

26 March 2018

By email: water@esc.vic.gov.au

Water Team
Essential Services Commission
Level 37, 2 Lonsdale Street
Melbourne VIC 3000

Dear Sir/Madam

Submission: Cost of debt and allowed return on equity in the 2018 Water Price Review

Water corporations are state-owned entities that exist to serve all Victorians. The Victorian government's interest in water companies is not purely financial—water companies serve a range of functions that allow all of us to enjoy a standard of living that comes with having access to clean and affordable water. The Government benefits from this in turn: access to water plays a crucial role in people's lives and is a key determinant in health, well-being and social participation.

The importance of water services is recognised in Victoria's constitution, the state's founding document. In 2003, the *Constitution Act 1975* (Vic) was amended to entrench the public ownership of water authorities.¹ This recognises that provision of water services, at reasonable cost, is of primary importance to the community.

The shift in this Price Review to focus more on outcomes (the 'O' in PREMO) and rewarding companies for achieving good outcomes for their customers is positive. We support measures that will encourage companies to deliver services and projects that align with customer values and preferences.

As part of our advocacy in the 2018 Price Review, Consumer Action commissioned an independent report that examined the return on equity and cost of debt in the 2018 Price Review guidelines and applied by the Essential Services Commission (**ESC**) in the four early draft decisions. The report recommends a reduction in both the allowed cost of debt and allowed cost of equity by 100 basis points respectively.

Government owned water corporations carry less risk than private corporations. As such, the cost of debt should be lowered to around 5 per cent. Similarly, the return on equity should be set in the range of 4.3 per cent (leading) to 2.9 per cent (basic) to reflect the actual risks borne by Victorian tax payers.

Consumer Action encourages the ESC to take the recommendations of the independent report into account as part of the 2018 Water Price Review. Our comments are detailed more fully below.

¹ Section 97, *Constitution Act 2003* (Vic). The Victorian Premier, when introducing this stated: Honourable members will agree that the provision of water service, at reasonable cost, is a matter of primary importance to our community. It was for this reason that, at the last election, this government made a commitment to ensure that our water authorities remain publicly owned and directly accountable to the people of Victoria.



About Consumer Action

Consumer Action is an independent, not-for profit consumer organisation with deep expertise in consumer and consumer credit laws, policy and direct knowledge of people's experience of modern markets. We work for a just marketplace, where people have power and business plays fair. We make life easier for people experiencing vulnerability and disadvantage in Australia, through financial counselling, legal advice, legal representation, policy work and campaigns. Based in Melbourne, our direct services assist Victorians and our advocacy supports a just market place for all Australians.

Revenue Requirements

We support the ESC's role in assessing and rigorously analysing each water businesses proposed operating and capital expenditure. The ESC is well placed to carry out this technical role and ensure water businesses charge no more than is necessary for the efficient running of each business. Incorporating performance and outcomes based incentives into the Price Reviews is vital and the PREMO model should ensure that water businesses improve productivity and performance over time.

We are pleased to see all four fast-tracked Price Submissions exclude projects from revenue forecasts where there is uncertainty in timing, cost, scope or benefits. Customers should not be expected to foot the bill for projects that are speculative or unlikely to be completed within a regulatory period.

As part of the 2018-23 Water Price Review, Consumer Action commissioned an independent report by CME Australia to examine the cost of debt and allowed return on equity in the ESC's 2018 Water Price Review Guidance Paper² which applies to the ESC's draft decisions. CME Australia's report is attached at Appendix A.

CME's report analyses the cost of debt and allowed return on equity in the 2018 Water Price Review Guidance Paper and as applied in the four early draft decisions published by the ESC. The report looks at actual borrowing costs from the Treasury Corporation of Victoria and considers risks borne by Victoria's government-owned water corporations compared to risks borne by water consumers in coming to its conclusions.

The report calculates that over 5 years, Victorians could be saving \$770 million off their water bills. The bulk of these savings come via the metropolitan water providers. Regional providers are affected to a lesser extent due to their lower regulatory asset bases. Table 1 below summarises the potential savings that could flow through to customers by way of lower water bills.

