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11 October 2013

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Submissions responding to AER Draft Rate of Return Guideline

APA Group (APA) appreciates the opportunity to comment on the Draft Rate of Return Guideline, and the accompanying Explanatory Statement, which were issued by the Australian Energy Regulator (AER) on 30 August 2013.

Our views are set out in the submissions attached to this letter.

APA is also contributing to the AER's rate of return guidelines process through its membership of the Australian Pipeline Industry Association (APIA). In making submissions in its own right, APA does not present views at variance with those of the APIA. Rather, APA takes the opportunity to give emphasis to a number of those views from its perspective as a major energy infrastructure investor which operates some 13,000 kilometres of gas transmission pipelines and associated gas storage facilities, and two transmission interconnectors serving the national electricity market.

APA has a keen interest in ensuring that the national electricity and gas regulatory regimes deliver new infrastructure investment in the long term interests of energy users while, at the same time, safeguard the interests of investors in that infrastructure.

APA would be pleased to discuss with the AER any issue arising from our comments on the Draft Guideline and the Explanatory Statement. Please contact Dr John Williams on (08) 6189 4594 or john.williams@apa.com.au.

Yours faithfully

Peter Bolding
General Manager
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APA Group

**Submission on the Australian Energy
Regulator's Draft Rate of Return Guideline**

11 October 2013



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Executive summary

The Draft Guideline advises that the AER is proposing to:

- consider a broad range of material in arriving at a point estimate for the rate of return on equity;
- change from the current 'on the day' approach to a trailing average portfolio approach for estimating the rate of return on debt; and
- consider a wider range of material to inform the estimation of the value of imputation credits.

APA concurs with each of these proposals. We see them as being broadly consistent with the intentions of the AEMC when, in November 2012, it changed the rules governing rate of return in the NER and the NGR.

Nevertheless, APA has a number of specific concerns about the way in which the AER intends to arrive at a point estimate of the rate of return on equity, about whether its way of estimating the rate of return on debt can deliver an estimate which achieves the allowed rate of return objective, and the appropriateness of the material which AER intends to use to inform the estimation of the value of imputation credits.

APA's key points on the Draft Guideline and the Explanatory Statement are as follows.

Application of the AER's criteria

- The exercise of judgement may be required in establishing the best approach to rate of return determination, and an explicit set of subsidiary criteria might provide a framework for that exercise of judgement which enhances transparency in the process of decision making.
- The hierarchy of objectives in the NER and the NGR provide the primary criteria for determination of the allowed rate of return. They are therefore the primary criteria against which guideline proposals must be assessed. There is no assessment against these primary criteria in either the Draft Guideline or in the Explanatory Statement. Instead, a set of criteria, introduced to assist decision making at "lower levels", where the rules cease to provide guidance and where judgement is required, supplant the specific requirements of the NER and the NGR.



Benchmark efficient entity

- The proposals of the Draft Guideline and the Explanatory Statement deal with the critical issue of establishing the benchmark efficient entity without thorough examination of whether the benchmark is efficient, or whether it has risk which is of similar degree as that which applies to the service provider in respect of the provision of regulated services. There is, then, no reason to expect that a rate of return determined by applying the guideline will achieve the allowed rate of return objective.
- Data required to construct the benchmark efficient entity, and to determine its efficient financing costs, may not be easily obtainable. That there are difficulties in obtaining the required data cannot justify the use of data pertaining to businesses in different industry sectors, using different technologies and serving different markets just because those other data are available from credible sources. Any data used must be relevant to rate of return determination in accordance with the specific requirements of the NER and the NGR.

Overall rate of return

- The NER and the NGR require that the overall rate of return be determined as a nominal vanilla WACC. A point estimate, calculated from point estimates of the rates of return on equity and debt, will ultimately be required for an overall rate of return which is to be used in regulated revenue and tariff setting.
- The Draft Guideline provides no real guidance on proposed checks of the reasonableness on the overall rate of return. Of themselves, RAB acquisition and trading multiples do not provide information which might be used to assess whether a candidate for the allowed rate of return might represent the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the service provider in respect of the provision of reference services.

Rate of return on equity

- The AER is not intending to apply the SL CAPM “mechanically”, and is intending to use the Black CAPM and other evidence to inform the estimation of beta and the MRP for the foundation model.



- The SL CAPM has strengths which support its use in estimating the rate of return on equity. However, those strengths are not sufficient to support the use of that model as a foundation model.
- The SL CAPM may be superior to alternative models when assessed against the AER's criteria. But such an assessment is not an assessment of whether the SL CAPM is capable of delivering estimates of the rate of return on equity which can contribute to the achievement of the allowed rate of return objective.
- When implementing the SL CAPM, the risk free rate of return should, as the AER proposes, be estimated from yields on Commonwealth Government securities with a 10 year maturity. The use of an averaging period of 20 trading days effects noise reduction without giving undue weight to superseded prior expectations.
- The comparator set of Australian energy networks (for which estimates of beta have been made in the past) will not constitute the benchmark efficient entity of the NER or of the NGR. If beta estimation is based on this comparator set, there will be no reason to expect that an estimate of the rate of return on equity made using the beta so obtained will contribute to achievement of the allowed rate of return objective.
- Proper construction of the benchmark efficient entity will limit the number of Australian comparators and the amount of data available for statistical parameter estimation. Parameter estimation will need to proceed carefully, and alternative models and methods will need to be employed to reveal any small sample biases.
- The cross checking of the observed betas against the betas for other Australian utilities will not greatly assist. There is no prior reason to expect that the betas of these other utilities might inform estimation of a rate of return on equity which contributes to the achievement of the allowed rate of return objective of the NER and the NGR.
- The problem of ensuring comparability will be exacerbated if the betas of overseas energy networks are used as part of the process of cross checking. Institutional, regulatory and market structures are likely to be quite different to those in Australia.
- Use of the Black CAPM in estimation of the rate of return on equity does not have to be limited to use of the model as a theoretical proposition.



