹¹ Pennon's response to CMA Issues Letter, paragraph 30(ii)

⁹² Pennon estimate the confidence width to be the confidence interval divided by the coefficient point estimate.

⁹³ Pennon's response to CMA Issues Letter, paragraph 30(iii)

⁹⁴ Pennon's response to CMA Issues Letter, paragraph 39

⁹⁵ Pennon's response to CMA Issues Letter, paragraph 37

⁹⁶ Pennon's response to CMA Issues Letter, paragraph 23

further from the true population parameters). Nevertheless, in the particular context investigated here, the fact that the PR19 allowances have only been challenged by a few companies is relevant: it can be interpreted as evidence that the model estimated at PR19 and its redeterminations delivered cost predictions that covered the true costs of the companies (taking into account the other aspects of the price review determination). As such, the fact that the model estimated on the new sample delivers allowances for some individual companies that are materially higher than their PR19 level could be interpreted as indicative that the new estimates would result in over-funding these companies, at least in the context of a phase 1 inquiry.

79. The CMA notes that Pennon, in its response to the Issues Letter, estimated the impact on coefficients but for only one of the five models underlying the wholesale base cost - treated water distribution model.⁹⁷ Treated water accounts for only about half of the wholesale water value chain analysis.⁹⁸
80. The CMA recognises that the order of magnitude of the changes generated by the Merger may be comparable with that generated by other changes made in the course of price control reviews (e.g. adding a year of data), but it is also larger than the threshold applied by Ofwat for making cost claims (1%⁹⁹), and as such it cannot be described as insignificant, at least in the context of a Phase 1 inquiry.
81. Pennon found that the size of the Merger impact on cost allowances for [✂] are small relative to the width of the confidence interval. As explained in paragraph 78, the reason why the CMA is concerned is because, regardless of their statistical significance, the companies' allowance estimated after the merger are significantly different in economic terms from those estimated in PR19.
82. The CMA's view is that the Merger could lead to some material changes in the estimated allowances for some companies and potentially prejudice Ofwat's ability to carry out its functions to use comparative regulation.

⁹⁷ Pennon's response to CMA Issues Letter, paragraph 29.

⁹⁸ Ofwat. PR19 final determinations, Figure A2.1

⁹⁹ Final Ofwat Opinion, paragraph A2.13.

Impact on precision of the models

83. The CMA also assessed whether the Merger may affect the precision with which Ofwat estimates companies' cost allowances. This, in turn, affects the confidence Ofwat has on the results of the wholesale base cost models.
84. There are two main ways in which the Merger may have an adverse impact on the precision of the econometric modelling:¹⁰⁰
- (a) The loss of an independent data point for statistical analysis. A standard principle of statistical theory is that fewer data points will lead to less precise econometric estimates.
 - (b) The Parties may have specific characteristics which make them useful for Ofwat in modelling costs. If South West Water's or Bristol Water's data provide useful variation in key cost drivers across companies, and some of this variation is lost as a result of the Merger, this may result in a loss of precision in Ofwat's models. On the other hand, if the Merger does not lead to a significant loss in variation, or if the variation is driven by company-specific factors which are less important in estimating cost drivers for the industry as a whole, then the Merger is less likely to lead to a significant loss in precision.
85. The CMA also considers that the impact from the loss of a comparator may be expected to increase for each successive merger that occurs, as fewer comparators would remain.¹⁰¹
86. Ofwat's PR19 cost models estimated costs with a prediction error which do not disentangle efficiency/inefficiency factors, unexplained factors and random shocks components. This limitation of Ofwat's PR19 cost models mean that changes to the model prediction error are not simple to interpret and require more thorough investigation. For example, a merger between an efficient and an inefficient company may result in a reduction in the overall prediction error due to a decrease in the variation of the efficiency/inefficiency component (all else equal). Such a decrease in the prediction error, however, does not necessarily indicate a more precise model (with lower random shocks or removal of unexplained factors). While the impact of the Merger on the variation of the error term component is unknown, the impact on the

¹⁰⁰ [Severn Trent Dee Valley Final Decision](#), paragraph 58.

¹⁰¹ [Water Mergers Guidance](#), paragraphs 4.14(b) and 4.19.

efficiency/inefficiency component may have some implication on the measure of the change in precision and requires detailed analysis.

87. In previous mergers (Pennon/Bournemouth and Severn Trent/Dee Valley), four methods were considered to estimate the statistical loss in precision:¹⁰²
- (a) the General Approach, which measures the loss in precision related to a loss of a data point. This approach does not take account of the specific parties to a merger;
 - (b) the Specific Approach, which measures the loss in precision by re-estimating Ofwat's models under a simulation of a proposed merger;
 - (c) Bootstrapping, which measures the loss of precision by using Ofwat's models to estimate outcomes under different random simulations of the current data set; and
 - (d) a Qualitative Approach, which qualitatively examines the change in variation in the cost drivers which may arise from the loss of an observation.
88. In addition to these four approaches, Oxera estimated a Statistical Approach that can provide a high-level theoretical view about the loss of an observation.¹⁰³
89. Oxera's Statistical Approach estimated that one fewer comparators reduced precision by around [0-5]%.¹⁰⁴ Oxera's general approach estimated that a loss of a single comparator will reduce precision by [0-5]%.¹⁰⁵ Oxera's specific approach estimated there is a loss of precision for 3 of the 5 wholesale water models by less than [5-10]%.¹⁰⁶ The CMA understands Pennon and Ofwat do not disagree on the General, Specific and Statistical approaches, so the CMA has focussed its assessment on the Bootstrapping and Qualitative approaches.
90. A reduction in precision does not have a direct and measurable effect on the outcome of Ofwat's comparative regulation. Instead, it indicates the extent to

¹⁰² *Pennon Bournemouth Final Decision*, paragraph 22. See too *Severn Trent Dee Valley Final Decision*, paragraphs 61 and 67.

¹⁰³ *Oxera, Annex B: Precision, 8 October 2021*, page 8, submitted as part of the Merger Impact Assessment.

¹⁰⁴ *Oxera, Annex B: Precision, 8 October 2021*, page 8, submitted as part of the Merger Impact Assessment.

¹⁰⁵ *Oxera, Annex B: Precision, 8 October 2021*, section 3.1, page 11, submitted as part of the Merger Impact Assessment.

¹⁰⁶ *Oxera, Annex B: Precision, 8 October 2021*, page 14, submitted as part of the Merger Impact Assessment.

which Ofwat's ability to make comparisons is subject to increased uncertainty, which may result in Ofwat being more susceptible to accepting cost adjustment claims or setting less challenging efficiency benchmarks.¹⁰⁷

Bootstrapping approach

91. Bootstrapping simulations estimate the change between the pre-merger and post-merger standard error of the model. This approach is useful where the standard error cannot be calculated using simple analytical methods or the cost drivers cannot be assumed to be normally distributed to do inference.^v The Bootstrapping technique estimates the standard error of Ofwat's models using different random samples of the current data set.

Pennon's view

92. Oxera estimated a Bootstrapping "bias" separately for each of Ofwat's PR19 wholesale water models by taking the difference between Bootstrapped standard errors and analytically estimated standard errors.¹⁰⁸ Oxera submitted that across the Ofwat's PR19 water models the Merger led to a decrease in model bias, and it was therefore expected to improve the precision of Ofwat's estimations.¹⁰⁹ It stated that while the estimated increase in precision was consistent across all models, the size of the average changes in model bias had to be interpreted with caution.¹¹⁰

Ofwat's view

93. Ofwat submitted that the CMA has placed no weight on similar bootstrapping approaches in the past, and it was unclear whether Oxera had addressed the concerns previously raised by the CMA on the usefulness of this analysis.¹¹¹

¹⁰⁷ [Pennon Bournemouth Final Decision](#), paragraph 6.54.

¹⁰⁸ *Oxera, Annex B: Precision, 8 October 2021*, Box 5.1 and page 18, submitted as part of the Merger Impact Assessment.

¹⁰⁹ Oxera normalised the bias in the standard error for each coefficient by either the econometric standard error or the bootstrapped standard error. It calculated the average change in model bias by taking a simple average of the percentage changes of the absolute normalised biases for each cost driver. It estimated [5-10]% and [5-10]% triangulated improvement of precision. It obtained the triangulated impact by computing a weighted average over all models. *Oxera, Annex B: Precision, 8 October 2021*, page 18, submitted as part of the Merger Impact Assessment.

¹¹⁰ *Oxera, Annex B: Precision, 8 October 2021*, page 19, submitted as part of the Merger Impact Assessment.

¹¹¹ Final Ofwat Opinion, paragraph 3.29.

