



Ergon Energy's response to Queensland Competition Authority's Draft Decision in relation to the Dalrymple Bay Coal Terminal Draft Access Undertaking

Ergon Energy

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1. INTRODUCTION

Ergon Energy is pleased to have the opportunity to comment on the Queensland Competition Authority's (QCA) draft decision in relation to the "Dalrymple Bay Coal Terminal Draft Access Undertaking" (Draft Decision).

Ergon Energy has an interest in the Draft Decision because the QCA is currently undertaking a review of Ergon Energy's distribution network, as a result of which the QCA will regulate Ergon Energy's network revenues and network reference tariffs for the next regulatory period, 1 July 2005 to 30 June 2010. It is possible that the QCA will seek to apply judgments or positions reached during the DBCT process as precedents in its upcoming electricity determination.

Ergon Energy has therefore reviewed the Draft Decision from its own perspective rather than from the perspective of DBCT Management. In doing so, however, Ergon Energy notes that there are a number of unique features of the structural and regulatory arrangements that apply to DBCT, which may explain some of the differences in the regulatory outcomes that could be expected for the DBCT and Ergon Energy's electricity network. In particular, Ergon Energy notes that:

- i. There is no certified Ports Access Regime in place in Queensland. As a result, QCA has relied upon the general access provisions of the *Queensland Competition Authority Act 1997* in its draft decision. This has meant that the QCA has been able to take a more prescriptive approach to regulating the DBCT than Ergon Energy considers could be applied to the electricity industry under the National Electricity Code. As is discussed further below, elements of the QCA's approach resemble rate of return regulation. Ergon Energy would object strongly to any movement by the QCA towards a rate of return approach to regulating electricity distribution networks. Indeed, section 6.10.5 of the National Electricity Code expressly requires that an incentive based form of regulation be used for electricity network assets. In Ergon Energy's view, a rate of return approach is not consistent with incentive based regulation;
- ii. The ownership, management and operational structures in place at DBCT are complex and reflect a trend in relation to a number of infrastructure assets across Australia towards large investment funds separating the ownership of infrastructure assets from their operation and management. In Ergon Energy's view, any such separation should not alter the responsibility of a regulator to set prices which are reflective of the costs that would be borne by an efficient new entrant. Ergon Energy does not support regulators 'looking through structures' in making their regulatory decisions;
- iii. While it appears that DBCT Management knowingly took on regulatory risk when it bid for the DBCT assets in 2000/01, the QCA should be careful to preserve in its regulatory decisions reasonable incentives for infrastructure owners to invest in infrastructure assets, including in new capital expansion works. Ergon Energy supports the view expressed in the Productivity Commission's recent "Review of the National Access Regime" that regulators need to be mindful in their decisions of the potential disincentives to investment just as much as the need to protect customers from excessive monopoly pricing. As the Productivity Commission noted:

While the denial (of access), or monopoly pricing of access also impose costs on the community, they do not threaten the continued availability of the essential services concerned. Thus, over the longer term, the costs of inappropriate intervention in this area are likely to be greater than the costs of not intervening when action is warranted.¹

- iv. Ergon Energy supports regulatory arrangements which seek to provide high levels of operational flexibility and discretion to infrastructure companies to manage, operate and invest in their assets to balance the needs of their various stakeholders. In Ergon Energy's view, the regulatory arrangements that have applied in the electricity industry during the current regulatory period have successfully promoted these principles and it would strongly oppose any move towards a more prescriptive, interventionist approach by the QCA.

2. ASSET VALUATION METHODOLOGY

Ergon Energy supports the general application of a depreciated optimized replacement cost (DORC) methodology for valuing regulated assets. This method has extensive regulatory precedent and is the method proposed to be used by the QCA to set the opening value for Ergon Energy's regulated assets for the next regulatory period. Ergon Energy has worked closely with Sinclair Knight Mertz and the QCA in recent months on a DORC assessment of Ergon Energy's assets.

Ergon Energy notes the QCA's support for basing DORC on a brownfields perspective rather than a greenfields perspective. Ergon Energy agrees that brownfields approach to assessing DORC is the most appropriate method of valuing regulated assets as it recognizes that they are typically developed incrementally in response to changing customer demands. Ergon Energy supports the application of this approach for valuing electricity distribution assets for regulatory purposes.

3. WEIGHTED AVERAGE COST OF CAPITAL

Ergon Energy is concerned that the QCA intends to apply its findings in relation to the DBCT Decision to the upcoming electricity distribution determination. As noted above, Ergon Energy has considered the application of the WACC parameters to its own business rather than to DBCT Management.

3.1. Gamma

Ergon Energy has previously submitted to the QCA as part of the DBCT process that the appropriate value for gamma is less than 0.5 on the basis that the marginal investor in a regulated asset is unlikely to be a domestic investor. As a consequence of the QCA dismissing this argument, Ergon Energy sought additional advice from Professor Stephen Gray on the implications of the QCA assuming a gamma of 0.5. His work is attached and notes that the mix of market risk premia and gamma used by the Regulator and by most other Regulators in Australia to date may not reflect the true interrelationships between these two variables. Professor Gray has advised Ergon Energy that:

- At a gamma value of 0.5, investors would be receiving 82% of their return from cash dividends and 18% of their return from the value of franking credits. This implies an

¹ Productivity Commission, Review of National Access Regime, Inquiry Report, Report no 17, 28 September 2001

equity return of 11.84% of which 9.75% is cash dividends and capital gains and 2.09% is from the value of franking credits. This implies that the expected return from dividends and capital gain is just 3.9% above the risk free rate, which is among the lowest in the developed world and inconsistent with market evidence; and that therefore

- If franking credits have any value, as the QCA has assumed they do, then the market risk premium should be adjusted upwards from the existing number of 6%.

