August 2014

Setting price controls for 2015-20
Annex to technical appendix A6 – benefits assessment from a company-specific uplift on the cost of capital

OFWAT

Contents

1. Summary

This annex sets out our assessment of whether to provide a company-specific uplift to the allowed cost of capital. We conclude that Portsmouth Water and Sembcorp Bournemouth Water provide sufficient benefits to customers to allow these companies to recover their higher cost of capital from their customers.

In 'Setting price controls for 2015-20 – risk and reward guidance' (our 'risk and reward guidance'), we set out the following criteria for a company-specific uplift to the weighted-average cost of capital (WACC).

> **"To justify a company-specific uplift in the WACC, companies will need to demonstrate both that they face a higher cost to raising finance and that there is an offsetting benefit to customers."**[1]

An uplift to the WACC increases customer bills. Companies should only be able to pass this cost on to their customers, if they can demonstrate that they face a higher cost of financing (Test 1) and that they are able to show that they benefit customers (Test 2), for example through greater efficiencies or service quality. Therefore, companies need to pass both tests to justify an uplift.

Overall, seven water only companies (WoCs) put forward a case for a company-specific uplift to the WACC in their updated business plans[2].

[1] Ofwat (2014), 'Setting price controls for 2015-20 – risk and reward guidance'.
[2] The only WoC that did not propose a company-specific uplift was Affinity Water, which withdrew its proposal in its risk and reward submission for pre-qualification as enhanced company.

1.1 Test 1: Higher cost of finance

Our advisor, PwC consider that the six small WoCs have a notional cost of debt of 25 basis points above that allowed in our wholesale cost of debt. They consider that South East Water does not face an additional cost of debt. They advise that none of the WoCs face a higher cost of equity.

PwC has provided an assessment of whether these seven companies have higher notional financing costs. This is set out in a separate report entitled, 'Company specific adjustments to the WACC. A report prepared for Ofwat', which is published alongside this document. PwC does not consider that there is sufficient evidence that South East Water, as a large WoC, has higher notional financing costs. It finds evidence that the small WoCs (Bristol Water, Dee Valley Water, Portsmouth Water, Sembcorp Bournemouth Water, Sutton & East Surrey Water, and South Staffordshire Water) are subject to a higher cost of debt of 25 basis points (or 0.25%). PwC does not consider that there is sufficient evidence that WoCs are subject to a higher cost of equity or that WoCs require a different notional gearing assumption in setting the cost of capital compared that applied to the water and sewerage companies (WaSCs).

Therefore, we conclude that the six small WoCs pass Test 1 as they incur incremental financing costs equivalent to a 25 basis points on the cost of debt or 15 basis points (or 0.15%) uplift to the wholesale cost of capital[3].

1.2 Test 2: Offsetting benefits to customers

We now consider evidence of benefits to customers from allowing the six small WoCs to recover a higher cost of capital. First, we outline the benefits identified by the WoCs in their business plans and our view of these proposed benefits. Then, we outline our analysis of the benefits.

[3] This has been calculated as the incremental debt cost of 25 basis points multiplied by the notional level of gearing of 62.5%, which gives a pre-tax weighted average cost of capital (vanilla) increase of 15.625 basis points. We have rounded this to 15 basis points for simplicity.

1.2.1 Company evidence of benefits to customers

Companies have submitted evidence on benefits to customers from an uplift to the WACC. While, in many cases, this evidence is helpful, it does not provide sufficient evidence of the existence or scale of any benefits.

The table below summarises the key points raised across the six companies, which also includes our comments on the evidence. Appendix 2 sets out in more detail the benefits that individual companies identified in their June business plan submissions and our views on this evidence.

Table 1 Evidence on benefits presented by WoCs

Benefit	Comments
Impact of individual wholesale cost models on assessment of upper quartile efficiency	In principle, this is a sound argument. But we consider that the approach used by companies is likely to overstate the benefits from a loss of comparator as it identifies the benchmark as the upper quartile in each of the wholesale cost models, rather than the upper quartile across models. Nor does it take account of the probability that companies' performance will change over time. It also assumes that the absence of a company-specific uplift results in direct change to industry structure.
Lower charges to customers due to lower RCV per customer relative to WaSCs	Customers are able to continue to benefit from the lower regulatory capital value (RCV) regardless of industry structure. For example, the 'legacy' allocation to WoC customers can be maintained by maintaining separate charges for WoC customers in a merged company.
The historic operating expenditure (opex) efficiency and retail cost to serve of WoCs	We acknowledge the historic efficiency of some of the WoCs in these areas. But the argument advanced by the companies did not take account of the likely changes in companies' performance over time.

Benefit	Comments
Customer willingness to pay and Customer surveys of acceptability of paying small company premium	Surveys of customers' willingness to pay can be helpful. But in this area, these do not replace the need to demonstrate economic benefits. Rather, they are complementary to benefits analysis – they provide evidence that customers are willing to pay for a beneficial uplift. We also found some evidence that survey questions may be subjective and may mean that answers cannot be relied as being representative of customer preferences.
Comparison with comparator benefits from previous CC merger inquiries drawn from PR04 and PR09 models	The CC's approach in identifying economic benefits is a very useful starting point. But there have been a number of important changes since it considered the South Staffordshire/Cambridge merger – not least the new PR14 methodology, which includes three separate price controls for WoCs, a total expenditure (totex) approach to cost assessment and retail average cost to serve (ACTS). Analysis of comparator benefits needs to take account of these changes. See Appendix 1 for further details of CC approach.
Applying the Ofgem 1.3% comparative competition benefit to the water sector	Ofgem's analysis looked at the value of introducing comparators – from zero to four comparators for gas distribution price controls. Again, we think consider the methodology of considering the value of comparators is helpful, but the benefits of a comparator are sector and company specific. See Appendix 1 for further details of Ofgem approach.
Impact on effectiveness of the service incentive mechanism (SIM)	The WoCs have, on average, high levels of performance for the SIM. But we are concerned that some of the analysis provided is likely to overstate the benefits of WoCs in terms of service quality performance. This is because the difference between WoC and WaSC performance has narrowed significantly over recent years.
Impact on innovation and quality of service	Companies provided examples of improved service quality and innovation, although there is no evidence that this better performance will endure. Nor is it consistent across all metrics, or clear why these benefits would be lost if a larger company provided the service.

Having reviewed the analysis from the six WOCs carefully, we considered that given the stage we are at within the process, it would be helpful for us to carry out our own analysis of the likely benefits rather than adopt the alternative position that all companies failed to make a case against test 2. We also consider that by doing this, we will help ensure consistency of any allowed premium between WoCs, unless specific circumstances require a differential for a particular WoC.

1.2.2 Ofwat analysis of benefits

We find that both Portsmouth Water and Sembcorp Bournemouth Water provide benefits to customers as efficient wholesale comparators, while Bristol Water, Dee Valley Water, Sutton & East Surrey Water, and South Staffordshire Water do not provide such benefits.

A reduction in the number of efficient WoCs has potentially significant implications for customers: the loss of an efficient comparator could result in an increase in allowed wholesale costs, which represent around 90 per cent of the costs that a typical customer faces. This could increase charges faced by customers across the water sector.

We have also considered the impact on retail cost assessment, service performance and innovation, but do not consider there are substantive benefits for customers. We discuss these issues further in chapter 2.

In considering the benefits from an efficient wholesale cost comparator, we need to look first at whether or not the absence of a company-specific uplift would result in a reduction in the number of WoCs. As noted above, some of the WoCs made this point.

Forecasting the impact on industry structure from the loss of an uplift is difficult, given there are many potential influences on a company's decision to merge. Our analysis shows that the absence of an uplift would not threaten the company's viability or ability to raise finance, although it would result in a small reduction in the returns to equity holders.

As a conservative assumption, we have assumed that removing a company-specific uplift would have tangible impact on companies' decisions to merge. For the purpose of modelling, we have assumed that a there is a probability equivalent to one or two of the existing six small WoCs merging by 2020 as a result of any decision to disallow a company-specific uplift (though we note that the results in terms of the two companies who would receive the uplift are robust to substantial variations in this assumption).

The benefit from individual WoCs providing efficient wholesale comparators is highly dependent on the relative efficiency of individual WoCs. Table 2 below sets out our net estimates based on their historic relative efficiency over five years (which will affect the current upper quartile benchmark) and their relative efficiency based on our wholesale cost assessment for the next price control (which provides an indication of the future upper quartile benchmark based on equal weights). Benefits and costs are assessed over 30 year period from 2015-2045, consistent with the period of our impact assessment for the PR14 methodology[4] and the CC's previous merger assessment.

This shows the loss of either Portsmouth Water or Sembcorp Bournemouth Water is likely to reduce the upper quartile efficient benchmark, which in turn reduces the size of challenge to the costs proposed by other companies in future price control periods. The opposite is true for the other WoCs. Table 3 table sets out the potential customer benefits of each WoC (with a higher notional cost of capital) from providing efficient wholesale cost comparators.

[4] http://www.ofwat.gov.uk/pricereview/pr14/prs_web201307finalapproach

Table 2 Comparison of the customer benefits of WoCs as wholesale comparators

Impact (£m, 30-yr NPV)	BRL	DVW	PRT	SBW	SES	SSC
Customer benefits from whole-sale cost modelling	-£6m to -£3m	-£5m to -£2m	£3m to £6m	£4m to £7m	-£4m to -£2m	£0m to £0m

Key:

BRL = Bristol Water; DVW = Dee Valley Water; PRT = Portsmouth Water; SBW = Sembcorp Bournemouth Water; SES = Sutton & East Surrey Water; SSC = South Staffordshire Water.

Note:

Values have been discounted using a 3.5% discount rate

Therefore, we consider that both Portsmouth Water and Sembcorp Bournemouth Water pass Test 2.

1.2.4 Net benefits

We have estimated the net benefits to customers taking account of the higher notional financing costs of a company-specific uplift. Based on an assessment of the benefits and costs over the period 2015-45, we consider that a company-specific uplift is justified for Portsmouth Water and Sembcorp Bournemouth Water for the period 2015-20, but not for the other WoCs. We propose to assess this position again at PR19.

