HOUSTONKEMP
Economists

Comment on the Commerce Commission's Input Methodology Review

A report for Powerco

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Executive Summary

Purpose of this report

The Commerce Commission (the Commission) is seeking input regarding the key topics and specific problems to be addressed in the context of its current input methodologies (IMs) review. HoustonKemp has been asked by Powerco to prepare this paper putting forward our thoughts on those aspects of the IMs that warrant greatest scrutiny.

There are three elements of the IMs that, in our opinion, offer the greatest scope for improvement, ie:

- the determination of certain aspects of the regulatory weighted average cost of capital (WACC);
- the consequence for depreciation allowances of indexation of the regulatory asset base; and
- the choice between a revenue cap versus a weighted average price cap as the form of price control.

WACC Methodology

The current WACC IMs have been subject to considerable scrutiny through various processes, including the original IM determination process, the High Court's merit review and the most recent partial IM review of the WACC percentile. There are several fundamental aspects of the WACC IMs for which further review seems unlikely to result in tangible opportunities for improvement, namely:

- the central role of the simplified Brennan-Lally capital asset pricing model (SBL-CAPM);
- the WACC percentile for electricity lines and gas pipelines businesses;
- the introduction of a split-WACC approach; and
- the amendment of the asset betas on the basis of any potential change in the form of control.

In contrast, the current methodology for estimating the cost of debt could usefully be re-examined, since there is potential to improve the incentives on businesses to make efficient and prudent financing decisions as well as to reduce unnecessary volatility in regulated prices.

As a guiding principle, regulatory frameworks ought to operate so as to do least harm to the incentives that businesses operating in a workably competitive market would otherwise face. In relation to the cost of debt IM, this principle suggests that the regulatory framework should encourage businesses to adopt debt raising strategies as close as possible to those of a prudent and efficient holder of long-lived infrastructure assets. The current IMs fall short of this in two respects. The following table summarises the amendments we recommend the Commission consider and their potential benefits.

Table 1: Identified potential amendments to the cost of debt estimation methodology

Amendment	Potential benefits
Base the cost of debt on 10-year rather than 5-year risk free rates	• improve alignment with the debt-raising strategies of prudent and efficient firms • negate the need for the TCSD
Adopt a trailing average approach	• improve alignment with the debt-raising strategies of prudent and efficient firms • reduce volatility in the regulated WACC relative to the debt costs of a benchmark firm • remove the disconnect between the CPP and DPP WACCs

Indexation of the RAB and depreciation

The current approach to RAB indexation implicitly pushes out the depreciation profile that would otherwise apply under a simple straight line methodology and so delays the recovery of invested capital. This arises through the interplay of three separate regulatory mechanisms within the current IMs, ie:

- the use of a nominal return on capital;
- the revaluation or indexation of regulatory assets at the end of each year by reference to outturn consumer price inflation; and
- subtracting from the Building Blocks Allowable Revenue the amount of inflation revaluation of the asset base.

This approach has the benefit of substantively insulating businesses from errors in the inflation forecasts. However, it also effectively delays the recovery of capital and, in so doing, may increase the investment risks for businesses undertaking major investment projects and/or reduce the incentive to invest.

One option for addressing this disincentive would be to revise the indexation approach. However, this would increase businesses' exposure to errors in inflation forecasts. A preferable alternative may be to allow greater flexibility in the depreciation profile under the default price-quality path and within the information disclosure requirements.

The form of regulation

Weighted average price cap (WAPC) regulation exposes firms to within-period demand forecast risk (to the extent that revenues are volume- or connection-dependent). A WAPC may also reduce the incentive on regulated entities to invest in energy efficiency or demand side management initiatives.

The electricity industry is currently facing challenges in the form of new technologies (such as embedded intermittent generation and battery technology) which reduce the forecastability of demand. In such an environment, adopting a revenue cap may have two advantages, namely:

- reducing businesses' exposure to unexpected changes in demand; and
- improving businesses' ability to respond to the changing environment by allowing greater flexibility in tariff design.

However, the details of the framework (for example, whether 'wash-ups' are included) will be just as important as whether the form of regulation is a 'price cap' or 'revenue cap'.