Ergon Energy notes that this work is not yet published, but considers that it could change the way in which the QCA and potentially other Regulators consider the inter-relationship between the market risk premium and the gamma.

Given the importance of this work, Ergon Energy intends to present this information to the QCA electricity team separately, in order for this work to be included in the QCA's consideration of an appropriate return on Ergon Energy's electricity distribution assets.

3.2. Asset and Equity Beta

Ergon Energy has applied a reasonableness check to the equity betas applied by the QCA to DBCT Management and notes that the equity beta assessed for DBCT Management is at the low end, when considered against other recent regulatory decisions in Australia. A review of recent regulatory decisions suggests that the equity beta in the QCA's Draft Decision of 0.66 was the third lowest of recent Australian regulatory decisions. The two lower values were each made by the QCA in their recent decisions in relation to the Gladstone Area Water Board and Burdekin River Irrigation Area respectively. Ergon Energy is concerned at the trend by the QCA to apply extremely low equity beta values compared with its interstate counterparts.

Ergon Energy also queries whether the QCA has used appropriate comparators in determining the asset beta for DBCT. In Ergon Energy's view, the inclusion of the Macquarie Infrastructure Group and Macquarie Office Trust in the comparator group does not appear to take account of the regulatory risk inherent in the QCA's proposed method of approving each capital expansion at DBCT.

Ergon Energy recognizes that the asset and equity beta are specific to each industry and would strongly oppose any move by the QCA to apply its asset beta findings in the DBCT regulatory decision in the upcoming electricity distribution determination.

3.3. Risk Free Rate

We support the QCA's decision to determine the risk-free rate with reference to the yield on a 10 year Commonwealth government bond.

The QCA states on page 180 on concerns raised by QTC/Treasury that they are 'caused by the manner in which regulated industries seek to manage risk in the regulated environment which gives them an opportunity to minimise risk which is not available in non-regulated industries.

In response to these concerns we submit that most large unregulated businesses will spread the maturity profile of their debt to spread the refinancing task and to diversify interest rate risk through time. This is particularly true for assets with a loan life eg

infrastructure. The risk free rate setting mechanism adopted by the QCA limits regulated businesses to interest rate risk management practices that non regulated businesses are not limited too. Commercially prudent regulated businesses will manage this risk by concentrating the maturity of debt near the end of regulatory cycles (the period for which the risk free rate input is fixed). A regulated entity will therefore face a refinancing task that is likely to move the market and thus be completed over a range of market yields. As well, given the wide use of this approach for monopolies within Australia, the timing of risk free rate determinations may lead to market spikes at and around reset dates (which financial market participants may seek to exploit and potentially influence). The timing will therefore become commercially sensitive information for the regulated entities. Any additional cost would ultimately be borne by customers.

Ergon Energy believes that a more appropriate bond setting regime for long life assets would be to use a longer average approach. The average should be long enough to take into account the debt structures that would be applicable to the life of assets being funded. A short average rate approach is appropriate for short life assets that are liquid. This does not apply for long life assets that generally have low returns. A better approach would be to take an average approach of approximately four years. The benefits of a four-year average are:

- Better match the debt structure of regulated businesses.
- It would cover most of the interest rate cycle thus decreasing the level of future price shocks.
- Achieve the most efficient debt management procedures for distributors, thus decreasing costs to consumers.

An additional debt management issue is the funding of future capital expenditure. In utilising a short average rate approach, the Authority is effectively setting the debt rate that regulated businesses should fund future capital expenditure at. Interest rates are likely to move significantly during the regulatory period resulting in interest rate risk to the regulated businesses. Ergon Energy submits the use of a “collar” on the risk free rate. If, during the regulatory period, the risk free rate moves by more than 75 basis points then the WACC should be reset and applied to future capital expenditure. This will alleviate the significant interest rate risks to be borne by regulated businesses for future capital expenditure.

If the QCA do not accept this view an additional solution is to compensate commercially prudent regulated businesses for hedging future capital expenditure costs. The additional cost of hedging future capital expenditure is between 15 and 20 basis points. An allowance for this additional cost should be included in the WACC parameters.

The QCA further state on page 180 that ‘this issue {interest rate risk} is exacerbated by the fact that QTC is the sole supplier of regulated industry debt.’

QTC raises funding from global and domestic market. 45% of QTC debt funding is sourced outside of Australia. Therefore the issues raised by QTC/Treasury will not ‘no longer be of serious concern’ if debt funding was more widely spread as the same markets (global and domestic) would be used to access funding by any financial institution. Therefore despite the fact that QTC are the sole supplier of regulated industry debt this does not significantly impact the refinancing risk.

4. TAX

Ergon Energy supports the inclusion of a tax allowance in the AARR of the regulated business, as has been applied in the DBCT Draft Determination. Ergon Energy notes that the QCA's current application of this methodology in the electricity determination for Ergon Energy is to include a zero value in the AARR, on the basis that Ergon Energy has accumulated tax losses and does not pay tax.

Ergon Energy's position on this issue has changed since the last electricity determination and it now considers that the tax allowance within the AARR should reflect a statutory corporate tax rate regardless of the tax status of a regulated business. It has previously provided a submission to the QCA "Cost of Capital Estimation for ENERGEX/Ergon Energy" which covered this issue in detail.

5. OPERATING EXPENDITURE

As noted above, Ergon Energy understands that the ownership, management and operational structures at DBCT are complex and are quite different to its own arrangements. For this reason, and especially the separation of ownership and operating responsibilities between DBCT Management and DBCT Pty Ltd, it is difficult for Ergon Energy to comment meaningfully on the appropriateness of the allowance that the QCA has made in its draft decision for DBCT for operating expenditure.

However, as a general point of principle, Ergon Energy considers that the QCA should be seeking to make an allowance in its regulatory decisions for efficient operating expenditure that would be incurred by a prudent third party entrant. It is unclear to Ergon Energy whether or not in applying a "bottom-up" assessment of expenditure with a "top-down" check, the QCA achieves this outcome.