- Professor Wright's implementation of the SL CAPM accords more closely with the theoretical foundations of the model than an implementation which treats the market risk premium as a parameter, and uses an average of historical excess returns over a long period as the estimate of that parameter.
- The SL CAPM cannot explain equity returns with precision, and the estimates made of the parameters of the model are imprecise. There is no reason to expect that rate of return estimates made using the SL CAPM can contribute to achieving the allowed rate of return objective.
- The results obtained using the SL CAPM should be compared with estimates of the rate of return on equity made using other financial models, other estimation methods and other data. This comparative analysis is no more than the requirements of the NER and the NGR that regard be had to relevant estimation methods, financial models, market data and other evidence.

Rate of return on debt

- There are advantages in using a trailing average portfolio approach to estimate the rate of return on debt, there are benefits in updating the rate of return on debt estimate annually, and transitional arrangements are needed.
- The quality of the estimate of the rate of return on debt obtained using the trailing average approach is uncertain, and no consideration is given in either the Draft Guideline, or the Explanatory Statement, to how use of the approach might result in an estimate that is consistent with the allowed rate of return objective.
- The requirements of the NER and the NGR can be more easily satisfied by comparing the results from use of a number of models rather than by reliance on a single model for estimation of the rate of return on debt.
- The rate of return on debt should be estimated using a benchmark term at issuance, which should be established by reference to the average term at issuance of the debt of the benchmark efficient entity. That term will be longer than seven years, and will probably be around 10 years.
- Work undertaken by advisory firms CEG and PwC for the Energy Networks Association has indicated (it is not based on the benchmark efficient entity) an average term of 10 years at issuance.
- If the allowed rate of return is updated annually by updating the rate of return on debt, the way in which the AER intends to flow the annually updated rate



through to regulated revenue should be the subject of consultation, and (at minimum) key principles should be set out in the rate of return guidelines.

- If a credit rating is required for the purpose of estimation of the rate of return on debt, it cannot be the BBB+ rating determined from a sample of network service providers in the Australian electricity and gas sectors. It should be the credit rating of the benchmark efficient entity. If it is not, then there will be no reason to expect that any rate of return on debt determined using that credit rating will contribute to the achievement of the allowed rate of return objective.

Value of imputation credits

- APA concurs with the AER's proposal to estimate the value of franking credits as a market wide parameter determined as the product of a payout ratio and a utilisation rate.
- APA agrees that 0.7 is a current estimate of the payout ratio.
- The Explanatory Statement does not make a case for an estimate of 0.7 for the utilisation rate in the Draft Guideline, and does not therefore make a case for an estimate of γ of 0.5, because it does not consider the market value of imputation credits.
- There is no reason for departing from the dividend drop-off method which was refined and further developed for estimation of the utilisation rate by Professor Stephen Gray for the Australian Competition Tribunal.



1 Overview

Investors who finance energy infrastructure have been concerned that the rates of return allowed in regulatory determinations under the National Electricity Law (NEL) and National Electricity Rules (NER), and under the National Gas Law (NGL) and the National Gas Rules (NGR), have been lower than the rates they expect on investments in that infrastructure. Those investors saw changes to rules governing rate of return determination, made by the Australian Energy Market Commission (AEMC) in November 2012, as facilitating the alignment of expected and allowed rates of return.

The critical change was the inclusion of the allowed rate of return objective in the NER and the NGR. Rate of return determination would, as a result, become outcome-focused. It would be focused on delivering the right outcome: an allowed rate of return which is commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the service provider in respect of the provision of reference services.

To ensure that the right outcome could be delivered – to ensure that the allowed rate of return objective could be achieved – the AEMC’s amendments to the NER and the NGR introduced flexibility into the process of rate of return determination by requiring that regard be had to relevant estimation methods, financial models, market data and other evidence.

The AEMC’s amendments also introduced a requirement for the regulator to periodically make and publish rate of return guidelines that set out the approach to be taken in determining the allowed rate of return. Although the guidelines were to set out the approach, they were to be non-binding. The AEMC saw non-binding guidelines as “safeguarding the framework against the problems of an overly-rigid prescriptive approach that cannot accommodate changes in market conditions”.¹ They were not intended to lock-in any parameters or methodologies from which departure would not be permitted; their purpose and value at the time of particular regulatory decisions was that they would “narrow the debate”.² This was necessary if rate of return determination were to have the flexibility needed to deliver an allowed rate of return which was commensurate with the efficient financing costs of the benchmark efficient entity.

¹ Australian Energy Market Commission, *Rule Determination, National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012, National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012*, 29 November 2012, page 46.

² *Ibid.*, page 58.



In consequence, rules 6.5.2(m) and 6A.6.2(m) of the NER, and rule 87(14) of the NGR, require that the Australian Energy Regulator (AER) make and publish rate of return guidelines which set out:

- the methodologies that the regulator proposes to use in estimating the allowed rate of return, and an explanation of how those methodologies are proposed to result in the determination of a return on equity and a return on debt in a way that is consistent with the allowed rate of return objective; and
- the estimation methods, financial models, market data and other evidence the regulator proposes to take into account in estimating the return on equity, the return on debt and the value of imputation credits used in estimating the cost of corporate income tax.

The *Draft rate of return guideline* (Draft Guideline) issued by the AER on 30 August 2013, and the supporting *Explanatory statement - Draft rate of return guideline* (Explanatory Statement), set out the methodologies that the AER proposes to use, and the estimation methods, financial models, market data and other evidence the AER proposes to take into account in estimating the rate of return on equity, the rate of return on debt and the value of imputation credits.