We therefore concur with the Commission that there is sufficient evidence that a change in the form of regulation may provide tangible long-term benefits to consumers that this topic should be explored further through the review process.

1. Introduction

The Commission is seeking input on the key topics and defining the specific problems to be addressed in the context of its input methodologies (IMs) review. We have been asked by Powerco to prepare this paper putting forward our thoughts on the IMs that warrant greatest scrutiny, in terms of those aspects for which amendment offers the greatest potential to further the s52A purpose statement, ie:

> The purpose of this Part is to promote the long-term benefit of consumers in markets referred to in section 52 by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers or regulated goods or services –
>
> (a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and
>
> (b) have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and
>
> (c) share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and
>
> (d) are limited in their ability to extract excessive profits.

At the same time, any amendment should be consistent with meeting the objectives of:

- promoting the purpose of IMs in s52R more effectively – namely, to promote certainty for suppliers and consumers in relation to the rules, requirements and processes applying to regulation; and
- significantly reducing compliance costs, other regulatory costs or complexity.

This paper is limited to identifying those aspects of the IMs that we believe warrant close attention in the Commission's IM review process, rather than seeking to provide a comprehensive review of the pros and cons of amending particular IMs in specific ways. It follows that, although we identify the basis for our recommendations, we do not undertake a full assessment of the alternatives. This is consistent with the staged approach set out by the Commission in its paper.

This paper is structured around three components of the IMs that, in our opinion, provide the greatest scope for improvement, namely:

- the determination of certain aspects of the regulatory WACC
- the consequence for depreciation allowances of indexation of regulatory asset base; and
- the choice between a revenue cap and weighted average price cap as the form of price control.

2. Regulatory Cost of Capital

The Commission's paper identifies several features of the regulatory cost of capital or WACC-related IMs as candidates for review. In addition, it is likely that various interested parties will put forward for review other elements of the WACC methodology. This section sets out our opinion regarding: (1) those aspects of the current WACC IMs that do not offer sufficient potential for improvement to warrant in-depth consideration; and (2) those that do.

2.1 WACC methodology components to be retained

The current WACC IMs have been subject to considerable scrutiny through various processes, including the original IM determination process, the High Court's merit review and the most recent partial IM review of the WACC percentile. In addition, certain aspects of WACC estimation framework have been well-considered in other jurisdictions. It follows that there are several fundamental aspects of the WACC IM for which further review is unlikely to identify tangible opportunities for improvement. These include:

- the central role of the simplified Brennan-Lally capital asset pricing model (SBL-CAPM);
- the WACC percentile for electricity lines and gas pipelines businesses;
- the introduction of a split-WACC approach; and
- the amendment of the asset betas on the basis of any potential change in the form of control.

We set out below our high-level rationale for recommending that each of these aspects be set aside for the purposes of the current IM review.

2.1.1 The Simplified Brennan-Lally CAPM (SBL-CAPM)

The SBL-CAPM has a number of identified shortcomings, which we have raised in previous submissions to the Commission.[1] Most notably, the model has a tendency to introduce a downward bias in the WACC estimates for low beta stocks.

Notwithstanding these shortcomings, we recognise that, for the purposes of regulating New Zealand infrastructure businesses, there are some significant advantages in its ongoing usage, including that the SBL-CAPM:

- is well understood by interested parties and a body of regulatory application has now been built up;
- is generally well-accepted within New Zealand; and
- takes account of the New Zealand tax system, including the imputation credit provisions.

In the context of New Zealand's imputation tax system, there is no 'perfect' CAPM model and at least the short-comings of the SBL-CAPM are relatively well-recognised and aired. This body of understanding allows the model's limitations to be dealt with directly by making appropriate adjustments within the framework.

In its merit review the High Court made particular reference to the 'leverage anomaly' in the SBL-CAPM model, which results in the WACC increasing as leverage increases, contrary to general CAPM theory and real-world observations. We note that the Commission has considered this issue at some length as part of the original IM development process. Importantly, the Commission's analysis indicates that this matter is sufficiently addressed by using the average leverage rate of the comparative firm sample. We therefore

[1] See for example HoustonKemp (August 2014) *Comment on the Commerce Commission's Proposed WACC Percentile Amendment*, page 7

agree with the Commission's view that the leverage anomaly has been reasonably dealt with and is not of sufficient concern to warrant the replacement of the SBL-CAPM model.