6. CAPITAL EXPENDITURE

Ergon Energy submits that the approach taken by the QCA to deal with new investment at the DBCT cannot be applied to Ergon Energy's electricity assets. This is because:

- i. The QCA appears to be applying a rate of return form of regulation to DBCT Management in relation to capital expenditure as the amended access undertaking provides for the QCA approving:
 - Individual projects for regulatory purposes;
 - The cost of individual projects that can be included in a revised regulatory asset base; and
 - The rate of return that can be earned on the approved regulatory asset base, which is reflected into a revised revenue cap and recovered through revised reference tariffs.

As already noted, the application of rate of return regulation in the electricity industry would be inconsistent with the pricing principles of the National Electricity Code, which explicitly requires an incentive based form of regulation to be used.

- ii. The QCA has not included an up-front allowance for capital expenditure within DBCT Management's revenue cap. This, by its nature, means that there needs to be a process set out in the Access Undertaking for approving capital expenditure during the regulatory period and for reflecting this into a revised revenue cap and, in turn, into reference tariffs. This approach would be unworkable in the electricity industry given the very large number of capital projects undertaken over the course of a regulatory period. It would also mean that both Ergon Energy and its customers would have low levels of prospective revenue and tariff certainty during a regulatory period.

Ergon Energy has assessed the way in which the revised access undertaking required by the QCA would oblige DBCT Management to undertake capital investment from the time that a project is initiated through to the establishment of revised reference tariffs. Ergon Energy has concluded that at each step in the process it would be inappropriate to apply a similar approach to Ergon Energy in the upcoming electricity revenue determination. The following discussion addresses the main stages of this process and the reasons for this view.

6.1. Initiating capital expenditure

Ergon Energy considers that it is possible that the QCA's Draft Decision in relation to arrangements for initiating capital expenditure could unreasonably impact on DBCT Management's legitimate business interests. This is because it appears that the QCA has taken the discretion for investment decision making away from DBCT Management by allowing only prospective access seekers who commit to a set percentage of a capacity expansion or large existing access holders to instigate a capacity expansion.

The QCA appears to have done this because the users operate the terminal through DBCT Pty Ltd and could be seen to be best placed to know when an expansion is required. However, unless it is otherwise limited in the Port Services Agreement or by some other means, this would appear to result in DBCT Management having an open ended obligation to fund new expansions and being committed to fund new works in which it may otherwise choose not to invest. In Ergon Energy's view, this could unreasonably impact on DBCT Management's legitimate business interests as an infrastructure asset owner.

Ergon Energy does not support the QCA applying its proposed process for initiating capital expenditure at DBCT in its upcoming determination for Ergon Energy. Such a mechanism would be inappropriate and unnecessary in the electricity industry given that there are many thousands of users and they do not have an active role in operating the network.

6.2. Approving capital projects

Ergon Energy is concerned that the process set out by the QCA for approving capital projects may be unworkable in practice for DBCT Management. This is because:

- i. DBCT Management would be required to commit to undertake a capacity expansion (initiated by a prospective access seeker or an existing access holder) when it submits a revised access undertaking to the QCA. However, because the QCA will approve the allowed reference tariffs, DBCT Management will not know the revenue it will be able to recover from users until after the QCA has approved the revised access undertaking. If this is the case, it means that DBCT Management would need

to commit to a project without knowing whether it will adequately recover its costs. This would be an untenable situation for any investor.

In setting the reference tariffs, it is unclear on what basis the QCA would go about approving the cost of a capital project that can be reflected into the revised regulatory asset base. It appears that this would be the primary variable to be determined in setting the reference tariff given that the weighted average cost of capital (WACC) approved in the initial access undertaking will be applied to future capital expenditure to determine the return that can be earned on those assets during the term of the undertaking.

On this basis, it is unclear how DBCT Management and the Users would contractually commit to one another before the revised access undertaking is approved, in order that DBCT Management can arrange the necessary funding to deliver the project. The proposed arrangements appear to provide an incentive for users to seek to defer contracting with DBCT Management until after the QCA has considered an access undertaking because of the prospect of the QCA approving lower prices.

- ii. The prescriptive nature of needing to submit a revised access undertaking each time a new capital project is contemplated may discourage DBCT Management or users from investigating potential speculative projects due to concern on DBCT Management's part that it must undertake a project once QCA approval has been obtained.

Ergon Energy does not support the QCA applying its proposed process for approving capital projects at DBCT in its upcoming determination for Ergon Energy. Rather, Ergon Energy has submitted its proposed capital program to the QCA as part of its revenue submission and expects the QCA to make an allowance in Ergon Energy's revenue cap for capital expenditure over the term of the next regulatory period.

The QCA would therefore not have a role in approving the particular projects that Ergon Energy will invest over the course of the regulatory period. Rather, investment decisions will be made exclusively by Ergon Energy's management. This is fundamental to Ergon Energy's view of incentive based regulation and is necessary to ensure that Ergon Energy has the appropriate prospective revenue certainty during the next regulatory period while giving it appropriate discretion to make investment decisions necessary to meet its stakeholder obligations.

6.3. Calculating New Reference Tariffs

Ergon Energy notes that the QCA's draft decision requires that the costs of capital works associated with expanding the DBCT should be shared across all users on an average cost basis levied through the terminal infrastructure charge (TIC).

Ergon Energy is not in a position to comment on whether or not this approach of averaging prices is an appropriate basis for charging for port services at the DBCT. However, average (or uniform) pricing implies that the service received by users, and the costs incurred in providing that service, are consistent across all users. This may be case at DBCT, but would not be appropriate for Ergon Energy's electricity network services.