The Draft Guideline advises that the AER is proposing to:

- consider a broad range of material in arriving at a point estimate for the rate of return on equity;
- change from the current 'on the day' approach to a trailing average portfolio approach for estimating the rate of return on debt; and
- consider a wider range of material to inform the estimation of the value of imputation credits.

APA Group (APA) concurs with each of these proposals. We see them as being broadly consistent with the intentions of the AEMC when it changed the rules governing rate of return in the NER and the NGR.

However, APA has a number of specific concerns about the way in which the AER intends to arrive at a point estimate of the rate of return on equity, about whether its way of estimating the rate of return on debt can deliver an estimate which achieves the allowed rate of return objective, and the appropriateness of the material which AER intends to use to inform the estimation of the value of imputation credits.



APA's concerns are set out in the submissions which follow. In these submissions we comment on:

- application of the AER's criteria;
- the benchmark efficient entity;
- the overall rate of return;
- estimation of the rate of return on equity;
- estimation of the rate of return on debt; and
- the value to be attributed to imputation credits.



2 Application of the AER's criteria

APA understands that estimation of the allowed rate of return will require the exercise judgement, by the AER, about aspects of the analytical techniques and the evidence to be used. APA is of the view that, where there is a need for the regulator to exercise judgement in meeting the requirements of the NER and the NGR, an explicit set of criteria can provide a framework for that exercise of judgement which will enhance transparency in a critically important area of regulatory decision making.

However, we are concerned about the way in which the AER has applied its criteria in its consideration of relevant estimation methods, financial models, data and other evidence.

Figure 1 of the Draft Guideline sets out, in a flow chart, the AER's proposed approach to estimation of the rate of return on equity. The approach starts with identification of relevant methods models, data and evidence. Having regard to relevant estimation methods, financial models, market data and other evidence – as required by the rules – is a necessary first step if the for the process of rate of return determination is to have the flexibility needed to deliver the rate of return required by the allowed rate of return objective.

Although the AER's process starts from the requirements of the rules, it seems, to APA, to depart from those requirements at its second step. Step 2 involves assessment of relevant material against the six criteria set out in section 2 of the Explanatory Statement.

The AER advises, in section 2.2 of the Explanatory Statement, that these criteria are not intended to supplant the NGL and the NGR; rather they are subordinate to the requirements of the law and the rules.

And yet, we find at step 2 that these subordinate criteria effectively replace the requirements of the NER and the NGR in the critical process of estimation of the rate of return on equity.

The NER and the NGR are, we think, clear on what is required. There is a clear hierarchy of objectives in rules 6.5.2 and 6A.6.2 of the NER, and in rule 87 of the NGR, for the purpose of deciding on how the rate of return is to be determined. We explain further by referring to the provisions of the NGR, but note that the NER include the same provisions for the determination of rates of return for electricity distribution networks service providers, and for transmission network service providers.



At the top of the hierarchy is the allowed rate of return objective of rule 87(3). The allowed rate of return is to be determined such that it achieves this objective (rule 87(2)).

In accordance with rule 87(4), the allowed rate of return is to be a weighted average of the rate of return on equity and the rate of return on debt.

In determining the allowed rate of return, regard must be had to relevant estimation methods, financial models, market data and other evidence (rule 87(5)(a)).

Rule 87(6) then requires that the rate of return on equity be estimated such that it contributes to achievement of the allowed rate of return objective. Similarly, rule 87(8) requires that the rate of return on debt be estimated such that it also contributes to the achievement of the allowed rate of return objective.

At step 2 of the process, we would have expected to see this hierarchy of objectives, rather than a set of subordinate criteria, guide estimation of the rate of return on equity.

2.1 Reflective of economic and finance principles and market information

APA agrees with the view expressed in section 2.6.1 of the Explanatory Statement, that economic and finance theory provide important insights for the setting of revenue and prices for natural monopoly service providers, and that economic theory suggests that economically efficient outcomes are in the long term interests of consumers.

These insights are, however, removed from the economic and finance principles from which the AER is seeking to draw guidance in the setting of allowed rates of return. Although they are invoked by the AER, they do not seem to play a role in the Draft Guideline or in the explanations of the Explanatory Statement.

Theoretical methods also provide carefully thought-out frameworks for use in understanding behaviour in financial markets and for making quantitative estimates of the implications of that behaviour (for example, estimates of the prices at which financial assets trade in those markets). For this reason, rather than for any purported links which might be made to economic efficiency, we believe economic and financial principles can usefully guide the exercise of judgement in rate of return determination.

Even then, though, this would be the case only when no clear guidance was provided by the NEL and the NER, or by the NGL and the NGR.



Moreover, that the methods, models, data and other evidence be reflective of economic and financial principles should not, in our view, be limiting of the material to which regard might be had in rate of return determination.

In requiring that methods, models, data and evidence be “relevant”, the AEMC intended that the threshold of what might be taken into account in rate of return determination was low:

The Commission is of the view that any relevant evidence on estimation methods, including that from a range of financial models, should be considered to determine whether the overall rate of return objective is satisfied.³

Nevertheless, irrespective of how they might be estimated, the estimates made of rates of return on equity and debt used in determining the rate of return must contribute to achievement of the allowed rate of return objective.

In the section 2.6.4 of the Explanatory Statement, the AER advises that, to the extent models are used in estimating the rate of return, and that these models are those widely used in practice, the more likely the allowed rate of return objective is to be met. We would not disagree. But this is not the requirement of the rules in respect of the allowed rate of return.

Before a candidate rate of return is selected as the allowed rate of return, its component rates of return on equity and debt must be shown to contribute to achievement of the allowed rate of return objective, and the candidate itself must be shown to achieve that objective.