Pennon's response

94. Pennon submitted that the bootstrapping method was one of four methods examined when assessing precision in Pennon/Bournemouth and Severn Trent/Dee Valley and was considered relevant in the Europe Economics Report.¹¹² Pennon also noted that its overall conclusion on precision was not dependent on the bootstrapping analysis.¹¹³
95. Pennon also submitted that following the Merger, Ofwat's models generally predicted companies' cost allowances more precisely.¹¹⁴

Qualitative approach

96. The Qualitative Approach focuses on whether, as a result of the Merger, there is likely to be a loss of variation in the data used in Ofwat's models, and how this might affect the precision of those models.¹¹⁵ If a variable is going to be used in a cost model, there needs to be relevant statistical variation.¹¹⁶ The change in variation is estimated as the percentage change in the standard deviation of cost drivers used in Ofwat's models after removing the comparator.¹¹⁷

Pennon's view

97. Pennon submitted that, overall, the qualitative approach suggested that the Merger would have a limited impact on precision.¹¹⁸
98. Pennon's advisors, Oxera, submitted that the Qualitative Approach does not provide an estimate of the loss in precision, but rather loss in variability which can be detrimental or beneficial; it therefore relies on somewhat subjective judgement.¹¹⁹
99. Oxera assessed, for each of the ten variables used in Ofwat's wholesale water models, what the impact of the Merger would be on the standard deviation. It found that when it simulated the Merger, for 6 cost drivers the between-company standard deviation increased, which indicated an overall

¹¹² Pennon's response to CMA Issues Letter, Annex 1, paragraph 2-3

¹¹³ Pennon's response to CMA Issues Letter, Annex 1, paragraph 1

¹¹⁴ Pennon's response to CMA Issues Letter, paragraph 34 and 37

¹¹⁵ *Pennon Bournemouth Final Decision*, paragraph 6.103.

¹¹⁶ *Severn Trent Dee Valley Final Decision*, paragraph 63.

¹¹⁷ *Pennon Bournemouth Final Decision*, paragraph 6.107.

¹¹⁸ *Oxera, Annex B: Precision, 8 October 2021*, page 25-26, submitted as part of the Merger Impact Assessment.

¹¹⁹ *Oxera, Annex B: Precision, 8 October 2021*, page 7, submitted as part of the Merger Impact Assessment.

increase in model precision after the Merger.¹²⁰ For the one cost driver where Oxera observed a decrease in standard deviation ([%]), this decrease was substantially lower than the threshold used in the Pennon/Bournemouth case (the observed decrease was [0-5]%, whereas the threshold is 10%). The largest observed increase in variation was [0-5]%.¹²¹

Ofwat's view

100. Ofwat plotted the value of each key cost driver by company (connected properties, density, number of booster pumping stations, and percentage of water treated at levels 1 to 3). Ofwat submitted that South West Water and Bristol Water differ in these key elements that intrinsically drive the cost differences between companies, and, therefore both South West Water and Bristol Water contribute in individual and specific ways to identifying the impact of each key cost driver.¹²²
101. Ofwat also submitted an analysis of the overall and between-company standard deviation of explanatory variables for the non-merger and Merger scenario.¹²³ Ofwat submitted that between-company standard deviations were the most appropriate for measuring a loss of precision in the qualitative approach.¹²⁴ Ofwat found no meaningful reduction in the overall standard deviation of explanatory variables.¹²⁵ Ofwat found a reduction in the between-company standard deviation of explanatory variables between [0-5]% and [0-5]%.¹²⁶ Ofwat submitted this reduced comparator information available to develop models at future controls and demonstrated the risk that the models would become less precise following the Merger.¹²⁷
102. Ofwat submitted that while examining the standard deviation of explanatory variables could help identify where there is an important loss of variation, Ofwat had the following concerns:

¹²⁰ Oxera also estimated the impact of the merger by dropping the BRL data points from the sample. In this case the between-company variation increased for eight out of ten variables. *Oxera, Annex B: Precision, 8 October 2021*, page 23, submitted as part of the Merger Impact Assessment.

¹²¹ *Oxera, Annex B: Precision, 8 October 2021*, page 23, submitted as part of the Merger Impact Assessment.

¹²² Final Ofwat Opinion, paragraph 3.12.

¹²³ Ofwat also submitted analysis for the scenario where Bristol is dropped from the dataset. See Final Ofwat Opinion, Table A2.6.

¹²⁴ Final Ofwat Opinion, paragraph A2.25.

¹²⁵ Final Ofwat Opinion, paragraph A2.24.

¹²⁶ Final Ofwat Opinion, Table A2.7.

¹²⁷ Final Ofwat Opinion, paragraph A2.25.

- (a) Loss of variation did not necessarily fully capture the multiplicative nature of the relationships between cost drivers and costs which is the reason it used multiple regression analysis.¹²⁸
- (b) A loss of variation is indicative of a problem, however, no loss of variation is not evidence that no problems will arise.¹²⁹
- (c) To the extent that loss of variation was a measure of the degree of information captured in the data, Ofwat found that an increased variation arising from reducing the number of observations was counterintuitive as not more information was captured in a smaller set of observations.¹³⁰

CMA assessment

103. Oxera and Ofwat disagree on the correct methodology for the Bootstrapping approach. The CMA considers that Oxera's Bootstrapping methodology does not provide useful evidence in this case. The CMA notes that Oxera does not explain how analysing the change in the bias between the non-merger and merger scenario is a measure of the impact of the merger on precision. In particular the CMA notes that bias in standard errors indicates the degree of inaccuracy in the estimation of the standard error but does not provide a measure of the precision of the model.¹³¹
104. Oxera and Ofwat agree on the methodology of comparing the non-merger and Merger between-company standard deviations for each variable (the qualitative approach). However, Oxera and Ofwat obtained different results from using the same approach.¹³² Oxera found an increase in the between-company standard deviation (except for one variable). In contrast, Ofwat found all explanatory variables had a decrease in standard deviation by between [0-5]% and [0-5]%. Given the limited time available in P1, the CMA was not able to identify the cause of the discrepancy.
105. Ofwat also disagreed with Oxera on the interpretation of the Qualitative Approach results. Ofwat submitted that a lack of reduction (or increase) in the

¹²⁸ Final Ofwat Opinion, paragraph A2.27.

¹²⁹ Final Ofwat Opinion, paragraph A2.27.

¹³⁰ Final Ofwat Opinion, paragraph A2.27.

¹³¹ See also [Pennon/Bournemouth](#), paragraph 6.101 and Appendix D.

¹³² Note, Oxera calculated the standard deviation for the explanatory variables in levels, whereas Ofwat calculated this using the variables used for the regressions (i.e. logged variables with the exception of percentage of water treated at complexity levels 3 to 6). However, Oxera submitted the results in log form also, and the conclusion was not different.

standard deviation for the cost drivers cannot be used as evidence that no prejudice to Ofwat's ability to make comparisons will arise following the Merger. Ofwat have not provided a clear rationale for this interpretation.

106. The CMA understands that the Statistical and General approaches show a loss of precision, and the Specific approach shows a loss of precision for [✂] of the 5 wholesale water models.¹³³ For the reasons explained in paragraph 103, the CMA does not place weight on the Bootstrapping Approach. The CMA found that the results from the Qualitative Approach are mixed.
107. While noting that assessing the merits of each approach is not straightforward, the CMA considers that more information is desirable for *any* future model that the Ofwat may adopt in PR24 and beyond.
108. Taken at face value, the Specific approach indicates that the merger would only lead to a loss of precision for 3 of 5 models, and to an increase in precision for some models. Pennon stated that this was because the merger would create a 'better comparator'.¹³⁴ The CMA does not consider that this is necessarily the correct interpretation of the evidence. Fundamentally, the precision of modelling results (as captured by standard errors) depends not just on the value of observations in the current sample, but also on the values that observations could take in future samples (ie precision measures the consistency of the modelling results across various samples from the same population).¹³⁵ It is possible that, examined retrospectively, the merger would create a sample where the standard errors would be smaller despite the reduction in the number of observations, for example because the regression residuals are smaller. It does not follow that future samples will present the same pattern, and therefore that the merger would genuinely improve the

¹³³ Oxera, *Annex B: Precision*, 8 October 2021, page 13, submitted as part of the Merger Impact Assessment.

¹³⁴ Pennon's response to CMA Issues Letter, paragraph 9

¹³⁵ Stated in econometric terms, the value of the standard errors (under the assumption of homoscedasticity) depends on three factors: the number of observations in the sample, the variance of unobservable factors *in the population*, and the variance of the observable factors *in the population*. The variance of unobservable and observable factors in the population are *estimated* using their sample analogues. However, if one interprets these quantities as reflecting fundamental technological factors there is no reason to think that they would be affected by the merger and the changes in standard errors would primarily be due to changes in the sample size. This interpretation would be consistent with that put forward by Pennon and their advisors with respect to Ofwat's examination of cost allowances for individual companies, which is that the model estimated post-Merger may generate different estimates of parameters and efficient costs, but that these new estimates are not necessarily 'more or less useful' (Pennon response to CMA issues letter, paragraph 34). If the merger does not change the true value of the parameters in the population, then it is not clear that it would affect the variance of unobservable and observable factors in the population.

precision of regression results.¹³⁶ For this reason, the CMA considers that, at least in the context of a Phase 1 inquiry, it is appropriate to place weight on the General approach, which only considers the impact on precision of a change in the sample size. The General approach always points to a reduction in precision, but that reduction can be more or less substantial given the circumstances of the case. In this case, the General approach points to a reduction in precision of [0-5]%, and the Specific approach points to more mixed results across models. The CMA considers that, taken together, the quantitative evidence indicates that the merger could lead to a loss of precision.

109. The CMA's view is that these results, while mixed, confirm that there is a realistic prospect that the Merger may lead to a loss of precision thus prejudicing Ofwat's ability to carry out its functions to use comparative regulation.