Importantly, there does not appear to be a mechanism in the QCA's DBCT Draft Decision whereby the cost of projects dedicated to particular customers can be recovered directly

from an individual customer or a sub-set of the total customer base. In contrast, Ergon Energy charges individual customers for their cost of connection under its capital contribution policy and imposes network tariffs which differ between classes of customers. Ergon Energy believes this is the most appropriate way to deal with customer specific works in the electricity industry and would oppose any proposal by the QCA to change these arrangements.

7. ATTACHMENT 1 – ADVICE FROM PROFESSOR GREY

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SFG CONSULTING

The Relationship Between Franking Credits and the Market Risk Premium

DRAFT REPORT FOR ERGON ENERGY LTD

November 25, 2004



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EXECUTIVE SUMMARY

In the recent Dalrymple Bay Coal Terminal (DBCT) Draft Determination, the QCA has confirmed its use of a value of 0.5 for gamma (the value of franking credits) and a value of 6% for the market risk premium (MRP). The market return is comprised of cash dividends, capital gains, and the value of franking credits. Using the QCA's DBCT parameter estimates, the necessary implication is that of the 6% MRP, 2.1% is from the value of franking credits and only 3.9% is from cash dividends and capital gains. That is, the QCA assumes that cash dividends and capital gains provide a 3.9% premium to the risk-free rate, on average. However, the data sources the QCA has used to justify its choice of a 6% MRP measure the value of cash dividends and capital gains only. That is, the QCA has concluded from an analysis of various data sources relating to cash dividends and capital gains that the data supports a premium of 6%. But it is 3.9%, not 6%, that is used in the determination. Moreover, the 3.9% premium from cash dividends and capital gains is significantly below the values reported in all data sources addressed by the QCA, historical returns earned on the Australian equity market, and nearly every developed equity market.

In particular, a value for $\gamma = 0.50$ implies that investors expect to receive 82% of their return from cash dividends and capital gains, and 18% of their returns from the value of franking credits. For a stock with $\beta_e = 1$, and assuming $r_f = 5.84\%$, the expected equity return is $r_e = 11.84\%$, which comprises an expected return of 9.75% from cash dividends and capital gains, and 2.09% from the value of franking credits. This implies that the expected return from dividends and capital gains is just 3.9% above the risk-free rate. Dimson, Marsh and Staunton (2003) report that, from 1900-2002, only 2 out of 16 developed markets had an average equity market return relative to the risk-free rate, that was less than this figure. For Australia, their estimated value of 7.6% with a standard deviation of 19.0% is significantly greater than 3.9% at a significance level of 2%.

The current Australian regulatory approach

Setting gamma equal to 0.5 is inconsistent with the latest empirical evidence in a way that disadvantages regulated business and reduces the return available on regulated assets. It also implies that the component of the MRP from dividends and capital gains is only 3.9%. This is also demonstrably inconsistent with all available evidence, also in a way that disadvantages regulated business and reduces the return available on regulated assets.

Adjusting Gamma to restore internal consistency

Setting gamma equal to zero is consistent with the latest empirical evidence. This also implies that the MRP of 6% is due entirely to dividends and capital gains. This is also consistent with the available empirical evidence.

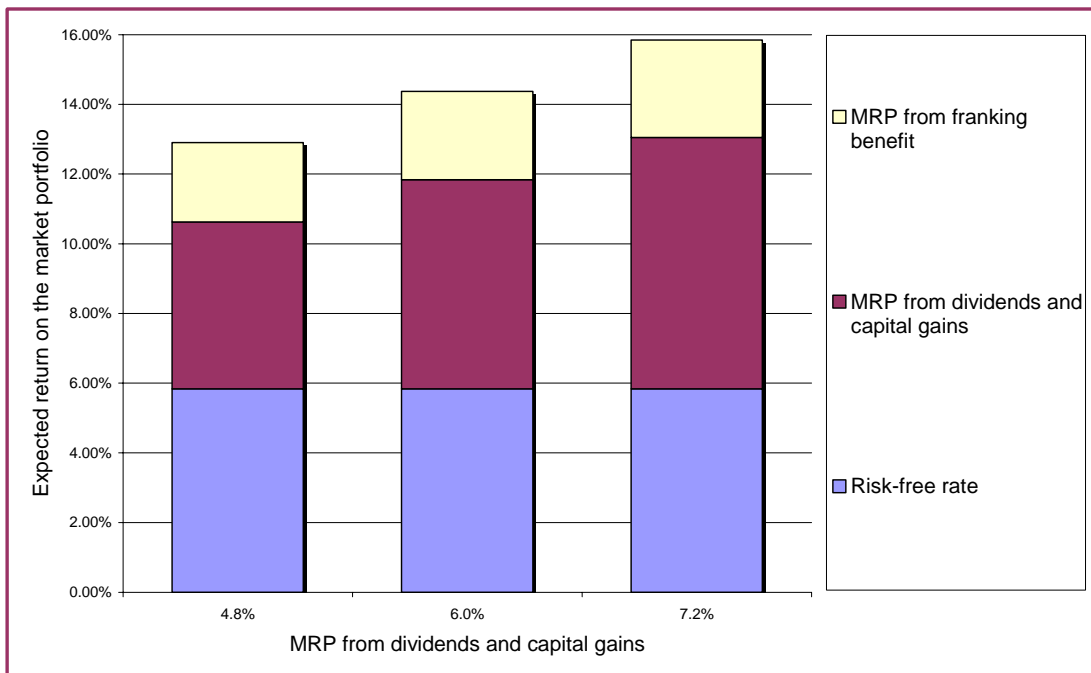
Adjusting MRP to restore internal consistency

Given the conclusion that gamma = 0.50 internal consistency requires that the market risk premium be estimated as

$$MRP_{fr} = \frac{(r_f + MRP_{dc})}{(1 - \tau) / [1 - \tau(1 - \gamma)]} - r_f$$

where MRP_{fr} = market risk premium including franking benefits; and MRP_{dc} = market risk premium from dividends and capital gains.