A criterion which requires that estimation methods and financial models be consistent with well accepted economic and finance principles and informed by sound empirical analysis and robust data is not strongly linked to satisfying the allowed rate of return objective.

2.2 Fit for purpose

Section 2.6.2 of the Explanatory Statement explains that a method which could be considered to perform best in quantitative or qualitative terms in estimating rates of return on equity and debt would be most fit for purpose. But what does “perform best” mean?

In our view, the NER and the NGR are clear on what is required: estimates of the rates of return on equity and debt must contribute to achieving the allowed

³ Ibid., page 48.



rate of return objective, and the allowed rate of return itself must be determined such that it achieves this objective.

APA does not see circumstances arising in which there might be a need to invoke a criterion of “fit for purpose” which exists independently of the primary requirements of the NER and the NGR.

2.3 Implemented in accordance with good practice

Implementation of rules 6.5.2 and 6A.6.2 of the NER, and of rule 87 of the NGR, in accordance with “good practice” means, we are advised in section 2.6.3 of the Explanatory Statement, that the AER’s rate of return methods will be supported by robust, transparent and replicable analysis that is derived from available and credible data sets.

These are, we think, all reasonable requirements. However, there is no reason to expect that they will, of themselves or in conjunction with the other criteria adopted by the AER, lead to a rate of return which might achieve the allowed rate of return objective.

Robust methods are desirable, but choice of a method for reasons of its robustness cannot displace the requirement for a rate of return which meets the allowed rate of return objective. An estimation method, applied to an inadequate model, cannot produce the required rate of return no matter how robust the estimation method might be.

Similarly, a criterion that data sets be current and credible is not unreasonable, but the availability of data cannot override the achievement of the allowed rate of return objective.

APA sees the availability of data as a potentially significant issue. In our view, the data required to establish the benchmark efficient entity and its efficient financing costs will not be easily obtainable. However, that there are difficulties in obtaining the required data cannot justify the use of other data – for example data pertaining to businesses in different industry sectors, using different technologies and serving different markets – just because those other data are current and because they come from a source which can be regarded as credible. Any data used must be relevant to rate of return determination in accordance with the specific requirements of the NER and the NGR.

2.4 Quantitative models

APA does not disagree with the AER’s views that where models are used, the outputs should not be unduly sensitive to errors in input estimation, that the



arbitrary filtering of data should be avoided, and that best practice statistical approaches should help to deliver robust estimates.

But again, there is no reason to expect that the adoption of these as criteria to be applied in rate of return determination, either alone or in conjunction with the other proposed criteria, can lead to a rate of return which achieves the allowed rate of return objective.

2.5 Market data and other information

Market data, paragraph 2.6.5 of the Explanatory Statement explains, include but are not limited to:

- data on prices, maturities and terms and conditions of government and non-government bonds, financial derivatives and other financial instruments;
- data on equity prices and ratios such as price earnings ratios and RAB multiples; and
- data on financial structures such as gearing levels and credit ratings.

The AER proposes that where market data and other information are used, they should be credible and verifiable, comparable and timely, and clearly sourced.

We would not disagree, but there is an abundance of market data which might satisfy these criteria. The data which are relevant are those which can be shown to lead to estimates of rate of return on equity and debt which contribute to achievement of the allowed rate of return objective.

2.6 Flexibility to reflect changing market conditions

The AER's last criterion requires that methods adopted for rate of return determination be sufficiently flexible to allow changing market conditions and new information to be reflected in regulatory outcomes. The application of this criterion, the AER advises, will help to deliver the requirements of the NEL, the NGL and the rules.

The allowed rate of return objective requires that the allowed rate of return be commensurate with the efficient financing costs of the benchmark efficient entity. It does not indicate that the assessment of commensurability is to be made with respect to efficient financing costs at some time in the past. The use of the present tense in the statement of the objective, and the place of the objective in the regulatory schemes of the NEL and the NGL, indicate that rate of return determination is, where appropriate, to take into account changing market conditions and new information.



This is reinforced by rules 6.5.2(g) and (i), and 6A.6.2(g) and (i), of the NER, and by rules 87(7) and 87(10) of the NGR.

Through their requiring that regard be had to prevailing conditions in the market for equity funds when estimating the rate of return on equity, rules 6.5.2 (g) and 6A.6.2(g) of the NER, and rule 87(7) of the NGR, require that account be taken of changing market conditions and new information. Similarly, if the rate of return on debt is to be estimated as the rate that would be required by debt investors in a benchmark efficient entity which raised debt at the time of a regulatory decision, as is permitted under rules 6.5.2(i) and 6A.6.2(i) of the NER, and rule 87(10) of the NGR, then account must be taken of market conditions and new information available at that time.

APA can see no need for an independent criterion which examines ability to reflect changing market conditions and new information, especially where that criterion is one introduced to “fill the gaps” in circumstances in which the requirements of the NER and the NGR are silent and the exercise of judgement is required.

2.7 Conclusions on the AER’s criteria

We do not disagree with the AER that an exercise of judgement will be required in establishing the best approach to rate of return determination, and that an explicit set of subsidiary criteria might provide a framework for that exercise of judgement which enhances transparency in the process of decision making.

However, the hierarchy of objectives in the NER and the NGR provide the primary criteria for determination of the allowed rate of return. They are therefore the primary criteria against which guideline proposals must be assessed. We find no assessment against these primary criteria in either the Draft Guideline or in the Explanatory Statement. Instead, we find that a set of criteria, introduced to assist decision making at “lower levels”, where the rules cease to provide guidance and where judgement is required, supplant the specific requirements of the NER and the NGR.



