

BRISTOL WATER PLC PRICE DETERMINATION

Summary of report

Notified: 6 October 2015

Background

1. Bristol Water plc (Bristol Water) is a Water-Only Company (WoC) based in the South West. It is responsible for the sourcing, treatment and distribution of water, supplying clean water to over 1.2 million people and businesses in south west England. Over 56% of the properties supplied are situated in the urban area of Bristol. Bristol Water is owned 30% by the Spanish company Sociedad General de Aguas de Barcelona SA (Agbar), 50% by Capstone Infrastructure Corporation of Canada (Capstone) and 20% by the Itochu Corporation of Japan (Itochu).
2. Under the terms of its Instrument of Appointment (Licence), the charges that Bristol Water can make for its retail and wholesale activities are controlled by the Water Services Regulation Authority (Ofwat), which carries out five-yearly 'periodic reviews' (or 'price reviews') for this purpose on water companies in England and Wales. Bristol Water does not provide sewerage services and is categorised by Ofwat as a WoC as distinct from a water and sewerage company (WaSC).
3. On 12 December 2014, Ofwat published its final determination of the controls which limit the price Bristol Water may charge for supplying water in the five-year period from 1 April 2015 to 31 March 2020.¹ Bristol Water disputed the price determination, and under the terms of Condition B of its Licence required Ofwat to refer the disputed determination to the Competition and Markets Authority (CMA) for a further determination. On 4 March 2015, Ofwat made the reference to the CMA.²
4. The reference required us to report on and determine the disputed determination by 3 September 2015. On 11 August, this deadline was

¹ Note the 'price controls' actually operate as restrictions on revenues, rather than restrictions on specific prices or tariffs.

² Under section 12(3)(a) of the Water Industry Act 1991 (WIA 91).

extended by Ofwat to 3 November 2015. We must make our determination in accordance with the same statutory provisions and duties as applied to Ofwat when it made the disputed determination.

5. The general statutory duties we must apply are set out in section 2 of the WIA 91, and consist of five principal duties and five secondary duties. The five principal duties³ are:
 - (a) to further the consumer objective (to protect the interests of consumers, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the provision of water and sewerage services);
 - (b) to secure that the company's functions under the WIA 91 are properly carried out;
 - (c) to secure that the company is able (in particular, by securing reasonable returns on its capital) to finance the proper carrying out of those functions (this is sometimes referred to as the 'financing duty');
 - (d) to secure that the activities authorised by the company's Licence and any statutory functions are properly carried out; and
 - (e) to further the resilience objective (which is, in summary, to secure the long-term resilience of water undertakers' supply systems and sewerage undertakers' sewerage systems with regard to environmental pressures, population growth and changes in consumer behaviour).

The 2014 price review

6. Ofwat told us that it introduced a game-changing methodology for the 2014 price review (PR14). Ofwat wanted companies to take more responsibility for understanding what their customers' priorities were and then acting upon them. Ofwat wanted companies to take ownership for managing risk and to ensure a better allocation of risk and reward between investors, management and companies. Companies were required to establish a Customer Challenge Group (CCG) to review and challenge the way companies engaged with customers and to take customer views into account in their decisions.
7. For the first time, Ofwat set separate wholesale and retail price controls. The development of these separate price controls was designed to facilitate the development of more targeted incentives for retail and non-household

³ Section 2(2A)(a)–(e) WIA 91.

customers and also reflected legislative and regulatory changes in the water industry in England that are intended to support the development of competition, particularly for the supply of retail services to non-household customers.

