



Regulatory arrangements for the cost of capital
and tax in the regulation of Victorian water
companies: issues and ideas

A paper for the Essential Services Commission

June 2015

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Executive Summary

The Essential Services Commission (“the Commission”) regulates 19 state government-owned water corporations. In 2014 the Victorian government revised the Water Industry Regulatory Order (WIRO). The new order allows the Commission greater discretion to decide the approach it will follow in the economic regulation of Victorian water companies.

The overriding objective of the Commission’s regulation, as established in legislation, is to promote the long term interest of consumers. As the Commission has set out in its opening paper for this review, this means arrangements that uphold the long-term viability of Victorian water businesses that operate efficiently and invest prudently.

This paper is one in a series of “think pieces” written for the review. It looks at the way that financing and tax are taken into account in setting water prices. It addresses the question as to whether changes to the calculation of the cost of capital might better achieve the Commission’s overriding objective of promoting consumers’ long term interests.

Approach

The approach followed in this paper is to describe the arrangements that apply in the regulation of Victorian water companies and then describe the arrangements that apply to the regulation of electricity networks and water companies in Australia and government-owned monopolies in the United Kingdom. This leads to a discussion of issues and ideas.

This approach is applied to the arrangements for the determination of the return on equity, the cost of debt and the income tax allowances charged to water users. Finally the prospect of Commission oversight of water company dividends is examined.

Equity

The Commission’s approach is based on the application of a form of the Capital Asset Pricing Model, which assumes that the cost of equity provided by the Government is

the same as it would be to a private investor. This is, broadly, the approach applied to other government-owned utilities in Australia and comparable in many respects to the approach applied in the UK. However there are plausible arguments that the actual cost of equity provided by the Government may be higher or lower than to private investors. It is important to think about the reason for such differences and take them into account in setting the return on equity. We also think valuable information to consider is how actual profits of the water companies compare to regulatory allowances, and whether previous decisions on equity returns may have resulted in insufficient or excessive expenditure. Such consideration does not lead to a precise or certain number for the appropriate return on equity. But it is at least focussing on the essence of the matter.

The approach followed in the determination of the return on equity for electricity networks – the pursuit of a convincing formula based on narrow and ever more arcane analysis of the theories of financial economics – provides a template of what should be avoided. Attempting to reduce the determination of the rate of return on equity to a formula is to miss the essence of the issue: the regulatory arrangements should allow the Commission to think widely on the issue guided only by its obligation to promote the long term interest of water users.

Debt

The Commission's approach to the determination of the cost of debt is to base it on its estimate of the cost of BBB rated Australian corporate debt. A similar approach is applied to other government-owned utilities in Australia. In the UK, by contrast, regulators set the cost of debt for government-owned investors based on the cost of borrowing to the government plus a margin usually in the range of 50 to 100 basis points.

The approach adopted by the Commission is justified on the basis of incentive and competitive neutrality – i.e. that unless government-owned distributors are treated as if they are privately owned they will crowd out private competitors. The incentive argument misses the point that the incentive to manage borrowing costs does not arise because a BBB benchmark has been chosen. The incentive arises because revenues have

been fixed and the same incentive to minimise borrowing costs would arise if the cost of debt was set arbitrarily.

Even leaving this to one side, the incentive to minimise borrowing costs in businesses in which the Government provides both debt and equity is not clear: reducing the cost of borrowing from the Government reduces the margins that Government obtains on its loans but improves the companies' profits (which the Government collects). The converse applies if borrowing costs are higher. So why, in reality, should the water businesses seek to minimise the cost of borrowing from the Government?

There are also several problems with the competitive neutrality rationale:

- Firstly the water companies have a monopoly and so it is not clear in what sense they are able to crowd out competitors.
- Second if there is a desire to treat government-owned water companies as if they are privately owned, then the appropriate allowance for debt costs would be post tax (rather than pre-tax as now), reflecting the fact that the Victorian government collects post-tax profits as well as the taxes on those profits (whereas private investors only collect post-tax profits).
- Third, government typically raises capital more cheaply than the private sector not just because of their ability to raise taxes (which water consumers should rightly pay for) but also because the diversity of their activities reduces their risk to the Government's lenders. Water consumers might reasonably be charged for the benefit of lower capital costs associated with governments' ability to tax, but they should share in the benefits offered by diversification (which the provision of water services contributes to).

We suggest that the current arrangements for debt costs can be improved by emulating the approach adopted in the UK. If, as a consequence the Financial Accommodation Levy is adjusted down to reflect the consequentially lower cost of debt, this is likely to reduce the Government's lending margins which may be partly compensated through higher profits. To the extent that the Government wishes to raise additional revenue this might be done through the use of levies, such as already exist. This will be a more efficient approach because it reduces the incentive, in the current arrangement, to augment the regulated asset base to increase profits.

Income tax

The government-owned water companies do not have an incentive to reduce income taxes since the Government collects the income tax as well as the post-tax profits. Consequently what would be lost to lower income tax is gained through higher post tax profits. Therefore it would be more efficient (and simpler) to pass through actual tax incurred in water charges and thereby avoid the effort in setting tax payments in the calculation of regulatory allowances.

However there may be legitimate reasons for differences between actual and regulatory taxes reflecting for example differences in regulatory and statutory asset values, or differences in actual and allowed financing costs. For this reason the approach to income tax should be assessed not just from the perspective of efficiency (and simplicity) but should also take account of intended differences between regulatory and actual parameters. Failure to account for this can result in tax charges that are significantly higher (or lower) than consistent with the economic regulations.

For these reasons we suggest a continuation of the current approach. We do however point to the problems in the determination of income tax allowances for electricity networks – arcane argument over the treatment of dividends by a hypothetical benchmark company – which ignores the actual situation for the government-owned companies. If the Commission becomes pressured to follow this approach, then we suggest it might consider instead compensation of income tax through the use of a pre-tax cost of capital.