² Essential Services Commission Victoria, 2018 Water Price Review – Guidance Paper, November 2016



Table 1. Impact of suggested return on and debt and equity on regulated revenues over five years

Company	Regulatory Asset Value (\$m)	Change in allowed charges over 5 years (\$m)	Change in allowed charges over 5 years (\$m)	Total change in allowed charges over 5 years (\$m)
		Debt	Equity	Equity + Debt
Barwon Water	\$ 1,313	\$ 41	\$ 30	\$ 71
City West Water	\$ 1,874	\$ 59	\$ 43	\$ 102
South East Water	\$ 3,359	\$ 105	\$ 77	\$ 182
Yarra Valley Water	\$ 4,058	\$ 128	\$ 93	\$ 221
Gippsland Water	\$ 664	\$ 21	\$ 15	\$ 36
Central Highlands Water	\$ 342	\$ 11	\$ 8	\$ 19
Coliban Water	\$ 496	\$ 16	\$ 11	\$ 27
East Gippsland Water	\$ 147	\$ 5	\$ 3	\$ 8
Goulburn Valley Water	\$ 351	\$ 11	\$ 8	\$ 19
Grampians Wimmera Mallee Water	\$ 402	\$ 13	\$ 9	\$ 22
Lower Murray Water - Urban	\$ 156	\$ 5	\$ 4	\$ 9
North East Water	\$ 265	\$ 8	\$ 6	\$ 14
South Gippsland Water	\$ 148	\$ 5	\$ 3	\$ 8
Wannon Water	\$ 330	\$ 10	\$ 8	\$ 18
Westernport Water	\$ 120	\$ 4	\$ 3	\$ 7
Lower Murray Water - Rural	\$ 74	\$ 2	\$ 2	\$ 4
Southern Rural Water	\$ 62	\$ 2	\$ 1	\$ 3
TOTAL	\$ 14,161	\$ 446	\$ 324	\$ 770

Cost of Debt

The ESCs role includes determining revenue requirements for Victoria’s water corporations. In this price review a building blocks approach to calculate returns on equity and costs of debt has been used.

Borrowing costs are applied to 60 per cent of a corporation’s asset base. The ESC uses a 10-year trailing average approach to determine the allowed revenue requirement.³ The cost of debt for Victorian water businesses have been based on the 10-year Reserve Bank of Australia’s published BBB-rated bonds including some adjustment mechanisms—currently estimated to be 6.05 per cent in 2017-18.

The report commissioned by Consumer Action recommends that the ESC set the cost of debt at around 5 per cent. This is 100 basis points lower than the levels proposed in the ESC’s draft decisions.

The report by CME notes that because Victorian water companies—government owned entities—present less risk than a private corporation and deliver societal benefits through their operations, they should be able to borrow on terms that reflect this reality.

³ Ibid, 3.9.3 Cost of Debt p 43.

Return on Equity

Under the PREMO framework, the ESC has placed a degree of responsibility on water corporations as to how the return on equity will be determined. Companies must self-assess their performance with the assessment corresponding to the allowed return on equity.

We support this approach as it is transparent and directly links a business's customer engagement, risk allocation, outcomes and performance to the allowed return. It is also helpful from a comparison and reputational perspective—to see which companies are performing well and which businesses have room to improve. This is ultimately good for customers as it means water companies will be held to account through the PREMO framework spanning into the next regulatory period.

The return on equity levels under the PREMO framework range from 5.3 per cent to 3.9 per cent depending on the quality of a business's price submission and whether the ESC agrees with the businesses own self-assessment.

CME's report provides a comparison between the ESC and Ofwat—the regulator in Britain and Wales. It finds that Ofwat's 'standard' allowed return on equity proposal (7.13%) for their upcoming PR19 is marginally lower than the ESCs lowest possible return on equity (7.17%).

CME also analyses the risk borne by Victoria's tax payers through ownership of Victoria's water businesses and concludes the allowed returns are higher than required. The report recommends a reduction to the allowed return on equity of around 100 basis points.

Conclusion

The regulation of water businesses in Victoria presents a number of challenges. The ESC's PREMO framework is a robust method to balance competing factors and to encourage water corporations to improve over time and deliver outcomes that align with what their customers want and value.

In determining revenue requirements for returns on equity and costs of debt, the ESC should not charge water consumers more for the equity or debt than it costs the Government to provide it.

Consumer Action encourages the ESC to take the findings of CME's report into account as part of the 2018 Price Review to ensure the prices Victorians are paying for water reflect actual borrowing costs and, in terms of equity, appropriate balancing of risk.

We look forward to discussing this further with the ESC. Please contact Patrick Sloyan on 03 9670 5088 or at water@consumeraction.org.au if you have any questions about this submission.