8. Many parts of the PR14 framework were similar to previous determinations. In particular:
 - (a) PR14 set a five-year price control for wholesale activities and for retail supply to households (though a two-year retail price control was set for supply to non-household customers);
 - (b) PR14 continued to be based around regulatory capital value (RCV) – Ofwat included in its calculations an allowance for what it considered to be a reasonable level of return on the RCV, based on the cost of capital over the price control period;
 - (c) Ofwat’s price control framework continued to seek to incentivise regulated companies to behave in a way consistent with Ofwat’s duties; to operate and invest efficiently and provide a suitable quality of service; and
 - (d) allowed wholesale revenues were indexed to the retail price index (RPI), using the formula $RPI + K$ (K can be positive or negative).
9. PR14 also introduced significant differences in its assessment of company expenditure. Rather than the previous distinction between capital and operating expenditure, Ofwat introduced a total expenditure (totex) approach to the way it assessed, remunerated and incentivised company expenditure. Totex was a key measure introduced to help seek to reduce the capital expenditure (capex) bias that it believed to exist, where companies were thought to focus unduly on capital solutions (at the expense of potentially more innovative and sustainable operating expenditure (opex) solutions).
10. Ofwat set a totex wholesale expenditure allowance. It used a number of econometric benchmarking models to assess wholesale totex. It then made a series of adjustments for ‘special cost factors,’ which were intended to adjust for specific aspects of a company’s characteristics and circumstances that affect its costs materially and which may not have been taken into account in Ofwat’s totex benchmarking analysis.
11. Ofwat sought to align the efficiency incentives that companies faced across opex and capex. A totex cost sharing incentive scheme was used so that a specified proportion of any over- or under-spend against the wholesale expenditure allowance is retained by the company, with the remainder passed through to consumers. This proportion (the cost sharing rate) affects the profit

incentives on the company to operate efficiently during the price control period, as well as the financial risk faced by the company.

12. Ofwat also applied a 'menu regulation' scheme for PR14. Its main purpose was to give extra incentives for companies to submit accurate expenditure forecasts and provide further flexibility to companies in terms of the level of the cost sharing rate that each company faces.
13. In other areas for PR14, Ofwat:
 - (a) set a wholesale weighted average cost of capital (WACC) of 3.60%. Ofwat assumed the same notional gearing level and notional cost of debt for all companies. It made exceptions for two 'enhanced companies' which Ofwat judged had formulated particularly good business plans (therefore they were allowed a 0.1% higher WACC); and two smaller companies which were allowed an uplift of 0.25% on the cost of debt. Ofwat considered that the cost of debt was higher for smaller companies, but only gave the allowance where it considered that there were customer benefits;
 - (b) included a number of financial adjustments to reconcile allowed expenditure with actual historical performance for the period April 2009 to March 2015; and
 - (c) encouraged companies to set financial incentives (both rewards and penalties) directly linked to performance above and below their committed performance targets based on outcome delivery incentives (ODIs). These were based on customer research and input from the CCGs, although Ofwat made adjustments in a number of areas.
14. Ofwat used its price control financial model to bring together different elements of its assessment to calculate the total allowed revenue for Bristol Water. These elements included the wholesale totex allowance, allowances for profit and depreciation, financial adjustments for Bristol Water's performance in previous price control periods, and various other adjustments.

Bristol Water concerns with PR14

15. Bristol Water said that the most significant reason for seeking a redetermination from the CMA was the difference between its business plan and Ofwat's final determination (FD14) regarding the appropriate level of wholesale costs to deliver the agreed outcomes. It noted that Ofwat had concluded that Bristol Water's level of wholesale totex during the period 1 April 2015 to 31 March 2020 (the asset management plan period six or AMP6) should be £409 million, whereas Bristol Water's business plan had

proposed expenditure of £537 million. Bristol Water said that Ofwat's decision was insufficient to deliver the outcomes customers wanted and was an unrealistic assumption of what was required in order to run the business. It said that Ofwat had not considered whether the resulting level of operating costs was achievable in practice, including the immediate reduction in 2015/16 in average household bills from £198 to £162, reducing further to £152 for the remainder of the period. It also said that the reduction in bills meant that Bristol Water was not financeable under the Ofwat determination.

16. Bristol Water raised a number of other concerns. It said the cost of capital calculated by Ofwat was too low, and raised concerns over some aspects of the financial incentives linked to performance and ODIs and the financial adjustments for the period April 2009 to March 2015.