Dividends

In aggregate across the water industry, dividend payments since 2005/6 have been less than post-tax profits. As such the industry's financial position has not been jeopardised through excessive payouts. However there may be significant retained cash in the rural and regional water companies. This arises as a result of losses (as reflected in statutory profit and loss statements) reflecting depreciation charges calculated with respect to statutory asset values that are substantially greater than the regulatory depreciation allowances used to calculate allowed revenues (on the basis of much lower regulatory asset values). These retained cash surpluses may diminish budgetary restraint and

hence undermine efficiency incentives. This provides a basis for regulatory involvement in dividend policy. However against this is the concern that such regulatory involvement may undermine managerial discretion and directors' fiduciary accountability. Prima facie, the case for such greater involvement does not seem to exist.

1 Introduction

In 2014 the Victorian government revised the Water Industry Regulatory Order (WIRO). The new order allows the Essential Services Commission (“the Commission”) greater discretion to decide the approach it will follow. The Commission has commenced an 18 month review of its approach. The overriding objective of the Commission’s regulation, as established in legislation, is to promote the long-term interest of consumers. As the Commission has set out in its opening paper for this review, this means arrangements that uphold the long-term viability of Victorian water businesses that operate efficiently and invest prudently.

This paper is one in a series of “think pieces” written for the review. The focus of this paper is the way that financing and tax are taken into account in setting water prices. It addresses the question as to whether changes to the calculation of the cost of capital might better achieve the Commission’s overriding objective.

We understand that ownership change (privatisation) or structural changes that might reduce or narrow the scope of regulatory oversight are not contemplated in the Commission’s review. This paper therefore presents ideas within the context of the current ownership and structural arrangements.

The paper examines in turn:

- the arrangements for compensation of the Government’s equity in its water businesses,
- the way that debt financing provided by the Government to water businesses is priced;
- how the charge for income tax that is paid by water users is determined; and
- whether regulatory involvement might extend to the determination of dividends paid by the water companies to the Victorian Government.

In each of these areas we summarise the current arrangements and then describe the arrangements that apply to other water and electricity network monopolies in Australia. We have also examined the arrangements that apply in the United Kingdom in the regulation of the few utilities that are still owned by their Government (water in

Northern Ireland and Scotland, rail networks in Great Britain since re-nationalisation, and the Royal Mail before its recent privatisation). Of course governments own utilities in other countries as well but the British (and Northern Ireland) examples are perhaps more relevant to Victoria because their regulatory arrangements (periodic price caps) are similar to those that apply in Victoria. They provide ideas and points of comparison, noting however that the British and Irish governments have not had a systematic and consistent policy towards state-owned utilities that the Commission might consider as directly comparable alternatives.

In the current regulatory arrangement the return on equity and cost of debt are combined in the calculation of the Weighted Average Cost of Capital (WACC) which is applied to the regulated asset value to determine the return on capital as one of the main “building blocks” in the determination of regulated revenue. This paper focuses on the constituent elements of WACC rather than the building block calculation. This should not be taken as support or criticism of the building block approach.

The paper suggests several possible changes in the determination of the constituent elements of the cost of capital that deserve further consideration by the Commission. The concluding section draws out the main points.

2 Return on equity

This section examines the regulatory determination of the rate of return on regulatory equity. It describes the current arrangements in the regulation of water companies in Victoria and then summarises the arrangements adopted in water and electricity networks in Australia and in the UK for their government-owned monopolies. The last sub-section discusses issues and ideas.

2.1 Current arrangements

In its determination of the rate of return on equity, the Commission determines a post-tax rate, and then applies this to the regulatory asset base of each water company assuming that 40% of the regulatory asset based is financed through equity (this is “regulatory equity”). Essentially the same rate of rate of return on equity is set for all metropolitan, regional and rural water companies.

The Commission sets the rate based on the principle that the rate of return on investment should reflect the rate of return that a private investor would expect. This is determined through the application of the Capital Asset Pricing Model (CAPM). This entails setting the equity risk premium to be added to the risk free rate of interest so that the sum equals the rate of return on regulatory equity.

The equity risk premium is the premium above the risk free rate that equity holders require to compensate them for accepting the risks associated with their claim on the net cash of the business once all other costs (and tax) have been paid.

In practice this means calculating the return as the average premium paid to equity holders (the “market risk premium”) multiplied by a factor (beta) that reflects the volatility of the value of equity in a “benchmark” water company, relative to the volatility of the price of equity in the market for traded equity (i.e. companies listed on a stock exchange and therefore excluding private equity).

The assumption of private ownership in setting the return on equity is justified by the adoption of “competitive neutrality” arrangements whereby state government owned businesses (whether those operating in markets or providing monopoly services) are not meant to obtain an advantage by virtue of government ownership.

The Commission also justifies the adoption of a private-sector benchmark approach (rather than consideration of the firm-specific circumstances) on the basis that such an approach will better reflect efficient financing arrangements.

The regulated asset value of the water companies has been established differently. This reflects the opening asset values established by the Minister in 2004 when the water companies were first brought under the Commission's oversight. The metropolitan water companies' opening regulated asset values in 2004 were at a premium to depreciated historic cost, while for regional companies they were at a discount to historic depreciated cost and for rural and hybrid companies, were set at zero. Investment since 2004 has been added to the regulated asset base subject to the Commission's assessment that it was prudent and efficient. Therefore while a common rate of return on regulatory equity has been set, the return on equity will be different for the different water companies reflecting the different valuation of their regulated assets.

2.2 Arrangements elsewhere

2.2.1 Australia

The essential aspects of Victorian water regulation (assumption of private ownership, application of CAPM) is mirrored in the approach adopted by other state and federal economic regulators in the regulation of water and electricity whether government or privately owned. Differences exist in the chosen value of the various parameters (capital structure, market risk premium and beta) but the framework is fundamentally the same. In the regulation of water in South Australia, legacy assets are treated differently to new assets (a lower rate of return is set for the former than the latter) but both legacy and new assets are valued consistently.

In electricity networks, unlike for water in Victoria, the regulated asset values are not differentiated on the basis of geography urban/regional/rural.