Enhancement costs

110. Within Ofwat's framework, the enhancement allowance is intended to cover the costs of the water companies undertaking investment to enhance the resilience, capacity or quality of service beyond a base level, such as building a new reservoir or treatment works, building strategic interconnectors to connect up parts of the network, and introducing new measures to protect wildlife.
111. In this section the CMA focuses on those enhancement costs where Pennon and Ofwat disagree. The CMA summarises Pennon's submissions, Ofwat's view and provide its own assessment for the Merger impact on those areas which the submissions focused on, namely lead standards and metering enhancement, and supply/demand balance enhancement.
112. The CMA does not discuss precision of the enhancement models in this section as Ofwat did not provide a view on this. Oxera estimated the impact of

¹³⁶ Suppose for example that, when examined retrospectively, the merger removed an 'outlier', ie a company whose costs significantly deviated from predictions. Taken at face value, the specific approach would indicate that the merger has improved precision. An alternative perspective is that an 'outlier' does in fact provide useful information on the values that observations could take in future samples/reviews, and the loss of such observations does not constitute a genuine increase in model precision but instead a loss in information about relatively rare but potentially relevant events.

the Merger on the precision of some enhancement models and found mixed results.¹³⁷

Lead standards and metering enhancement

113. Oxera's static approach estimated an increase in enhancement expenditure of [X] over 5 years for lead and metering enhancement respectively.¹³⁸ Oxera re-estimated Ofwat's lead standards and metering enhancement cost allowance using South West Water and Bristol Water as a single comparator:

(a) The lead standards enhancement cost allowance is based on a panel regression model, a unit cost model, deep dive information, and company's forecast.¹³⁹ Oxera updated the unit cost model and the regression model to simulate the Merger, but the underlying regression coefficients were not updated;

(b) The metering enhancement cost allowance is based on two regression models (levels and logs), deep dive information and company forecasts.¹⁴⁰ Oxera have updated both regression models to simulate the Merger.

114. Oxera's forward-looking approach estimated the lead standards and metering enhancement models and found an increase in enhancement expenditure of [X] over 25 years from PR24.

115. Ofwat disagreed with Oxera's static methodology for estimating the Merger impact on lead standards and metering enhancement. Ofwat re-estimated the suite of models used to assess enhancement costs considering the impact on the coefficients in the regression models (assuming the Merger took place in 2016/17). Ofwat's analysis found an increase in enhancement expenditure of [X] to lead standards and metering enhancement respectively.¹⁴¹

¹³⁷ Statistical approach for metering model estimated a loss of precision of [0-5]%. The general approach for metering model estimated a loss of precision of [0-5]%. The specific approach estimated an increase in precision of [0-5]% in the log metering model, and a [0-5]% loss of precision in the level metering model. The bootstrapping approach estimated a loss of precision of [250-350%]. in the log metering model, and an increase in precision of [5-10]% in the level metering model. The qualitative approach estimated an increase in standard deviation for the cost drivers in the lead standards and metering models. See Final Merger Impact Assessment, paragraph 8.69 (Table 9).

¹³⁸ Oxera, *Annex A: cost benchmark (8 October 2021)*, Figure 2.3, submitted as part of the Merger Impact Assessment.

¹³⁹ Ofwat, [Wholesale Water Enhancement feeder model: Lead standards](#), "Cover" tab.

¹⁴⁰ Ofwat, [Wholesale Water Enhancement feeder model: Metering](#), "Cover" tab.

¹⁴¹ Final Ofwat Opinion, paragraph 3.48.

116. Ofwat disagreed with Oxera's forward-looking approach to estimate the Merger impact enhancement expenditure because enhancement costs are not modelled by reference to the upper quartile (as Oxera's approach considers). In addition, Ofwat submitted Oxera's forward-looking approach had a tendency to find a decrease in the cost allowance from mergers (discussed in paragraph 53) and substantially less weight should be placed on it.¹⁴²

Supply/demand balance model

117. Oxera submitted Ofwat provided additional leakage enhancement expenditure for companies that were forecast to reach upper quartile or better level of leakage performance. Oxera submitted the potential for detriment (or benefit) arises if the Merger results in the upper-quartile leakage benchmark becoming less (or more) challenging than if the two companies did not merge. A less stringent leakage benchmark results in more companies qualifying for additional leakage enhancement expenditure and/or those companies that already qualify for additional leakage enhancement expenditure receiving more.¹⁴³ Oxera estimated enhancement expenditure increased by [X%]¹⁴⁴ over 5 years using the static approach, and increased by [X%]¹⁴⁵ over 5 years using the forward-looking approach.
118. Ofwat disagreed with Oxera's methodology for estimating the Merger impact on the supply/demand balance model. Ofwat submitted Oxera only considered the leakage enhancement component of the supply/demand balance model, whereas Ofwat considered all components that are dependent on the industry structure, which additionally included 2020-25 supply-demand balance enhancement and long-term enhancement components.¹⁴⁶
119. Ofwat found the modelled allowance for the industry decreased by [X%], and the allowance of the merged entity increased by [150-250%] [X%]. Ofwat submitted the industry could be insufficiently funded to address the critical

¹⁴² Final Ofwat Opinion, paragraph 3.52.

¹⁴³ Oxera, *Annex A: cost benchmark* (8 October 2021), page 34, submitted as part of the Merger Impact Assessment.

¹⁴⁴ Oxera, *Annex A: cost benchmark* (8 October 2021), Table 3.5, submitted as part of the Merger Impact Assessment.

¹⁴⁵ Oxera, *Annex A: cost benchmark* (8 October 2021), Table 3.4, submitted as part of the Merger Impact Assessment.

¹⁴⁶ Final Ofwat Opinion, paragraphs 3.51 and A2.37.

issue of supply/demand balances and there was no obvious alternative approach that would address the problem at future controls.¹⁴⁷

120. Ofwat disagreed with Oxera's forward-looking approach for the same reasons as discussed in paragraph 116.¹⁴⁸
121. Pennon, in response to the CMA's Issues Letter, noted that it had not received the underlying data and modelling files used by Ofwat.¹⁴⁹ Pennon also noted that it was not clear how the Merger between South West Water and Bristol Water could impact the industry supply/demand enhancement allowance outside of leakage enhancement because:¹⁵⁰
 - (a) 2020-25 supply/demand balance is not affected by industry structure as all companies have different issues and Bristol Water is not joined to South West Water so cannot directly affect the supply/demand balance.¹⁵¹
 - (b) Long-term supply/demand balance is driven by growth, climate change, and environmental needs. These are not affected by industry structure.¹⁵²

CMA assessment

122. Ofwat and Oxera agree the Merger increases lead standards and metering enhancement expenditure costs using the static approach; however, they disagree on the methodology used to estimate this impact. Ofwat estimated an increase in lead standards and metering enhancement expenditure of [X] compared to Oxera's estimate of [X] over 5 years. These estimates are relatively similar regardless of methodology.
123. Ofwat and Oxera also disagree on the impact of the Merger on the supply/demand balance model because of a difference in methodology. Ofwat estimated a decrease to the industry cost allowance and Oxera estimated an increase to the industry cost allowance. The CMA cannot provide an explanation for this difference in methodology as Ofwat did not provide the underlying data and modelling files. Although Ofwat estimated a decrease, Ofwat believes this will nonetheless be detrimental to the water industry. The

¹⁴⁷ Final Ofwat Opinion, paragraph 3.51.

¹⁴⁸ Final Ofwat Opinion, paragraph 3.52.

¹⁴⁹ Pennon's response to CMA Issues Letter, paragraph 41

¹⁵⁰ Pennon's response to CMA Issues Letter, paragraph 43

¹⁵¹ Pennon's response to CMA Issues Letter, paragraph 44

¹⁵² Pennon's response to CMA Issues Letter, paragraph 44

CMA places weight on Pennon's view that it is unclear how the Merger is expected to impact 2020-25 and long-term supply/demand balance. However, the CMA found both Ofwat and Oxera interpret the impact of the Merger to be detrimental, and the industry may be overfunded or underfunded to address the critical issue of supply/demand balance.

124. The CMA places significant weight on Ofwat's view that Oxera's forward-looking approach is inappropriate for estimating enhancement costs. In PR19 enhancement costs for lead standards and metering were not estimated with reference to an upper quartile benchmark, and the CMA accordingly agrees it would be inappropriate to use the impact on the cost benchmark as a basis to model the impact of the Merger.
125. The CMA's view is that the Merger may have a detrimental impact on lead standards, metering, and supply/demand balance enhancement expenditure thus prejudicing Ofwat's ability to carry out its functions to use comparative regulation.

Loss of a company with important similarities and differences

126. A merger in the wholesale water sector can lead to the loss of a company with important similarities or differences to the remaining companies. This could affect Ofwat's ability to make comparisons across companies that are operating in similar circumstances facing similar issues,¹⁵³ or across companies with important differences. For example, differences can take the form of best practice in some areas, or the use of innovative approaches. A company can also be a valuable comparator because it may help Ofwat assess how companies perform in particularly challenging conditions. The loss of a comparator with important similarities or differences as a result of the Merger can have an adverse impact on Ofwat's use of comparators.¹⁵⁴
127. In this section, the CMA summarises Pennon's view, Ofwat's opinion, and provides its own assessment.