We therefore do not recommend that consideration of the CAPM framework be the focus of the current IM review. Rather, we recommend that any deficiencies in the SBL CAPM continue to be taken into account by maintaining the WACC percentile at the status quo.

2.1.2 The WACC percentile

In its merits review, the High Court commented on the lack of basis for using the 75th percentile of the WACC estimate range in price-quality regulation. The Commission examined this matter urgently last year and as a consequence reduced the percentile for gas and electricity businesses from the 75th to the 67th percentile.

The Commission has not listed the WACC percentile for gas and electricity businesses as an issue for review in the current context. We agree that this is appropriate and that there is little gain to be made from reopening this debate. As far as we are aware, no new information or analysis has emerged since the previous review was undertaken and further examination is unlikely to uncover new evidence.

2.1.3 Introduction of a split-WACC proposal

The Commission has raised for consideration the introduction of a split cost of capital approach, noting:[2]

> The split cost of capital (or two tier approach) was suggested by MEUG in 2010 and in its appeal of the original IM decisions. It involves separately applying a different WACC to invested capital and new capital.

The stated expectation of the advocates of such an approach is that it would reduce the price to consumers without distorting firms' investment decisions, thus leading to long-run consumer benefits. However, the premise underlying this suggestion is unsound and, in our opinion, it is highly unlikely that a split-WACC methodology would benefit consumers in the long run. Rather, the dampening of investment incentives associated with such an approach is likely to result in long-term detriment to consumers.

A two tier WACC approach pre-supposes that the substantial part of a regulated firm's asset base amounts to a near risk free asset and should be remunerated as such. This concept is largely based on the theory developed by Professor Dieter Helm, which proposes that regulatory arrangements and demand conditions for regulated infrastructure businesses effectively provide a form of guarantee that the value of the regulatory asset base (RAB) will be protected and that the realised rate of return will at least match the regulated WACC. Accordingly, Professor Helm considers the return on these assets should reflect this low risk. In contrast, expenditure on major new capital projects involves risks around construction, engineering and cost and schedule variability, and the resultant assets may involve greater demand risk. Correspondingly, they may require a higher return until they are rolled into the asset base.

In our opinion, the underlying proposition that, once in place, electricity and gas businesses' assets involve much lower risks is incapable of withstanding close scrutiny. The proposition that investors are willing to accept a significantly lower return on capital once it becomes sunk and incorporated into the RAB has no merit, either in principle or by way or empirical evidence.

A two tiered approach to setting the WACC is unlikely to be sufficient to fully compensate businesses for the cost of capital associated with the long term provision of services by means of fixed infrastructure assets. Its fundamental flaw is the assumption that, once a physical asset is fixed in place, the financial capital that enabled it to be constructed is somehow no longer imposed to any risk of future variance in returns.

[2] Paragraph 273

Implementing a lower WACC for assets once they enter the RAB would likely reduce the incentive on businesses to invest – unless the 'new assets' WACC was sufficiently high so as to 'make the business whole' over the life of the asset, in which case the objective in splitting the WACC becomes less clear.

We note the High Court's comment:[3]

> In principle, that proposal is stronger, because by providing the likelihood of higher than normal returns on new investment it overcomes any disincentives that may be claimed to exist (compared to the use of the mid-point); although we are not convinced as to the reality of those disincentives.

However, once new expenditure is rolled into the RAB, the two-tier methodology would see the return on those assets being reduced to the lower rate. Businesses would take this future reduction in returns into account when making their investment decisions.

In effect, such a methodology would result in price outcomes that are inconsistent with those that would be produced in competitive markets and, as a result, would be inconsistent with the s52A purpose statement.

There is also a risk that such an approach would dampen investment incentives in other industries that may be at risk of future regulation. In this, we agree with the view expressed by Dr Martin Lally in the context of the Gas Authorisations:[4]

> MEUG (2007) argues that the use of a WACC value above the 50th percentile is unjustified in respect of 'sunk' capital, on the grounds that the incentive arguments supporting a value above the 50th percentile are irrelevant in this case. However, such a course of action will damage the investment incentives of firms that are contemplating investment in areas that are currently unregulated, but which may be subject to regulation at some future point. Accordingly, I favour a WACC value above the 50th percentile even for the sunk capital of the gas pipeline businesses.