Yours Sincerely,

CONSUMER ACTION LAW CENTRE



Gerard Brody
Chief Executive Officer



Patrick Sloyan
Policy Officer





Examination of the allowed cost of capital for
Victoria's regulated water companies

March 2018

Executive Summary

This report has examined the cost of debt and allowed return on equity in the ESC's 2016 guidelines and as implemented in the four draft decisions already made pursuant to these guidelines. Our analysis is guided by evidence of borrowing costs and in respect of equity, consideration of the risks borne by tax-payers as the owners of the water companies (via the Government) relative to the risks borne by water consumers. We are also mindful of the importance of not providing incentives for inefficient expansion of the regulated asset base in response to allowed rates of return above the cost of financing.

We conclude that a reduction in the allowed cost of debt of 100 basis points and a reduction of the same magnitude in the allowed return on equity would be appropriate, to bring these into line with observed costs (in respect of debt) and the allocation of risks (in respect of equity). The impact of these recommendations over a five year regulatory period assuming unchanged regulated asset values (based on the 2017/18 values) is shown in Table 8 below.

Table 1. Impact of suggested return on and debt and equity on regulated revenues over five years

Company	Regulatory Asset Value (\$m)	Change in allowed charges over 5 years (\$m)	Change in allowed charges over 5 years (\$m)	Total change in allowed charges over 5 years (\$m)
		Debt	Equity	Equity + Debt
Barwon Water	\$ 1,313	\$ 41	\$ 30	\$ 71
City West Water	\$ 1,874	\$ 59	\$ 43	\$ 102
South East Water	\$ 3,359	\$ 105	\$ 77	\$ 182
Yarra Valley Water	\$ 4,058	\$ 128	\$ 93	\$ 221
Gippsland Water	\$ 664	\$ 21	\$ 15	\$ 36
Central Highlands Water	\$ 342	\$ 11	\$ 8	\$ 19
Coliban Water	\$ 496	\$ 16	\$ 11	\$ 27
East Gippsland Water	\$ 147	\$ 5	\$ 3	\$ 8
Goulburn Valley Water	\$ 351	\$ 11	\$ 8	\$ 19
Grampians Wimmera Mallee Water	\$ 402	\$ 13	\$ 9	\$ 22
Lower Murray Water - Urban	\$ 156	\$ 5	\$ 4	\$ 9
North East Water	\$ 265	\$ 8	\$ 6	\$ 14
South Gippsland Water	\$ 148	\$ 5	\$ 3	\$ 8
Wannon Water	\$ 330	\$ 10	\$ 8	\$ 18
Westernport Water	\$ 120	\$ 4	\$ 3	\$ 7
Lower Murray Water - Rural	\$ 74	\$ 2	\$ 2	\$ 4
Southern Rural Water	\$ 62	\$ 2	\$ 1	\$ 3
TOTAL	\$ 14,161	\$ 446	\$ 324	\$ 770

The determination of allowed return on equity for a government owned business is inevitably controversial. The value of equity, by definition, is the claim on profits after all liabilities and expenses have been met. While this concept is ownership-invariant, as set out in this paper the liabilities, risks and expenses of a Victoria government owned business are quite different (and lower) than those of an investor-owned company. Furthermore Government's interest in its water companies is not just pecuniary: water companies are important institutions in the execution of Government's social and environmental policies and the Government obtains dividends albeit not pecuniary, through water companies' delivery of these social and environmental policies.

We do not think that the Competition Principles Agreement or economic theory provides a rationale for regulating the water companies as if they are investor owned. But charging water consumers more for the equity or debt that the Government provides than it costs the Government to provide it, may be sensible economic policy taking account particularly of the low price elasticity of demand for water and the generally robust willingness and ability to pay for it, particularly in metropolitan areas. This is a matter for policy, not regulation and appropriate for Government to decide. In the estimates that we present for the cost of debt and return on regulated equity we make no allowance for any impost on either that the Government may decide to be appropriate.