Table 3 Assessment of the net benefits

Impact (£m, 30-yr NPV)	BRL	DVW	PRT	SBW	SES	SSC
Comparator benefits	-£6m to -£3m	-£5m to -£2m	£3m to £6m	£4m to £7m	-£4m to -£2m	£0m to £0m
Increased financing cost	-£12m	-£3m	-£3m	-£4m	-£6m	-£9m
Net benefits	-£18m to -£15m	-£8m to -£5m	£0m to £3m	£0m to £3m	-£10m to -£8m	-£9m to -£9m

Key:

BRL = Bristol Water; DVW = Dee Valley Water; PRT = Portsmouth Water; SBW = Sembcorp Bournemouth Water; SES = Sutton & East Surrey Water; SSC = South Staffordshire Water.

Note:

Incremental financing costs have been calculated by examining the impact of a change in the WACC from 3.70% to 3.85% on allowed revenues in the financial model.

Therefore, we conclude that there is justification for a company-specific uplift for two companies – Portsmouth Water and Sembcorp Bournemouth Water – as they incur a higher notional cost of capital and there is evidence it is beneficial to customers for these companies to recover these costs. While both of these companies have conducted research to identify customer support for an uplift, as we set out in Appendix 2, we identify shortcomings with this research. Therefore, we ask both companies to engage with their customers to identify whether customers are content to pay the uplift through bills, taking account of the benefit the uplift generates for themselves and customers more widely as part of their response to the draft determination.

2 Wholesale comparator benefits

2.1 Introduction

The evidence that companies presented has been helpful in identifying potential benefits from WoCs and it has informed the development of our views. But, as we highlighted in the summary, there are concerns with how this analysis has been carried out. Given the potential multi-period and cross-company implications of a company-specific uplift (as the loss of an efficient benchmark will impact not only on the company itself but on customers more widely), we consider that it is appropriate to carry out our own analysis. This will ensure consistency across companies and enable those efficient companies that provide wider benefits to recovery these costs.

Our own analysis considers:

- the counterfactual for the assessment of customer benefits; and
- the benefits of a WoC comparator in wholesale cost assessment.

Our assessment then brings together the benefits with the incremental costs from the company-specific uplift to identify the overall net benefit by company. Benefits and costs are assessed over a 30-year period from 2015-45, consistent with the period of our impact assessment for the PR14 methodology and the CC's previous merger assessment. Benefits and costs have been discounted using a 3.5% discount rate.

2.2 Counterfactual for the assessment of customer benefits

Much of the WoCs' analysis of benefits assumes that if a company-specific uplift were not allowed then a WoC would merge with a WaSC (or large WoC) and the benefits of a WoC in terms of a comparator, efficiency and service quality would be lost for future price controls. This is by no means a certain result if a company-specific uplift is not allowed. We have reviewed the financial impact of the situation where a WoC had to bear an additional 25 basis points on the cost of debt without an increase in the allowed cost of capital. It would mean:

- the return on regulatory equity (RoRE) would fall by -0.3% using a notional capital structure. This compares to a typical RoRE range of +/- 3.5% to 4.5%; and

- financial ratios would decrease with the AICR reducing by up to 0.2 times and FFO/debt by around 0.6% (on a notional capital structure basis). This could put financial pressure on some companies, although it is unlikely to result in any below investment grade or prevent efficient access to finance.

A key driver of the actual cost of debt for WoCs is their long-term artesian debt facilities. These are unlikely to be impacted by a merger as a merged entity may simply take on this debt. But a merger with a WaSC (or large WoC) might be expected to allow the WoC to raise cheaper new debt on bond markets, reducing overall costs (we note that this might also occur if a WoC merges with other larger entities from outside the sector). Other factors such as the impact of interventions on wholesale costs, legacy and retail are also likely to influence returns to equity holders and influence any decisions on restructuring and mergers. On balance, we consider that not awarding an uplift will marginally reduce equity returns (among other factors) and may increase pressure for mergers as shareholders consider options to increase returns. For the purposes of this analysis, we have assumed that removing a company-specific uplift would have tangible impact on the decision to merge. We have also assumed that there is a probability equivalent to one or two of the existing six small WoCs would merge.

2.3 The benefit of a WoC comparator in wholesale cost assessment

2.3.1 Overview of our approach

In assessing the benefit of a comparator we have followed the same general approach the CC has used for merger decisions, made up of the following stages.

- Losing a comparator will change the level of the cost benchmark. As the wholesale cost benchmark is based on upper quartile performance, losing a company with performance that is above the upper quartile threshold will reduce the benchmark. In turn, this reduces the efficiency challenge for companies below the benchmark and increases costs to customers.

- While a company may currently be above upper quartile performance, this may not always be the case. Consequently, we have calculated the probability of a company being above the upper quartile performance in future reviews.

- Losing a comparator might reduce the precision of the cost models used to assess performance – that is, reduce levels of statistical confidence, which could reduce certainty in the benchmark and lead to a lower benchmark being chosen.

2.3.2 Impact on wholesale cost benchmark

In PR14, the efficiency benchmark in our wholesale total expenditure (totex) threshold is 'upper quartile', which is a level of efficiency distinct from the efficiency of any given company. Specifically, given that the price control covers 18 companies, the upper quartile lies somewhere between the 4th and 6th most efficient companies as identified across our models.

We have estimated the shift in the benchmark by calculating how much the upper quartile efficiency score changes as a result of removing a given WoC, taking the wholesale cost models and the resulting efficiency scores as given. We have assumed that Ofwat is unable to adjust the cost assessment methodology to mitigate the impact of loss of comparators – for example, by raising the efficiency challenge or using alternative approaches to modelling.

We have examined the impact on wholesale cost models based on both historic and forecast efficiency for the period 2015-20.

Based on historic costs the upper quartile benchmark efficiency score is 0.9370. Dropping Portsmouth Water or Sembcorp Bournemouth Water moves the upper quartile efficiency score up to 0.9426. This shift in benchmark would change the allowed revenue. If we assume that each company is efficient and expenditure is equal to the revenue allowance (and therefore there is no totex incentive sharing of out- or under- performance), then this shift is worth +£105 million for the 2015-20 period. Dropping one of the other WoCs moves the upper quartile down to 0.9351.This shift is worth -£35 million for 2015-20. These benefits would accrue to all consumers and not just those in the selected WoC area.

Table 4 Companies' efficiency scores using historic data

Rank (most efficient first)	Company	Efficiency score
1	**Sembcorp Bournemouth**	**0.84**
2	South West	0.84

Rank (most efficient first)	Company	Efficiency score
3	**Portsmouth**	**0.91**
4	South East	0.92
5	Northumbrian	0.94
6	Thames	0.94
7	**South Staffordshire**	**0.94**
8	Severn Trent	0.96
9	**Dee Valley**	**0.96**
10	Yorkshire	0.97
11	Affinity	0.97
12	Anglian	0.99
13	Wessex	1.01
14	Southern	1.01
15	United Utilities	1.03
16	**Sutton & East Surrey**	**1.04**
17	Dŵr Cymru	1.10
18	**Bristol**	**1.22**

Note:

Bold type denotes a small WoC.

Based on forecast 2015-20 efficiency the upper quartile benchmark would be 0.9695. This is derived from the following efficiency scores.

Table 5 Companies' efficiency scores using PR14 forecast data

Rank (most efficient first)	Company	Efficiency score
1	South West	0.93
2	Yorkshire	0.94

Rank (most efficient first)	Company	Efficiency score
3	Affinity	0.95
4	Thames	0.95
5	**Portsmouth**	**0.97**
6	Northumbrian	0.98
7	Dŵr Cymru	1.00
8	**Sutton & East Surrey**	**1.03**
9	**South Staffordshire**	**1.03**
10	**Sembcorp Bournemouth**	**1.03**
11	Wessex	1.04
12	South East	1.05
13	Anglian	1.05
14	Severn Trent	1.05
15	Southern	1.06
16	United Utilities	1.09
17	**Dee Valley Water**	**1.12**
18	**Bristol**	**1.57**

Note:

Bold type denotes a small WoC.

Dropping an upper quartile company moves the benchmark up to 0.9830. When this change is applied to the costs of all companies it is worth +£252 million for 2015-20. Dropping one of the WoCs moves the upper quartile down to 0.9651. This shift is worth -£84 million for 2015-20. As with the historical analysis, these benefits would accrue to all consumers and not just to those in the selected WoC area.

2.3.3 Impact on benchmark over time

The wholesale cost analysis examines the impact on the PR14 efficiency score benchmark. This analysis needs to be extended to cover future control periods. Clearly, we will need to consider our methodology for future price controls at the

relevant time. For the purposes of our modelling we have assumed that the PR14 approach to wholesale cost is maintained in future controls as the most reasonable assumption to make at this point in time. Consequently, we consider that the models and levels of efficiency that we have derived provide a useful indication of likely future efficiency performance. This is consistent with the approach the CC used in previous merger inquiries.

One area where future performance may differ from the past is in company performance. It is by no means certain that a company currently above the upper quartile will remain in the upper quartile throughout the appraisal period (30 years).

The CC used the following three approaches to identify the probability that a company will remain or move to the upper quartile.

- The **changes approach**, which identifies the frequency of the change in ranking over a five-year period, taking no account of the starting ranking.

- The **permutations approach**, which identifies the frequency of a change in ranking over a five-year period by combining the change in rank over a two-year period and a three-year period. This increases the number of observations and also takes no account of the starting ranking.

- The **transitions approach**, which identifies the frequency of a change in ranking over a five-year period, taking account of the ranking the company started at[5].

As the CC stated, each of these approaches has limitations. In our view, the limitations of the permutations approach and the transitions approach are sufficiently serious that these approaches are not fit for purpose. The permutations approach assumes that changes in ranking in different periods are independent, which appears unrealistic and is likely to lead to an over-estimate of the chance of a large change in ranking over a five-year period. This is because there is some evidence of continued strong and weak performance across some water companies. The transitions approach is problematic because it reduces the number of observations, which undermines the statistical significance of the results. In the South

[5] See Competition Commission (May 2012), South Staffordshire plc/Cambridge Water plc merger final report, Appendix F, par. 26-81.