¹⁵³ [Water Mergers Guidance](#), paragraph 4.20.

¹⁵⁴ [Water Mergers Guidance](#), paragraph 4.21.

Pennon's view

128. Pennon does not consider Bristol Water to have uniquely innovative approaches.¹⁵⁵
129. Pennon reviewed Ofwat's PR19 initial assessment of business plans to compare South West Water and Bristol Water's grading on areas of important comparison (e.g. demonstrating best practice in customer engagement).¹⁵⁶ Pennon found that Bristol Water did not perform better than South West Water in these areas, and South West Water expects to retain its high performance with respect to business planning.¹⁵⁷
130. Pennon's advisors, Oxera found that Bristol Water had the highest weighted average treatment complexity, and hence losing Bristol Water as an independent comparator may reduce the explanatory power of the treatment complexity variable.¹⁵⁸
131. Pennon does not consider Bristol Water to be an important density comparator.¹⁵⁹ Oxera's qualitative analysis of the distribution of cost drivers indicated neither Bristol Water nor South West Water were unique comparators with respect to the operational characteristics it considered.¹⁶⁰

Ofwat's view

132. Ofwat disagreed with Pennon's finding that Bristol Water is not an important density comparator. Ofwat submitted South West Water and Bristol Water differ from each other in all relevant cost drivers, particularly in scale and density.¹⁶¹
133. Ofwat submitted that the accuracy with which it models the impact of density on costs is diminished by the loss of Bristol Water as a comparator. Ofwat submitted that this impact might be most noticeable [✂] but will impact any company with atypical density.¹⁶²

¹⁵⁵ Final Merger Impact Assessment, paragraph 8.111.

¹⁵⁶ Final Merger Impact Assessment, paragraph 8.115.

¹⁵⁷ Final Merger Impact Assessment, paragraph 8.117.

¹⁵⁸ Final Merger Impact Assessment, paragraph 8.109.

¹⁵⁹ Final Merger Impact Assessment, paragraph 8.112.

¹⁶⁰ Final Merger Impact Assessment, paragraphs 8.113 and 8.114.

¹⁶¹ Final Ofwat Opinion, paragraph 3.12.

¹⁶² Final Ofwat Opinion, paragraph 3.37

Pennon's response

134. Pennon submitted that Ofwat had not examined the relevant question when assessing the value of Bristol Water and South West Water as comparators.¹⁶³ Pennon submitted that the correct test is whether the merger results in a loss of a company with important similarities to the remaining companies (not whether South West Water and Bristol Water are different from each other).¹⁶⁴ Also, Pennon submitted that Ofwat's concern that Bristol Water and South West Water being materially different in terms of scale and density is not relevant as both companies appear to be close to the average.¹⁶⁵
135. Pennon submitted that the variation in the density variable increases rather than reduces, and the standard errors of the density coefficients reduce as a result of the Merger.¹⁶⁶ Pennon also submitted that the merged entity becomes slightly larger and more comparable to larger companies such as [REDACTED], which is a potential reason why the Merger improves precision of the base cost allowance for [REDACTED].¹⁶⁷
136. Pennon also submitted that where some variation is lost such as for treatment complexity, companies have already projected significant change such that its variability in PR24 would have been reduced.¹⁶⁸

CMA assessment

137. The CMA accepts Pennon's submission that the correct test is whether the merger results in a loss of a company with important similarities or differences to the remaining companies. In following this test, the CMA examined the distribution of companies' cost drivers and found that:
- (a) Bristol Water is similar to [REDACTED] for weighted average water treatment complexity; and
 - (b) South West Water is similar to [REDACTED] for weighted average population density.

¹⁶³ Pennon's response to CMA Issues Letter, paragraph 67

¹⁶⁴ Pennon's response to CMA Issues Letter, paragraph 67

¹⁶⁵ Pennon's response to CMA Issues Letter, paragraph 72

¹⁶⁶ Pennon's response to CMA Issues Letter, paragraph 72 and 76

¹⁶⁷ Pennon's response to CMA Issues Letter, paragraph 73

¹⁶⁸ Pennon's response to CMA Issues Letter, paragraph 71(iii)

138. The CMA considers that these similarities between Bristol Water and [X] and South West Water and [X], respectively, imply that the Merger will result in the loss of a company with important similarities in treatment complexity and density.
139. Neither Pennon nor Ofwat found that the Merger would deteriorate the ability of companies to share best practices.
140. The CMA discusses the standard deviation of cost drivers and precision of the models, which are impacted by the loss of a company with important similarities, in the impact on the precision of the models section (paragraphs 83 to 109).
141. The CMA therefore, for the reasons set out above, considers that the Merger may lead to a loss of a company with important similarities in treatment complexity and density thus prejudicing Ofwat's ability in carrying out its functions to use comparative regulation.

Performance commitments (PCs) and outcome delivery incentives (ODIs)

142. In PR19, Ofwat set a level of outcome targets for certain Performance Commitments (PCs) together with a package of financial and reputational Outcome Delivery Incentives (ODIs). PCs and ODIs were linked to penalties or rewards which would be realised depending on whether a relevant water company failed to meet, or surpassed, the targets set for that company. PCs and ODIs cover a range of outcomes, including water supply interruptions, support for vulnerable customers, customer experience, and other outcomes relating to statutory obligations, asset health and resilience.
143. The approach followed by Ofwat in setting PCs and ODIs involves consideration of past service performance, evidence of customer and stakeholder research into their service priorities and willingness to pay for changes, and comparisons across the companies. Comparisons across companies for PCs were based on setting stretching targets, and for ODI rates comparisons were used to determine any outliers, ie unusually high or low rates proposed as rewards or penalties.
144. Comparators are important since Ofwat expects the targets to be sufficiently stretching, particularly where a company's current service standards are lower than that of its comparators. At PR19, there were fifteen Common PCs across

the industry, of which ten applied to the water service only. In addition, companies could have their own bespoke PCs.

145. There are two approaches used to assess the impact of a loss of a comparator from a merger on the outcomes framework:
- (a) Static approach – this looks at the historical impact using the PR19 period. It compares the performance rank of the merged party (weighted by population or property numbers) against their position in the previous three years. The loss of a high performing company would lead to a detriment expressed in NPV terms over a 5-year period (ie the price control period).
 - (b) Forward-looking approach – this assesses the hypothetical impact on setting the upper quartile (**UQ**) at the next price review at PR24 and specifically the impact on net ODI penalties levied on companies. If one of the best performers in the sector is lost then a detriment arises, conversely losing one of the worst performers leads to a benefit. This analysis looks at the likelihood of either of the two merging companies being at UQ at PR24, taking into consideration their starting position and whether good performance would be diluted or shared in the future given the relative sizes of the merging parties. Again, a 5-year NPV impact is estimated, this time for the AMP8¹⁶⁹ period (2025-30).

Pennon's submissions

146. Pennon estimated the impact of the Merger on each of the Common PC's based on the static and forward-looking approach. There was however some variation in the extent to which the individual PCs were considered, as there are differences in the extent to which comparators are used to determine the service targets set at price reviews. Therefore, the submissions from Pennon focussed on two Common PCs and ODIs – supply interruptions and C-MeX, and, to a lesser extent, leakage. The other Common PCs were briefly

¹⁶⁹ An Asset Management Period (AMP) is the term given to the five-year period covered by a water company's business plan. AMP1 refers to the first planning period after the water industry was privatised and this covers the period from 1990 to 1995. The current AMP is AMP7, which will cover 2020 to 2025. See Yorkshire Water, July 2020, <https://www.yorkshirewater.com/media/2s3dwr4h/glossary-of-regulatory-terms.pdf>, page 3.

reviewed but Pennon considered that most of the other PCs and ODIs were not substantially based on comparators.¹⁷⁰

Supply interruptions

147. Supply interruptions, based on the time that customers experience a loss of water supply, was one of three PCs that Ofwat set targets for every company based on the current UQ standards. The other two PCs benchmarked against UQ performance were related to wastewater services, and therefore are not affected by the Merger. For supply interruptions, neither South West Water or Bristol Water are UQ performers and hence Pennon concluded that there is unlikely to be a detriment. South West Water are currently ranked 9th and Bristol Water is ranked 8th, which is also the expected rank of the Merged Entity. Therefore, the UQ is not affected and the loss of a relatively poor performer (not UQ) leads to a small benefit in the static approach and a negligible detriment in the forward-looking approach.

C-MeX

148. C-Mex is a measure of the customer experience. Pennon stated that it is difficult to model the impact of the Merger due to the limited performance data available. C-MeX will pay rewards or impose penalties based on company performance in each year of AMP7 relative to the median.
149. Relative historic performance data on C-MeX is only available since 2019-20. South West Water are ranked 11th and Bristol Water are 8th, with the merged company being 10th. The median is between rank 8th and 9th. Pennon acknowledged that in the static approach there is a small impact of the Merger by lowering the median position slightly, leading to more rewards and less penalties. In the forward-looking approach, which predicts the likelihood of possible changes to future rankings, Pennon noted that there is a benefit predicted that is larger than the detriment in the static approach. Pennon also noted that continued separate reporting of C-MeX performance would make the impact of the Merger even less significant.