Our approach to the determination

17. We sought to develop an approach to cost assessment that was practical and proportionate and that also satisfied our statutory duties set out in the WIA 91 (see above). We considered that we were required to apply each of the duties in accordance with its statutory wording and not to apply individual duties in isolation.
18. The reference to the CMA is a reference for the determination of a new price control for Bristol Water, not an appeal on specific elements of Ofwat's decision. Accordingly, we are able to consider any aspects of the Bristol Water price control. Nevertheless, we considered it important to adopt a proportionate approach and to scrutinise most closely the areas in the determination that would have the largest effect on customer prices and Bristol Water. A key area for our determination was therefore wholesale totex. We decided not to make changes to the retail price controls. Bristol Water said that it accepted the retail price controls and no stakeholders made submissions arguing for changes to them. We note that the wholesale price control concerns a much larger part of customers' bills than the retail controls.
19. For our wholesale cost assessment, we undertook the following actions:
 - (a) We reviewed the econometric benchmarking models used by Ofwat. We identified significant concerns with Ofwat's assessment and risks that it did not adequately reflect Bristol Water's efficient costs. We therefore developed some alternative econometric benchmarking models for Bristol Water's base expenditure (opex plus capital maintenance, which is capex required to maintain the capability of existing systems and assets).

- (b) Given the limitations of the econometric benchmarking analysis, we undertook a more expansive review of Bristol Water's needs and circumstances. We assessed separately base and enhancement expenditure and used the base expenditure assessment as a cross-check on the econometric benchmarking analysis.⁴ We reviewed aspects of Bristol Water's business plan for base expenditure, considering separately Bristol Water's requirements for opex and capital maintenance expenditure. We focused our review on the more significant issues and projects.
 - (c) We estimated enhancement expenditure from a review of the enhancements proposed in Bristol Water's business plan. We did not consider that Ofwat's benchmarking models provided a suitable basis for determining allowances for Bristol Water's enhancement expenditure that we could use for our cost assessment.
 - (d) We drew on Ofwat's review of special cost factors, Bristol Water's and its advisers' views on efficient expenditure for opex and capital projects and our own further review. We were assisted by our engineering consultants, Aqua Consultants (Aqua).
20. In addition to assessing wholesale totex, we:
- (a) assessed the appropriate cost of capital for Bristol Water through a bottom-up analysis of individual components;
 - (b) determined the financial adjustments to reconcile allowed expenditure with actual historical performance for the period April 2009 to March 2015; and
 - (c) considered the ODI framework and whether changes were required.
21. Finally, we combined these values with an appropriate pay-as-you-go (PAYG) rate and calculated, using Ofwat's methodology, the total allowed Bristol Water wholesale revenue and assessed its financeability. We calculated the overall revenue and K for each year from April 2015 to March 2020 to assess the financeability of Bristol Water and provide an indicative view of the effect of the determination on customer bills.

⁴ Enhancement is defined as a level of service delivered better than previously defined. Examples of enhancements include fewer supply interruptions for customers, fewer disruptions for the public in general, and less pollution.

Summary of determination

Wholesale totex assessment

Wholesale totex assessment based on econometric benchmarking analysis

22. We noted that Ofwat's use of benchmarking analyses had a number of benefits. It helps to mitigate the concerns identified by Ofwat and others that there was an undue bias towards capex. Using benchmarking analysis as a starting point for cost assessment, rather than companies' business plans, reduces the risk that the cost assessment for a company is over-stated or takes insufficient account of the opportunities for cost savings. It also helps to mitigate risks relating to investment deferral that may otherwise arise under a price control framework that emphasises outcomes. Finally, Ofwat stressed that this approach had benefits in terms of practicality and proportionality. Ofwat needed to determine 18 wholesale water expenditure allowances and ten wholesale wastewater expenditure allowances (for the ten WaSCs).
23. We recognise that no benchmarking analysis or cost assessment method will be perfect, and there will always be limitations in any approach. The type of high-level totex benchmarking models that Ofwat used have some advantages but also suffer from some drawbacks, and we were concerned with the emphasis that Ofwat had placed on these types of models. There were also a number of specific aspects of the design and specification of Ofwat's models that we identified issues with. We recognised that Ofwat's special cost factor process provided companies with opportunities to mitigate, to some degree, the limitations or inaccuracies in Ofwat's econometric benchmarking models. However, we did not consider that Ofwat's approach to special cost factors was sufficient to mitigate fully the limitations in its benchmarking analysis.
24. As a result, we considered that there were significant risks that Ofwat's totex assessment for Bristol Water did not adequately reflect Bristol Water's costs. We therefore considered it important: (a) to consider possible alternative econometric benchmarking model specifications; and (b) to carry out a targeted review of the expenditure forecasts from Bristol Water's business plan, which would bring a different perspective.
25. We decided to base our assessment of wholesale expenditure for Bristol Water on our alternative models rather than Ofwat's. While both sets of models had limitations we considered that, on balance, the estimates from our alternative models were more likely to contribute to the accuracy of our overall assessment.