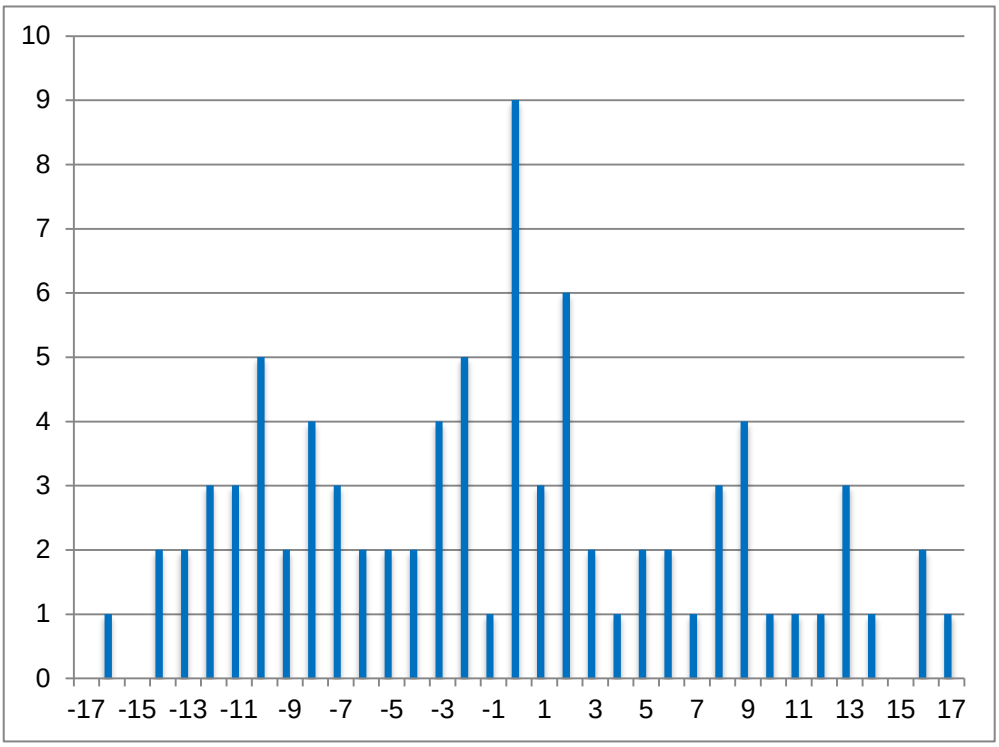
Staffordshire/Cambridge inquiry, the CC considered that this approach was likely to understate probabilities of a higher ranking company[6]. For this reason, our analysis relies primarily on the changes approach.

To apply this approach, we measured the change in ranking for each company in all five overlapping five-year periods from 2000 to 2009, using the water operating expenditure (opex) efficiency rankings we have published previously. Given that capital expenditure (capex) efficiency is more appropriately observed for an entire price control rather than for separate years, because of the potential for expenditure to move between years, we have not published annual efficiency rankings for capex, and we do not consider it useful to retroactively develop annual capex or totex rankings now. Instead, we used the capex efficiency rankings from PR99, PR04 and PR09.

Using this dataset, we obtained the following estimate of the distribution in the frequency of five-year changes in rank of different sizes.

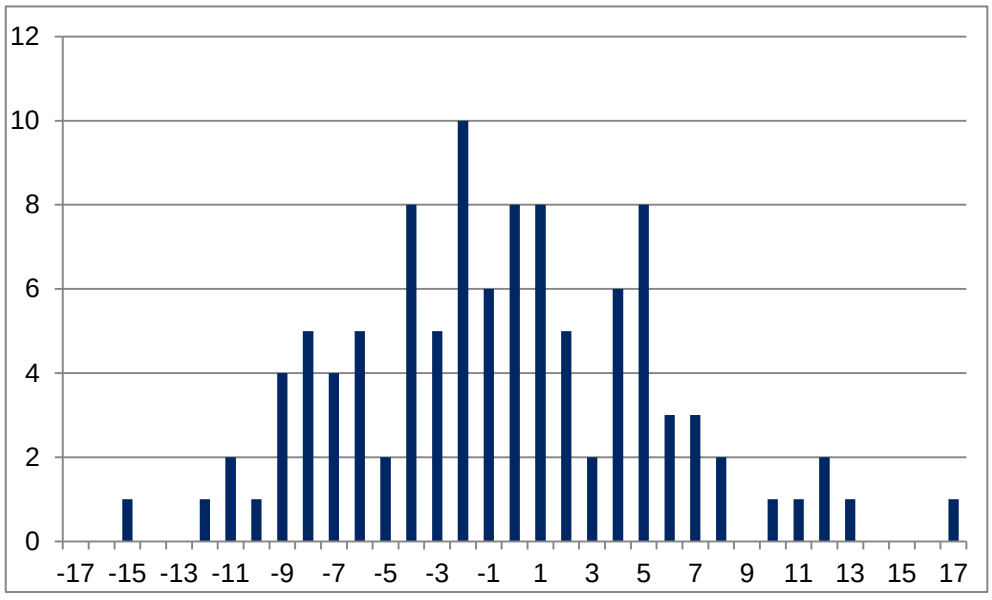
[6] See Competition Commission (May 2012), South Staffordshire plc/Cambridge Water plc merger final report, Appendix F, par. 57

Figure 1 Frequency distribution of changes in rank over a five-year period (opex)



Source: Ofwat analysis of Ofwat's relative efficiency assessment ranking of operating expenditure.

Figure 2 Frequency distribution of changes in rank over a five-year period (capex)



Source: Ofwat analysis of company submission and Ofwat determinations for PR99, PR04 and PR09.

To remove some of the outliers, we have estimated a best-fit normal distribution for each of these sets of distributions. We have then produced a single totex-distribution by taking the weighted average of the capex- and opex-distributions, placing 60% weight on the capex-distribution and 40% on the opex (the 60% weight reflects the proportion of capex in totex).

This distribution has then been used to produce a probability distribution for the rank of a given company at a given future price control given its current rank.

We consider that this approach, which is similar to the approach that the CC applied, is likely to over-estimate the probability of being at the top or bottom of the efficiency rankings. This is because an increase in the ranking from the top (or a reduction in the ranking from the bottom) cannot be achieved.

So we have adapted the changes approach to remove this anomaly, taking into account only those observations from our dataset that were feasible for a given starting position. For example, instead of estimating the probability of moving from rank 5 to rank 3 by taking the number of -2 ranking changes and dividing it by the total number of observations, we estimated it by taking the number of -2 ranking changes and dividing it by the total number of ranking changes, excluding -5 and lower, which are not possible for a company with a starting position of 5.

In this way, we produced a ‘changes matrix’ showing the probability of a company starting out at a given rank ending at a given rank in five years’ time. To produce matrices for the rest of our 30-year relevant period, we multiplied our five-year changes matrix by itself to produce changes matrices for 10 years, 15 years, 20 years and 25 years.

Figure 3 Probability of moving from rank x to rank y in five years, using the changes approach

Starting rank	Discrete probability of reaching rank x in year 5																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	11.8%	11.6%	11.1%	10.4%	9.4%	8.4%	7.3%	6.2%	5.2%	4.3%	3.5%	2.8%	2.3%	1.8%	1.4%	1.1%	0.9%	0.7%
2	10.5%	10.6%	10.5%	10.0%	9.4%	8.5%	7.5%	6.5%	5.6%	4.7%	3.8%	3.1%	2.5%	2.0%	1.6%	1.3%	1.0%	0.8%
3	9.2%	9.6%	9.7%	9.6%	9.2%	8.6%	7.8%	6.9%	6.0%	5.1%	4.3%	3.5%	2.9%	2.3%	1.9%	1.5%	1.2%	0.9%
4	8.0%	8.5%	8.9%	9.0%	8.9%	8.5%	8.0%	7.2%	6.4%	5.6%	4.7%	4.0%	3.3%	2.7%	2.2%	1.7%	1.4%	1.1%
5	6.8%	7.5%	8.0%	8.4%	8.5%	8.4%	8.0%	7.5%	6.8%	6.0%	5.2%	4.5%	3.7%	3.1%	2.5%	2.0%	1.6%	1.3%
6	5.8%	6.5%	7.2%	7.7%	8.0%	8.1%	8.0%	7.7%	7.2%	6.5%	5.8%	5.0%	4.3%	3.6%	2.9%	2.4%	1.9%	1.6%
7	4.8%	5.6%	6.3%	6.9%	7.4%	7.7%	7.8%	7.7%	7.4%	6.9%	6.3%	5.6%	4.8%	4.1%	3.4%	2.8%	2.3%	1.9%
8	4.0%	4.7%	5.5%	6.1%	6.8%	7.3%	7.6%	7.7%	7.6%	7.3%	6.8%	6.1%	5.5%	4.7%	4.0%	3.4%	2.8%	2.3%
9	3.3%	4.0%	4.7%	5.4%	6.1%	6.7%	7.2%	7.5%	7.6%	7.5%	7.2%	6.7%	6.1%	5.4%	4.7%	4.0%	3.3%	2.8%
10	2.8%	3.3%	4.0%	4.7%	5.4%	6.1%	6.7%	7.2%	7.5%	7.6%	7.5%	7.2%	6.7%	6.1%	5.4%	4.7%	4.0%	3.3%
11	2.3%	2.8%	3.4%	4.0%	4.7%	5.5%	6.1%	6.8%	7.3%	7.6%	7.7%	7.6%	7.3%	6.8%	6.1%	5.5%	4.7%	4.0%
12	1.9%	2.3%	2.8%	3.4%	4.1%	4.8%	5.6%	6.3%	6.9%	7.4%	7.7%	7.8%	7.7%	7.4%	6.9%	6.3%	5.6%	4.8%
13	1.6%	1.9%	2.4%	2.9%	3.6%	4.3%	5.0%	5.8%	6.5%	7.2%	7.7%	8.0%	8.1%	8.0%	7.7%	7.2%	6.5%	5.8%
14	1.3%	1.6%	2.0%	2.5%	3.1%	3.7%	4.5%	5.2%	6.0%	6.8%	7.5%	8.0%	8.4%	8.5%	8.4%	8.0%	7.5%	6.8%
15	1.1%	1.4%	1.7%	2.2%	2.7%	3.3%	4.0%	4.7%	5.6%	6.4%	7.2%	8.0%	8.5%	8.9%	9.0%	8.9%	8.5%	8.0%
16	0.9%	1.2%	1.5%	1.9%	2.3%	2.9%	3.5%	4.3%	5.1%	6.0%	6.9%	7.8%	8.6%	9.2%	9.6%	9.7%	9.6%	9.2%
17	0.8%	1.0%	1.3%	1.6%	2.0%	2.5%	3.1%	3.8%	4.7%	5.6%	6.5%	7.5%	8.5%	9.4%	10.0%	10.5%	10.6%	10.5%
18	0.7%	0.9%	1.1%	1.4%	1.8%	2.3%	2.8%	3.5%	4.3%	5.2%	6.2%	7.3%	8.4%	9.4%	10.4%	11.1%	11.6%	11.8%

Source: Ofwat analysis

We derived the starting positions for each company by combining the historic and PR14 forecast efficiency data to produce a combined ranking taking into account the relative efficiency in each period. Since these two sources of data each represent five years, we have placed equal weight on the historic and PR14 forecast data.