This equation implies that if gamma equals 0.5 and the risk-free rate is 5.84%, the market risk premium should be in the range of 7.1 – 10.0%. This would be consistent with historical equity returns and a market risk premium from dividends and capital gains of 4.80 – 7.20%, illustrated below.



In the absence of any change to restore internal consistency, the regulator should state explicitly how much of the market risk premium is expected to be earned from dividends and capital gains, and how much is attributed to the benefits of franking credits.

1. QCA POSITION: MARKET RISK PREMIUM = 6%

In the recent DBCT Draft Determination, the QCA concluded that a market risk premium of 6% is appropriate, on the composite evidence of the following estimation approaches: (1) historical evidence from Australian and overseas markets; (2) survey data; and (3) regulatory precedent. Its methodological concerns on each methodology are as follows:

- Australian historical data: DBCT Management's position on the market risk premium relies heavily on a single empirical study based on historical averaging and references to market practice. In contrast, the Authority notes that other similar studies that seek to estimate the market risk premium vary, with some yielding estimates in the order of 5.5%. In addition, the Authority notes that empirical research by Dr Lally indicates that there has been a downward long-term trend in volatility, implying estimates based on historical averaging are too high, rather than too low.
- Overseas historical data: Caution is warranted in drawing conclusions based on the relativities of market risk premia across countries, given the potential for macroeconomic differences among countries to impact required investor returns.
- Survey data: Survey data suffers from a number of methodological weaknesses, for example the tendency for respondents to take a short-term view of the survey subject matter.
- Regulatory precedent: The QCA acknowledged and commented on the use of regulatory precedent in the DBCT User Group's submission, but did not give any indication as to the relative merits of this approach.

All of these data sources estimate the MRP in terms of dividends and capital gains only. Historical data measures returns as cash dividends plus stock price changes adjusted for capitalisation changes. Survey data is also posed in terms of dividends and capital gains and sometimes respondents are asked only to predict the future level of a broad market index. Australian regulators have almost uniformly adopted an MRP of 6%, and this has been based on evidence relating to dividends and capital gains only. If gamma is zero, there are no other components of the market return. If gamma is greater than zero, the market return consists of dividends, capital gains, and the value of franking credits. This third component must be included in the MRP if gamma is set to a positive value. It is excluded in the 6% estimate that comes from the data sources that have been relied on by Australian regulators.

2. THE QCA ESTIMATE FOR THE MARKET RISK PREMIUM IS SIGNIFICANTLY BELOW THE HISTORICAL PREMIUM EARNED ON AUSTRALIAN AND OVERSEAS LISTED EQUITIES

2.1 THE COST OF EQUITY CAPITAL FORMULATION ADOPTED BY THE QCA

The QCA estimates the required return to equityholders using what it refers to as the Officer CAPM, defined as follows:

$$\hat{k}_e = r_f + (\hat{k}_m - r_f)\beta_e$$

where:

\hat{k}_e , \hat{k}_m = the expected returns on equity and the Australian market portfolio respectively, with dividends defined inclusive of imputation credits to the extent that they are usable; r_f = the risk-free rate; and β_e = the firm's equity beta.

2.2 RETURN TO EQUITYHOLDERS UNDER DIVIDEND IMPUTATION

Under a dividend imputation system, the expected return to equityholders comprises a return from dividends and capital gains, plus the benefit of franking credits, which can be expressed as:

$$\hat{k}_e = \hat{k}_e \left[\frac{1 - \tau}{1 - \tau(1 - \gamma)} \right] + \hat{k}_e \left[\frac{\gamma\tau}{1 - \tau(1 - \gamma)} \right]$$

where:

\hat{k}_e the expected return on equity; τ = the corporate tax rate; and γ = the proportion of franking credits valued by the Australian equity market.

On the right hand side of the equation, the first term represents the return on equity from dividends and capital gains, while the second term represents the return on equity from the benefits of dividend imputation. Allocating the total return to equityholders into these two components we can say that:

$$\text{Proportion of return from dividends and capital gains} = \left[\frac{1 - \tau}{1 - \tau(1 - \gamma)} \right]$$

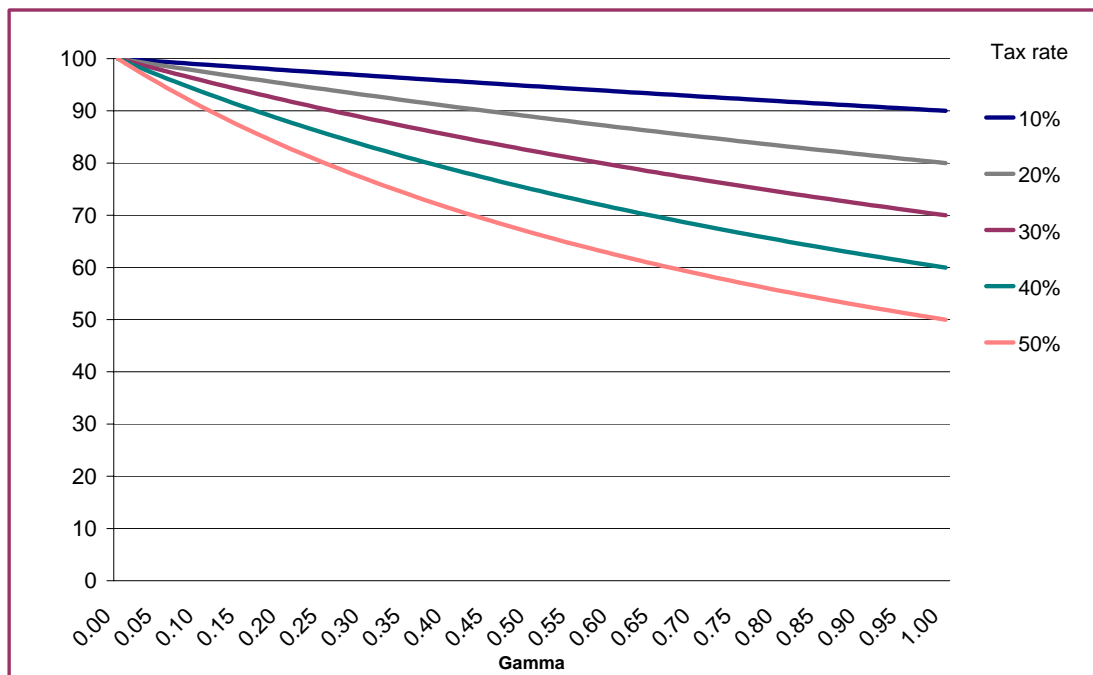
$$\text{Proportion of return from dividend imputation} = \left[\frac{\gamma\tau}{1 - \tau(1 - \gamma)} \right]$$