3 Benchmark efficient entity

APA remains concerned about the way in which the AER proposes to deal with the critical issue of establishing the benchmark efficient entity. We appreciate that our concerns, which were first raised in our response to the AER's May 2013 Consultation Paper, are noted in Appendix B of the Explanatory Statement. However, they have not been allayed.

Rules 6.5.2 and 6A.6.2 of the NER, and rule 87 of the NGR, require:

- the rate of return on equity be estimated such that it contributes to achievement of a rate of return commensurate with the efficient financing costs of the benchmark efficient entity;
- the rate of return on debt be estimated such that it contributes to achievement of a rate of return commensurate with the efficient financing costs of the benchmark efficient entity;
- the allowed rate of return be commensurate with the efficient financing costs of the benchmark efficient entity.

Identification of the benchmark efficient entity is, therefore, the key to determination of the allowed rate of return.

3.1 A conceptual definition of the benchmark efficient entity

The AER advises, in section 3 of the Draft Guideline, that it proposes to adopt a conceptual definition of the benchmark: the benchmark efficient entity is to be a pure play, regulated energy network business operating within Australia.

By adopting this conceptual definition, the AER is able to focus on a single benchmark across electricity and gas, and across transmission and distribution.

The conceptual definition is to be used to select comparable entities which can then be used to:

- estimate the equity beta of the Sharpe-Lintner Capital Asset Pricing Model (SL CAPM), which is to be used as the foundation model for estimating the rate of return on equity; and
- determine the benchmark gearing ratio and the benchmark credit rating which are, in turn, used to estimate the rate of return on debt.



APA is concerned that this way of proceeding is not in accordance with the requirements of the NER and the NGR.

We agree that the rate of return on equity and the rate of return on debt should be estimated from a set of data for a set of comparable entities. The relevant “comparables” should, however, be selected in accordance with the requirements of the NER or the NGR, and not in accordance with a conceptual definition which stands outside the rules.

Rules 6.5.2(c) and 6A.6.2(c) of the NER, and rule 87(3) of the NGR, all require that the benchmark entity be:

- efficient; and
- of similar degree of risk as that which applies to the service provider in respect of the provision of regulated services.

If the comparables from which data are obtained for the purpose of estimating the rates of return on equity and debt do not satisfy these two requirements, there will be no reason to expect that the candidate rate of return calculated from those data will achieve the allowed rate of return objective.

3.2 Efficiency of the benchmark entity

The NER and the NGR require that the benchmark be efficient. This requirement is not reflected in the AER’s conceptual definition, and the Draft Guideline does not accord it a place in establishing the benchmark entity.

One way in which the requirement for efficiency might be addressed is through formal efficiency analysis using, for example, data envelopment techniques or stochastic frontier methods.

Alternatively, a somewhat less structured but similarly quantitative analysis, like that which the Australian Pipeline Industry has proposed in its submissions on the AER’s Draft Guideline, might be used.

APA acknowledges that sufficient data of the type required may not be available from Australian entities for the assessment of efficiency. The assessment of the efficiency of the comparables which might comprise the benchmark entity may then require recourse to data from businesses operating in markets outside Australia. Those data would, however, have to be used carefully: the institutional, regulatory and market contexts of those businesses are likely to be quite different to those of Australian electricity network and gas pipeline service providers.



As we indicated earlier in these submissions, the data required to establish the benchmark efficient entity may not be easily obtainable, but this does not justify proceeding with data pertaining to businesses in different industry sectors, using different technologies and serving different markets simply because those data are available.

3.3 Similar degree of risk

The Draft Guideline proposes to apply a single benchmark across the electricity and gas sectors, and across transmission and distribution service providers. This proposed use of a single benchmark is based on the AER's view that the risks between electricity and gas, and between transmission and distribution, are similar.

APA submits that the regulatory regimes applying to electricity networks and to gas pipelines are sufficiently different to preclude the use of a single benchmark, and to require a careful assessment of the risk of the individual service provider when establishing the relevant benchmark efficient entity.

3.3.1 Electricity and gas regulatory regime risks

The regulatory regime of the NEL and the NER is different from the regime of the NGL and the NGR. In electricity transmission, price regulation is given effect through revenue caps. In gas transmission, tariffs are regulated using price caps.

The impact of the regulatory regime on service provider risk can best be seen in the event of the failure of a major customer.

An electricity transmission network service provider, faced with the loss of a major customer, would increase the tariffs it charged to all of its remaining customers through operation of the revenue cap during the current regulatory period. Other things being equal, the increase in tariffs would provide additional revenue just sufficient to compensate for the loss in revenue from the failed major customer. Furthermore, the NER do not provide for a reduction in the regulatory asset base (save for a reduction in dedicated connection assets) in the event of loss of a major customer. In these circumstances, the service provider will not be significantly impacted by the loss of the major customer in subsequent regulatory periods.

In contrast, a gas transmission service provider, regulated under a price cap, will be exposed to the full effects of the reduction of revenue associated with the loss of a major customer. Under the price cap, the service provider cannot increase its tariffs during the current regulatory period to compensate for the loss in



revenue from the failed customer. Furthermore, the NGR allow, in subsequent regulatory periods, removal from the regulatory asset base of the assets (now redundant) used to provide service to the failed customer. The service provider may not subsequently receive all or part of the return on the value of those assets, and all or part of the return of, the value of the assets.

This key difference in the revenue consequences of loss of a major customer arises from differences between the regulatory regimes applicable to electricity networks and to gas pipelines. Even if the probability of major customer failure were the same in both sectors, the consequences would be significantly different.

As this difference is wholly attributable to the regulatory regime, APA submits that it is not appropriate to apply the same measure of “similar degree of risk” to electricity and gas businesses.