Aside from its fundamental deficiency in terms to dampening investment incentives, the introduction of a split WACC would give rise to substantial implementation difficulties. As a result, regulatory costs and uncertainty would be increased. We therefore concur with the Commission's stated view that:[5]

> We have previously not favoured this option due to its potential to distort investment, increase the risk of under-investment, and increase the administrative burden.

Relevantly, although the concept has been debated by regulators in the UK and Australia, it has not been adopted in any jurisdiction. For example:

- in Australia, the Queensland Competition Authority investigated the merits of this approach and decided not to implement it but rather to consider it further as a tool for assessing relevant risks and providing reference point estimates;[6]
- during the Q5 review of price controls for Stansted Airport, the UK Competition Commission considered and rejected the Helm split cost of capital proposal, stating:[7]

> The convention of using the RAB as an input into the calculation of price caps gives investors the opportunity to recoup their investments, but deliberately puts that return at risk (ie, it is conditional upon the efficient and competent operation of the assets that are built).
>
> Professor Helm was not able to persuade Panel members that the return of and on Stansted's RAB is somehow 'safe' and capable of being disentangled from an airport's performance against its price cap, or that the financiers of historical investment included in the RAB would not see the

[3] Paragraph 1484

[4] Martin Lally (October 2008) *The weighted average cost of capital for gas pipeline businesses,* pages 96-97

[5] Paragraph 274

[6] Queensland Competition Authority (February 2014) *The Split Cost of Capital Concept – Information Paper*, page vi

[7] Competition Commission (2008) *Stansted Price Control Review: Final Report*, Appendix L, Cost of Capital, paragraphs 10 and 11

> value of their capital increase or diminish in line with the fortunes of the regulated business. As a consequence, it was not appropriate for us to use a split cost of capital in this review.

- Ofgem considered the split cost of capital approach in the development of its RIIO system and concluded that the concerns such an approach was aimed at addressing could be better managed in the gearing and cost of debt methodology by: recognising the low risk nature of the RAV; taking account of the risks that companies face under the price control package; and by updating the cost of debt element of allowed returns annually:[8]
- Ofwat's Director of Regulatory Finance and Competition commented on the split cost of capital approach when developing its rate of return methodology for regulated water networks in England and Wales:[9]

> We do not think that there is evidence that there needs to be an increase in marginal returns to facilitate new capital investment. Neither do we agree that returns on 'sunk' investment should be lower than the average return for the reasons set out above. It is also questionable whether a split cost of capital would reduce the required level of return unless total risks were reduced.

- during the Q6 price control review for the regulated London Airports, the UK Civil Aviation Authority stated:[10]

> On balance, the CAA considers that, although the split cost of capital may have some academic attractions, it is not persuaded that it should employ it for HAL for Q6. There is a risk that implementing it, without changing the regulatory framework ,would not reduce risk but merely apportion it between two theoretical parts of the business... The CAA notes that the split cost of capital has been considered but not subsequently adopted by any of the other UK sector economic regulators, such as Ofgem, Ofwat and the CC.

and ultimately chose not to adopt such an approach;[11]

- in its most recent review of prices for Network Rail, the Office of Rail Regulation also considered the split cost of capital approach but concluded that there were no benefits from doing so and chose not to adopt it.[12]

In sum, we see no merit in this concept and recommend that it not be given significant attention in the context of the Commission's IM review.

2.1.4 Implications of the form of control for assessing asset betas

The Commission is seeking input into the form of control (ie, price cap, revenue cap, hybrid approach, etc) for price-quality regulated sectors. In conjunction with this, the Commission has asked for input regarding:[13]

> How would a change to the form of control impact the exposure of the supplier to systematic risk and how would this be taken into account when selecting an appropriate asset beta to be used in the estimation of WACC for regulated businesses.

In our opinion, there is no basis for presuming that a change in the form of regulation will appreciably affect firms' systematic risk. Even if such a change was to reduce a regulated business's exposure to some forms of risk, it is far from clear whether this would represent a change in *systematic* risk.