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Table 6 NPV of customer impact as a result of losing a comparator using the changes approach with 50% weight on historic rankings and 50 % on the forecast

Company	Starting ranking			NPV of impact on customers					
	Historic	Forecast	Combined	PR19	PR24	PR29	PR34	PR39	Total
BRL	18	18	18	-£10m	-£5m	-£2m	-£1m	-£0m	-£18m
DVW	9	17	15	-£9m	-£3m	-£1m	-£1m	-£0m	-£14m
PRT	3	5	3	£12m	£4m	£2m	£1m	£0m	£18m
SBW	1	10	2	£14m	£5m	£2m	£1m	£0m	£21m
SES	16	8	13	-£7m	-£2m	-£1m	-£0m	-£0m	-£11m
SSC	7	9	9	-£1m	£0m	£0m	£0m	£0m	-£1m

Source: Ofwat analysis

Key: BRL = Bristol Water; DVW = Dee Valley Water; PRT = Portsmouth Water; SBW = Sembcorp Bournemouth Water; SES = Sutton & East Surrey Water; SSC = South Staffordshire Water.

Note: For example, Sembcorp Bournemouth Water's historic efficiency score of 0.84 and its forecast efficiency score of 1.03 imply in an average score of 0.937, which results in a ranking of 2, behind South West Water's score of 0.888 but ahead of Portsmouth Water's score of 0.939

2.3.4 Impact on loss of precision

The analysis that the CC carried out to estimate the impact of a lost comparator on the precision of our models was specific to the cost assessment models we used at PR04 and PR09. An important characteristic of those models was that they were cross-sectional, which meant that they used a single data point for each company.

Given that we carried out our PR09 price control using cross-sectional models of 21 companies, it is understandable that the CC was concerned about the precision of our models when two of those companies proposed a merger. However, for PR14 we have adopted a new approach to wholesale cost modelling, which relies on panel data where there are multiple data points for each company covering several years. In such a model, the confidence levels for the parameters are less sensitive to the number of companies included in the dataset.

This is illustrated by the fact that at PR14 an upper quartile challenge has proved viable for both wholesale water and wastewater price controls, even though the latter only includes data for the ten WaSCs. Consequently we consider that there is no material loss of precision associated from the potential loss of comparators associated with the lack of a company-specific uplift.

2.3.5 Findings

Based on the above analysis, table 7 below sets out the potential consumer benefits from the specific WoC comparator in terms of wholesale cost modelling. This takes into account the impact of not allowing the company specific uplift resulting in the probability equivalent to a 1 in 6 to 2 in 6 chance of a comparator being lost as a result of an uplift not being provided.

Table 7 NPV of customer impact as a result of losing a comparator

Impact (£m, 30-yr NPV)	BRL	DVW	PRT	SBW	SES	SSC
Customer benefits from whole-sale cost modelling	-£6m to -£3m	-£5m to -£2m	£3m to £6m	£4m to £7m	-£4m to -£2m	£0m to £0m

Source: Ofwat analysis

Key: BRL = Bristol Water; DVW = Dee Valley Water; PRT = Portsmouth Water; SBW = Sembcorp Bournemouth Water; SES = Sutton & East Surrey Water; SSC = South Staffordshire Water.

Sensitivity testing

We have tested the robustness of this conclusion to changes in key assumptions – around the benefits for wholesale cost modelling.

- If we vary the assumption of the number of WoCs that might merge as a result of disallowing a company-specific uplift from one to two of the six small WoCs, to any number up to and including six, then Portsmouth Water and Sembcorp Bournemouth Water would still be the only two WoCs to provide net benefits. The exception is if it is assumed that there are no mergers if the company-specific uplift is not provided, in which case there would be no loss of comparator benefits and there are only net costs to customers from providing a company-specific uplift.

- If we used separate models for historic and forecast efficiency and then combined the results rather than using a single model based on combined data, then Portsmouth Water and Sembcorp Bournemouth Water would still be the only WoCs to provide net benefits.

- If we placed a 100% weighting on historic costs then South Staffordshire Water would provide benefits as an efficiency comparator (as well as Portsmouth Water and Sembcorp Bournemouth Water), although after taking into account the probability of a merger, these net benefits would be more than offset by the incremental financing costs (see section 4).

- If we placed a 100% weighting on forecast costs then only Portsmouth Water would provide net benefits (after taking into account financing costs and the probability of a merger).

- If we used a modified transitions approach[7] (instead of the changes approach) to identify the probability that companies would remain or advance to the upper quartile, then only Portsmouth Water and Sembcorp Bournemouth Water would continue to provide net benefits.

[7] We modified the approach used by the Competition Commission, by estimating the probability of a company being in the upper quartile, depending on whether it was in the upper quartile five years previously, rather than carrying out the analysis for each ranking separately,

On this basis, we are satisfied that based on a range of assumptions, the benefits from providing a company-specific uplift to Portsmouth Water and Sembcorp Bournemouth Water is robust.

3. Other benefits

This chapter considers the comparator benefits from WoCs in terms of:

- the benefits of a WoC comparator in retail cost assessment;
- the benefits of a WoC comparator in the service incentive mechanism;
- outcome delivery incentives and performance commitments;
- service quality; and
- innovation.

3.1 The benefit of a WoC comparator in household retail cost assessment

In this section we consider the impact of a lost comparator on the average cost to serve (ACTS). The ACTS is the retail cost efficiency benchmark. The loss of a comparator will change the ACTS benchmark. Losing a company whose cost to serve is below the industry average will move the average up; losing a company whose cost to serve is above the industry average will move the average down. Under our current retail methodology, a lower ACTS results in a tougher efficiency challenge and a lower total industry allowed retail household revenue. The opposite is true for any increase in the ACTS.

Excluding the cost of metering, at the moment the average cost to serve for WoCs (at £18.58) is currently lower than the average cost to serve for WaSCs (at £22.97). This difference between WaSCs and WoCs is reduced if we include the cost of metering. (The average cost of metering is £6.52 for WoCs compared with £4.50 for WaSCs.)

However, there are a number of reasons to be cautious about extrapolating any current cost differences between WoCs and WaSC into future regulatory periods:

- Retail costs to serve consist almost entirely of retail opex and doubtful debt costs. This suggests that an underperforming company can make efficiency gains relatively quickly by adopting generally recognised best practice, which may be drawn from other sectors. Consequently, we consider that the differences between companies that currently exist are unlikely to persist into subsequent price control periods.

- The use of targeted retail price controls is intended to result in significant improvement in retail cost performance and likely to result in significant changes in both the absolute level of efficiency and the relative efficiency between companies.

- To reflect potential changes in future efficiency performance, we have consistently stated that the PR14 ACTS-based methodology for household retail will be reconsidered before PR19[8].

- The increasing importance of metering as roll out increases over time means that any disadvantages of WoCs with regard to retailing to metered customers will become more significant.

- We conclude that while there are currently differences in the retail cost to serve between WoCs and WaSCs, these differences cannot be reliably assumed to endure beyond 2020. In addition, we are likely to revisit our modelling approach for retail controls for PR19. Therefore, we have not assumed any benefit or disbenefit from loss of WoCs to setting retail price controls.

3.2 The benefit of a WOC comparator in the service incentive mechanism

In this section, we consider whether a WoC comparator is beneficial to customers by increasing the strength of the challenge under the service incentive mechanism (SIM). A stronger challenge can lead to a higher level of service for customers.

[8] See, for example, Ofwat (July 2013), 'Setting price controls for 2015-20 – final methodology and expectations for companies' business plans', p97, although, in common with our approach to assessing wholesale cost benchmarks, the impact assessment for PR14 assumed the continuation of the current broad form of control for the 30-year assessment period.

In its report for the small WoCs, Oxera pointed out that WoCs have historically achieved higher SIM scores than WaSCs, valuing the difference at 0.3% of revenue or about £0.50 per customer per year. A number of individual companies also referred to a CC observation that: "WOCs generally provided a better level of service than WaSCs"[9].

We consider that this places more weight on the CC's statement than it was intended to bear. Neither in the year the CC had access to, 2010-11, nor in any subsequent year, has the difference in SIM score between WoCs and WaSCs been statistically significant; while some WoCs have consistently scored highly, others have underperformed.