Table of Contents

Executive Summary	2
1 Introduction	6
2 Debt.....	7
2.1 ESC's Draft Decision.....	7
2.2 Analysis.....	7
2.2.1 Water company actual borrowing costs.....	8
2.2.2 TCV borrowing costs	8
2.2.3 Should the TCV's cost of debt be used as the benchmark cost of water debt ?....	9
2.2.4 Competitive neutrality arguments.....	10
2.3 Summary and implications.....	12
3 Equity.....	15
3.1 ESC decision.....	15
3.2 Analysis.....	16
3.2.1 Benchmarking PREMO rates against Ofwat's proposals	18
3.2.2 Risk allocation.....	19
3.3 Summary and implications.....	20

Table of Tables

Table 1. Impact of suggested return on and debt and equity on regulated revenues over five years	2
Table 1. Water company actual borrowing costs.....	8
Table 2. Average yield over last 10 years on TCV bonds of various terms.....	9
Table 3. Impact of 100 basis point reduction in debt costs on regulated revenues over 5 years.....	13
Table 4. Allowed return on regulated asset values real and nominal post tax.....	16
Table 5. Comparison of allowed return on equity in Victoria with Ofwat proposals for its 2019 review in Britain (pre tax nominal for Victoria and post tax nominal for Ofwat)	18
Table 6. Suggested post tax real return on equity	20
Table 7. Impact of the suggested return on equity on regulated revenues over five years	20

1 Introduction

In the context of their advocacy of Victoria's water consumers' interests, the Consumer Action Law Centre asked us to prepare a report that examines the return on equity and cost of debt that is included in the calculation of the regulated revenues of Victoria's water companies. The report examines in turn debt and then equity and a concluding section summarises the main points and quantifies the impact of the suggested changes.

2 Debt

This section examines borrowing costs which are applied to 60 % of the regulated asset base and included as part of the “return on assets” component of allowed revenue. It starts by describing the ESC’s approach as set out in its Guidelines and their Draft Decision and then proceeds to analyse the issue from various perspectives. A summary covers the main points and quantifies the impact on regulated revenues of the suggested cost of debt.

2.1 ESC’s Draft Decision

In its November 2016 guidelines, the ESC said it would determine the cost of debt based on water company borrowing costs. To implement this it decided a 10 year rolling average of the yield to maturity of BBB rated corporate (non-financial) debt.

In the four draft decisions available at the time of this report, the implementation of this approach resulted in an average over the 10 years from 2008-09 of 6.05%. This is based on the yield on non-financial corporate BBB-rated bonds with 10 year target tenor (data series ID FNFYBBB10M) published by the Reserve Bank of Australia. The ESC adjusted this, we understand, for deviations during the global and Greek financial crises. The 10 year average of the daily yield in this bond index from the start of January 2008 to the end of December 2017 is 6.9%. This suggests the ESC’s estimates reflect a downward adjustment of around 90 basis points relative to the 10 year average of the daily yields.

2.2 Analysis

We examine here different perspectives on the allowed cost of debt, looking in turn at the actual water company borrowing costs, the Treasury Corporation of Victoria’s (TCV) borrowing costs, competitive neutrality arguments and private versus government borrowing rates.

2.2.1 Water company actual borrowing costs

Table 1 establishes the interest rate and Financial Accommodation Levy rate of borrowing from the TCV by three large Victorian water companies as reported in their latest financial reports:

Table 2. Water company actual borrowing costs

	Melbourne Water 2017	South East Water 2017	Yarra Valley Water 2017
Interest expense (\$m)	\$171	\$61	\$98
Financial accommodation levy (\$m)	\$42	\$20	\$29
Borrowings (\$m)	\$3,847	\$1,460	\$2,448
Interest rate (%)	4.45%	4.18%	4.00%
FAL rate (%)	1.09%	1.37%	1.18%
Total rate (%)	5.54%	5.55%	5.19%

Comparing this to the ESC's cost of debt draft determination, in 2017 the water companies incurred borrowing costs that are 155 to 200 basis points lower than the borrowing costs that the ESC will authorise them to charge their customers before the Financial Accommodation Levy (FAL), and 46 to 81 basis points higher after the levy.

2.2.2 TCV borrowing costs

TCV supplies the debt that funds Victoria's water businesses. TCV sell bonds of various terms to provide the finance. Based on data that they supplied to us for the preparation of this report, we calculate the 10 year average yield on these bonds as shown in Table 2.

Table 3. Average yield over last 10 years on TCV bonds of various terms

Term (years)	10	7	5	3	1
Yield (%)	4.77	4.56	4.37	4.13	3.89

Also, based on the volume of bonds in TCV's portfolio and the term to maturity of those bonds (TCV also supplied the data for this calculation) we calculate the weighted term to maturity of TCV's portfolio at the time of writing is 6.2 years. Based on the yield data in Table 2, this gives a weighted average cost of TCV debt of around 4.4%, which is approximately consistent with the interest rate that TCV charges the water companies as shown in Table 1.