2.2.2 United Kingdom

A similar approach (to that adopted by the Commission) is applied in the determination of the rate of return on equity in the regulation of privately owned utilities in the UK. The calculation of the rate of return on equity for two non-investor

owned utility monopolies and two other quasi-monopolies in Great Britain is as follows:

Royal Mail: In the last regulatory determination before for Royal Mail's privatisation (and subsequent deregulation), Postcomm, Royal Mail's regulator, applied the Capital Asset Pricing Model (CAPM) and compared the outcome from this, to decisions by other regulators. This price control was set while Royal Mail was still in public ownership. It was superseded by revised arrangements set by Ofcom before Royal Mail' privatization, that set the rate of return based on sales margins rather than regulated assets. This was justified on the basis that Royal Mail's operating costs are significantly higher than the value of its tangible assets.

Scottish Water: The Water Industry Commission for Scotland established the return on equity based on what it suggested should be the level that allows the company to access finance and that would compensate the owners appropriately for the risks that it is required to manage. Like the others, its estimate was based on a CAPM calculation.

Network Rail: Network Rail is a company limited by guarantee (CLG) and is entirely debt-financed, benefiting from the Financial Indemnity Mechanism (FIM), a full faith and credit guarantee from the UK government. The approach to the determination of the regulated returns is based on the assumption that Network Rail is conventionally financed, i.e. as if it were financed without access to the FIM through equity and debt in commercial markets. Again a CAPM framework was applied in the determination of Network Rail's return on equity, based largely around a comparison of what the various parameters should be having regard to systematic (non-diversifiable) risks in the provision of rail networks relative to the provision of other monopoly utility services.

Northern Ireland Water: The Utility Regulator set the return on equity for Northern Ireland Water (NIW) based on a comparison of the rate of return (under a CAPM framework) it thought NIW would need, relative to the return on equity for privately owned monopolies, as established by other regulators including Ofwat (for privately owned water companies in GB), Ofgem (for privately owned electricity distributors in GB) and the Civil Aviation Authority (for privately owned airports).

2.3 Issues and ideas

Clause 8 of the revised Water Industry Regulator Order requires the Commission to have particular regard to the promotion of the industries' efficiency and financial viability. The compensation of equity investment plays an important role in this.

For a privately owned firm, the price of its equity is the rate of the return on investment needed to attract that investment, considering the alternatives available to the investor. The principle is straight forward (and uncontentious) but estimation is problematic because required returns are not directly observable and so various assumptions and methodologies are needed.

In pricing the equity that is provided by a government rather than a private investor, it can be assumed that the same principles should apply and so a private benchmark would be appropriate. This has been the standard approach in Victoria water¹ as for government-owned electricity networks in Australia.

However this is likely to misprice government-provided equity. This is because the Victorian government obtains other benefits from owning water companies that private owners do not. Firstly it also collects the income tax on their profits². Second, through ownership, the government can obtain other benefits (job creation, sustaining rural and regional economies, political support from specific major investments) that are difficult to quantify and express as an adjustment to the return on equity that it would otherwise require.

On income tax, the current arrangement for the calculation of the return on equity assume that the Government receives a post tax return i.e. it assumes that, like a private owner, the Government does not collect income tax³. But, of course, the Government does and the Government thereby receives a pre-tax return on its investment. As we

¹ At least in respect of the rate of return on equity if not the value of equity as we mentioned earlier and explore in more detail later.

² Through the Environmental Contribution the Government collects income linked to sales. However this does not affect profits or investment incentives.

³ The Australian Government, not the Victorian Government collects the income tax from privately owned businesses. The incremental benefit of ownership to the Victorian Government is that it collects both profits and taxes on those profits.

note later, however, the allowance for income tax that water users have been charged in regulated revenues seems to be lower than the actual income tax that has been paid.⁴

On other benefits from ownership, a government may be willing to accept a lower return on equity from its water companies in recognition of the other rewards it can obtain, which partly compensate its investment. Indeed in the discount rates to apply to water business investment assessment, the Victorian Department of Treasury and Finance suggests lower discount rates should apply to projects that provide social benefits.

However, in the determination of regulatory return on equity the observation that government's other activities also provide non-pecuniary benefits might plausibly be argued to lead to the conclusion that water consumers should pay a higher return on the government's equity in its water businesses if, as a result of that investment, it foregoes non-monetary rewards it would otherwise obtain by making that investment in other activities. An ex-treasury official summed this up (in a discussion about government investment in electricity networks) in the pithy observation "the Minister would rather cut the ribbon on the opening of a new hospital than a new substation".

The explicit "not-for-profit" status of regional and rural water businesses provides another challenge to the assumption that the return on equity be based on a private, for-profit benchmark. However "not-for-profit" does not necessary mean that there is no return on equity. The appropriate return on equity in a "not-for-profit" may lie between zero and the cost of debt (since debt is the alternative to equity, if the return on equity is below the cost of debt it might be argued that equity is being subsidised unless it achieves a rate of return equal to the cost of debt).

It might be argued that explicit recognition be taken of the not-for-profit status in the determination of the return on equity of the affected businesses, since the assumption of private, for profit ownership does not apply to them. The counter to this is that assumption of private for profit does not apply either to the for profit water businesses

⁴ We note here, and discuss in more detail later that the collection of income tax by the owner provides incentives on the firm in the context of its price control (to maximise the expected tax) but the firm has no incentive to minimise tax paid.

that the Government owns, and so why should adjustment for the reality apply only to the not-for-profit rather than to all the Government's water businesses?

If the assumption of private ownership and the application of CAPM does indeed provide a poor estimate of the true price of government-provided equity, might it be better for the Government to be accountable for all facets of the return in equity, perhaps seeking the Commission's and others' advice?

Arguments for this are that this it establishes clearer accountability for profits and prices, and that the government knows its own mind better than an independent regulator. Arguments against are that this leads to the politicisation of decision-making in long-lived capital assets and if governments have changeable views on the rate of return it requires, how can it be trusted to determine the efficient level of investment in the long-term interest of consumers? Perhaps governments' apparent mistrust of its ability to know its own mind explains, in part, the creation of independent regulatory agencies to take on the task.