26. We recognised that these alternative econometric benchmarking models were not perfect and there remained a need to consider potential company-specific adjustments for factors that may not be adequately captured in the models. We therefore applied some adjustments for special cost factors to take account of specific characteristics or circumstances of Bristol Water. Overall, we made an upward adjustment of around £26 million.
27. Our assessment of base expenditure from the econometric benchmarking analysis was £340 million in total over the five-year period from 1 April 2015 to 31 March 2020. This is some £22 million higher than the corresponding figure from Ofwat's final determination and £45 million less than the Bristol Water business plan. This figure is £6 million lower than the figure in our provisional findings because of the net effect of modelling refinements and adjustments to special cost factors.

Review of base expenditure from Bristol Water's business plan

28. We carried out a targeted review of base expenditure in the Bristol Water business plan for the reasons discussed in paragraph 19(b).
29. Bristol Water's business plan forecasts for opex were based on an extrapolation from costs in a base year. We reviewed Bristol Water's approach to the relevant base year, adjusted costs to find an efficient baseline and then projected costs to reflect changes in circumstances over time. Bristol Water included a number of increased costs in its business plan and we considered which of these to include in our adjusted projections. This approach resulted in total projected opex of £218 million, compared with £228 million in Bristol Water's business plan. This is £3 million higher than the figure in our provisional findings, primarily because Bristol Water supplied further support for additional opex, above the level allowed in our provisional findings, associated with additional enhancement expenditure.
30. We reviewed the capital maintenance in the Bristol Water business plan. Capital maintenance is broken down into infrastructure renewals expenditure (IRE)⁵ and non-infrastructure maintenance (MNI).⁶
31. We performed a targeted review of the IRE programme. In particular, we reviewed, with support from Aqua, Bristol Water's mains replacement

⁵ Infrastructure is mainly below-ground or underground assets, such as water mains and sewers, and also dams and reservoirs that last for a long time. A distinction is drawn between infrastructure and non-infrastructure assets because of the way the appointed water companies manage, operate and maintain them.

⁶ Non-infrastructure is mainly above-ground assets, such as water and sewage treatment works, pumping stations, company laboratories, depots and workshops.

programme. This represented around 62% of Bristol Water's total planned IRE for AMP6.