On this measure, the ESC has determined a cost of debt that is around 160 basis points higher than TCV's cost of borrowing before inclusion of the FAL and around 40 basis points higher than TCV's cost of borrowing after the FAL.

2.2.3 Should the TCV's cost of debt be used as the benchmark cost of water debt ?

The theoretical arguments on the appropriate cost of capital for government-financed projects are complex. The Arrow-Lindt Theorem (Arrow and R.C, 1970) holds that when an investment project yields socio-economic net benefits that are uncertain but independent of the systematic risk of the economy, these benefits should be discounted at the risk free rate if they are disseminated among a large population of stakeholders. This may be the case of a public project whose benefits are distributed within the large population of taxpayers.

Arguably the investments made by Victoria's water companies fit the requirements of the Arrow-Lindt Theorem – their socio-economic net benefits are uncertain, they are independent of the systematic risk of the Victoria economy and their benefits are widely shared. On this argument, the appropriate cost of debt (and equity) that Victoria's water customers should be charged is the weighted average cost of TCV debt, a suitable estimate of a Victoria-specific risk free rate.

There are however plausible arguments against the use of this measure. In particular, Baumstark and Gollier (2014) argue that many public sector investments

are not independent of the systematic risk of the economy. This is likely to be true for at least some investments made by Victoria's water companies (whose motivation will depend on the growth of the Victorian economy). They also argue, following Laffont and Tirole (1991) that the goals of public servants are rarely aligned with the general interest so that some risky rent should be allocated to them in order provide a discipline on investment¹. The implications of these arguments is that some suitable premium to TCV's cost of debt should be added to reflect the correlation of water investments with the systematic risk of the Victorian economy and to improve incentives.

These arguments provide no insight into the amount of such premium and the argument for a premium is susceptible to the counter-argument, per Averch and Johnson (1962), that allowing returns above the cost of capital will provide incentives to wasteful over-spending. The evidence of this by the government owned distributors in Australia is widely accepted (Mountain, 2017).

2.2.4 Competitive neutrality arguments

Victoria was a signatory to the Competition Principles Agreement in the mid 1990s. This agreement sought to ensure that governments in Australia do not protect or prefer businesses that they own relative to investor-owned competitors. This is often referred to as "competitive neutrality". The application of this approach impacts the ESC's determination in two respects:

¹ There is a subtle but important point here. Gollier and Baumstark argue for a higher cost of capital on the basis that this will set a higher investment hurdle rate and hence discipline technocrats and bureaucrats who they assume have tendency to spend. But in the regulatory arrangement here (and for other monopolies in Australia) the determination of the return on debt sets the charge that consumers pay for the capital (as valued by the regulator) of their service providers. This need not be the same as the hurdle rate for investment that the companies apply. Setting a higher regulatory cost of capital incentivises investment – investment is more profitable. Therefore Gollier's argument that a higher cost of capital will discipline investment in fact works the other way around when regulators use that higher cost of capital to set returns on regulated assets.

- Firstly whether to assume a private sector debt benchmark for the water companies;
- Second how to treat the Government's Financial Accommodation Levy in the calculation of debt allowances.

On the first issue, the practice in the regulation of government-owned electricity monopolies in Australia (unlike elsewhere) is to assume the government owned companies are privately financed. The Australian Energy Markets Commission (see (Australian Energy Markets Commission, 2012) has defended this approach on the basis of the competition principles agreement and what it considers to be good economic practice. We do not agree with either of these arguments:

- On the CPA, this agreement specifically relates to government businesses that provide services in competitive markets, and protecting against private sector competitors being crowded out of the market by the governments. The CPA does not provide a rationale for treating government-owned monopolies as if they are privately financed, though this is how state governments (but not the Commonwealth) have applied the Agreement.
- On good economic practice, we disagree with the argument that good economic practice assumes government-owned businesses should be regulated as if they are privately financed. To the contrary, economists invariably recognise differences that arise from ownership. This is one of few threads that economic frameworks as different as Marxist at the one end and Austrian at the other agree on.