An alternative, at the other extreme, would be for the Commission to take charge of all aspects of the calculation of the return on equity, i.e. the both rate of the return (as it does now) and also the value of the regulated asset base to which the rate is applied (which is highly affected by the regulatory asset values established by the Government when the water companies were incorporated).

Extending the Commission's authority to the regulatory valuation of the Government's water assets, or conversely the Government's authority to the determination of the rate of return on equity, would be significant changes. The case for such major institutional change might be assessed having regard to the evidence of the outcomes to-date. Has there been inefficient over or under investment that might be attributed to incorrect decisions on asset values or the rate of return on equity? And, is the Commission able to exercise its discretion independently of the Government in setting the rate of return on equity?

In electricity networks we have suggested that the evidence of excessive capital expenditure by government-owned firms, and political economy (opportunistic blame

shifting⁵) justifies change so that governments that own electricity network are more directly accountable for their prices and profits (as has historically been the norm).

In water in Victoria, the concern about inefficient over-spending is not immediately evident⁶, and the opportunity to shift blame to a federal regulatory authority is not an issue. For these reasons while the empirical evidence might usefully be explored further, prima facie it does not appear that there is a compelling argument to fundamentally change the current institutional arrangements for the determination of the return on equity.

The arrangement for the pricing of government provided equity in Great Britain – assumption of private ownership and application of CAPM – also does not seem to support the case for change in Victoria.⁷

So, assuming a continuation of the current institutional arrangements how, if at all, might the approach adopted by the Commission be improved? Our main suggestion is that the Commission should endeavour to ensure its determination of the rate of return on equity not become bogged-down in methodology (i.e. how to apply CAPM to a benchmark private firm but rather that it seeks to take account of the wider context and the evidence of outcomes. Specifically this means:

- **Comparing the allowed return on equity to the actual return on equity:** actual returns might be affected by many factors but particularly differences in

⁵ The state governments have deflected the blame for adverse price outcomes to the federal regulator, but they have benefitted greatly through higher profits, taxes and debt fees (and indeed have vigorously opposed reductions in the allowed rates of return).

⁶ However the observation to the contrary in *“Economic regulation, governance and efficiency in the Victorian water sector, Preliminary advice from the Independent Reviewer”* merits further examination.

⁷ However, it would be wise not to make too much of this: comparing the arrangements for the regulated return on equity should also take account of whether the Government actually extracts that return (through dividends), or whether consumers, effectively obtain the benefit of those returns. For example, in the case of Scottish Water, the Scottish Government does not collect dividends from Scottish Water: profits are retained in reserves set aside for consumers’ benefit and so consumers therefore retain the benefit of any financial surpluses arising through regulation. Similar arrangements apply in the regulation of the rail network in England. Therefore, even though it might be possible to point the assumption of private ownership and the application of CAPM as a common approach by regulators to the valuation of the rate of return on equity provided by Governments, in practice this can mean very different things.

spending, depreciation based on statutory asset values rather than regulatory asset values and the cost of debt. In setting the return on equity it would be very helpful to examine the evidence of actual outcomes⁸.

- **Examining efficiency:** this means assessing whether there is evidence that previously allowed rates of return have provided incentives for inefficient spending (either over-investment in response to excessive return on assets, or under-investment in response to inadequate returns). If under-investment is there evidence that inadequate returns have deferred investment and vice versa if evidence of over-investment. Of course it is difficult to be certain on this, but asking the question and seeking to answer will be informative and valuable in setting the allowed return on equity.
- **Looking at other regulators' decisions:** Looking around at the rates of return that other regulators have determined, as the Commission does now, is valuable although it would be valuable to look beyond Australia as well. Seeing the allowed rates of return in their full context (i.e. taking account of asset values, dividend policy and the treatment of differences between expected and actual returns) would be particularly valuable.
- **Income tax:** It would be valuable for the Commission to consider the extent to which the Government's receipt of income tax allowances should be taken into account in the calculation of the rate of return on equity.⁹
- **Not-for-profit:** The assumption of the cost of equity on the basis of a private for-profit benchmark is the least tenable for the not-for-profit water businesses. It would be valuable for the Commission to consider whether this is detrimentally affecting the efficiency of the relevant water companies and

⁸ Establishing the actual return on equity can be done in various ways. Taking the after tax profits and dividing this by equity provides one measure. Adding back income tax (as an effective return on equity) and adjusting for the equity created through the indexation of the asset base at CPI provides another measure. The effect on the profitability of rural and regional water businesses' statutory asset values being much higher than their regulatory asset values also needs to be considered. There is no single right answer here, but being aware of the different perspectives and the difference relative to the regulatory determination is valuable in assessing the regulatory determination.

⁹ It might also be argued that the Government's Environmental Contribution income be taken into account in the determination of allowed returns. We don't think this would however be appropriate since the Environmental Contribution is levied on sales not profits and so does not affect the water companies' profitability.

whether prices charged by these water companies are higher than they should be.

Consideration along these lines is not conducive to the determination of a return on equity according to a defined and certain formula. Reducing the determination of the rate of return on equity to a formula is however to miss the essence of the issue: the regulatory arrangements should allow the Commission to think widely on the issue guided only by its obligation to promote the long term interest of water users.

The arrangement for the determination of the return on equity in electricity networks provides a template, we suggest, of what not to do. In electricity, the determination of the rate of return on equity has become dominated by ever-increasingly arcane argument about the various forms of the capital asset pricing model (“Sharp-Lintner”, “Black”, “White”, “Fama-French three factor”) and dividend growth model. Distributors’ regulatory proposals (and the regulators’ decision) include thousands of pages of argument on this, supplemented by weighty reports from consultants and academics. Little weight is placed on the substantively valuable information about the financial returns that are actually being achieved, whether these returns are stimulating inefficient over or under spending or excessive or inadequate prices. And the governments’ receipt of income tax is completely ignored. This approach seems to have lead to rates of return on equity that are precisely wrong rather than roughly right.