Table 1 and Figure 1 present these proportions for alternative values for the corporate tax rate and the value of franking credits. For example, with a corporate tax rate of 30% and the gamma = 0.5, 82% of the total return to equityholders is comprised of dividends and capital gains, while 18% of the total return consists of franking benefits.

Table 1: Proportion of returns to equityholders from dividends and capital gains versus franking credits under alternative values for the corporate tax rate and the value of franking credits (gamma)

Tax rate	Gamma				
	0.00	0.25	0.50	0.75	1.00
Proportion of returns attributable to dividends and capital gains (%)					
10%	100	97	95	92	90
20%	100	94	89	84	80
30%	100	90	82	76	70
40%	100	86	75	67	60
50%	100	80	67	57	50
Proportion of returns attributable to franking credits (%)					
10%	0	3	5	8	10
20%	0	6	11	16	20
30%	0	10	18	24	30
40%	0	14	25	33	40
50%	0	20	33	43	50

Figure 1: Proportion of return on equity from dividends and capital gains under alternative tax rates and the value of franking credits (gamma)



2.3 THE QCA ESTIMATED RETURN IS UNREASONABLY LOW IN RELATION TO MARKET EVIDENCE

Recall that the CAPM adopted by the QCA includes a market risk premium $(\hat{k}_m - r_f)$ that includes the value of dividend imputation credits. This assumption, combined with the discussion in sections 2.1 and 2.2 implies that we can derive an expression for the market risk premium as follows.

Combining the equations in sections 2.1 and 2.2 we have:

$$r_f + (\hat{k}_m - r_f)\beta_e = \hat{k}_e \left[\frac{1-\tau}{1-\tau(1-\gamma)} \right] + \hat{k}_e \left[\frac{\gamma\tau}{1-\tau(1-\gamma)} \right]$$

For a firm with average systematic risk ($\beta_e = 1$), the cost of equity capital is:

$$r_f + (\hat{k}_m - r_f) = \hat{k}_e \left[\frac{1-\tau}{1-\tau(1-\gamma)} \right] + \hat{k}_e \left[\frac{\gamma\tau}{1-\tau(1-\gamma)} \right]$$

Consider the second term on the left-hand side of the equation, the market risk premium $(\hat{k}_m - r_f)$. This term includes the equityholders' compensation for bearing systematic risk, and includes all compensation in the form of franking benefits. These franking benefits are quantified in the second term on the right-hand side of the equation, $\hat{k}_e \left[\frac{\gamma\tau}{1-\tau(1-\gamma)} \right]$. Hence, if we subtract the risk-free rate from both sides of the equation, we have:

$$(\hat{k}_m - r_f) = \left\{ \hat{k}_e \left[\frac{1-\tau}{1-\tau(1-\gamma)} \right] - r_f \right\} + \hat{k}_e \left[\frac{\gamma\tau}{1-\tau(1-\gamma)} \right]$$

$$MRP = \begin{array}{c} \text{Risk premium from} \\ \text{dividends and capital gains} \end{array} + \begin{array}{c} \text{Risk premium from} \\ \text{franking credits} \end{array}$$

An example illustrates the point. Consider estimates used by the QCA in the DBCI decision of $\gamma = 0.50$, $\tau = 0.30$, $r_f = 5.84\%$ and $(\hat{k}_m - r_f) = 6\%$, and assume that a firm has an equity beta = 1. The cost of equity capital would be 11.84%. In particular, this expected return would consist of 9.75% from cash dividends and capital gains (82% of the total return), and 2.09% from the value of franking credits (18% from the value of franking credits).

The return of 9.75% consisting of cash dividends and capital gains is a premium of just 3.91% above the risk-free rate of interest. In other words, in the absence of dividend imputation, the average stock on the Australian equity market would be expected to earn a return just 3.91% above the risk-free rate. This is unreasonable, considering the historical evidence. For example:

- Dimson, Marsh and Staunton (2003) report that the average arithmetic mean of Australian equity returns relative to Government bonds was 7.6% from 1900-2002 with a standard deviation of 19.0%, which is significantly different from 3.9% at a level of just 2%
- Out of the 16 developed markets studied, they report that only 2 had an empirical market risk premium of less than 3.9%.

Table 2 presents the implied market risk premium attributed to dividends and capital gains under alternative assumptions for the market risk premium that includes the benefit of dividend imputation. We previously submitted that the market risk premium can be estimated from a normal distribution with a mean of 6.0% and a standard deviation of 1.8%, implying that 75% of observations from this distribution lie between 4.8 and 7.2%. However, this submission was made with the accompanying

submission that franking credits have no impact on the cost of equity capital (i.e. $\gamma = 0$) and with reference to historical data.