[8] Ofgem (July 2010) *Regulating energy networks for the future: RPI-X@20 Recommendations: Implementing Sustainable Network Regulation – Supporting paper*, paragraph 12.7

[9] Keith Mason, Director of Regulatory Finance and Competition, Ofwat (October 2007) 'Risk allocation, investment incentives and the financing of regulated businesses', letter to stakeholders, www.ofwat.gov.uk/pricereview/pr09phase1/ pr09phase1letters/ltr_pr0903 _riskallocinvest

[10] CAA (April 2013) *Economic regulation at Heathrow from April 2014: Initial proposals*, paragraph 9.18

[11] CAA (October 2013) *Estimating the cost of capital: a technical appendix to the CAA's Final Proposal for economic regulation of Heathrow and Gatwick after April 2014*, paragraph 3.6

[12] ORR (August 2012) *Periodic review 2013: Consultation on financial issues for Network Rail in CP5*, paragraphs 4.26 to 4.30

[13] Paragraph 179.6.

The most significant business risk associated with a WAPC arises from demand forecast error (ie, the demand forecast on which the value of a WAPC is based), strictly, is not driven by fluctuations in the macro economy (a source of systematic risk). Rather, such risks are caused by the ability of the regulatory process to forecast fluctuations in electricity demand.

It follows that this aspect of the IMs does not warrant significant attention in the context of the Commission's review.

We note that the current IMs do not attempt to establish varying betas for Transpower and the electricity distributors, despite the variation in the form of control under which these companies operate. Further, we agree with the Commission's previous statements on this matter, for example:[14]

> The Commission agrees that as the equity beta measures an asset's or a security's sensitivity to market risk and EDBs, GPBs and Transpower may face different levels of systematic risk, different equity betas could apply, in principle, to Transpower and different EDBs and GPBs.
>
> However, estimating asset betas for an industry (or specific service) is inherently imprecise and involves a significant degree of judgement. Estimating individual supplier-specific equity betas would require an even greater degree of judgement than estimating service-specific equity betas.

To the best of our knowledge, no empirical evidence has emerged that is capable of supporting the idea that the asset betas of regulated firms can be distinguished on the basis of the form of regulation. For example, Australian regulators have not found any basis in the form of price control on which to adopt a different level of asset (or equity) beta. In the context of Jemena's determination, the AER commented on the relative inability to obtain precise estimates of beta:[15]

> We consider the systematic risks between gas, electricity, transmission and distribution networks are sufficiently similar as to justify one benchmark.
>
> We consider the regulatory framework for gas and electricity service providers are similar. Differences in demand risk are mitigated by the regulatory regime through the revenue or price setting mechanism (form of control). While electricity transmission service providers are required to use a revenue cap, electricity distribution and gas service providers are able to propose the form of control they employ. Under a revenue cap, where forecast quantity demanded differs from actual quantity demanded, in subsequent years price adjustments are made to enable the approved revenue to be received by the service provider. Under a price cap, service providers may mitigate the risk of forecast error by restructuring tariffs, such that higher fixed charges are set to offset demand volatility.
>
> …we are aware that the true systematic risks of our nine Australian comparator firms are not identical. We consider they are reasonable, no perfect, comparators to the benchmark efficient entity, with reasonably similar levels of systematic risk.

In its regulatory explanatory statement, the AER stated:[16]

> We consider that the net risk exposure of the businesses we regulate, taking into account the risk and the mitigating impact of the regulatory regime, is sufficiently similar to warrant the use of only one benchmark.

Finally, even if the Commission were to determine that a change in the regulatory regime would affect firms' systematic risk (a position that, we believe would be unwarranted), it is not evident this could be translated into an appropriate amendment to the asset beta in practice. In the past, the Commission has estimated a regulated service-wide equity beta using the individual beta estimates of a portfolio of comparable businesses. This portfolio is made up of 79 UK, US, Australian and NZ electricity and gas companies. These

[14] Commission (December 2010) *Input Methodologies (Electricity Distribution and Gas Pipeline Services) – Reasons Paper*, page 510

[15] AER (June 2015) *Final Decision: Jemena Gas Networks (NSW) Ltd Access Arrangement 2015-20: Attachment 3 – Rate of Return,* pages 3-407, 3-408-409, and 3-430

[16] AER (August 2013) *Better Regulation – Explanatory statement – Draft rate of return guideline*, page 43

comparator businesses are subject to a range of regulatory regimes and the Commission has relied on the average of their betas for the purposes of past WACC estimates. It is unclear how such average could reasonably be amended to account for a revision to New Zealand's regulatory regime.