3 Cost of debt

3.1 Current arrangements

The allowance for debt costs charged to consumers is applied to the estimate of outstanding debt, which is assumed to finance 60% of the regulated asset base. By virtue of the relative significance of the regulated asset values for different water companies, the allowance for debt has varying levels of significance in the calculation of regulated revenues. It is one of the most important variables affecting the regulated revenue for the metropolitan water companies, less so for the regional companies and of little significance to the rural water companies¹⁰.

The Commission determines the cost of debt based on a benchmark, and also with reference to the water companies' actual borrowing costs, although it stressed in its decision that the latter information is not determinative.

With respect to the choice of benchmark, it calculated a debt margin on (on top of the risk free rate) for a company with a BBB- to BBB+ credit rating using debt with 10 year tenure. In the last determination this reflected advice based on Bloomberg's BBB seven year fair value curve extrapolated to 10 years.

In respect of its regard to the actual cost of debt in its Final Decision, the Commission explained that after its Draft Decision, it used data from the Treasury Corporation of Victoria (TCV) to estimate the interest rates applying to new borrowings raised by the water businesses. Since the Draft Decision, the Victorian Government raised the Financial Accommodation Levy (FAL) from 110 basis points to 252 basis points in 2013-14.

The FAL applies to new borrowings made by government business enterprises (GBEs), including the water businesses. It is intended to account for the difference between normal commercial interest rates paid by private businesses, and rates paid by GBEs who, by borrowing through the TCV, benefit from State Government guarantees on

¹⁰ Because their regulatory asset values are much smaller.

their loan. The Commission noted that increasing the FAL (all other things being equal) raises the interest rates payable on new debt for the water businesses.

At the time of the Commission's Final Decision, TCV bond yields were approximately 4 per cent. Allowing for debt raising costs (around 0.165 per cent) and the FAL (using the 2.52 per cent default rate to apply to BBB rated entities from 1 July 2013) implied that interest rates on new borrowings would be around 6.7 per cent. The Commission then compared this with the cost of debt it determined through its BBB benchmark approach (around 6.9 - 7.3 per cent, depending on the inflation assumption).

3.2 Arrangements elsewhere

3.2.1 Australia

The approach adopted by jurisdictional economic regulators for water currently, previously for electricity and the approach adopted by the Australian Energy Regulator (AER) for electricity is broadly consistent with the approach adopted by the ESC. The regulated entity is assumed to be privately-owned and borrows investment grade debt in Australian corporate bond markets. Regulators adopt different assumptions on debt tenor (five to ten years) and credit rating (ranging from BBB to A-) and have different ways of assessing risk free rates (different averaging periods and ways of selecting the averaging periods). Most recently, the AER has adopted a 10 year rolling average cost of debt and a similar approach has been applied in the regulation of water in South Australia. However, despite a broadly consistent approach amongst the various regulators, the allowed return on debt has varied quite significantly even for decisions made at about the same time.

3.2.2 United Kingdom

Royal Mail: In its last regulatory determination before privatisation, Postcomm set a cost of debt based on the risk free rate (yield on Treasury gilts) plus 50 basis points.

Scottish Water: The allowed cost of debt was based on government borrowing plus an indeterminate margin. The regulation also requires that any difference between the allowed cost of debt and the actual cost faced by Scottish Water should be credited to the Scottish Water reserve account.

Network Rail: As noted earlier, Network Rail is a company limited by guarantee (CLG) and is entirely debt-financed, benefiting from the Financial Indemnity Mechanism (FIM), a full faith and credit guarantee from the UK government. The approach to the determination of the regulated returns is based on the assumption that Network Rail is conventionally financed, i.e. as if it were financed without access to the FIM through equity and debt in commercial markets. This gives an estimate of the “full” cost of capital. Next, Network Rail’s actual financing costs (reflecting its actual cost of debt plus allowance for the cost of the FIM) is determined. The difference between this “actual” cost and the “full” cost of capital is called the “equity surplus”. This equity surplus is deducted from the regulator’s determination of the regulatory requirement (which is based on the assumed full cost of capital). In this way, network rail’s allowed revenues reflect the “actual” cost of debt including compensation for the guarantee (FIM) provided by the Government.

Northern Ireland Water: In its most recent regulatory control, Northern Ireland Water, which obtains loan capital from the Northern Ireland Treasury, proposed borrowing costs for embedded and new debt. For new debt, the proposed price was the yield on 15 year Treasury bonds plus an 85 basis point margin. The regulator (the Utility Regulator) accepted their proposal.

3.3 Issues and ideas

This sub-section explores the question of whether it is appropriate to adopt a private sector benchmark in setting debt costs and if not, how debt costs might usefully be established.

The previous section described the standard practice in Australia for regulators to set the borrowing costs for government-owned water companies as if they are privately owned, i.e. with reference to the price of investment-grade (BBB) debt in the Australian commercial bond markets. Over the last five years this has resulted in debt cost allowances for government-owned utilities in Australia being set at government borrowing costs plus a premium of 200-400 basis points. The significant premium to the risk free rate reflects the gap that has opened between the price of BBB corporate debt and the price of AAA corporate and government debt, in the period a little before, during and after the global financial crisis. This contrasts to the arrangements adopted in the UK (described earlier) where regulators have set borrowing costs for

government-owned monopolies based on actual government borrowing costs plus a margin on that costs, typically in the range from 50-100 basis points.

Our understanding is that the margin reflects the regulators' expectation for the reasonable compensation to the Government for transaction costs associated with the provision of loans and also compensation for the default risks that the governments are exposed in respect of their water company funding.

In Australia, regulators have justified the use of private commercial bond rates for its government-owned monopolies for two reasons:

- firstly, it provides incentives for firms to reduce borrowing costs, and
- second it ensures competitive neutrality.

We think that neither of these reasons justify the use of a BBB corporate bond benchmark.