¹⁷⁰ Oxera, *Annex C: ODIs and C-Mex* (8 October 2021), page 9, submitted as part of the Merger Impact Assessment.

Leakage

150. At PR19, the leakage targets were based on an absolute target of at least a 15% leakage reduction, rather than through comparative data. Pennon therefore considers that there is potentially no detriment to the comparative regime on leakage when considering the PR19 position taken by Ofwat. Pennon acknowledged that at PR19, funding allowances for additional investment in leakage reduction activities was permitted for high performers, those at or beyond upper quartile. Bristol Water and South West Water are both high performers on leakage, being beyond upper quartile. Bristol are ranked 2nd and South West Water are 4th. The Merged Entity is expected to be ranked 3rd, still better than the upper quartile benchmark. However, the Merger would result in a small reduction in the upper quartile challenge if that applied and hence Pennon estimates a detriment of [redacted] over 5 years.¹⁷¹ The CMA considers that this value needs to be noted in the context that Ofwat did not apply an UQ challenge to leakage targets at PR19, so this estimate does not reflect current approaches to leakage target setting. The only current relevance of the UQ position for leakage levels was for use in determining enhancement funding to finance further leakage reductions for strong performing companies.

Other PCs/ODIs

151. Pennon noted that the other PCs are not strictly set based on comparative performance. However, following an information request from us, Pennon presented further analysis to estimate the likely benefit or detriment from the Merger on these metrics.

Overall position

152. Overall Pennon estimates the impact of the Merger on ODIs ranges from a detriment of [redacted]¹⁷² for supply interruptions and other ODIs over 5 years, through to a benefit of [redacted].¹⁷³ over 10 years for the impact of changes from

¹⁷¹ Oxera response to s.109, 8 October 2021, Table 4.1

¹⁷² Final Merger Impact Assessment, Table 17. [redacted] is Pennon's total from what they refer to as 'Other ODIs' (Leakage, PCC, Water Quality Contacts, Unplanned Outage and D-MeX) - [redacted] detriment plus the forward-looking impact on Water Supply Interruptions (detriment of [redacted]).

¹⁷³ Oxera, *Annex C: ODIs and C-MeX* (8 October 2021), pages 3 and 17, submitted as part of the Merger Impact Assessment. [redacted] refers to the benefit found by Oxera in its 10-year NPV calculation of C-MeX.

the C-Mex assessment. If the impact of changes to C-Mex is considered over 5 years, then overall Pennon estimate a detriment of [REDACTED]¹⁷⁴.

Ofwat's opinion

153. Overall Ofwat estimated a potential detriment of [REDACTED]¹⁷⁵ across six ODI measures: leakage, PCC, water quality contacts, water supply interruptions, mains repairs and unplanned outages. Ofwat considered that only the static analysis is appropriate¹⁷⁶ as there is uncertainty over how ODIs and PCs will be incorporated into the PR24 approach and future price reviews. Ofwat's and Pennon's analysis was based on two slightly different approaches and this led to different results arising. Ofwat considered the impact on the actual performance commitment level used at PR19, whereas Pennon considers the impact on the UQ measure. Ofwat acknowledged that it is not clear that either of these approaches is superior in assessing future impacts, as their approach to outcomes continues to evolve.

154. Ofwat's estimated detriment of [REDACTED] is derived from the following estimations¹⁷⁷:

	Ofwat 5-year Static Assessment
Water Supply Interruptions	[REDACTED]
Leakage	[REDACTED]
Per capita consumption (PCC)	[REDACTED]
Water quality contacts	[REDACTED]
Mains repairs	[REDACTED]
Unplanned outages	[REDACTED]

155. Ofwat did not consider it appropriate to include an assessment of the impact of the Merger on the C-Mex assessment, which is the measure that Pennon

¹⁷⁴ Oxera's 5-year NPV forward-looking impact on C-MeX is a benefit of [REDACTED], so when combined with the impact on all the other PCs, Oxera's calculated impact on ODIs is a detriment of [REDACTED].

¹⁷⁵ Final Ofwat Opinion, paragraph 4.11

¹⁷⁶ Final Ofwat Opinion, paragraph 4.11

¹⁷⁷ Final Ofwat Opinion, Table 3

considers would benefit from the Merger. Ofwat's noted¹⁷⁸ that C-Mex is a relative measure assessing the differences from companies and therefore it would simply change the incentive rates accordingly if industry performance became more bunched together as a result of their being fewer comparators. Ofwat noted that C-Mex rewards companies which provide industry leading performance, and penalises companies which lag behind the industry. Ofwat therefore submitted that since C-Mex is purely a relative measure, it is not clear that the Merger would have a significant impact on this outcome.

156. Ofwat did not opine on all of the potential PCs and ODIs. It noted that the largest detriment was for unplanned outages, but also noted that this estimation was based on PR19 data when there was a wide variation in company performance. Ofwat noted¹⁷⁹ that since this date, convergence of performance has occurred in the industry and therefore, the detriment estimated for unplanned outages may be excessive. Ofwat also noted that further caution is needed in these assessments as ODIs are not derived mechanistically in this way and it has scope to evolve its approach at future price reviews¹⁸⁰.

CMA's assessment

157. In light of the analysis and representations from Pennon and Ofwat, the CMA considers that it is difficult to draw firm conclusions on the impact of the Merger on the outcomes framework. The CMA found that the static approach provides some useful insights into the potential benefits and detriments that may arise as a result of the Merger. However, the CMA also found that this analysis has limitations. For example, legitimate differences in estimated values have been provided and some of the values are both low and uncertain. It is clear that Ofwat's outcomes regime will evolve at future price reviews and it is probable that this evolution of the outcomes regime could reflect there being one less comparator.
158. The CMA may have raised concerns if the Merger had resulted in the loss of a leading performer, but this is not relevant in this case. The CMA considered the measures with the highest profile, those relating to C-Mex and leakage. For C-Mex, the CMA notes that Pennon estimated that the Merger would result in a benefit. The CMA further notes that Ofwat considered that it is not

¹⁷⁸ Final Ofwat Opinion, paragraph 4.10

¹⁷⁹ Final Ofwat Opinion, paragraph 4.12

¹⁸⁰ Final Ofwat Opinion, paragraphs 4.13 and 4.16

clear whether the impact of the Merger is applicable to C-Mex, given it is a relative measure. For leakage, both companies are high performers and the approach to leakage target setting at PR19 was not comparative. Therefore, it appears the merger impact on C-Mex and leakage target setting is not significant.

159. For the reasons outlined above, the CMA does not consider that the Merger is likely to adversely impact Ofwat's ability to use PCs and ODIs as part of its comparative regulation of the market.

Ofwat's ability to amend its approach to reduce the impact of the loss of a comparator

Pennon's view

160. Pennon submitted that it is possible for Ofwat to regulate effectively with a far smaller number of comparators than are currently available for water services.¹⁸¹ Pennon supported its conclusions using empirical evidence which indicated that loss of precision is merger-specific and that mergers do not necessarily result in a loss in precision,¹⁸² and additionally used examples of regulation with fewer comparators (wholesale wastewater models, other utility sectors including energy).¹⁸³
161. Pennon also submitted that Ofwat can choose from multiple possible regulatory approaches to mitigate any perceived detriment from the impact of a merger.¹⁸⁴ Pennon suggested approaches such as international/cross-sectoral comparisons, external benchmarking, bottom-up and engineering assessments, absolute (rather than relative) benchmarks, and relying on innovation from suppliers and sub-contractors in the relevant water sector.¹⁸⁵ Ofwat could also request sub-company cost data reporting across the sector to increase data points (as used in wastewater).¹⁸⁶

¹⁸¹ Oxera (8 October 2021), The number of comparators and effective regulation, page 10, submitted as part of the Merger Impact Assessment.

¹⁸² Oxera (8 October 2021), The number of comparators and effective regulation, Section 3, submitted as part of the Merger Impact Assessment.

¹⁸³ Oxera (8 October 2021), The number of comparators and effective regulation, Section 4, submitted as part of the Merger Impact Assessment.

¹⁸⁴ Oxera (8 October 2021), The number of comparators and effective regulation, page 10, submitted as part of the Merger Impact Assessment.

¹⁸⁵ Oxera (8 October 2021), The number of comparators and effective regulation, Section 5, submitted as part of the Merger Impact Assessment.

¹⁸⁶ Pennon's response to CMA Issues Letter, paragraph 84.