For these reasons a benchmark based on the borrowing costs of investor-owned companies is not appropriate. While the ESC has not suggested that investor-owned companies should be used as the benchmark it has nonetheless chosen as its

benchmark – BBB corporate debt – a benchmark of borrowing costs by investor-owned corporations.²

2.3 Summary and implications

On the basis of the evidence and argument in this section, we do not believe that the Competition Principles Agreement provides a rationale for the assumption that the water companies are privately financed. Also there is no basis in theory or good economic practice for such an assumption. Accordingly it is not appropriate to look to a private sector corporate bond index as a suitable benchmark for Victorian water company's borrowing costs.

However we side with Baumstark and Gollier (2014) against the application of the Arrow-Lindt Theorem to Victoria's water businesses and suggest that some premium to the cost of TCV debt is appropriate to reflect the correlation of at least some water company investment to the systematic risk of the Victorian economy.

Taking these arguments into account, our estimate is that a suitable premium above TCV's cost of debt (which is effectively a risk free rate for Victoria) is around 60 basis points. This would give a cost of debt based on a weighted average maturity of TCV's debt of 4.4 % plus 60 basis points. i.e. 5 %. This is roughly 100 basis points lower than the amount that the ESC has decided.

² Albeit, as explained earlier the ESC's proposed debt cost – 6.05% - is below the 10 year average of the daily BBB rates, and more comparable at this point to the 10 year average daily rate of A rated corporate debt (data series FNFYA10M). However over the course of the regulatory period the effect of the *rolling* 10 year calculation will mean that the allowed return on debt will increasingly approximate the yield on BBB debt, not A rated debt.

This approach is materially different to the approach that the ESC decided in its November 2016 guidelines. As a practical matter, taking account of the ESC's approach, we suggest that a 100 basis point reduction in the cost of debt but using the rolling BBB index mechanism that the ESC has decided would provide a practical way to deliver approximately similar outcomes during this regulatory control period.

The cost of debt is applied to the regulated asset value. Based on data in Pawsey and Crase (2014) we calculate that asset revaluations decided by the Victorian Government in 2005, i.e. the aggregate upward revaluation above historic cost, (\$5,650m), of Victoria's metropolitan water companies matches approximately the aggregate write down (\$5,765m) of the values of the rural and regional water companies in 2005.

Accordingly, for the metropolitan companies, a reduction in the allowed cost of debt would have a bigger impact on prices than for the rural or regional companies. The approximate impact on regulated revenues (over a five year regulatory control period) of a 100 basis point reduction in debt costs, based on the 2017 regulatory asset value of each water company, is shown in Table 3 below:

Table 4. Impact of 100 basis point reduction in debt costs on regulated revenues over 5 years

Company	Regulatory Asset Value (\$m)	Change in allowed charges over 5 years (\$m)
		Debt
Barwon Water	\$ 1,313	\$ 41
City West Water	\$ 1,874	\$ 59
South East Water	\$ 3,359	\$ 105
Yarra Valley Water	\$ 4,058	\$ 128
Gippsland Water	\$ 664	\$ 21
Central Highlands Water	\$ 342	\$ 11
Coliban Water	\$ 496	\$ 16
East Gippsland Water	\$ 147	\$ 5
Goulburn Valley Water	\$ 351	\$ 11
Grampians Wimmera Mallee Water	\$ 402	\$ 13
Lower Murray Water - Urban	\$ 156	\$ 5
North East Water	\$ 265	\$ 8
South Gippsland Water	\$ 148	\$ 5
Wannon Water	\$ 330	\$ 10
Westernport Water	\$ 120	\$ 4
Lower Murray Water - Rural	\$ 74	\$ 2
Southern Rural Water	\$ 62	\$ 2
TOTAL	\$ 14,161	\$ 446

3 Equity

This section examines the rate of return on equity. It starts with a summary of the ESC's decision and then proceeds to an analysis of their approach, considers the allocation of risks, benchmarks the ESC's decisions against the latest proposals by Ofwat in Britain to apply from 2019. It then revisits some aspects of the theoretical considerations in the previous section in consideration of the appropriate return on equity. Finally it summarises and quantifies the impact in terms of regulated revenues.

3.1 ESC decision

The ESC has determined estimates of the allowed return on equity (assumed to be 40% of the balance sheet) as a function of performance in four measures (risk, engagement, management and outcomes) and how the companies have self-assessed their performance (basic, standard, advanced and leading) in those outcomes. Over-estimation of their performance is penalised by reducing the allowed return on equity by 60 basis points, while under-estimation is not rewarded. Each increment in performance is rewarded with a 40 basis point increment in the allowed return on equity. The lowest possible allowed return on regulatory equity is 3.9% (if the company rates itself "standard" and the ESC rates it "basic") and the highest possible allowed return on regulatory equity is 5.3% (if the company rates itself "leading" and the ESC agrees).