On the first (incentive to reduce borrowing cost), setting an external benchmark does not of itself provide an incentive to reduce financing costs. The incentive arises because rates are fixed for a period and hence the firm can benefit by reducing costs below the fixed rate. The incentive to reduce borrowing costs would arise if the rate was based on historic actual values, or even if it was established completely arbitrarily.

On the second argument (competitive neutrality), government owned water companies in Australia (as in the UK) obtain their borrowings from their owners, they do not borrow in private capital markets and so do not crowd-out private borrowers. There can be no competitive neutrality concern on this basis.¹¹

A second variant of the competitive neutrality argument is that setting borrowing costs for government-owned water companies differently to privately owned firms is

¹¹ It might be argued that even if the Government-owned water companies don't compete with private firms, the Government that funds them does. But its not clear that Government and private firms (at least those rated BBB) compete in capital markets: they present very different risks and opportunities to lenders.

discriminatory. This too is not plausible, private firms can count interest costs as a deduction against income tax, whereas for government-owned firms this is not relevant (since the state governments collect the income tax and hence the owner is not affected by the deduction).

If anything, the application of the principle of “competitive neutrality” (i.e. treating private and government-owned consistently) should mean that the Commission sets government-owned water companies’ debt costs at an after-tax rate, and for private firms at the pre-tax rate since this is the effective cost of debt that they both see.

A third argument in favour of setting borrowing costs for government-owned water companies as if they were privately owned is that, even though the government’s cost of borrowing is lower than that of the private sector, this under-prices the risks that governments bear in financing businesses it owns. This is a credible concern, but how should it be reflected in the premium to the risk free rate that water users served by Government-owned water companies should be charged?

The current arrangement suggests that the premium should be calculated as if the business was privately owned and raising BBB debt. But governments borrow cheaply not just because of their ability to tax (which should be valued and paid for by water users), but also because of their large and diverse portfolio of assets, whose diversification reduces the Government’s exposure to financial risks. The current model assumes that tax-payers rather than water users obtain all of the financing benefit attributable to this diversification.

If there are no convincing arguments for the assumption of a BBB benchmark, is there nonetheless any harm as a result of this besides the transfer of wealth between water users and tax payers? There are two possibilities:

- Firstly excessive compensation for debt costs can result in the misallocation of resources through the “Averch-Johnson” effect¹²: if a water company is able to

¹² Named after the seminal 1962 paper “Behaviour of the Firm under regulatory constraint” by Harvey Averch and Leland Johnson which theorised that a misallocation of economic resources may result from the use by regulatory agencies of the rate-of-return constraint for price control.

obtain rents from capital expenditure it has an incentive to spend more than it should and to inefficiently substitute capital for labour. The evidence for this in electricity networks in Australia seems to be compelling and was accepted in the Garnaut Review and by the Productivity Commission. We are not aware of evidence in water in Victoria to the same extent¹³ and the absence of private sector comparators is likely to mean that such evidence is difficult to establish. However the absence of evidence of an Averch-Johnson effect in water can not be taken as evidence of its absence. To the contrary, if the allowed return on debt is substantially above its cost (as it seems to be now) the adverse incentive effects of this should not be ignored.

- Second it distorts ownership incentives: if a state government can extract rents through ownership it has less incentive to consider privatisation even if this would be more efficient. The opposite would apply if rates were set below the cost of borrowing.

For these reasons, we suggest that the current arrangement of establishing debt costs assuming a privately owned firm raising BBB debt merits further consideration. If the approach typically adopted in the UK was also adopted by the Commission, this can be expected to reduce, quite significantly, the regulated revenues of the metropolitan water companies from what they otherwise would be. This would also mean a reduction in the income to the government through the Financial Accommodation Levy (assuming the levy was reduced to match the reduction in the allowed return on debt)¹⁴.

The Government could of course make up for this reduction through the introduction of some other levy. For the reasons set out above, it would be more economically efficient for such a levy to be based on outputs (sales) rather than on inputs. We note that the Environmental Contribution which raises around \$110m per year is based on

The misallocation arises when the allowed rate of a return fails to match the actual cost of capital.

¹³ We note again the "Preliminary advice from the Independent Reviewer" from Professor Graeme Samuel, which suggested significant concerns.

¹⁴ The Financial Accommodation Levy is, we understand, set independently of the Commission's revenue control. We have linked the Levy and any change in the Commission's approach purely on the assumption that the Levy was to be linked to the Commission's decisions.

sales. While not wanting to comment on the appropriateness or not of this levy, the point is that the precedent for contributions to the Government, based on sales, exists.

Further thought might be given to changes along these lines.

Finally, an additional issue that might be considered is setting debt costs in a way that better accounts for their volatility. Debt yields oscillated over a large range during the global financial crisis (although the effect was far more severe for non-investment grade debt) and rates for debt are now at lower levels than they have ever been. In the context of regulatory allowances for debt rates set at a point in time, this has created windfalls, so far at consumers' expense.

This can be addressed through the adoption of a rolling average cost of debt (so that the rate changes over the course of the regulatory period reflecting the change in rates) or more simply by discriminating between the price of embedded debt that will not be refinanced during the regulatory control period and the price of new debt raised during the period. We understand that the Commission is discussing a rolling debt mechanism with Melbourne Water.

With debt costs reflecting actual government borrowing plus a margin, designing a suitable arrangement that reduces the prospect of windfall gains or losses, and provides appropriate incentives, should not be difficult.

4 Tax

4.1 Current arrangements

The Commission sets a post-tax weighted average cost of capital and adds back an allowance for expected income tax. The expected income tax is based on the regulator's calculation of income tax after adjustment for dividend imputation that is expected to apply to the benchmark privately owned firm.

In the current regulatory period, the Commission made no allowance for income tax from the rural or regional companies (reflecting their depreciation charges based on statutory asset valuations that are far higher than regulatory asset valuations).

The same approach to the determination of tax allowances is applied to electricity networks and to other water monopolies whose revenues are set by independent regulators. In most cases, the regulation allows for a re-opening of the revenue control or pass-through of any adverse changes in tax rates or tax law. These however tend to be asymmetric (changes that result in lower tax liabilities than expected, do not result in a reduction of allowed revenues).