3.3.2 When assessing the risks of the service provider, consideration should be given to risks in general, and not the specific risks for which investors might be compensated

The costs of a service provider which operates in a low risk environment are likely to be very different from those of a similar service provider which operates in a high risk environment. This difference will be attributable, at least in part, to costs which the service provider operating in the high risk environment incurs to mitigate risk.

For example, the costs of a gas transmission pipeline which traverses a major urban area (a high risk environment for transmission pipeline operation) will be higher than the costs of a similar pipeline which traverses a region with little human habitation. In the urban area, among other things, easement and land costs will be higher, thicker-walled pipe must be installed at higher cost, costly reinforcement will be required where roads or railways cross the pipeline, and costs must be incurred for the sound proofing of compressor facilities.

Careful consideration must be given to these differences in costs arising from differences in risks, broadly defined, in the process of establishing the efficiency of the benchmark entity. An entity with lower costs may not be more efficient than one with higher costs if the low cost entity operates in a low risk environment. To ensure that the benchmark entity is, in fact “the benchmark”, it is to be of similar degree of risk to the service provider in its provision of regulated services. That degree of risk must be assessed by giving consideration to all of the risks associated with the operation of the service provider (that is, by giving consideration to the service provider’s risk in respect of the provision of regulated services).



This does not mean that the risk of the benchmark efficient entity must be the same as that of the service provider. However, it must be similar. Moreover, that similarity must be demonstrated, and not assumed. It may be, as the AER suggests, that only material differences in risk ultimately affect rates of return. However, if that proposition is to be relied upon in rate of return determination, it must be shown to be in accordance with the relevant evidence.

The rate of return guidelines are to be prepared by the AER, in accordance with the requirements of the NER and the NGR. Under the rules, the AER has an obligation to explain, in its guidelines, how its methodologies are proposed to result in the determination of a return on equity and a return on debt in a way that is consistent with the allowed rate of return objective. If the AER intends to adopt a methodology which relies on the view “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”, then the AER must demonstrate the validity of this view in showing how it will lead to achievement of the objective. It is not sufficient, at this stage, for the AER to assume the use of only one benchmark, and to require that service providers provide evidence to the contrary if they contest the assumption.

The risk profile of the service provider is critically important: it guides identification of the required comparator firms and establishment of the benchmark efficient entity.

3.3.3 Once the benchmark efficient entity has been established, the compensation for risk required by investors can be determined

Once the benchmark efficient entity has been properly established, in accordance with the requirements of rule 6.5.2 or rule 6A.6.2 of the NER, or of rule 87 of the NGR, consideration can be given to the risks for which investors require compensation through the prices of financial assets in the context of estimating the rate of return on equity and the rate of return on debt.

If, for example, an equity beta is to be used in calculating a premium for risk when estimating a rate of return on equity, as might be done when applying the SL CAPM, then that beta must be the beta for the benchmark efficient entity. The benchmark entity must be identified and established before the equity beta can be calculated.

If an equity beta is calculated – to estimate the compensation which equity investors require for risk – from a sample of entities which are not efficient, and which do not have a degree of risk similar to that of the service provider in its provision of reference services, there will be no reason to expect that the rate of



return on equity estimated using that beta will contribute to achievement of the allowed rate of return objective. There will be no reason to expect that a rate of return determined using that estimate of the rate of return on equity will achieve the allowed rate of return objective.

In APA's view, the Draft Guideline and the Explanatory Statement conflate two quite distinct and separate classes of risk. These are:

- the risks to which the benchmark efficient entity is exposed, and which are to be in degree similar to the risks as that which applies to the service provider in respect of the provision of regulated services; and
- the risks for which investors might be compensated through the market determined prices of financial assets.

In consequence, the Draft Guideline focuses on the risks for which investors might expect to be compensated, and the requirements for a benchmark which is efficient, and which has degree of risk similar to the service provider in respect of its provision of regulated services, are lost.

3.4 Conclusions on the benchmark efficient entity

In the proposals of the Draft Guideline and the Explanatory Statement, the AER deals with the critical issue of establishing the benchmark efficient entity without thorough examination of whether the benchmark is efficient, or whether it has risk which is of similar degree as that which applies to the service provider in respect of the provision of regulated services.

The issue of whether the benchmark has degree of risk similar to the service provider is obscured by the adoption of a conceptual definition, and by conflation of the risks of regulated service provision with the risks for which investors might be compensated through the market determined prices of financial assets.

APA continues to see the requirement for the benchmark to be of similar degree of risk as the service provider in respect of the provision of regulated services as requiring the establishment of the benchmark at each regulatory determination. A separate benchmark is required for each service provider. This may, as the AER suggests in Appendix B of the Explanatory Statement, create some additional uncertainty relative to a situation in which a benchmark is specified in advance. However, the additional uncertainty is a cost of ensuring that the right benchmark is established, and that a rate of return established using that benchmark can achieve the allowed rate of return objective. That cost will diminish for a particular service provider: once established, the benchmark is unlikely to change much between regulatory determinations.



Through its giving inadequate attention to efficiency, and to the risk of the service provider in respect of the provision of reference services, the Draft Guideline fails to provide the proper basis for establishing the benchmark efficient entity required by the NER and the NGR. There is, then, no reason to expect that a rate of return determined by applying the guideline will achieve the allowed rate of return objective. This is, in APA's view, a major deficiency in the AER's proposals. It should be addressed before rate of return guidelines are made and published. If the deficiency is not addressed, those guidelines will not provide methods that can lead to a rate of return which achieves the allowed rate of return objective.



4 Overall rate of return

The AER advises, in section 4 of the Draft Guideline, that the overall rate of return is to be determined, as a point estimate, using a nominal post tax vanilla WACC, together with a series of reasonableness checks.