Simply, all studies which have estimated the market risk premium using historical data have estimated this with reference to **dividends and capital gains only**; and the evidence is consistent with this value being close to 6%. As shown in Table 2:

- an estimate for the market risk premium of 6% that includes the benefits of dividend imputation is **inconsistent with historical data**;
- to arrive at a cost of equity capital that is consistent with historical data, we need an estimate for the market risk premium that includes the benefits of dividend imputation that is in the range of 7.5 – 10.0%; this would imply that the market risk premium from dividends and capital gains is 5.15 – 7.20%.

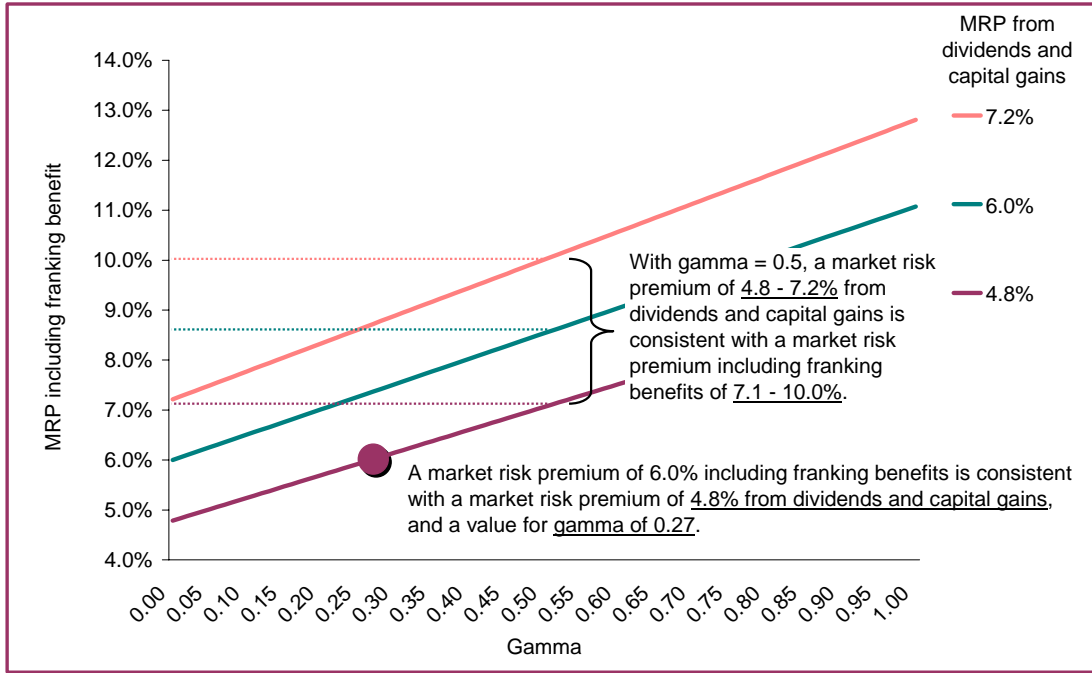
Table 2: Implied market risk premium from dividends and capital gains under alternative values for the market risk premium that includes the value of franking credits ($\gamma = 0.50$; $\tau = 30\%$; $r_f = 5.84\%$)

MRP incl franking benefit	MRP from dividends and capital gains	MRP from franking benefit	Return on equity including franking benefit	Notes
5.00%	3.09%	1.91%	10.84%	Inconsistent with historical data
5.50%	3.50%	2.00%	11.34%	
6.00%	3.91%	2.09%	11.84%	
6.50%	4.32%	2.18%	12.34%	
7.00%	4.73%	2.27%	12.84%	
7.50%	5.15%	2.35%	13.34%	Consistent with historical data
8.00%	5.56%	2.44%	13.84%	
8.50%	5.97%	2.53%	14.34%	
9.00%	6.38%	2.62%	14.84%	
9.50%	6.79%	2.71%	15.34%	
10.00%	7.20%	2.80%	15.84%	

Presenting this result another way, Figure 2 shows the values for the market risk premium that includes the benefits of franking that are consistent with the premium from dividends and capital gains of 4.8 – 7.2%, for alternative values for γ . This range has been selected as the interquartile range from a normal distribution with a mean of 6.0% and a standard deviation of 1.8%. **The figure shows that, for $\gamma = 0.5$, the implied market risk premium that includes the value of franking credits is in the range 7.1 – 10.0%.**

We have also highlighted the point where the market risk premium including franking benefits is 6.0% and the market risk premium from dividends and capital gains is 4.8%. At this point, the value for $\gamma = 0.27$. This means that, at the lower bound for what could be a reasonable estimate of the market risk premium from dividends and capital gains, for a market risk premium of 6.0% including franking benefits, franking credits must be worth only 27% of their face value.

Figure 2: Relationship between the market risk premium including the benefits of franking and the market risk premium attributed to dividends and capital gains ($\gamma = 0.50$; $\tau = 30\%$; $r_f = 5.84\%$)



In sum, the QCA's view that the market risk premium, including the value of imputation credits, is 6% is unreasonably low, compared to its estimate for gamma. Given its estimate for gamma, the QCA is making the assumption that cash dividend yield plus the capital gains on the Australian equity market will be just 3.9% above the risk-free rate. Given the QCA's conclusion that the value for gamma = 0.50, we submit that the QCA should estimate the market risk premium according to the following equation.

$$MRP_{fr} = \frac{(r_f + MRP_{dc})}{(1 - \tau) / [1 - \tau(1 - \gamma)]} - r_f$$