32. Our high-level analysis of Bristol Water's programme showed that the amount that Bristol Water would need to spend on IRE could be significantly lower than it had forecast. Based on our assessment, we considered that the efficient level of IRE was in a range of £68–£72 million. This compared with £76.3 million in the Bristol Water business plan and the range we provisionally found of £65–£70 million in our provisional findings.
33. We also reviewed the MNI expenditure in Bristol Water's business plan. In particular, we reviewed the evidence for the Bedminster service reservoir, which Bristol Water planned to replace at a cost of £6 million and the Bristol Water plans for replacement of treatment works assets constructed since 1990 at a cost of approximately £34 million.
34. We considered that Bristol Water's case for a new reservoir at Bedminster had not been made. We found that no replacement was required in AMP6, as the need to replace this asset within the period had not been demonstrated.
35. With regard to the treatment works assets, we understand that some elements of assets constructed since 1990 will need replacing on a rolling basis. However, Bristol Water did not provide adequate detail of what needed replacing based on the condition and performance of these assets, particularly since the Bristol Water planned spend for AMP6 was 50% higher than in AMP5 (from 1 April 2010 to 31 March 2015) and 200% higher than in AMP4 (from 1 April 2005 to 31 March 2010).
36. It was therefore not clear to us why expenditure on treatment works should be substantially higher than in previous periods. The evidence provided would only justify a small increase.
37. Many of the forecasts in the Bristol Water business plan appeared to have been based originally on the output of Bristol Water's models, without supporting evidence to reconcile this to actual assets and their condition. As a result, much of the expenditure did not relate to identified assets with a demonstrated need for replacement. Therefore, there appeared to be significant uncertainty about whether the level of spend planned would be required in practice. As a result, we considered it likely that Bristol Water may be able to spend materially less than it projected in AMP6.
38. In deciding on a range of outcomes for MNI we therefore considered various adjustments to Bristol Water's proposed areas of spend which gave a range of £49–£69 million, compared with Bristol Water's plan of £80 million and the range we provisionally found of £49–£74 million in our provisional findings.

39. From the above, our assessment of the Bristol Water business plan suggests total base expenditure of £335–£359 million. This compares with the Ofwat assessment of £318 million, the Bristol Water business plan of £385 million, and the results of our econometric benchmarking analysis of £340 million. It also compares with the range we estimated in our provisional findings of £329–£359 million.

Review of enhancement expenditure from the Bristol Water business plan

40. We assessed enhancement expenditure in the Bristol Water business plan. For the individual schemes that we reviewed, we adopted a framework for assessing the evidence on the basis of need; whether the most suitable option had been chosen (optioneering); and the robustness of the cost estimation.
41. The construction of the Cheddar 2 reservoir was the biggest enhancement scheme proposed by Bristol Water, with a cost of £42.8 million in AMP6. There were three primary supporting arguments made by Bristol Water in support of its proposal for Cheddar 2:
- (a) It may be required to supply a new power station.
 - (b) If not, it may be required to meet a supply/demand imbalance in the second half of the water resources management plan (WRMP) period.
 - (c) In any case, the need for Cheddar 2 is supported by improved security of supply considerations.
42. We found that there was substantial uncertainty over whether a power station would be built and, if so, whether Bristol Water would be the preferred option for water supply. We considered that delivering a series of smaller schemes to address a declining supply/demand balance as it arises was a more flexible and proportionate approach to addressing any shortfall in supply in the shorter term, given the uncertain demand and the uncertainty modelled in Bristol Water's target headroom. We considered Bristol Water's arguments on customers' desire for resilience of supply, but found that Bristol Water had not provided sufficient evidence to demonstrate that immediate investment in Cheddar 2 was necessary to achieve the resilience objective, or that customers would be willing to pay higher bills to finance this increase in security of supply. We noted that Cheddar 2 was included in the Bristol Water WRMP. We considered that, while we were not bound by the WRMP, we should take account of the WRMP as part (albeit a significant part) of all the available evidence in assessing the need for the construction of Cheddar 2 to commence in AMP6.