162. Pennon submitted, in response to CMA's Issues Letter, that since significant changes have been made to Ofwat's models between PR14 and PR19, it is credible that Ofwat has the ability to adapt its regulatory framework to mitigate any impact of the loss of a comparator.¹⁸⁷ Pennon also added that at PR24 Ofwat will have additional five years of data thereby improving its ability to make comparisons.¹⁸⁸ Pennon also stated that Ofwat had wide information gathering powers which can be used to request sub-company cost data reporting across the sector.¹⁸⁹

Ofwat's view

163. Ofwat disagreed with Pennon's proposition that a minimum number of comparators that are sufficient could be estimated for a diverse sector like water, without a consideration of each specific merger. Ofwat also submitted that it was important to recognise the difference between the water and energy sectors, and that a greater importance is placed on cost models when making cost assessments in the water sector.¹⁹⁰ In addition, Ofwat submitted that the water sector cannot be directly compared to other regulated sectors.¹⁹¹ Ofwat submitted that international comparisons in water are untested, but have been considered in the past and rejected.¹⁹² Ofwat further submitted that Pennon's empirical analysis was not credible as it was not merger-specific and did not take account of changes to the industry structure (eg the post-merger size of available comparators).¹⁹³

CMA assessment

164. The CMA considered that the changes to the modelling approaches proposed by Pennon are substantial and are untested in the water industry regulated by Ofwat. While Ofwat considers alternative modelling approaches in each price review process, the robustness of its current approach is already well-tested.
165. The amount of work that Ofwat would need to do to adapt its current approach as proposed by Pennon is likely to be substantial, and no evidence has been put forward to support the view that a revised model would produce

¹⁸⁷ Pennon's response to CMA Issues Letter, paragraph 9(v).

¹⁸⁸ Pennon's response to CMA Issues Letter, paragraph 83.

¹⁸⁹ Pennon's response to CMA Issues Letter, paragraph 84

¹⁹⁰ Final Ofwat Opinion, paragraph 3.15.

¹⁹¹ Final Ofwat Opinion, paragraph 3.42.

¹⁹² Final Ofwat Opinion, paragraph 3.41.

¹⁹³ Final Ofwat Opinion, paragraph 3.43.

comparisons of an equivalent quality that could be used by Ofwat. Moreover, the CMA gave substantial weight to Ofwat's opinion that a change of approach may well result in reduced precision and increased regulatory uncertainty.

166. The CMA does not agree with Pennon that additional time-series data can mitigate the loss of a comparator. This is because the additional time-series data would still have one less comparator due to the Merger.
167. The CMA does not give weight to Pennon's view that Ofwat could increase its data points by requesting sub-company reporting as this would not provide Ofwat with additional independent comparators, and it may be difficult to allocate costs to each sub-company.
168. Given the level of prejudice to Ofwat's ability to make comparisons that may be brought about by the Merger under the current approach, the CMA does not consider it credible that Ofwat could safely switch to an alternative approach absent a substantial re-evaluation of its methodologies. The CMA considers that there is a realistic prospect that a change in Ofwat's approach would not be sufficient to remove the likelihood of prejudice to its ability to make comparisons between water enterprises.

Consumer views

Pennon's views

169. The Parties submitted consumer research conducted in June 2021 with customers of South West Water, Bournemouth Water and Bristol Water. They conclude that 'the research shows that customers support a merger between Bristol Water and South West Water'.¹⁹⁴
170. Pennon further submitted that the survey provided insight into the benefits of the merger even though it may not directly inform the CMA's assessment of the statutory question.¹⁹⁵

¹⁹⁴ Final Merger Impact Assessment, paragraph 7.30.

¹⁹⁵ Pennon's response to CMA Issues Letter, paragraph 94.

Ofwat's views

171. Ofwat did not consider the evidence on customer support changed its views on the impact of the merger on its ability to regulate, for the following reasons:¹⁹⁶
- (a) Customers were highly unlikely to have a deep understanding of the econometric benchmarking regime and the effect of losing a comparator.¹⁹⁷ In addition, Pennon's explanation to customers about the negative impact of the changes on the comparison of the performance of all companies, as a result of the Merger, was vague.¹⁹⁸
 - (b) Customer support for the Merger was based on a flawed and inappropriate presentation of the Merger. For example, the benefits of the Merger are described in a way that led customers to believe they are guaranteed.¹⁹⁹
 - (c) Customer were asked leading questions. Ofwat found that support for the Merger was weaker or lacked support when the questions asked were more neutral or incorporated a balance between positive and negative outcomes.²⁰⁰
 - (d) It is unclear whether consumer views are representative of the whole customer base across both companies' areas. For instance, the South West region has a larger proportion of 65+ years residents than any other region, but as the focus groups and surveys were carried out online it may not be representative with older residents less keen to use online survey tools.²⁰¹

CMA assessment

172. The CMA has reviewed the research and agrees with Ofwat's views. The CMA considers that many of the questions are leading in nature, often presenting a positive and guaranteed aspect of performance or potential

¹⁹⁶ Final Ofwat Opinion, paragraph 6.3.

¹⁹⁷ Final Ofwat Opinion, paragraph 6.3.

¹⁹⁸ Final Ofwat Opinion, paragraph 6.6.

¹⁹⁹ Final Ofwat Opinion, paragraph 6.4.

²⁰⁰ Final Ofwat Opinion, paragraph 6.5.

²⁰¹ Final Ofwat Opinion, paragraph 6.7.

benefit of the Merger, and then asking the customer's view. Examples of this issue are:

(a) [REDACTED]

(b) [REDACTED]

(c) [REDACTED]

173. In relation to this last question, the CMA further notes that [REDACTED].
174. The CMA also found that the information provided to customers is misleading. For example, [REDACTED].
175. Customers do not choose their water company and therefore do not engage in search activity. Framing has the potential to have a particularly strong influence on survey responses in this context as customers are likely to be relatively uninformed and their views disproportionately conditioned by the information provided, and the way it is presented, within the survey itself.
176. Moreover, while properly-conducted survey evidence may be informative of consumer views, the CMA does not consider that this evidence is relevant for the purpose of informing any assessment of the statutory question, whether the Merger results in prejudice to Ofwat's ability to make comparisons between water enterprises and whether any relevant customer benefits outweigh that prejudice. Pennon agrees with this view.²⁰²
177. The CMA therefore has not given any weight to this survey evidence.

Retail residential

178. Pennon submitted the Merger is unlikely to have an impact on the number of independent comparators in the residential retail service area and so there would be no impact on the retail cost benchmark or on model precision.²⁰³
179. Ofwat agreed with Pennon that the Merger is unlikely to have a meaningful detriment on its ability to regulate cost of retail activities. Ofwat noted that Bristol Water and Wessex already jointly undertake retail activities, and that it

²⁰² Pennon's response to CMA Issues Letter, paragraph 94.

²⁰³ Final Merger Impact Assessment, paragraphs 8.59-8.61 and 8.66.

was therefore not evident that any transfer of activities would lead to a meaningful loss of a comparator.²⁰⁴

180. The CMA placed substantial weight on Ofwat's view that the Merger is unlikely to have a meaningful detriment on their ability to regulate the cost of retail activities, in particular in light of the pre-existing joint retail activities carried out by Bristol Water and Wessex. To the extent Pennon and Ofwat agree that there would be no significant detriment to Ofwat's ability to regulate the cost of retail activities, the CMA has not further assessed Oxera and Ofwat's methodology and analysis.

Benefits

181. Under the special water regime, if the CMA finds that a Merger has prejudiced or is likely to prejudice Ofwat's ability to make comparisons between water enterprises, then it may consider whether this prejudice is outweighed by RCBs.
182. RCBs are limited to benefits to 'relevant' customers in the form of:
- (a) lower prices, higher quality or greater choice of goods or services in any market in the UK; or
 - (b) greater innovation in relation to such goods and services.²⁰⁵
183. Relevant customers are customers of the merging enterprises at any point in the chain of production and distribution and are therefore not limited to final consumers, and include future customers.²⁰⁶
184. In addition to falling within the description of RCBs, the CMA must believe that the benefit has accrued as a result of the merger, or is expected to accrue within a reasonable time period as a result of the merger, and that the benefit was, or is, unlikely to accrue otherwise.²⁰⁷
185. The CMA will disregard any benefits that might arise from commitments that the parties may wish to offer but that do not meet the criteria of a relevant customer benefit.²⁰⁸ In order to reach a finding that benefits arising from a

²⁰⁴ Final Ofwat Opinion, paragraphs 3.54 and 3.57.

²⁰⁵ [Water Mergers Guidance](#), paragraph 5.3

²⁰⁶ [Water Mergers Guidance](#), paragraph 5.4

²⁰⁷ [Water Mergers Guidance](#), paragraph 5.5

²⁰⁸ [Water Mergers Guidance](#), paragraph 5.6

merger may outweigh any prejudice, the CMA would have to be persuaded on the basis of compelling evidence that such benefits were merger-specific, realistic, and would be passed through to customers.²⁰⁹

Parties' views

186. Pennon submitted that the Merger would generate a number of benefits for customers.
187. The CMA considered that several of these benefits were not quantified. In particular, Pennon noted that the Merger would result in benefits to the Parties' own customers due to: (1) the increased participation of customers in WaterShare+²¹⁰, (2) improved service performance, (3) environmental benefits, (4) reduced risk to outcomes²¹¹, (5) increased financial robustness²¹², and (6) Pennon's ability to take better decisions with a long-term focus.
188. The CMA notes that these purported benefits have not been quantified or qualitatively assessed as to how they would result in lower prices, higher quality, greater choice of goods or services; or in greater innovation in relation to such goods and services.²¹³
189. Pennon also suggested that the Merger would result in a number of sector-wide benefits, namely: (1) improved comparators for cost, (2) improved comparators for performance, (3) improved cost of equity assessments, (4) increased presence of investors with a long-term focus on water, (5) increased governance; transparency; and openness, and (6) reduced sector risks around failing financial companies.²¹⁴

²⁰⁹ [Water Mergers Guidance](#), paragraph 5.12

²¹⁰ WaterShare+ is a mechanism to share gains from company performance with customers in a transparent way e.g. through bill reductions, option to receive shares in Pennon, reinvestment agreed with an independent panel of customer and stakeholder representatives. See Final Merger Impact Assessment, paragraph 9.21

²¹¹ Pennon submitted that it can provide Bristol Water with knowledge and access to significant financial and technical resources. Pennon submitted that this will allow Bristol Water customers to benefit through better risk management, quality improvements, and efficiency gains [redacted]. See Final Merger Impact Assessment, paragraphs 9.52-9.56

²¹² Pennon submitted that the Merger will [redacted]. See Final Merger Impact Assessment, paragraphs 9.57-9.62

²¹³ [Water Mergers Guidance](#), paragraph 5.3. In addition, see paragraph 7 of Schedule 4ZA to the WIA91 (which applies in Phase 1 pursuant to section 33A(5) of WIA), and section 30 of the Act as modified by regulation 6 of the Water Merger Regulations.