In the UK, in some cases (for example Royal Mail before privatisation) pre-tax returns were established and tax therefore compensated through a tax wedge (by setting a pre-tax costs of capital). This was also the arrangement that applied in South Australian water regulation until recently.

4.2 Issues and ideas

The Commission's determination of income tax and the compensation of this through inclusion in the determination of allowed revenues is consistent with the assumption that the industry is privately owned. Specifically, if privately owned, the owner receives returns after income taxes have been paid.

Whether government owned or privately owned, the industry has an incentive to argue for the highest tax allowance that it can since this increases the regulated revenues. Once the revenue allowance has been set, privately owned firms have an incentive to

minimise the tax they pay since this maximises the post-tax profits received by the shareholders.

However, the government-owned water companies do not have this incentive since the government receives the profits and the taxes on the profits: reducing the actual tax paid produces no benefit for the shareholder because what they gain on higher after-tax profits they lose on lower tax income. If the firm has no incentive to reduce tax, then setting an ex-ante tax allowance (which by fixing allowances ex ante for the period of the control provides incentive for the firm to reduce its tax) seems to have limited merit.

This can not be the only consideration, however. If there is a significant gap between the “regulatory” tax and the “statutory” tax then this should be taken into account. The evidence suggests that this may be the case although the actual income tax paid rather than accrued is not certain and so the magnitude of the difference between the statutory and regulatory tax is arguable.

However, we estimate that had the actual (statutory) tax been included in regulated revenues, prices would have been higher. This begs the question of whether it is appropriate that consumers should be charged for “statutory” tax rather “regulatory” tax, and so the reasons for the difference need to be understood. To be clear in asking this question we are not suggesting that consumers should pay the higher of the “statutory” tax and the “regulatory” tax.

Part of the difference between the “regulatory” and “statutory” tax reflects differences in the regulator’s expectation of expenditure and the actual expenditure. In addition, in the past particularly the recent past, the regulatory determination of debt has been significantly higher than actual debt. This has meant a much lower actual cost of debt than regulatory cost of debt, and hence much higher statutory profits (and hence taxes) than expected. The shareholder has captured the benefit of the lower debt costs and hence higher profits. It would be unreasonable to increase the windfall by also requiring consumers to pay the higher tax on the windfall profits.

Part of the difference between statutory and regulatory tax also reflects differences in the statutory and regulatory valuation of assets, assumptions on dividend imputation (the Commission’s benchmark model assumes imputation based on a private firm) and

deferred tax liabilities. Differences in statutory and regulatory tax attributable to such factors are intended and this should be reflected in the charges to consumers.

Taking these considerations into account, the case for changing the current arrangement for the determination of tax would seem to rest on the extent to which the current approach is resulting in undue effort by the regulator, the companies and consumers on tax issues, which are ultimately a distraction from the more important issues that economic regulation should focus on.

In this respect, the outcomes in electricity network relevant are instructive. In electricity, networks regulatory processes have become severely distracted by arcane arguments about dividend imputation in the calculation of tax.

Considerable resources have been incurred by the industry, regulators and consumers in arguing about this. For example regulatory decisions and industry proposals contain many hundreds of pages of argument and evidence, supported again by weighting expert evidence, about dividend drop-off rates and related details.

The argument has even strayed into merits reviews. Queensland government-owned distributors have disputed the regulator's approach and sought a review of the regulator's decision in the Australian Competition Tribunal. Though achieving the desired outcomes in the Tribunal (at great expense), the government-owned distributors were then instructed by their owning Government not to implement the outcome because this would have had adverse price impacts. At the time of writing this, the AER's latest decision on tax allowances for government-owned distributors in New South Wales are being challenged in the Australian Competition Tribunal.

The Commission's determination of tax allowances seem to have avoided this trap and the process for setting tax allowances does not seem to have been terribly onerous. If this is expected to change and the Commission pressured to follow the approach in electricity networks it would be worthwhile considering alternative approaches to the determination of tax, to avoid this trap.

An alternative approach that would simplify calculations would be for the Commission to set a pre-tax rather than post-tax cost of capital. This means reflecting the value of the

tax wedge provided through the deduction of interest, in the determination of the cost of capital, rather than compensating tax through cash allowances (as in South Australian water regulation until recently and the regulation of Royal Mail previously). This approach is simpler and would reflect the value of the tax wedge based on the regulatory determination of borrowing costs (which as noted have been substantially above actual borrowing costs). It can also be adapted to take account of dividend imputation assumptions and can be adjusted to reflect the substantial differences between the regulatory and statutory asset values, in particular of the rural and regional water companies. We suggest further thought might be given to this.

5 Dividends

Between 2005/6 and 2013/14 Victorian water businesses delivered after tax-profits of around \$2.2bn, paid dividends to the Government of around \$1.4bn and so left retained earnings of around \$0.8bn. Almost half of all profits and dividends came from Melbourne Water with almost all of the remaining from the other three metropolitan water companies. The annual profits of each of the four metropolitan companies and the sum of the four have often changed significantly from one year to the next. No consistent pattern is visible over this period.

We understand that dividends are determined by the water company directors pursuant to a guideline "*Corporate planning and performance requirements: Government Businesses Enterprises*" from the Department of Treasury and Finance.

The regional water companies have paid very small dividends, and the rural water companies no dividends. This reflects their much lower statutory profits than the metropolitan companies. The main reason for this is much higher statutory than regulatory asset values and hence much higher statutory than regulatory depreciation. While we have not attempted to quantify it, we would expect that the effect of higher statutory depreciation combined with no or very low dividends will mean that that the rural and regional companies will have started to develop significant retained cash reserves, if not in absolute terms then in relation to their expenditure.

At present the Commission has no defined role in the regulation of dividends, these are a matter for the water companies and the Government. It might be argued that there should be scope for regulatory involvement on the basis that dividend policy can affect the businesses' financial risks and the level of their cash reserves. We note, again, the particular regard that the WIRO instruct the Commission to have in promoting the financial viability of the water industry.