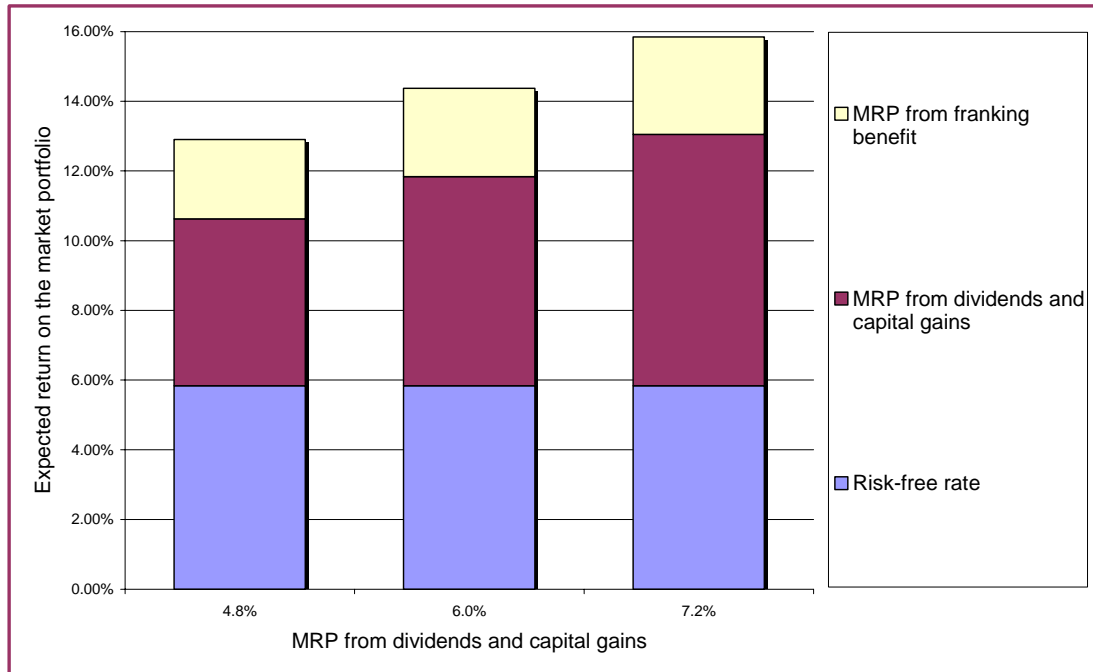
where MRP_{fr} = market risk premium including franking benefits; and MRP_{dc} = market risk premium from dividends and capital gains.

This equation implies that, if the QCA assumes a value for gamma = 0.5 and a risk-free rate of 5.84%, the market risk premium should be in the range of 7.1 – 10.0%. This would be consistent with historical equity returns and a market risk premium from dividends and capital gains of 4.80 – 7.20%, illustrated in Figure 3.

If this submission is not accepted, we would pose the following question:

Given the QCA's estimates of the market risk premium and gamma, how much of the market risk premium is expected to be earned from dividends and capital gains, and how much is attributed to the benefits of franking credits?

Figure 3: Breakdown of the expected return on the market portfolio into the risk-free rate, the market risk premium from dividends and capital gains, and the market risk premium from franking benefits. ($\gamma = 0.50$; $\tau = 30\%$; $r_f = 5.84\%$)



2.4 THE WAY FORWARD

The QCA's review of its WACC methodology was prompted by the recognition of some internal inconsistencies and unintended consequences of its approach to estimating debt betas and levering asset betas. The QCA has consulted widely on these issues as part of the DBCT process, resulting in some changes being made to its WACC methodology. The QCA should be applauded for:

1. recognising the need for a review in light of internal inconsistencies and unintended consequences,
2. consulting widely and assessing all submissions with an open mind and in an independent manner,
3. placing more weight on achieving an economically robust outcome than on simply justifying and preserving its past practices, and
4. taking the lead among Australian regulators in altering its WACC methodology and means of estimating parameters where it believed that was appropriate.

The DBCT Draft Determination does not deal substantially with the estimation of the value of franking credits. It does not state what forms of empirical evidence (data and methodology) are preferred and why. It does not state which pieces of evidence have been given more weight and why. It does not precisely define gamma. It does not answer the list of specific questions that were posed on this point in the submission of ENERGEX and Ergon Energy (p. 19).

The DBCT Draft Determination does not deal at all with the inter-relationship between the estimate of gamma and the estimate of MRP, as this was not raised in any submission.¹

Thus, the QCA now has an opportunity to provide further regulatory leadership on this issue – to redress the inconsistency in the Australian regulatory framework between the estimates of gamma and MRP. There are two ways in which this can be done.

Adjusting Gamma to restore internal consistency

Setting gamma equal to zero is consistent with the latest empirical evidence. This also implies that the MRP of 6% is due entirely to dividends and capital gains. This is also consistent with the available empirical evidence.

Adjusting MRP to restore internal consistency

Given the conclusion that gamma = 0.50 internal consistency requires that the market risk premium be estimated as

$$MRP_{fr} = \frac{(r_f + MRP_{dc})}{(1 - \tau) / [1 - \tau(1 - \gamma)]} - r_f$$

where MRP_{fr} = market risk premium including franking benefits; and MRP_{dc} = market risk premium from dividends and capital gains.

This equation implies that if gamma equals 0.5 and the risk-free rate is 5.84%, the market risk premium should be in the range of 7.1 – 10.0%. This would be consistent with historical equity returns and a market risk premium from dividends and capital gains of 4.80 – 7.20%, illustrated below.

2.5 OFFICER (1994)

In the paper that essentially develops the Australian regulatory framework, Officer (1994) specifically addresses this issue. He states (p. 10) that “if the imputation tax does not affect the cost of capital...then we could estimate [expected returns] using historical rates estimated under a classical tax regime.” That is, if gamma is zero, we can estimate MRP as usual and continue to use 6%. If however, franking credits are valuable “some personal tax payments will be capitalized into the risk premium which consequently will be lower. In these circumstances, an adjustment...will be needed to include the personal tax credits.” It is this adjustment that is described above.

¹ Of course, if gamma is set to zero, as some submissions argued, there is no inter-relationship to speak of.