For these reasons, we recommend that consideration of the relationship between asset betas and the form of regulation not be given significant attention in the current IM review.

2.2 Review of the cost of debt IM

In the above section we discussed certain aspects of the IMs for which, in our opinion, there is little benefit to be gained by further review. In contrast, the current methodology for estimating the cost of debt could usefully be subject to re-examination since there is potential:

- to improve the incentives on businesses to make efficient and prudent financing decisions; and
- to reduce unnecessary volatility in regulated prices.

As a guiding principle, regulatory frameworks ought to operate so as to do least harm to the incentives that businesses operating in a workably competitive market would otherwise face, thereby encouraging prudent and efficient behaviour as far as possible. In relation to the cost of debt IM, this principle suggests that the regulatory framework should encourage businesses to adopt the debt raising strategies of a prudent and efficient provider of services using long-lived infrastructure assets. A regulatory framework can best achieve this by setting the regulatory WACC in a way that is consistent with such a debt raising and management strategy.

For the purpose of financing long-lived infrastructure assets, the debt raising approach that would be observed in competitive markets is likely to include:

- the issuance of longer term debt – firms generally seek to finance long-lived assets with longer maturity debt so as to reduce debt refinancing risk; and
- the periodic issuance of tranches of debt (as opposed to raising debt all at once) – this also allows firms to spread the refinancing risk over time and thereby lower overall risk.

The current IM framework is inconsistent with these observations, in that it explicitly reflects a strategy by which firms would re-raise all their debt at the beginning of each new regulatory period (at least every five years) using debt with an average maturity equal to the term of the regulatory period.

We discuss each of these points in further detail below.

2.2.1 The debt term

Basing the cost of debt estimate on a debt structure that reflects the length of the regulatory period is inconsistent with the prudent management of debt refinancing risk, as demonstrated by standard business practice.

The Commission has previously adopted the view that the debt premium should be matched to the term of the regulatory period, while also recognising that suppliers who have prudently issued long-term debt to manage refinancing risk should be adequately compensated for the additional cost. The apparent inconsistency in this approach is only solved by recognising the fallacy in the logic behind matching the debt premium with the regulatory period.

We understand that the Commission's preference is not to provide an industry-wide allowance for a strategy that is not universally adopted. However, in our opinion, efficient conduct is best encouraged by compensating businesses as if they were acting prudently. If a firm then chooses to adopt a lower-cost higher-risk strategy, that becomes a management choice.

Given the likely debt-raising strategy of a prudent and efficient holder of long-term assets, amending the cost of debt IM such that the term of the risk-free rate is 10 years rather than 5 would arguably provide better incentives to businesses. It would also negate the need for the use of the term credit spread differential (TCSD) allowance. Such amendment of the term would be consistent with the practice adopted by the Australian Energy Regulatory (AER), which uses the annualised yield on 10 year Commonwealth Government Securities as the basis for estimating the risk free rate.

At the very least, the fact that the debt term has been such a point of contention in the past, as evidenced by the number of suppliers who have previously stated their disagreement,[17] strongly argues for reconsideration of this component of the WACC in the current IM review.

2.2.2 The periodic re-issuing of debt

The current IMs specify that the Commission will estimate the risk-free rate by averaging the observed market yields on government bonds over one calendar month prior to when the cost of capital is being estimated. This methodology is implicitly consistent with a debt raising strategy whereby firms reissue all of their debt in a single tranche. It is therefore inconsistent with the principle that a prudent business would choose to spread its refinancing risk by seeking to reissue smaller portions of its debt on a periodic basis.

This approach to estimating the cost of debt is the principal cause of unnecessary volatility in the parameter value relative to the debt interest costs that a prudent (benchmark) firm would incur. Setting the cost of debt at the prevailing rate can lead to large jumps in the WACC due to market conditions. These jumps are a creation of the regulatory framework rather than a reflection of the costs an efficient benchmark firm would incur. Such disconnect may lead to firms adopting debt hedging strategies that are designed to manage the regulatory risks, rather than the fundamental market-related risks.