At the time of writing the ESC had made four draft decisions. In all of these, the ESC agreed with the companies' aggregate self-assessment, although for two of the four companies, it rates performance against one of the four measures lower than the companies had themselves assessed. The allowed return on equity (post tax, real) for two companies is 4.9% and for the other two 4.5%. The ESC has estimated inflation at 2.25%. The possible highest, lowest and the allowed return on regulatory equity in the draft decisions for the four companies' stated as post tax real and post-tax nominal is summarised in Table 4 below:

Table 5. Allowed return on regulated asset values real and nominal post tax

	Real, post tax	Nominal, post tax
ESC Highest	5.3%	7.67%
ESC Lowest	3.9%	6.24%
Yarra Valley	4.9%	7.26%
East Gippsland	4.5%	6.85%
South East water	4.9%	7.26%
Western port	4.5%	6.85%

3.2 Analysis

The approach to the determination of the return on equity in PREMO is an excellent innovation in Australian monopoly utility regulation. Tying the allowed return on equity to the measures that the ESC considers to be most important provides incentives for the delivery of those measures. Though the penalty for over-estimation might be criticised as an incentive to agree with the ESC, it does provide incentives for honest and self-critical assessment.

The financial incentives provided by this approach will be less significant for the rural and regional companies, relative to the metropolitan water companies, as a result of the differences in the value of their regulatory assets. Nonetheless this approach helpfully decouples the consideration of the return on equity from arcane arguments over the Capital Asset Pricing Model, and provides a way to compare and contrast the performance of the companies.

The effectiveness of this approach will however depend on ensuring that the companies' ranking cover the range so that the exceptional and less exceptional companies are clearly distinguished.

The analysis that follows in the rest of this section focuses on the level of the return on equity in PREMO having regard firstly to benchmarking against Ofwat's proposals for the forthcoming 2019 review and secondly to the allocation of risks between consumers and the investor (the Government).

3.2.1 Benchmarking PREMO rates against Ofwat’s proposals

Ofwat determined a nominal post tax rate of return, which it also stated in real terms using two different measures of inflation. In Britain water companies are investor-owned and so don’t receive the income tax on their profits, unlike the situation in Victoria. For the purpose of comparing the return on shareholders’ equity between Victorian and British water companies it is necessary to add back the tax included in the determination of regulated revenues for the Victorian companies since the Government of Victoria collects this income. This calculation is done here using the Australian corporate tax rate but assuming (as the ESC has) that 50% of dividends receive imputation credits. Using these assumptions allows an approximate like-for-like comparison (in Table 5 below) of the allowed return on regulated equity in Britain³ and Victoria:

Table 6. Comparison of allowed return on equity in Victoria with Ofwat proposals for its 2019 review in Britain (pre tax nominal for Victoria and post tax nominal for Ofwat)

ESC Highest	8.82%
ESC Lowest	7.17%
Yarra Valley	8.35%
East Gippsland	7.88%
South East water	8.35%
Western port	7.88%
Ofwat	7.13%

Source: ESC Draft Decision and Guidance and Table 10.2 of Ofwat 2017 “Delivering Water 2020: Our final methodology for the 2019 price review”

On this measure, the lowest possible allowed return on equity in Victoria is about the same as the same as the central estimate allowed by Ofwat. It might be suggested that the revaluation of statutory asset values of many of the Victorian water companies means that they do not actually pay tax and so adjusting for tax in considering the allowed return on regulatory equity is not valid. However, while the treatment of statutory values does affect actual tax payments, in establishing the

³ Like the ESC, Ofwat also proposed various incentives that can significantly affect the return on equity that the company actually receives.

return on regulatory equity it is necessary to take account of the tax allowed (and recovered from consumers through regulated charges).

3.2.2 Risk allocation

The Arrow-Lindt Theorem discussed earlier suggests the return on regulated equity should be the risk free rate – in other words the cost of borrowing from TCV – for government water companies. While we agree that much of the water companies' investment is not correlated with systematic risk in the Victorian economy, we accept the arguments set out in Baumstark and Gollier (2014), that at least some of the investment is correlated with the economy, and so some allowance for a premium to the risk free rate is reasonable. In the CAPM framework, the middle of the ESC's range (before tax) is about consistent with a beta of around 0.8 assuming a Market Risk Premium of 6%, a commonly used estimate in Australian regulatory decisions.