²¹⁴ See Final Merger Impact Assessment, paragraphs 9.66-9.87

190. The remaining two benefits that have been quantified by Pennon, with an estimated net present value (NPV) of [REDACTED], are:²¹⁵
- (a) The elimination of the so-called Small Company Premium (SCP); and
 - (b) The creation of synergies contributing to totex savings.
191. The CMA considers that the elimination of the SCP represents a reduction of c. 30bps from Bristol Water's embedded cost of debt in AMP7. Pennon stated that this amounts to savings equal to a NPV of around [REDACTED] over the remaining years of AMP7;²¹⁶ and beyond AMP7, benefits of c. [REDACTED] a year could be assumed to continue until [REDACTED], providing, in NPV terms, around [REDACTED] of benefits to consumers.
192. Pennon in response to the CMA's Issues Letter, noted [REDACTED].²¹⁷ Pennon also noted that [REDACTED].²¹⁸
193. Pennon estimated that the Merger could create [REDACTED] cost savings a year.²¹⁹ Of these, a total of c. [REDACTED] per annum will be passed on to consumer after 2025 through the totex incentive mechanism.²²⁰ Pennon noted that several of these benefits require combined licences and price controls.²²¹
194. Pennon further submitted that:
- (a) it is reasonable and legitimate to use synergies from Pennon's acquisition of Bournemouth as a reference point to estimate cost savings that arise from the Merger.²²²
 - (b) its analysis of costs per driver (for example, distribution input for wholesale and customers for retail) identified that there were considerable savings in the combined businesses. Pennon noted that this analysis broadly aligned with its detailed synergy analysis.²²³ Pennon noted that only [REDACTED] per annum cost savings are required to eliminate the worst case

²¹⁵ FMN, Table 2.

²¹⁶ FMN, paragraph 9.8.

²¹⁷ Pennon's response to CMA Issues Letter, paragraph 99-100.

²¹⁸ Pennon's response to CMA Issues Letter, FN 100

²¹⁹ FMN, paragraph 9.12.

²²⁰ FMN, paragraph 9.17.

²²¹ FMN, paragraphs 9.17-9.19

²²² Pennon's response to CMA Issues Letter, paragraph 101. Pennon stated that it recognised that Bristol Water is a different company to Bournemouth and that it had taken account of such differences in calculating cost savings. Pennon further noted that cost savings calculations are also based on using a bottom-up approach as well as publicly available data sources.

²²³ Pennon's response to CMA Issues Letter, paragraph 107.

detriment (based on Oxera's modelling).²²⁴ Pennon also noted that on the basis of Ofwat's static model, less than [10-20]% of the proposed synergies would be sufficient to change the outcome to a benefit.²²⁵

- (c) It has been unable to conduct an exact assessment of efficiencies as it is subject to restrictions on information sharing as a result of the imposition of an Initial Enforcement Order imposed by the CMA.²²⁶
- (d) Pennon submitted that Ofwat's criticism that [redacted] is misplaced. Pennon noted that [redacted].²²⁷ Pennon further noted that the lack of quantification should not invalidate the innovation benefits that arise.
- (e) Pennon submitted that [redacted].²²⁸
- (f) Pennon also noted that [redacted].²²⁹

Ofwat's views

195. In each case, Ofwat either considered Pennon's proposed benefits not to be RCBs for the purposes of the CMA's assessment, or to the extent the benefits were considered relevant, considered that they would not outweigh the prejudice to Ofwat's ability to regulate the water sector.

- (a) Ofwat disagreed with Pennon on whether some of the benefits were Merger-specific.²³⁰
- (b) Ofwat disagreed with Pennon that the Merger-specific benefits were sufficiently evidenced either as being sufficiently likely to occur or whether they'll be realised at the scale Pennon suggests.²³¹

196. Ofwat submitted it was also appropriate to account for the distributional impacts that are expected to occur.²³² In particular, the proposed benefits, to the extent they are realised, would benefit the customers of the Merged Entity, however, the detriment impacts customers of other companies.

²²⁴ Pennon's response to CMA Issues Letter, paragraph 102.

²²⁵ Pennon's response to CMA Issues Letter, paragraph 64.

²²⁶ Pennon's response to CMA Issues Letter, paragraph 102.

²²⁷ Pennon's response to CMA Issues Letter, paragraph 112

²²⁸ Pennon's response to CMA Issues Letter, paragraph 113

²²⁹ Pennon's response to CMA Issues Letter, paragraph 115

²³⁰ Final Ofwat Opinion, paragraph 5.1.

²³¹ Final Ofwat Opinion, paragraph 5.1.

²³² Final Ofwat Opinion, paragraph 5.4.

197. Ofwat agreed with Pennon that the removal of the SCP would provide a benefit to customers over AMP7 and agreed with Pennon's calculation that [X] should be returned to customers over 2022-2025. However, Ofwat disagreed with Pennon's calculation that the overall benefit was [X] because Ofwat did not agree [X].²³³
198. Ofwat agreed in principle that the Merger can be beneficial through [X].²³⁴ However, Ofwat disagreed that the cost reductions proposed by Pennon will be realised for the following reasons:
- (a) Ofwat observed that Pennon did not explain how reductions in costs would be achieved. Ofwat stated that Pennon did not explain how [X].²³⁵
 - (b) Ofwat also submitted that it is unclear whether the efficiencies submitted by Pennon are Merger specific.²³⁶ Ofwat submitted that efficiencies could be achieved in other ways such as outsourcing, increased home working, reorganisation of inputs, introduction of more efficient ways of working, reduced personnel and central services costs, and improved procurement. In addition, Ofwat's analysis on the historical impact on mergers showed that low performing companies can become high performing companies without merging, and merged companies can become relatively less efficient post-merger.²³⁷
 - (c) Pennon's methodology to quantify efficiencies raised the following concerns for Ofwat:²³⁸
 - (i) The estimated efficiencies are based on the South West Water/Bournemouth merger, but Pennon did not demonstrate that the cost savings resulted from that merger (instead of the regulatory challenge imposed by Ofwat or during the normal course of business).
 - (ii) The realised operational savings following South West Water/Bournemouth were lower than Pennon had forecasted at the

²³³ Final Ofwat Opinion, paragraph 5.6.

²³⁴ Final Ofwat Opinion, paragraph 5.10.

²³⁵ Final Ofwat Opinion, paragraph 5.10 (a).

²³⁶ Final Ofwat Opinion, paragraph 5.10 (b).

²³⁷ Final Ofwat Opinion, Annex 3.

²³⁸ Final Ofwat Opinion, paragraph 5.10 (c).

time of the merger assessment ([REDACTED] made up a greater proportion of total savings than originally planned).

(iii) Pennon assumed there are similarities between the South West Water/Bournemouth and this Merger. Ofwat disagreed this is a reliable assumption. South West Water is 10 times the size of Bournemouth Water, whereas South West Water is three times the size of Bristol Water, hence Bristol Water may already have achieved scale economies over Bournemouth Water.

(iv) [REDACTED].

(d) Ofwat disagreed with Pennon's view that retail efficiencies would be passed back to customers through Totex sharing.

(e) Ofwat disagreed with Pennon's estimated reduction in customer bills. Ofwat submitted that savings beyond 2024 would only be passed back to customers insofar as they are realised through cost sharing rates, and are not otherwise included in general sector efficiency expectations.

199. Ofwat agreed with Pennon that the WaterShare+ scheme could provide benefits to Bristol Water's customers. Ofwat also agreed that it is reasonable to consider this benefit to be Merger-specific. Ofwat noted that it is not aware whether Bristol Water had a plan to implement a similar scheme and, to date, South West Water is the [REDACTED].²³⁹ However, Ofwat disagreed that there is an aggregate benefit as [REDACTED]. Ofwat submitted this benefit was not quantified.

200. Ofwat agreed with Pennon that improvements in service performance can arise from [REDACTED] following a merger. However, Ofwat disagree on the following: (i) whether these benefits are deliverable as Pennon has not explained how these benefits will be achieved; and (ii) whether the benefits are Merger-specific. Ofwat notes that companies can, and do, improve service performance out with the context of mergers and, moreover, [REDACTED].²⁴⁰ Ofwat also submitted Pennon has not quantified these benefits.²⁴¹

201. Ofwat disagreed with Pennon that the environmental and resilience benefits are clearly Merger-specific as some companies have improved in this area without merging.²⁴² Ofwat also disagreed that the benefits will be deliverable

²³⁹ Final Ofwat Opinion, paragraph 5.12.