One way of addressing this would be to adopt a trailing average methodology that involves the annual updating of the WACC on the basis of a rolling average of the cost of debt. This would smooth the volatility in the WACC and introduce fewer distortions in businesses' incentives, as compared with an efficient benchmark firm. The AER has recently moved to such a trailing average approach whereby, after a transition period, the allowed return on debt will be an equally weighted (with weights equal to 0.1) average of the prevailing rates in the previous ten years. The AER adopted this policy so as to be consistent with its requirement to have regard to the return on debt of a benchmark efficient firm and in recognition of the fact that regulated businesses tend to periodically issue long-term debt.

The Commission's current approach to estimating the cost of debt has the further disadvantage of introducing a disconnect between the CPP and DPP price paths, since the WACC applied to a business under the alternative regulatory instruments varies according to the date at which the price-quality path is established. As a result:

- in periods of increasing interest rates, regulated businesses will be encouraged to seek a CPP to take advantage of the increase in the WACC; and
- in periods of declining interest rates, the hurdle for seeking a CPP in the face of increasing operating or capital expenditure is unnecessarily increased, in a way that is inconsistent with the regulatory intent.

The adoption of a trailing average cost of debt would close off this disconnect by bringing the WACCs applied under the alternative price-quality paths into line with one another.

It should be recognised that such a change could give rise to transitional and implementation issues. However, the experience in Australian demonstrates that these can be provided for. The impact on regulatory administration costs should be minimal, since the Commission is already required to re-estimate the WACC on an annual basis for the purposes of the Information Disclosure requirements.

[17] For example, the Commission provides a long list of dissenting submissions at footnote 962, page 441, of is 22 December 2010, *Input Methodologies (Electricity Distribution and Gas Pipeline Services – Reasons Paper*

2.3 Review of the WACC parameters

To the extent that the IMs are amended as a result of the current review process, various WACC parameters may need to be revisited. However, for those aspects of the WACC IMs that remain unchanged, we do not see any impetus for amending the methodological approach. Having said that, it may be beneficial to update the equity beta and TAMRP for more recent information, although it seems unlikely that this would result in significant parameter changes.

3. Indexation and Depreciation of the RAB

We understand that one concern raised by businesses is that the current approach to RAB indexation implicitly pushes out the depreciation profile and so delays the recovery of invested capital. This arises through the interplay of the following regulatory mechanisms within the current IMs:

- the use of a nominal return on capital;
- the revaluation or indexation of regulatory asset at the end of each year by reference to outturn consumer price inflation; and
- the subtraction from the Building Blocks Allowable Revenue the amount of inflation revaluation of the asset base (to recognise that, otherwise, businesses would be compensated for inflation twice).

Taken in combination, these mechanisms have two effects. On the one hand, this approach works to insulate businesses from errors in the inflation forecasts, which is a benefit. As the Commission has recognised in its invitation document:[18]

> …as previously discussed, changes in the nominal WACC that are purely due to changes in inflation expectations would be broadly offset by changes in the forecast of asset revaluations.

On the other hand, it effectively delays the recovery of capital, which is a potential disadvantage and may increase the cost of capital for businesses undertaking major investment projects. This may be behind Vector's statement:[19]

> It is our firm view that asset value indexation is a disincentive to invest…

One option for addressing this disincentive would be to revise the indexation approach. However, while this would address the concern regarding the delay to the recovery of capital, it would also increase businesses' exposure to errors in inflation forecasts. Rather than amend the indexation approach, a preferable alternative would be for the IMs to allow greater flexibility in the depreciation profile. Under the current IM and information disclosure requirements, suppliers under a default price-quality path are required to set depreciation on the basis of:[20]

> the standard depreciation method is a straight-line depreciation using physical asset lives. Regulated suppliers under a DPP, and exempt EDBs operating under information disclosure only must use this approach for the purpose of information disclosure. Accordingly these suppliers must use the standard physical lives and deviate only in the circumstances outlined in this section.
>
> Regulated suppliers subject to default/customised price-quality regulation may apply to use an alternative depreciation approach under a CPP.