43. We found that Bristol Water had not sufficiently demonstrated the need for construction of Cheddar 2 to commence in AMP6, and we therefore made no allowance for expenditure in this price review period.
44. Another large enhancement scheme in Bristol Water's plan was the construction of a new water treatment works at Cheddar at a cost of £20.8 million. We concluded that Bristol Water had sufficiently demonstrated that there was evidence of raw water deterioration at Cheddar reservoir and that this had affected its treatment works. However, there was insufficient evidence that it was appropriate at this stage to commit to the replacement of Cheddar WTW as the most suitable option, given the significant cost to customers. In particular, our analysis indicated that Bristol Water had not demonstrated that it had appropriately investigated the cause of the marked increase in algae from around 2006. Therefore, there may be a lower cost solution depending on the outcome of further investigation.
45. On the basis of the evidence presented, we decided that an allowance of £1 million should be made to allow Bristol Water to undertake additional investigation, reservoir management and minor capital works. We decided that, should the result of that investigation identify the need for more expensive treatment requirements, this would be a notified item and Ofwat could agree to make an appropriate additional allowance if it is satisfied that such investment is necessary in AMP6.
46. We also considered the case for the Southern Resilience scheme which was included in Bristol Water's business plan at a cost of £28.1 million. We considered that Bristol Water had demonstrated that the scheme would improve resilience to its network by reducing the number of properties served by a single source. We also considered it would provide additional relief to the Cheddar supply area if further issues arising from algae occurred. In our provisional findings, we found that Bristol Water had partially demonstrated that it had chosen the most suitable option but we considered that further justification for a service reservoir with a substantial capacity and in the location proposed was needed. Otherwise, we found that Bristol Water had not overestimated the costs of the scheme. In response to our provisional findings, Bristol Water provided further evidence that a service reservoir was necessary, at a different location to that in the original scheme and slightly less expensive than initially envisaged. We agreed that this reservoir was necessary, and we allowed £27 million for the Southern Resilience scheme, the revised amount requested by Bristol Water.
47. Our review of smaller enhancement projects totalling £60.6 million (raw water deterioration £8 million, growth schemes £12.5 million, national environment programme (NEP) £11 million, asset reliability £10.2 million, lead reduction

£0.8 million and other schemes totalling £18.1 million) were all allowed in full. In our provisional findings, we had decided to place an efficiency challenge on the asset reliability scheme, reducing this scheme from £10.2 million to £9.54 million. However, Bristol Water provided further evidence and we accepted the cost of the scheme in full.

48. We found that Bristol Water's enhancement expenditure requirements over the period 1 April 2015 to 31 March 2020 were £88.6 million. This compares with the Bristol Water business plan of £152.3 million and the Ofwat approved level of £91.2 million. This represents an increase of £5.5 million on our provisional findings.

Overall wholesale totex assessment

49. For our overall assessment of wholesale totex, we compared the econometric benchmarking assessment for base expenditure with the business plan assessment. The econometric benchmarking assessment for base expenditure of £340 million compares with the business plan assessment low case of £335 million and high case of £359 million. On balance, given the econometric and business plan assessments, our statutory duties, objectives and approach, we adopted a figure of £340 million for base expenditure. This was within the range suggested by the business plan review but 2% below the mid-point of that analysis.
50. We considered it appropriate, in assessing the efficient level of expenditure, to give more weight to the estimate that made use of industry-wide benchmarking analysis, complemented by detailed further assessment to take better account of Bristol Water's needs and circumstances, than to use the mid-point of the estimates derived from adjustments to Bristol Water's own expenditure forecasts. Our business plan review found that it was reasonable to expect that Bristol Water should be able to spend less than it projected in its plan. We considered that a 12% reduction in cost from the Bristol Water business plan was achievable in the light of our analysis and the limitations we found in the Bristol Water business plan.
51. The estimate of base expenditure from our econometric benchmarking assessment plus our estimate of enhancement expenditure from our review of Bristol Water's business plan gave a totex figure of £428.6 million. This compared with the totex figure in the Bristol Water business plan of £537 million and in the Ofwat final determination of £409 million, and was similar to the amount determined in our provisional findings, reflecting a decrease in base expenditure offset by an increase in enhancement expenditure.

Reconciling 2010 to 2015 performance

52. Part of Ofwat's final determination included a number of financial adjustments to reconcile allowed expenditure with actual historical performance, according to the rules and policies set at previous price control reviews.
53. We decided that there was no need to do anything in our determination to change the method used by Ofwat and the decisions it made on the resulting RCV impacts.

Outcome delivery incentives

54. We assessed the ODI framework and agreed that it should be able to deliver real benefits to customers while providing Bristol Water with both the flexibility and incentive to improve performance, where appropriate through investment.
55. On mean zonal compliance (MZC), we set Bristol Water's penalty deadband at 99.95%, and the penalty collar at 99.94%.⁷ On unplanned customer minutes lost and negative water quality contacts, we noted that Bristol Water had stated that it had proposed targets based on the results of its customer research. We considered that it was appropriate to retain Bristol Water's target, but raise the reward deadbands to the upper quartile level in each case.
56. We removed any unnecessary ODIs where our determination mitigated or removed the need for them (eg for Cheddar Reservoir 2).