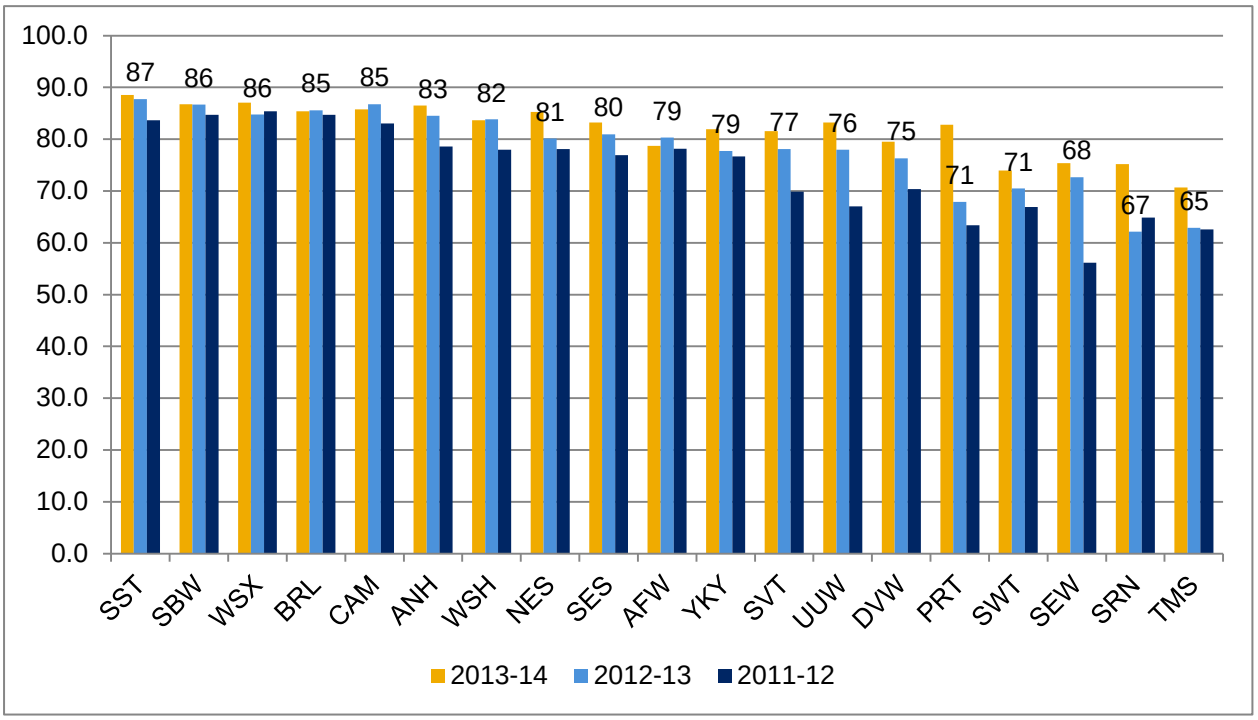
Table 8 Average SIM scores in the previous three years for WaSCs and WOCs

	2011-12	2012-13	2013-14
WaSC average (confidence Interval at a 90% level of confidence)	72.8 (63.2-82.4)	76.3 (65.5-87.0)	80.9 (73.6-88.2)
WoC average (confidence Interval at a 90% level of confidence)	76.5 (63.6-89.3)	81.2 (72.3-90.1)	83.3 (77.9-88.8)

Source: Ofwat analysis of company data

[9] Competition Commission (May 2012), South Staffordshire plc/Cambridge Water plc merger final report, par. 5.153.

Figure 4 SIM scores in the previous three years



Key: BRL = Bristol Water; DVW = Dee Valley Water; PRT = Portsmouth Water; SBW = Sembcorp Bournemouth Water; SES = Sutton & East Surrey Water; SSC = South Staffordshire Water

Source: Ofwat analysis of company data

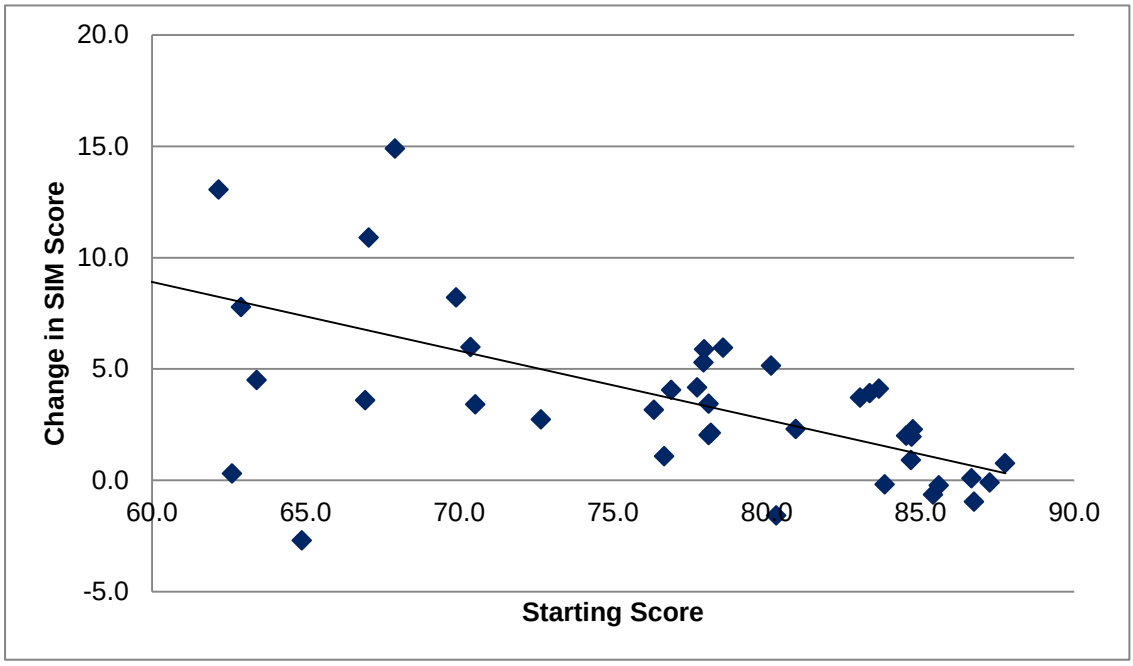
Individual WoCs, such as South Staffordshire Water, Sembcorp Bournemouth Water and Bristol Water, have done significantly better than the average WaSC under the SIM. However, we consider that this difference is unlikely to persist. As the CC commented in relation to the overall performance assessment scheme that was the predecessor of the SIM:

> **"Companies have tended to focus on delivery against the measures in the OPA and have tended to converge across a number of these measures, thus eroding the usefulness of company rankings."**[10]

[10] Competition Commission (May 2012), South Staffordshire plc/Cambridge Water plc merger final report, par. 4.22.

This conclusion is supported by our analysis of the SIM data to date. As we intended, the SIM has acted as a powerful incentive for the underperforming companies to catch up. As a result, the range of scores has declined; at a score of 86 the expected change is 0.8, at 76 it is 3.9. At the current rate of catch up the difference between companies is forecast to all but disappear by the end of the PR14 price control period.

Figure 5 Historic changes SIM scores depending on the starting score



Source: Ofwat analysis.

In the absence of evidence that one or more WaSCs will fail to continue to catch up, we consider that there is insufficient evidence of an impact on customers as a result of the loss of one or more comparators from the SIM scheme. Consequently we do not consider that there would be a continuing benefit from individual WoCs comparators in terms of SIM that would extend beyond the current control period.

3.3 Outcome delivery incentives and performance commitments

A key part of the PR14 methodology is the setting of company-level outcome delivery incentives (ODIs) and performance commitments (PCs) across companies. In line with our PR14 approach for company ownership of business plans, our methodology asks companies to make proposals for ODIs and PCs following

engagement with customers. We do not rely on comparators for our assessment of PCs and ODIs, although may be draw on comparators to support interventions in companies' plans. While when making comparisons between companies we may draw on evidence from WoCs, we do not consider that the loss of one or more WoCs would make these comparisons any less valid as there would still be a number of companies to use for comparisons (and are used for wastewater PCs and ODIs) and comparisons do not use statistical techniques. Consequently, we do not consider that there would be costs from the loss of one or more WoCs in terms of PCs and ODIs.

3.4 Service quality

We have already commented on service quality in section 3.2 when discussing the SIM. There, we concluded that there was currently a number of WoCs that outperform the average WaSC, but that this difference in service quality is unlikely to persist in the future.

Companies have also submitted evidence on their service quality more broadly, showing that individual WoCs have at times outperformed the average WaSC. We agree that this is an important area to focus on. As set out in section 3.2, we do not consider that there is compelling evidence of any WoC consistently outperforming WaSCs in terms of SIM.

Our analysis of the Consumer Council for Water (CCWater) tracking survey data (and SIM) indicates that any service quality difference between WoCs and WaSCs is being eroded and may have disappeared. While in 2011 a number of WoCs outperformed the average WaSC on customer satisfaction metrics, by 2013 this difference had disappeared with only Portsmouth Water outperforming the average WaSC on four out of the six metrics, and other WoCs only outperforming on two or three of the metrics.

Table 9 Key data from recent CCWater tracking surveys

CC Water customer satisfaction survey question(s)	WaSC average	WoC average	AFW*	BRL	DVW	PRT	SBW	SEW	SSC*	SES
2013										
Overall satisfaction with water supply	**94%**	**93%**	91%	95%	91%	93%	95%	91%	96%	94%
Satisfied with colour and appearance of tap water	94%	93%	88%	93%	92%	95%	93%	91%	95%	92%
Satisfied with taste and smell	87%	88%	83%	90%	88%	92%	89%	80%	88%	88%
Satisfied with hardness/softness	72%	61%	44%	68%	83%	66%	57%	58%	69%	66%
Satisfied with safety	93%	92%	88%	94%	87%	94%	95%	90%	93%	95%
Satisfied with reliability of supply	98%	97%	96%	99%	97%	98%	97%	97%	97%	97%
Satisfied with water pressure	92%	89%	82%	91%	90%	94%	89%	90%	92%	91%
2011										
Overall satisfaction with water supply	**92%**	**91%**	88%	93%	93%	96%	96%	90%	90%	93%
Satisfied with colour and appearance of tap water	92%	90%	87%	91%	93%	91%	95%	92%	89%	93%

CC Water customer satisfaction survey question(s)	WaSC average	WoC average	AFW*	BRL	DVW	PRT	SBW	SEW	SSC*	SES
Satisfied with taste and smell	86%	84%	79%	89%	89%	86%	87%	80%	88%	91%
Satisfied with hardness/softness	68%	57%	46%	69%	83%	51%	59%	58%	68%	72%
Satisfied with safety	92%	91%	88%	92%	89%	95%	90%	90%	94%	96%
Satisfied with reliability of supply	96%	96%	93%	96%	97%	98%	97%	95%	94%	98%
Satisfied with water pressure	89%	88%	87%	86%	90%	87%	92%	87%	86%	90%

Source: CCWater, Ofwat analysis.