4.1 Nominal vanilla WACC

APA understands the AER as advising that there is no choice in the form of the WACC to be used, and we agree. Rules 6.5.2(d) and 6A.6.2(d) of the NER, and rule 87(4) of the NGR, require that, subject to the allowed rate of return being determined such that it achieves the allowed rate of return objective, the allowed rate of return is to be determined on a nominal vanilla basis that is consistent with the estimate of the value of imputation credits used in estimating the cost of corporate income tax.

4.2 Point estimates and ranges

Section 4.3.4 of the Draft Guideline advises that the AER intends to use a point estimate of the allowed rate of return, derived from point estimates made for the rate of return on equity and the rate of return on debt.

We appreciate the need to use point estimates in determining a specific rate of return for use in regulated revenue calculation and tariff setting. In this context, we also appreciate the need for point estimates at the level of the return on equity and the return on debt.

Point estimates will ultimately be required for an allowed rate of return which is to be used in regulated revenue and tariff setting, but those estimates should, wherever possible, be informed by multiple estimation methods, financial models, market data and other evidence. The AEMC clearly intended that this be the case, and explicitly provided for it in the NER and the NGR. The flexibility which the use of multiple estimation methods, financial models, market data and other evidence allows is essential to rate of return determination delivering rates of return which can achieve the allowed rate of return objective.

4.3 Gearing

Subject to the allowed rate of return being determined such that it achieves the allowed rate of return objective, the NER and the NGR require that it be a weighted average of the rate of return on equity and the rate of return on debt.

That this weighted average is to be determined on a nominal vanilla basis indicates that the weighting should be as shown in the formula in section 4.3.2 of



the Draft Guideline. The rate of return on equity should be weighted the proportion of equity in the total financing (comprising equity and debt), and the rate of return on debt should be weighted by the proportion of debt in the total financing.

Section 4.2 of the Explanatory Statement notes that the weights to be given to the respective point estimates of the rate of return on equity and the rate of return on debt are to be based on “our gearing ratio”. In Appendix C to the Explanatory Statement the AER advises that a gearing of 60% for the benchmark efficient entity should be maintained. This gearing is, the AER notes, consistent with the benchmark efficient entity definition, and with empirical evidence supports that level of gearing.

APA is concerned that the case for gearing of 60% is not well made in Appendix C and, were it to be adopted, that gearing would, we believe, be open to challenge.

We agree that the gearing must be the gearing of the benchmark efficient entity.

However, as we have explained in section 3 of these submissions, that benchmark cannot be assumed. It cannot be a hypothesised pure play regulated energy network business operating in Australia, nor can it be assumed to be the sample of all businesses that operate in the Australian market and have operations which predominantly involve network businesses in the energy sector. There would no reason to expect that a candidate rate of return determined using a gearing established for a hypothetical entity, or determined from a sample of Australian network businesses, was a rate of return which achieves the allowed rate of return objective. The benchmark efficient entity must be properly constructed from comparables which are efficient and which have similar degrees of risk to the service provider in respect of its provision of regulated services. Only a gearing estimated from such a benchmark might lead to a rate of return which achieves the objective.

4.4 Reasonableness checks

Section 4.3.4 of the Explanatory Statement advises that a candidate rate of return determined in the way the AER proposes may not be directly comparable with rate of return estimates made by other regulators or market practitioners. Estimates of the overall rate of return made by brokers and by other regulators cannot, then, provide checks on the reasonableness of the overall rate of return.

In these circumstances, the AER proposes to use RAB acquisition and trading multiples to provide a broad indication of whether candidate rates of return are above or below those required by investors.



This concerns us in three ways.

First, no real guidance is provided on what these checks of reasonableness might be. They are not described in the Draft Guideline. The Explanatory Statement advises only that the AER proposes to continue using RAB acquisition and trading multiples to provide reasonableness checks on the overall rate of return.

Second, where RAB acquisition and trading multiples have been used in the past, they have not been used to estimate rates of return. APA doubts whether these multiples can be used to infer rates of return without large amounts of additional information about the businesses concerned. That additional information will generally not be available to the service provider, or to the regulator, either precluding the use of RAB acquisition and trading multiples in assessing whether any candidate rate of return achieves the allowed rate of return objective, or forcing assumptions to be made which would lead to doubt about the validity of any check on “reasonableness”.

Third, RAB acquisition and trading multiples do not provide information which might be used to assess whether a candidate for the allowed rate of return might represent the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the service provider in respect of the provision of reference services.

In APA’s view, the Draft Guideline does not set out any reasonableness check which might assist in determining whether a candidate rate of return is the allowed rate of return required by the NER or the NGR. The rate of return guidelines should focus on methods which can be shown, and which are shown, to be capable of producing rates of return consistent with the allowed rate of return objective.



5 Rate of return on equity

APA sees, in the AER's approach to estimation of the rate of return equity, significant changes from past practice, which are important steps towards providing the flexibility in the process of rate of return determination needed to ensure that the allowed rate of return objective can be achieved.

In the Draft Guideline, the AER has set out estimation of the rate of return on equity in six steps.

Our views of the first and second of these steps (identification of relevant material) were set out earlier in these submissions, in our discussion of the AER's proposed criteria.

In this section of the submissions, we comment on:

- the proposed use of the SL CAPM as the foundation model for estimation of the rate of return on equity;
- the proposed implementation of the SL CAPM; and
- the way in which the AER proposes to obtain a final point estimate from use of its foundation model and other relevant information.

We would have preferred to see more on the AER's step 5 (evaluation of material used in estimation of the rate of return on equity) in section 5.3.5 of the Draft Guideline. However, we anticipate that the process of evaluation will evolve in future regulatory determinations.

5.1 Reliance on the SL CAPM

APA can understand why the AER has chosen to proceed using the SL CAPM.