Cost of capital

57. We estimated the cost of capital for Bristol Water.
58. We used an industry average (notional level) for gearing of 62.5%. It is for companies, their shareholders and management to determine the most efficient financing structure (including gearing level) to meet their circumstances.
59. We used a ratio of 75%:25% for embedded and new debt respectively. We calculated a cost of embedded debt of 2.85 to 3.05% (with a point estimate of 2.95%), and a cost of new debt of 1.6%. This resulted in an allowed cost of debt for Bristol Water of 2.54 to 2.69%, with a point estimate of 2.61%.

⁷ Deadbands represent performance close to the target level which have no associated penalties or rewards, while the level of caps/collars represents the maximum reward/penalty for the associated ODI.

60. For the cost of equity we calculated an asset beta range of 0.3 to 0.34, with a point estimate of 0.32 (equivalent to an equity beta of 0.85, assuming a 62.5% gearing level). We used a risk-free rate of 1.25% and equity risk premium of 5.25% to give an estimated cost of equity of 5.73%.
61. We calculated a range for Bristol Water's appointee cost of capital as 3.63 to 3.93%. We took a balanced approach to the data, and therefore decided that using the mid-point of our cost of debt and equity ranges gave an appropriate point estimate (3.78%).
62. Finally, we made a wholesale-appointee adjustment of -0.11% to the cost of capital and concluded that the wholesale cost of capital was 3.67%, versus Ofwat's value of 3.6% and Bristol Water's value of 4.37%.

Total allowed Bristol Water revenue and financeability

63. We considered the appropriate level of wholesale revenue for Bristol Water to receive in the period compared with the value added to its RCV, which aimed to balance the needs of current and future customers, as well as protecting the company from longer term financeability issues.
64. To determine total wholesale revenue for Bristol Water, we updated the Ofwat financial model to calculate the overall impact of our determination. We used the revised wholesale totex assessment and cost of capital, made appropriate assumptions for the PAYG and RCV run-off rates, and used our approach to the menu scheme to calculate the overall wholesale revenue and K for each financial year from 1 April 2015 to 31 March 2020. We found that the total allowed wholesale revenue for this five-year period should be £469.9 million (in 2012/13 prices before the effects of RPI indexation). Our determination of total allowed wholesale revenue and K is set out below in Table 1.

Table 1: Total allowed wholesale revenue and K

	2012/13 prices					
	2015/16	2016/17	2017/18	2018/19	2019/20	Total
Total allowed wholesale revenue (£m)	95.0	93.2	93.7	93.9	94.1	469.9
K%	0.0%	-1.8%	0.5%	0.3%	0.2%	

Source: CMA analysis.

65. We estimated total revenue, after including estimates of household and non-household retail revenues arising from Ofwat's retail price controls, in 2012/13 prices, to be £534.7 million.
66. We assessed the impact of our determination on the financeability of Bristol Water. We considered that the assumptions we used (including a depreciation of new assets of 3.7%, RCV run-off of 6%, PAYG rate of 55.3%, wholesale

WACC of 3.67% and gearing maintained at 62.5%) resulted in a determination which under which Bristol Water was financeable and which fulfilled our statutory duties.

67. We estimated the effect of our determination on customer bills. In its determination, Ofwat projected household bills over the period from 2015 to 2020. These showed that Bristol Water's household bills would reduce in real terms (ie before RPI inflation is considered), from £191 per customer in 2014/15 to an average annual bill of £155 across AMP6.⁸ On the basis of our determination, we estimated that average annual household bills would be around £160 across AMP6 before RPI inflation is considered. Although these would be higher than under the Ofwat determination, they would be substantially lower than the bills estimated by Bristol Water (average annual bills were projected to be £187 across AMP6 before RPI inflation is considered).

⁸ The figures in FD14 were expressed in 2012/13 prices. All figures in this report are also 2012/13 prices unless otherwise stated.