²⁴⁰ Final Ofwat Opinion, paragraph 5.15.

²⁴¹ Final Ofwat Opinion, paragraph 5.14.

²⁴² Final Ofwat Opinion, paragraph 5.17.

as South West Water is a poor performer on environmental outcomes.²⁴³ Ofwat also submitted Pennon's proposed benefits to [REDACTED] are uncertain.

202. Ofwat disagreed with the other benefits proposed by Pennon are relevant customer benefits (reduced risk to long-term outcomes, increased financial robustness, optimal decisions for customers, improved cost of equity comparisons) as these are not clearly Merger-specific, lack sufficient evidence that they will be realised, and were not quantified.

CMA assessment

203. The CMA reviewed Pennon's submissions and took into account Ofwat's opinion. Pennon did not provide enough evidence to support the characterisation of most of its benefit claims as RCBs. In fact, most of Pennon's benefit claims were not quantified nor supported by concrete evidence.
204. In relation to the two benefit claims for which Pennon provided quantitative evidence, the CMA has considered the quality of the evidence and the size of the benefit put forward:
- (a) The first is [REDACTED]. The CMA considers this to be likely, Merger-specific, quantified, and well-evidenced. However, Ofwat's opinion poses questions on its estimated size. Ofwat stated that, absent the Merger, [REDACTED]. However, [REDACTED]. This is driven by the shorter time horizon when calculating the net present value of the benefit based on the assumption that [REDACTED].
 - (b) The second is cost synergies. These include a variety of cost savings that Pennon estimated based on its experience from the acquisition of Bournemouth. The CMA found that these cost savings are not supported by strong evidence. Their quantification is based on Pennon's experience of Bournemouth's acquisition but, as Pennon itself admitted, it was not possible to use Merger-specific evidence to quantify and support these claims.²⁴⁴ Moreover, although it is not clear the extent to which the identified cost savings are Merger-specific, some of them ([REDACTED]) could at least partly, be achieved even in absence of the Merger.

²⁴³ Final Ofwat Opinion, paragraph 5.17.

²⁴⁴ Final Merger Impact Assessment, paragraph 9.12 states '[REDACTED].'

205. The CMA considered the quality of the evidence for the following qualitative benefits:

(a) [REDACTED].

(b) Improved service performance. Pennon and Ofwat agree that improvements in service can arise from [REDACTED] following the merger. However, the CMA takes account of Ofwat's view that it is unclear whether this benefit is merger-specific as (i) service improvements could be achieved absent the merger (ii) [REDACTED]. Also, the CMA do not have sufficient evidence on how this benefit will be realised.

(c) Environmental benefits. The CMA takes account of Ofwat's view that it is unclear whether the environmental benefits are merger-specific as (i) some companies improved in this area absent the Merger (ii) the Merger may mitigate some coordination problems regarding water access, however, it is uncertain whether water transfers between the South West Water and Bristol Water region would be cost effective. The CMA do not have sufficient evidence on how this benefit will be realised. The CMA also take account of Ofwat's view that South West Water has been a poor performer on environmental outcomes.

(d) Reduced risk to outcomes. The CMA takes account of Ofwat's view that it is unclear whether the reduced risks to outcome benefits are merger specific as some water companies can improve in this area absent the Merger. Also, the CMA do not have sufficient evidence on how this benefit will be realised.

(e) Increased financial robustness. The CMA believes it is reasonable that customer benefits may arise if South West Water and Bristol Water have improved financial resilience [REDACTED]. However, the CMA takes account of Ofwat's view that this benefit is not merger-specific as other water companies have achieved these benefits absent the Merger, for example, by introducing new equity or reducing borrowing.

(f) Pennon's ability to take better decisions with a long-term focus. The CMA do not consider this benefit to be merger-specific as water companies are able to take a longer-term view absent the Merger. The CMA also take account of Ofwat's view that South West Water has been a relatively poor performer on issues that are key for the long-term performance of the water sector such as environmental performance and water efficiency.

206. The CMA acknowledges Ofwat's view that the relevant customer benefits arise only to the customers of the Merged Entity and not to customers of other companies that may also be affected. However, the CMA does not have a basis to consider the distributional impact of the Merger.
207. Taking the qualitative and quantitative evidence in the round, the CMA considers that there is insufficient evidence to conclude at Phase 1 that the potential RCBs would outweigh the adverse impacts of the Merger.

Third party views

208. For the reasons set out above in paragraphs 169 to 177, the CMA does not consider that the customer survey evidence provided by the Parties is of assistance in considering whether the Merger will prejudice Ofwat's ability to make comparisons between water enterprises.²⁴⁵

Decision

209. For the reasons set out above, the CMA believes that there is a realistic prospect that the Merger has prejudiced or will prejudice Ofwat's ability to make comparisons between water enterprises. Accordingly, it does not consider that it is appropriate to decide not to make a reference on the grounds that it believes that the Merger is not likely to prejudice the ability of Ofwat, in carrying out its functions by virtue of the WIA91, to make comparisons between water enterprises.²⁴⁶
210. In addition, the CMA considers that the prejudice set out above will not be outweighed by relevant customer benefits relating to the Merger. Accordingly it does not consider that it should decide not to make a reference on the grounds that it believes that the Merger has prejudiced or is likely to prejudice Ofwat's ability, but that the prejudice in question is outweighed by relevant customer benefits relating to the merger.²⁴⁷

²⁴⁵ As part of its Invitation to Comment on the Merger's competition (under the Enterprise Act 2002) and regulatory (under the WIA91) impact, the CMA also received submissions from market participants. The CMA carefully reviewed all submissions made by third parties but did not consider market participants' limited comments on the Merger's effect on Ofwat's ability to regulate water enterprises to require any changes to its approach.

²⁴⁶ WIA91, Section 33A(1)(b).

²⁴⁷ WIA91, Section 33A(1)(c).

211. The CMA therefore believes that it is under a duty to refer the Merger under section 32 of the WIA91.
212. However, the duty to refer is not exercised whilst the CMA is considering whether to accept undertakings under section 33D of the WIA91 instead of making such a reference. Pennon has until 31 December 2021 to offer an undertaking to the CMA. The CMA will refer this Merger for a phase 2 investigation if Pennon does not offer an undertaking by this date; if Pennon indicates before this date that it does not wish to offer an undertaking; or if the CMA decides by 10 January 2022 that there are no reasonable grounds for believing that it might accept the undertaking offered by Pennon, or a modified version of it.
213. The statutory four-month period mentioned in section 24 of Enterprise Act 2002 in which the CMA must reach a decision on reference in this case expires on 6 January 2022. For the avoidance of doubt, the CMA hereby gives the Parties notice pursuant to section 25(4) of the Enterprise Act 2002 that it is extending the four-month period mentioned in section 24 of the Act.²⁴⁸ This extension comes into force on the date of receipt of this notice by the Parties and will end with the earliest of the following events: the giving of the undertakings concerned; the expiry of the period of 10 working days beginning with the first day after the receipt by the CMA of a notice from Pennon stating that it does not intend to give the undertakings; or the cancellation by the CMA of the extension.

Dr Mike Walker
Chief Economic Adviser
Competition and Markets Authority
22 December 2021

ⁱ The reference to Ofwat setting price limits in paragraph 7, in relation to the description of Ofwat's functions, should be replaced with a reference to setting revenue allowances.

ⁱⁱ The text at paragraph 8 should read as follows, including additional clarificatory text underlined:

²⁴⁸ Having effect as modified by regulations 4 and 5 of the Water Mergers (Modification of Enactments) Regulations 2004, as amended.

In regulating the water sector, Ofwat must act in accordance with ~~'s regulation is intended to secure the achievement of~~ a range of primary and secondary duties, including for example, to secure that water companies can finance their activities and to further the resilience and sustainability objective.

iii The reference to Ofwat regulating base costs in paragraph 10(a), in relation to the description of Ofwat's functions, should be replaced with a reference to Ofwat regulating revenues based on its assessment of necessary costs.

iv The text at Footnote 14 should read as follows, including additional clarificatory text underlined:

Ofwat's duties for most of its work as the economic regulator of the water sector are laid down in sections 2 and 3 of the WIA91 as amended. These duties include, among others, to: further the consumer objective to protect the interests of consumers; secure that water companies properly carry out their statutory functions; secure that water companies can (in particular through securing reasonable returns on their capital) finance the proper carrying out of their statutory functions; further the resilience objective to secure the long-term resilience of water companies' water supply and wastewater systems; and to secure they take steps to enable them in the long term to meet the need for water supplies and wastewater services; promote economy and efficiency by water companies in their work; and contribute to the achievement of sustainable development (see [Our duties - Ofwat](#))

v The text at paragraph 91 should read as follows, including additional clarificatory text underlined:

This approach is useful where the standard error cannot be calculated using simple analytical methods or ~~the cost drivers cannot be assumed to be normally distributed to do inference~~ cost driver parameters cannot be assumed to be normally distributed and therefore the standard means of drawing inference on confidence intervals cannot be relied upon.