By withdrawing dividends, the water companies can jeopardise their financial risks and this might be used to press the Commission to determine controls that it would otherwise prefer not to determine.

Conversely, excess retained cash might weaken the companies' budgetary discipline and hence the efficiency of their spending. Regulatory involvement in the water

companies' dividend policy may however undermine managerial discretion and directors' fiduciary accountability.

Again, it would be very useful to establish whether there is evidence of excessive financial risk as a result of excessively high payout or diminished incentives to efficiency in the case of excessively low payouts. Prima facie the evidence on aggregate dividends against aggregate retained earnings (the former well within the latter) does not suggest financial risk attributable to excessive payouts. The picture of retained cash balances for the rural and regional water companies that have had sustained post-tax losses is not clear. Information on this would be helpful in considering any change to regulatory authority with respect to their dividend policy.

6 Conclusions

This paper has examined the arrangements for the determination of the return on equity, the cost of debt, income tax and dividends for the regulation of water in Victoria. We examined the current arrangements in Victoria, compared them to the treatment of other government-owned utilities in Australia and Britain and considered possible changes.

The overriding objective of the Commission's regulation, as established in legislation, is to promote the long term interest of consumers. As the Commission has set out in its opening paper for this review, this means arrangements that uphold the long-term viability of Victorian water businesses that operate efficiently and invest prudently. It is this overriding objective that has guided our analysis and thinking, and that provides the basis of our suggestions of issues that might be considered further.

Rate of return on equity

The Commission currently applies the Capital Asset Pricing Model to set the return on equity, as if the water companies were privately owned. The actual return on equity that the Government requires may be higher or lower than this, but is difficult to determine with certainty. Different institutional arrangements for the determination of the rate of return on equity and the value of regulated assets can be considered but we don't think the case for fundamental change currently exists. We therefore suggest a continuation of the existing arrangements for the return on equity but that in setting the rate, the Commission has regard to the wide evidence. This means:

- **Comparing the allowed return on equity to the actual return on equity:** actual returns might be affected by many factors but particularly differences in spending, depreciation based on statutory asset values rather than regulatory asset values and the cost of debt. In setting the return on equity it would be very helpful to examine this wider, real world evidence.
- **Examining efficiency:** this means assess whether there is evidence that previously allowed rates of return have provided incentives for inefficient spending (either over-investment in response to excessive return on assets, or under-investment in response to inadequate returns). Of course it is difficult to

be certain on this, but asking the question and seeking to answer will be informative and valuable in setting the allowed return on equity.

- **Looking at other regulators' decisions:** Looking around at the rates of return that other regulators have determined, as the Commission does now, is valuable although it would be valuable to look beyond Australia as well. Seeing the allowed rates of return in their full context (i.e. taking account of asset values, dividend policy and the treatment of differences between expected and actual returns) would be particularly valuable.
- **Income tax:** It would be valuable for the Commission to consider the extent to which the Government's receipt of income tax allowances should be taken into account in the calculation of the rate of return on equity.

The process for the determination of the return on equity for electricity networks provides a template, we suggest, of what not to do. In electricity, the determination of the rate of return on equity has become dominated by ever-increasingly arcane argument about the various forms of the capital asset pricing model ("Sharp-Lintner", "Black", "White", "Fama-French three factor") and the dividend growth model. Distributors' regulatory proposals (and the regulators' decision) include thousands of pages of argument on methodology, supplemented by weighty reports from consultants and academics. Little weight is placed on the substantively valuable information on the financial returns that regulation is actually delivering, whether these returns are stimulating inefficient over or under spending or excessive or inadequate prices. The governments' receipt of income tax is also ignored. This approach seems to have led to rates of regulatory allowances for the return on equity that are precisely wrong rather than roughly right.

Allowance for the cost of debt

The allowance for the cost of debt for water companies in Victoria is based on the cost of corporate borrowing for a BBB rated private corporate in Australia. Similar arrangements apply in the regulation of Australian electricity networks. In the UK, by comparison, the cost of debt of government-owned entities is based on government borrowing costs plus a margin, typically 50-100 basis points.

We concluded that the arguments commonly cited in support of the arrangements in Australia are not credible. We also suggest that the current arrangements are likely to be contrary to the efficient spending. We recognise that a change to debt allowances to base them on government's cost of borrowing plus a margin is likely to mean a significant reduction in the income that the Government obtains on the loans it makes to water companies. This can be made up through a levy on sales. This would be a more efficient arrangement.

Finally we also suggested a change to the methodology for the calculation of debt whether through the use of a rolling average or by distinguishing rates for embedded and new debt.

Income tax

The income tax charged to water users has been much lower than the income tax paid to the Government. This reflects several factors including statutory versus regulatory asset values (and hence depreciation) and also differences in the allowed and actual cost of debt.

We suggest the case for changing the current arrangement for the determination of tax would seem to rest on the extent to which the current approach is resulting in undue effort by the regulator, the companies and consumers on tax issues, which are ultimately a distraction from the more important issues that economic regulation should focus on. We conclude that so far this does not appear to have been the case. However if there is the prospect that the determination of tax allowances in water becomes dominated by increasingly arcane arguments about dividend imputation (as they have in electricity network regulation) then changes to the determination of tax allowances, possibly by compensating tax through the determination of the return on equity and cost of debt should be considered.

Dividends

In aggregate across the water industry, dividend payments since 2005/6 have lagged post-tax profits. In aggregate the industry does not seem to have jeopardised its financial position through excessive payouts. However there may be significant

retained cash in the rural and regional water companies as a result of net losses since their depreciation charges calculated with respect to statutory asset values are substantially greater than the regulatory depreciation allowances used to calculate allowed revenues. This may attenuate budgetary restraint and hence undermine efficiency incentives. Regulatory involvement in the water companies' dividend policy may however undermine managerial discretion and directors' fiduciary accountability. Prima facie the case for such greater involvement does not seem to exist.