If the current depreciation profile requirements, in combination with the asset revaluation methodology, are resulting in reduced incentives for investment, it may be in consumers' long-term interest to relax these requirements within the DPP and information disclosure frameworks.

[18] Paragraph 188

[19] Vector (March 2015) *Proposed scope, timing and focus for the review of input methodologies*

[20] Commission (December 2010) *Input Methodologies (Electricity Distribution and Gas Pipeline Services) – Reasons Paper*, Paragraphs E10.1 and E10.2

4. Price versus Revenue Cap Form of Regulation

As a matter of economic principle the form of regulation should ensure that, as far as possible: (1) risk is allocated to those parties best placed to manage it; and (2) businesses are incentivised to behave efficiently. Electricity and gas distribution businesses are currently regulated under a weighted average price cap (WAPC), which leaves them exposed to within-period demand forecast risk (to the extent that revenues are volume- or connection-dependent). At the same time, a WAPC framework may reduce the incentive on regulated entities to invest in energy efficiency or demand side management initiatives.

There may therefore be an opportunity to revise the form of regulation so as to establish improved incentives and reduce businesses' exposure to risks over which they have limited control. We therefore welcome the Commission's inclusion of the form of control as a topic in its IM review paper.

Specifically, the Commission has invited submissions on whether a different form of control would more effectively promote the long-term benefit of consumers. The most often cited economic pros and cons for a WAPC, consistent with the current form of regulation, are that it:

- may provide better incentives than a revenue cap for structuring tariffs and tariff categories so as to encourage allocative efficiency (such that prices reflect costs) and best meet customer needs, thereby aligning revenue and cost variability; however
- in practice, the incentives for efficient structuring of tariffs under a WAPC have been found to be weak because, for asset intensive services, the price-cost relationship tends to play out over a much longer time horizon than the typical regulatory period; and
- the incentive to structure prices efficiently tends to be overwhelmed by the revenue benefits of 'manipulating' the structure of tariffs so as to achieve outturn revenue growth that exceeds that implied by the percentage change in the WAPC – such outperformance is made possible if the prices for those services for which demand is expected to grow most quickly (slowly) are raised by more (less) than the average increase permitted under the WAPC.

In contrast, the most often cited pros and cons of a revenue cap are that it:

- reduces the service provider's exposure to errors in regulatory forecasts regarding the uptake and use of different services covered by the price control;
- encourages the service provider to focus exclusively on cost-reducing efficiency gains and on managing down cost-causing periods of peak demand; but
- blunts the incentive for a service provider to be responsive to customer needs, such as in relation to quality of service, new connections, etc, because the service provider's revenue is assured irrespective of its responsiveness.

Since the IMs were initially established, developments in the electricity industry suggest that it may be becoming more difficult to forecast demand over a regulatory period. The industry is currently facing challenges in the form of new technologies (such as embedded intermittent generation and battery technology) which reduce the forecastability of demand. In addition to affecting volumes, increased uptake of these technologies is likely to change usage patterns as well as the relationship between the connections and usage levels. Given these industry developments, adopting a revenue cap may have two advantages, namely:

- the reduction in businesses' exposure to unexpected demand outturns; and
- the improvement of businesses' ability to respond to the changing environment by allowing them greater flexibility in their tariff design.

The extent to which a change in the form of regulation would achieve these benefits will depend critically on the specifics of the framework. The Commission has correctly recognised that the choice of regulatory form is not as simple as between a price and revenue cap:[21]

> The choice of the form of control is often characterised as a choice between a 'price cap' and a 'revenue cap'. However, in reality there are a number of different ways a control can be specified (eg, specification of price for particular services, extent to which revenue can be 'washed up' in subsequent periods). Therefore the impact on a supplier will depend on the specific rules and any associated decision,

For example, a revenue cap that does not provide for a 'wash-up' to allow for the recovery of under-recovered revenues from one period to the next may not reduce businesses' exposure to demand forecast errors and may result in less efficient tariff structures as businesses' attempt to manipulate prices so as to reduce the risk of under (as opposed to over) recovery of revenues.

In sum, we agree that there is sufficient evidence that a change in the form of regulation may provide tangible long-term benefits to consumers that this topic should be explored further through the review process.

[21] Paragraph 136

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