Note: Green shading indicates where a WoC has scored higher than the WaSC average. For AFW and SSC separate company results have been combined using a RCV weighted average.

Key: AFW = Affinity Water; BRL = Bristol Water; DVW = Dee Valley Water; PRT = Portsmouth Water; SBW = Sembcorp Bournemouth Water; SES = Sutton & East Surrey Water; SSC = South Staffordshire Water.

In the absence of compelling evidence showing that WoCs inherently provide superior service quality, we conclude that there is unlikely to be a detriment to customers in the area of service quality from the loss of one or more WoCs.

3.5 Innovation

Finally, companies made submissions on the impact of small WoCs on the rate of innovation in the sector. While these submissions provided some useful examples of innovations from WoCs, they did not provide any evidence suggesting that WoCs are inherently more innovative than WaSCs. Innovative companies are likely to outperform their peers, but there is no evidence that WoCs are more innovative in wholesale costs, retail or service quality compared with their peers.

While it could be argued that smaller companies might be more agile and therefore able to introduce innovations, on the other hand larger companies may have more scope to support research and development and to experiment with different approaches. We note that innovation in the water sector is occurring throughout the world, with improvements introduced in one country being adopted in others if successful. In terms of UK developments, the supply chain is likely to have an important role in sector innovation. The PR14 regulatory framework, such as the move towards a totex approach to cost assessment, outcomes and greater customer engagement, is likely to be more significant as drivers of innovation than the number of companies in the sector or the existence of small companies within the sector. For that reason, we conclude that the loss of one or more WoCs would be unlikely to create a material detrimental impact on innovation.

3.6 Conclusion

We do not find there are significant benefits from any of the potential categories of benefits to customers considered in this chapter.

4. Overall assessment

We now consider the net benefits from the company-specific uplift by considering the incremental costs to customers from the increase to the cost of capital compared with the benefits of WoCs as wholesale comparators set out in chapter 2.

4.1 Net benefits

We have compared the wholesale cost modelling benefits with the 15 basis point incremental cost of capital identified in the technical appendix. Directly comparing the benefits from a loss of a comparator with the incremental costs of finance, shows that only two companies: Portsmouth Water and Sembcorp Bournemouth Water, are likely to have sufficient benefits to offset the incremental costs.

As we set out in chapter 3, we have not identified any significant non-quantified benefits from the allowance of a company-specific uplift and therefore the results in the table below represent our net benefit assessment.

Table 10 Net benefits assessment

Impact (£m, 30 year NPV)	BRL	DVW	PRT	SBW	SES	SSC
Comparator benefits	-£6m to -£3m	-£5m to -£2m	£3m to £6m	£4m to £7m	-£4m to -£2m	£0m to £0m
Increased financing cost	-£12m	-£3m	-£3m	-£4m	-£6m	-£9m
Net benefits	-£18m to -£15m	-£8m to -£5m	£0m to £3m	£0m to £3m	-£10m to -£8m	-£9m to -£9m

Key:

BRL = Bristol Water; DVW = Dee Valley Water; PRT = Portsmouth Water; SBW = Sembcorp Bournemouth Water; SES = Sutton & East Surrey Water; SSC = South Staffordshire Water.

Note:

Incremental financing costs have been calculated by examining the impact of a change in the WACC from 3.70% to 3.85% on allowed revenues in the financial model.

We have tested the sensitivity of our findings to a range of alternative assumptions and have demonstrated the results are robust in section 2.

On this basis, we consider that a company-specific uplift of 15 basis points to the WACC should be allowed for Portsmouth Water and Sembcorp Bournemouth Water as the potential benefits more than offset the incremental costs. For the other four small WOCs we have not been able to identify robust evidence of reasonable benefits to offset the incremental costs. Consequently, we do not consider it would be appropriate to award a company-specific uplift to Bristol Water, Dee Valley Water, Sutton & East Surrey Water and South Staffordshire Water.

Appendix 1: Previous regulatory assessments of the impact of the loss of a comparator

As the some of the WoCs have argued, customers may benefit if the uplift to the WACC helps to maintain a set of efficient companies that can be used to benchmark total expenditure. The underlying premise is that this set is likely to keep costs down further than if one or more of the efficient companies merged as a result of not been giving an uplift to the WACC

Both the Competition Commission (CC), whose functions have been transferred to the Competition and Markets Authority, and Ofgem estimated the benefits of comparators for assessing efficient cost in the context of regulated monopolies. These cases identify the potentially significant benefits to customers from the use of companies as efficiency benchmarks and the costs to customers from the loss of comparators – for example, when companies merge. While changes in industry structure (through mergers) are only a potential consequence of not allowing a company-specific uplift, the CC's approach to assessment of benefit from a comparator provides a useful conceptual framework for the consideration of the customer benefits.

This appendix sets out previous regulatory assessments of the benefits of a comparator identified by:

- the CC in its most recent water merger cases; and
- Ofgem in the separation and sale of gas distribution network operators.

A1.1 CC assessment of water merger cases

Since privatisation, there have been ten merger referrals to the CC, resulting in four prohibitions and six allowed mergers. The majority of these referrals, however, were in the 1990s, when both the state of the industry and our methodology for price controls were substantially different to what they are now. In the last decade, the CC only considered the Mid Kent/South East Water merger and the South Staffordshire/Cambridge merger. In both cases, the CC used substantially the same approach.

The initial question that the CC is required to answer in water merger cases is somewhat different from the usual merger test. It is:

> **"whether the merger may be expected to prejudice the ability of Ofwat, in carrying out its functions by virtue of this Act, to make comparisons between different water enterprises"**[11].

In considering the impact of a merger between a given company and an unknown other water company, this 'loss of comparator' impact has tended to be the key component of the assessment of net benefit to customers.

For South Staffordshire/Cambridge, based on our PR09 cost assessment methodology, the CC divided the impact of a lost comparator into three parts, which are described below. The CC used a similar approach based on PR04 models for Mid Kent/South East Water.

1. The impact of Ofwat's ability to use comparators to set price limits, split into:

   - An increase in the likelihood that the merged entity may be more likely to be the benchmark in Ofwat's econometric models, which was based on a probabilistic distribution of historic company performance. For the South Staffordshire/Cambridge case the CC estimated benefits of £2.2 million over 30 years (on a net present value – or NPV – basis).
   - The merger may result in a loss of precision in the econometric models from which Ofwat estimates technical efficiency targets. This was estimated by examining the change in the residual sum of squares by changing the standard errors in the PR09 expenditure models by the reduction in comparators. Using this approach, the CC estimated a loss of £6.2 to £7.8 million (NPV) in the South Staffordshire/Cambridge case.
   - The merger may adversely affect Ofwat's ability to make cost base comparisons and challenge cost-base estimates. In the South Staffordshire/Cambridge case the CC found that the merger was unlikely to have a material effect on Ofwat's ability to make comparisons of water companies' relative capex efficiency using its cost base approach, and might assist Ofwat in setting more stringent targets.

[11] section 3(1)(b) of Schedule 4ZA Water Industry Act 1991.

- The merger may impact on Ofwat's use of informal comparisons to challenge assumptions. In the South Staffordshire/Cambridge case while the CC acknowledged that certain of Cambridge's practices had been useful to Ofwat in the past, it could not satisfy itself that Ofwat relied particularly heavily on best practice from Cambridge.

2. The impact on Ofwat's ability to monitor and incentivise service quality. The CC found a negative impact on monitoring and incentivising service quality (as the performance of Cambridge was better than South Staffordshire) and a detrimental impact on Ofwat's ability to use league tables (through the SIM) to improve service quality.

3. The impact on Ofwat's ability to use comparators to identify and spread best practice. While the CC recognised that Cambridge's strong independent management would be lost, it was not convinced that Cambridge's contributions to innovation and best practice had a significant impact on the rest of the water industry.

Overall on South Staffordshire/Cambridge, while the CC considered that arguments were finely balanced, it concluded that the merger would not prejudice and may not be expected to prejudice, the ability of Ofwat to make comparisons between companies. In reaching this conclusion the CC attached some weight on the fact that following the merger there would still be 18 independently managed water companies (the Veolia group of companies amounting to one independent comparator in this context) including some water companies that would be as likely as Cambridge to contribute an alternative small company perspective.

For Mid-Kent/South East Water the CC found that the merger might prejudice the ability of Ofwat to make comparisons between companies but found that requiring the companies to be in separate ownership would lose relevant customer benefits such as cost savings and improvements in water resource management and so required a one-off lump sum bill reduction to the customers of Mid Kent and South East Water and the acceptance of a price determination which incorporated expected operating expenditure savings from the merger.

A1.2 Ofgem assessment of comparator benefits from sale of gas distribution network operators

In November 2004, Ofgem published an impact assessment of the benefits of separating National Grid Transco into eight units. Ofgem estimated an average 1.3% opex efficiency improvement (with four comparators in separate ownership) based on a comparison between electricity distribution network operator (DNO) annual efficiency improvement of 7.7% in real unit opex between 1990-91 and 2001-02; and National Grid annual efficiency improvement of 4.9% over the same period.

Based on these comparisons, Ofgem estimated a potential efficiency improvement of between 4.9% and 7.7% for separate DNOs compared with a 3% efficiency improvement without. Using this comparison, Ofgem estimated a benefit range of £200 million to £585 million (with a central estimate of £325 million) for the resulting three additional comparators in separate ownership (the present value calculation was based on 15 years of operating expenditure efficiency improvement at 1.13%, discounted at the WACC).

Ofgem also estimated additional costs primarily relating to increased interface costs of £82 million to £118 million, giving a net benefit of £80 million to £500 million from the separation with a central case of £225 million.

Appendix 2: Review of company submissions

A2.1 Overview

All six small WoCs identified a number of potential benefits from a company-specific uplift. Many of these submissions explicitly considered a counterfactual where the company merged and the comparator was lost.

- Sutton & East Surrey Water and Portsmouth Water made submissions where offsetting benefits included an estimate of the value of a lost comparator – that is, the impact on our wholesale cost modelling from one less data point.