First principles consideration suggests to us that this is a generous return even leaving aside consideration of tax. Specifically, the regulatory regime provides investors with low demand risk (partly as a result of tariff structures with large fixed charges and partly as a result of the dominant revenue-cap structure of the price control). The companies face no tax risk (the Government collects the tax), and little risk from change in law (a government can not expropriate itself, though the water companies may have more limited ability to hedge federal law changes).

The regulatory regime also provides insulation against monetary inflation (through the inclusion of inflation in the determination of returns and the indexation of asset values at the consumer price index). While investors face some operating and capital expenditure risk, the evidence of historic expenditure relative to regulatory allowances suggests this risk is not excessive. On the basis therefore of both the design of the regulatory regime and additionally also the impact of government ownership, we suggest it is difficult to conclude that the ESC's decision on the allowed return on equity is commensurate with the risks that Victoria's tax payers bear through their ownership of Victoria's water businesses.

3.3 Summary and implications

The PREMO approach is an excellent innovation and promises a meaningful discussion of the allowed return on regulatory equity and a useful way to assess comparative performance. However, benchmarking the return on equity against Ofwat’s and taking account of a first principles’ consideration of the regulatory regime and the consequence of government ownership suggests that allowed returns are more generous than needed to compensate tax payers for the risks they bear in owning Victoria’ water businesses.

We suggest a reduction to the allowed return on regulatory equity of around 100 basis would be appropriate. This results in post tax, real returns as set out in Table 6 below:

Table 7. Suggested post tax real return on equity

		Company proposal			
		Leading	Advanced	Standard	Basic
ESC Assessment	Leading	4.3%			
	Advanced	3.7%	3.9%		
	Standard	3.1%	3.3%	3.5%	
	Basic			2.9%	3.1%

This will affect the allowed regulated revenues for an “Advanced” company as shown in Table 7 below:

Table 8. Impact of the suggested return on equity on regulated revenues over five years

Company	Regulatory Asset Value (\$m)	Change in allowed charges over 5 years (\$m)
		Equity
Barwon Water	\$ 1,313	\$ 30
City West Water	\$ 1,874	\$ 43
South East Water	\$ 3,359	\$ 77
Yarra Valley Water	\$ 4,058	\$ 93
Gippsland Water	\$ 664	\$ 15
Central Highlands Water	\$ 342	\$ 8
Coliban Water	\$ 496	\$ 11
East Gippsland Water	\$ 147	\$ 3
Goulburn Valley Water	\$ 351	\$ 8
Grampians Wimmera Mallee Water	\$ 402	\$ 9
Lower Murray Water - Urban	\$ 156	\$ 4
North East Water	\$ 265	\$ 6
South Gippsland Water	\$ 148	\$ 3
Wannon Water	\$ 330	\$ 8
Westernport Water	\$ 120	\$ 3
Lower Murray Water - Rural	\$ 74	\$ 2
Southern Rural Water	\$ 62	\$ 1
TOTAL	\$ 14,161	\$ 324

References

- ARROW, C. K. & R.C, L. 1970. Uncertainty and the evaluation of public investment decision. *American Economic Review*, 60, 364-378.
- AUSTRALIAN ENERGY MARKETS COMMISSION 2012. Final Position Paper, National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012. Sydney.
- AVERCH, H. & JOHNSON, L. 1962. Behaviour of the firm under regulatory constraint. *The American Economic Review*, 52, 1052-1069.
- BAUMSTARK & GOLLIER 2014. The relevance and the limits of the Arrow-Lind Theorem. *Journal of Natural Resources Policy Research*, 6.
- LAFFONT, J.-J. & TIROLE, J. 1991. The Politics of Government Decision-Making: A Theory of Regulatory Capture. *The Quarterly Journal of Economics*, 106, 1089-1127.
- MOUNTAIN, B. R. 2017 *Ownership-invariant Regulation of Electricity Distributors in Australia: A Failed Experiment*. Phd, Victorian University.
- PAWSEY, N. & CRASE, L. 2014. Review of the Statutory Asset Values of the Victorian Water Businesses. La Trobe University: Centre for Water Policy and Management.