- A number of WoCs cited the CC's analysis of the loss of precision of our models due to the loss of a comparator, but no company made submissions about the magnitude of this impact using our PR14 wholesale cost assessment methodology.

- Sutton & East Surrey Water and Portsmouth Water discussed the impact on regulatory benchmarking – for example, our use of service quality KPIs.

- Portsmouth Water and South Staffordshire Water discussed the impact of additional companies on service quality and innovation.

- A report prepared by Oxera and submitted by Portsmouth Water, South Staffordshire Water, Sutton & East Surrey Water, Dee Valley Water and Bristol Water, as well as Portsmouth Water, Sembcorp Bournemouth Water and South Staffordshire Water separately, identified that small companies might be more locally focused and engaged with their local communities.

However, for some other proposed offsetting benefits, the case is less clear.

- All six WoCs made statements about the level of bills and service levels.

- All six WoCs stated that their higher ratio of revenue to RCV compared with WaSCs meant that bills would be lower than if a WaSC provided services.

Sembcorp Bournemouth Water, Dee Valley Water, Portsmouth Water, South Staffordshire Water and Sutton & East Surrey Water submitted research which they stated showed that customers found a company-specific uplift acceptable.

Table 10 Overview of company submissions on benefits

Benefit	Oxera small WoCs March 2014	Systra DVW May 2014	Frontier PRT June 2014	Accent PRT June 2014	PRT June 2014	Oxera PRT June 2014	Nuance SBW June 2014	Frontier SES March 2014	Accent SES June 2014	SSC June 2014
Impact on the wholesale benchmark	✓		✓✓		✓✓			✓✓		✓
Impact on the precision of the wholesale models	✓		✓					✓		
Loss of a comparator for quality of service (SIM)			✓✓					✓✓		
Loss of comparator based on Ofgem analysis	✓									
Impact of WoCs having a lower RCV	✓✓		✓✓		✓✓	✓		✓✓		✓✓
Impact of WoC having lower bill levels	✓✓				✓	✓✓				✓✓
Impact of WoC being more efficient than the average WaSC in wholesale or retail	✓✓				✓	✓✓				✓✓

Benefit	Oxera small WoCs March 2014	Systra DVW May 2014	Frontier PRT June 2014	Accent PRT June 2014	PRT June 2014	Oxera PRT June 2014	Nuance SBW June 2014	Frontier SES March 2014	Accent SES June 2014	SSC June 2014
Impact of WoC on service quality and innovation	✓✓		✓		✓✓			✓		✓✓
Customer willingness to pay		✓✓		✓✓			✓✓		✓✓	✓✓

Key:

DVW = Dee Valley Water; PRT = Portsmouth Water; SBW = Sembcorp Bournemouth Water; SES = Sutton & East Surrey Water; SSC = South Staffordshire Water

Note:

✓✓ - detailed evidence; ✓ - less detailed evidence.

A2.2 Our assessment of company submissions

The following sections set out our assessment of each of the company submissions on the benefits that can be linked to a company-specific uplift. This is summarised in table 11 below.

Table 11 Summary of company submissions and potential issues with these arguments

Benefit	Potential issues
Impact of individual wholesale cost models on assessment of upper quartile efficiency	In principle, this is a sound argument. But we consider that the approach used by companies is likely to overstate the benefits from a loss of comparator as it identifies the benchmark as the upper quartile in each of the wholesale cost models, rather than the upper quartile across models. Nor does it take account of the probability that companies' performance will change over time. It also assumes that the absence of a company-specific uplift results in direct change to industry structure.
Lower charges to customers due to lower RCV per customer relative to WaSCs	Customers are able to continue to benefit from the lower regulatory capital value (RCV) regardless of industry structure. For example, the 'legacy' allocation to WoC customers can be maintained by maintaining separate charges for WoC customers in a merged company.
The historic operating expenditure (opex) efficiency and retail cost to serve of WoCs	We acknowledge the historic efficiency of some of the WoCs in this area. But the argument advanced by the companies did not take account of the likely changes in companies' performance over time.
Customer willingness to pay and Customer surveys of acceptability of paying small company premium	Surveys of customers' willingness to pay can be helpful. But in this area these do not replace the need to demonstrate economic benefits. Rather, they are complementary to benefits analysis – they provide evidence that customers are willing to pay for a beneficial uplift. We also found some evidence that survey questions may be subjective and may mean that answers cannot be relied as being representative of customer preferences.

Benefit	Potential issues
Comparison with comparator benefits from previous CC merger inquiries drawn from PR04 and PR09 models	The CC's approach in identifying economic benefits is a very useful starting point. But there have been a number of important changes since it considered the South Staffordshire/Cambridge merger – not least the new PR14 methodology, which includes three separate price controls for WoCs, a total expenditure (totex) approach to cost assessment and retail average cost to serve (ACTS). Analysis of comparator benefits needs to take account of these changes. See Appendix 1 for further details of CC approach.
Applying the Ofgem 1.3% comparative competition benefit to the water sector	Ofgem's analysis looked at the value of introducing comparators – from zero to four comparators for gas distribution price controls. Again, we think consider the methodology of considering the value of comparators is helpful, but the benefits of a comparator are sector and company specific. See Appendix 1 for further details of Ofgem approach.
Impact on effectiveness of the service incentive mechanism (SIM)	The WoCs have, on average, high levels of performance for the SIM. But we are concerned that some of the analysis provided is likely to overstate the benefits of WoCs in terms of service quality performance. This is because the difference between WoC and WaSC performance has narrowed significantly over recent years.
Impact on innovation and quality of service	Companies provided examples of improved service quality and innovation, although there is no evidence that this better performance will endure. Nor is it consistent across all metrics, or clear why these benefits would be lost if a larger company provided the service.

A2.2.1 Impact on cost benchmarks based on CC South Staffordshire merger case

Companies submitted two different types of assessment based on the CC South Staffordshire/Cambridge merger inquiry.

Portsmouth Water, South Staffordshire Water, Sutton & East Surrey Water, Dee Valley Water and Bristol Water submitted a report by Oxera (7 March 2014), which estimated an impact on customers due to losing all WoCs as comparators of £30 million to £45 million per price control period[12]. This directly used the benefits identified by the CC in the South Staffordshire/Cambridge inquiry.

Sutton & East Surrey Water submitted a report by Frontier Economics dated March 2014, which estimated the impact of a lost comparator on the cost benchmark by adjusting the figures calculated by the CC in the South Staffordshire/Cambridge case. As a result, the impact is stated in terms of the probability of Sutton & East Surrey Water forming the cost benchmark, which is a consideration that is no longer relevant under our current wholesale cost assessment methodology. Overall, Frontier Economics calculated the following potential impacts[13].

Table 12 NPV of customer detriment as a result of losing Sutton & East Surrey Water as a comparator – Frontier Economics calculation

	Reduction in probability of forming benchmark				
	2%	4%	6%	8%	10%
NPV of customer detriment – low	£8.3m	£10.5m	£12.6m	£14.7m	£16.9m
NPV of customer detriment – high	£9.9m	£12.1m	£14.2m	£16.3m	£18.5m

Source: Frontier Economics: Cost of capital premium and net customer benefit, a report for Sutton and East Surrey Water, March 2014

We do not consider that the analysis based on the CC merger inquiry provides a good indication of the benefits of a company specific uplift for water companies in PR14 as the benefits identified by the CC were specific to the South Staffordshire/Cambridge merger at that time. The CC's analysis relies on the PR09 cost models which are now outdated compared to totex wholesale and retail models have been developed for PR14 and which use a different approach to identify efficiency benchmarks.

[12] The report did not set out in detail how this figure was calculated.
[13] The report did not set out in detail how these figures were calculated.

A2.2.2 Impact on cost efficiency based on Ofgem assessment of DNO separation

In its report for the small WoCs, Oxera cited evidence on the benefits of comparators from Ofgem, which estimated net benefits of gross benefits of £225 million, or around £56 million for each additional comparator in gas distribution. Oxera also cited a benefit of £32 million per comparator for the electricity distribution sector set out by Ofgem in 2002. As Oxera accept, Ofgem consider that these benefits are merger specific.

A2.2.3 Impact on cost benchmarks using PR14 wholesale cost models

Portsmouth Water submitted a more recent report by Frontier Economics, dated June 2014, that took into account our published wholesale cost assessment models. Specifically, Frontier estimated how much the upper quartile would shift in each of the five basic wholesale cost models if Portsmouth Water was removed. They calculated an average impact on the upper quartile wholesale cost efficiency benchmark of 0.42%.

Table 13 Impact on the benchmark as a result of losing Portsmouth Water as a comparator – Frontier Economics calculation

Model	Weighting	Upper quartile with PRT and SEW	Upper quartile without Portsmouth Water	Difference
W3	33%	94.5%	94.4%	0.1%
W5	17%	94.8%	94.0%	0.8%
W6	17%	95.0%	94.8%	0.2%
W9	17%	87.3%	87.2%	0.1%
W10	17%	86.4%	85.1%	1.3%
Total				**0.42%**

Source: Frontier Economics: WACC premium and customer benefit, a report for Portsmouth Water, July 2014

Multiplying this shift by the total industry totex for PR14, Frontier Economics estimated a total benefit from an avoided shift in the benchmark to be £84.7 million. Frontier Economics did not reach any conclusions on the impact of a lost comparator on the precision of our wholesale cost modelling.

We consider that the Frontier Economics assessment will overstate the benefits from a loss of comparator as it identifies the benchmark as the upper quartile in each of the wholesale cost models; however, the upper quartile is defined as the upper quartile performance averaged across the five models. It also assumes that a company that is currently in the upper quartile will continue to be in the upper quartile over future control periods, where past experience demonstrates that each company's relative performance changes over time.

South Staffordshire Water also carried out an assessment based on the efficiency scores from the wholesale totex models; however, this assessment focuses on WoC, WaSC and industry average performance rather than the impact on the upper quartile benchmark from removing South Staffordshire Water as a comparator.

A2.2.4 Impact on cost efficiency

In its report for the small WoCs, Oxera stated the small WoCs are more efficient as they had higher opex efficiency, with a higher opex efficiency ranking of 2 ranks at the last two price reviews, which was equivalent to 2% higher efficiency. They also had lower average retail costs to serve. Submissions by Portsmouth Water and South Staffordshire made similar points about higher opex efficiency. We accept that, in the past, WoCs have had higher opex efficiency. But we are now using a totex approach to cost assessment and we have taken the impacts of relative WoC totex efficiency into account in our assessment set out in chapter 2. On retail average cost to serve, as set out in our assessment, while there are currently differences between WoCs and WaSCs, these cannot be reliably assumed to endure beyond 2020. In addition, we may well revisit our modelling approach for retail controls for PR19.

A2.2.5 Impact on benchmarking through the service incentive mechanism

In its report for the small WoCs, Oxera pointed out that WoCs have historically had higher SIM scores than WaSCs, estimating that the difference represents a SIM reward of about 0.3% of revenue, or about £0.50 per customer per year. Also, the Frontier Economics reports for Portsmouth Water and Sutton & East Surrey Water also referred to the CC observation that historically WoCs have tended to outperform WaSCs in terms of service quality[14].

We consider that this is likely to overstate the benefits of WoCs in terms of service quality performance. Neither in the latest year that the CC had access to, 2010-11, nor in any subsequent year has the difference in SIM score between WoCs and WaSCs been statistically significant; while some WoCs have consistently scored highly, others have underperformed. In addition, over recent years the difference between WoC and WaSC performance has narrowed and in the most recent year, 2013-14, the average SIM performance of WaSCs and WoCs is similar at 80.8 and 82.4, respectively.

A2.2.6 Other impacts on service quality and innovation

In its reports for Portsmouth Water and Sutton & East Surrey Water, Frontier Economics stated that a loss of a comparator could reduce the potential for innovation, comparison and the spread of best practice. Frontier Economics stated that, in particular, WoC's perform well in terms of service quality.

A number of WoCs submitted evidence on their service quality more broadly, showing that individual companies have, at times, outperformed the average WaSC.

South Staffordshire Water provided the most detailed evidence. It considered its performance in:

- water quality compliance (mean zonal compliance);
- acceptability of water to customers;
- leakage;
- supply interruptions;

[14] "We noted that WoCs generally provided a better level of service than WaSCs." Competition Commission (May 2012), South Staffordshire plc/Cambridge Water plc merger final report, par. 5.153.

- hosepipe ban frequency;
- serviceability infrastructure;
- serviceability non-infrastructure; and
- SIM.

For each area, South Staffordshire Water estimated customers' willingness to pay for the incremental performance observed. In total, it calculated a benefit of £12.8 million per year.

However, we have a number of concerns with this assessment. First, South Staffordshire Water's submissions tended to focus on only a few years of performance data, meaning that this evidence does not show that the company has structurally higher performance, which is likely to endure across price controls. In particular, we note that in the latest CCWater customer survey South Staffordshire Water's performance is only above the average WaSC on two of the six customer satisfaction areas.

Second, the evidence that South Staffordshire Water provided – as well as the evidence provided by other companies – does not show that there is a causal link between its status as a WoC and its performance, meaning that its customers would experience lower performance if it were to merge with a WaSC. For example, South Staffordshire Water did not provide evidence on the trends in service quality in its South Staffordshire and Cambridge areas before and after the merger, which might have allowed it to forecast what might happen to its service quality if it were to merge with a WaSC.

Portsmouth Water submitted 13 examples where it stated that its efforts had led to lower bills and higher service quality for their customers, and that this has contributed to the efficiency of the sector as a whole. While it stated that these benefits were "in part due to its size and structure", it did not provide supporting evidence.

Specifically, six of the examples Portsmouth Water provided[15] were areas where, it stated, it had made investment decisions that were particularly beneficial to customers. However, these examples cannot support a case for a company-specific

[15] Service reservoirs, interconnectivity, nitrate blending schemes, flexibility/headroom in distribution network, environmental management, water resources in the South East.

uplift to the WACC without evidence showing that these decisions would not have been made – or would have been much less likely to have been made – by a WaSC. Without such evidence, these examples are simply examples of investments that might continue to provide benefits to Portsmouth Water customers after a merger.

More generally, we note that where benefits result from Portsmouth Water being more efficient than other providers and have lower charges, these benefits may continue to flow to customers following any merger, they are dependent on charging policy rather than industry structure. To the extent that Portsmouth Water is more efficient than other companies, then this benefit can be captured by their benefits as a loss of comparator. As the allowed totex in PR14 substantially depends on upper quartile efficiency within industry, then this will capture much of the benefit for Portsmouth Water's customers.

A2.2.7 Customer willingness to pay

Dee Valley Water, Portsmouth Water, Sutton & East Surrey Water, South Staffordshire Water and Sembcorp Bournemouth Water submitted survey evidence purporting to show that customers are willing to pay for an uplift on WACC, or at least that customers found the proposed bill levels acceptable and affordable even if their attention was drawn explicitly to the proposed company-specific uplift.

We consider that while it is helpful to provide evidence of customer willingness to pay for additional cost of finance for WoC, this is not in itself sufficient to justify a premium. It is also necessary to demonstrate that the costs are efficient and the benefits to customers outweigh these costs. If convincing evidence is provided on both of these points, then customer willingness to pay for the cost would support the allowance of cost uplift.

We have concerns with the quality of the survey evidence presented by the companies. First, we consider that the framing of the questions could be misleading, in that respondents were not shown an accurate representation of the counterfactual.

For example, South Staffordshire Water asked its customers:

> **"Your water bill is lower than all of the larger water companies although some of the costs included in the bill are slightly higher due to the small size of the company. This cost has always been included in your annual bill and is £1.90 (average h'hold) which is already included in the plan presented to you in this**

> **survey. Please indicate how happy you are to continue with this amount for your local water service."**

The question conflates the relativity of charges with larger companies, which may depend on a range of factors other than size (as noted by WoCs elsewhere, their privatisation RCV values), with the additional cost of financing WoCs. It does not therefore establish an unambiguous willingness to pay for this cost. Indeed, customers may be led to believe that charges would go up rather than down as a result of the disallowance of this cost. We do not therefore accept that this survey result provides sufficient evidence of willingness to pay the higher cost of a financing uplift for South Staffordshire Water. We note that historically, when WoCs have been acquired by WaSCs, the acquiring company has often maintained different charging schemes for the customers of the WoC. Anglian Water, for example, continues to maintain a separate charging scheme for its customers in the Hartlepool area, as does Northumbrian Water for Essex and Suffolk. This suggests that question should not be based presumption that differential charging arrangements would not be retained in WoC areas.

The same goes for differences in quality. Dee Valley Water, for example, gave customers the following context before asking them for their willingness to pay:

> **"Dee Valley Water is a small company with treatment works in Wrexham and Chester. This means that the company's customer call centre staff know the area very well and can respond quickly and knowledgably to issues and incidents; as well as providing employment and investment in the area."**

Dee Valley Water did not submit evidence showing that its customer service would deteriorate following a merger. For example, it did not provide any evidence that a merger would result in a move away from local customer call centre staff (and presumably if customers valued this and were willing to pay for it then a merged entity might carry on providing the service). Consequently we do not accept that the result of this engagement – an average willingness to pay of £35 per year, with a median reply of: "No amount would make me support a change" – provides sufficient evidence of willingness to pay the higher cost of a financing uplift for Dee Valley Water.

By contrast Portsmouth Water, Sutton & East Surrey Water, and Sembcorp Bournemouth Water asked their focus groups whether the incremental cost of their company-specific uplift was good value for money for dealing with a small water company. A majority of customers stated it was good value for money; however, it

does not appear clear what the customers thought that were receiving in return for the uplift, with reasons quoted for support in part based on preconceptions that larger companies would provide poorer customer service. In addition, many responses suggest that customers did not place a high importance on the possibility of a small bill increase.

Therefore, we consider that no company has engaged with its customers in a way, which clearly demonstrates a willingness to pay a premium for an uplift.

Finally, some companies have also suggested that customers value the fact that they employ people locally. This was touched on, for example, in Sutton & East Surrey Water's engagement with customers. However, companies have not included specific questions on this issue in their customer engagement, meaning that we are unable to assess customers' willingness to pay for a premium in order for a company to employ people locally. It is also unclear whether a merger would reduce the number of people employed locally as many of the same local jobs would still be required and WoCs may restructure their local operations at any point.

A2.2.8 Impact of operational gearing

All six WoCs stated that their higher operating gearing in terms of revenue to RCV would result in lower bills compared to the case where the service was provided by a WaSC. For example, Portsmouth Water submitted a report by Frontier Economics which stated that:

> **"If Portsmouth Water had an operational leverage identical to the average WaSC then its RCV per customer would be £1,310 instead of the actual level of £411. The Portsmouth Water WACC premium adds £2 per annum to a bill but its customers are still saving around £31 as a result of the lower RCV per customer."**[16]

In the same report, Frontier Economics also state that:

> **"In this 'thought experiment' [of Portsmouth merging with a WaSC] where the tariffs would be smoothed across the two companies the impact on Portsmouth**

[16] Frontier Economics (June 2014), 'WACC premium and customer benefit – a report prepared for Portsmouth Water', p2.

Water customers would arise from a lower WACC and a higher RCV per customer. The overall impact would be an increase in the customer bill for Portsmouth Water customers."

We agree with companies that RCV per customer is typically lower for WoCs than for WaSCs. But we do not consider that this would result in a loss to consumers if the WoC in question was merged. The level of the RCV is partly a function of the values given to different companies on privatisation and partly a result of subsequent capex and depreciation. If a WoC merged with a WaSC the RCV would be an aggregation of the RCVs of both companies, rather than the WaSC RCV being applied to the WoC. In addition, as stated above, following a merger there is no reason to assume that tariffs would be smoothed across different company areas. There is also no reason to assume that any merger would need to be with a WaSC and could be with an entity from another sector in which case there would not be different areas to smooth tariffs across.

Ofwat (The Water Services Regulation Authority) is a non-ministerial government department. We are responsible for making sure that the water sector in England and Wales provides customers with a good quality and efficient service at a fair price.

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