The SL CAPM has theoretical support and, through its incorporation of estimates of the risk free rate and the market risk premium, the model is somewhat flexible allowing its response to changing market conditions. Furthermore, the SL CAPM is simple and logical, and its parameter values are relatively easily established. In consequence, it is widely used.

These strengths support the use of the SL CAPM as the AER proposes. However, they are not sufficient to support the use of that model as a foundation model.



We acknowledge that the AER is aware of the empirical shortcomings of the SL CAPM (these are noted in Appendix E of the Explanatory Statement), and that it proposes to use the model informatively, rather than determinatively, to provide the starting point estimate and range for the rate of return on equity. In this way, the AER is proposing to introduce flexibility into estimation of the rate of return on equity while continuing to work with a model which is relatively simple and easily implementable.

In sections 5.3.3 and 5.3.6 of the Explanatory Statement, we are advised that use of the SL CAPM as the foundation model reflects the AER's assessment of the model against its criteria. The AER concludes that the SL CAPM is superior to alternative models for the purpose of estimating the rate of return on equity for the benchmark efficient entity.

APA is concerned that this assessment against the criteria has led the AER to an inappropriate conclusion, with important implications for the way in which the SL CAPM is deployed. The SL CAPM may be superior to alternative models when assessed against the AER's criteria. But such an assessment is not an assessment of whether the SL CAPM is capable of delivering estimates of the rate of return on equity which can contribute to the achievement of the allowed rate of return objective.

Neither the Draft Guideline, nor the Explanatory Statement, makes either a thorough assessment of the SL CAPM, or an assessment of whether it can deliver estimates of the rate of return on equity which can contribute to achievement of the objective.

Section E.1 of the Explanatory Statement concludes that the strong theoretical support for the SL CAPM, its widespread use and its easy implementation mean that the model can play the important role of the foundation model for estimation of the rate of return on equity.

However, there is nothing in the Draft Guideline, or in the Explanatory Statement which supports the view that the SL CAPM has strong theoretical support. "Strong" is a relative term. What is "theoretically weak" relative to which the claim that the SL CAPM has a strong theoretical support is made? A comparative analysis is required, but that is not provided.

We doubt the claim that there is strong theoretical support for a single period static model which purports to explain asset prices in terms of asset prices. Much of the more recent work in asset pricing has its foundations in the dynamic stochastic general equilibrium model which is the cornerstone of contemporary



(neoclassical) economic theory. The use of that approach in asset pricing was pioneered by Merton in 1973.⁴ Merton noted:

Although the model [the SL CAPM] has been the basis for more than one hundred academic papers and has had a significant impact on the non-academic financial community, it is still subject to theoretical and empirical criticism. Because the model assumes that investors choose their portfolios according to the Markowitz mean-variance criterion, it is subject to all the theoretical objections to this criterion, of which there are many.

Theoretically, we are now a long way from the SL CAPM.

Certainly, the CAPM is widely used, and one reason for its widespread use is its ease of implementation. With careful application the SL CAPM can provide estimates of the rate of return on equity and, for this reason, the model is likely to have a role to play in estimation of the rate of return on equity.

However, as we discuss below, any estimate of the rate of return on equity made using the SL CAPM must be carefully assessed against the requirements of the NER or the NGR, whichever is appropriate. The SL CAPM does not explain investor returns with precision.

5.2 Implementation of the SL CAPM

The AER explains, in paragraph 5.3.3 of the Explanatory Statement, that implementation of the SL CAPM will involve:

- estimation of an expected rate of return on equity as the sum of the risk free rate of return and the product of the equity beta and the market risk premium (MRP);
- use of the observed yields on Commonwealth Government securities to estimate the risk free rate of return in a way which is to be set out in the guideline, but with a point estimate made during each regulatory decision;
- estimation of a range for the equity beta of the SL CAPM using, among other things, the observed equity beta for a comparator set of Australian energy networks, cross checked against overseas energy networks and other Australian utilities;

⁴ Robert C Merton (1973), "An Intertemporal Capital Asset Pricing Model", *Econometrica*, 41(5): pages 867-887.



- applying regulatory judgement, having regard to the theory of the Black CAPM, and having regard to regulatory precedent, to select a point estimate of the equity beta;
- estimation of a range for the MRP from historical excess returns, the dividend growth model, survey evidence, implied volatility and the recent determinations of other Australian regulators;
- applying regulatory judgement, taking into account the estimates from each source of evidence, to obtain a point estimate of the MRP; and
- determination of a range for the estimate of the rate of return on equity from the range and point estimates of the corresponding input parameters.

APA appreciates that the AER is not intending to apply the SL CAPM “mechanically”, and that it is intending to use the Black CAPM and other evidence to inform the estimation of beta and the MRP for the foundation model.

We make the following observations on the implementation of the foundation model.

5.2.1 Risk free rate of return

APA concurs with the AER’s proposal to estimate the risk free rate of return from yields on Commonwealth Government securities with a 10 year maturity.

In established commercial and regulatory practice the risk free rate of return is estimated from the yields on low risk securities with long terms to maturity. This is seen as being consistent with the commercial principle that long lived assets should be financed long term. In Australia, the risk free rate has been estimated from Commonwealth Government bonds with terms to maturity of 10 years, not because asset lives are 10 years but because these are the low risk securities with longest term to maturity which have been regularly issued and traded in Australian financial markets.

Yields on Commonwealth Government securities reported today incorporate the latest market information and expectations about future rates. The world is not, however, ideal, and today’s reported yields (like yesterday’s) contain a random component (“noise”). Some averaging of yields should reduce the effect of this noise on the estimate of the risk free rate of return, with longer-term averages achieving better noise reduction. However, longer term averaging introduces a bias because greater weight is given to superseded prior expectations. The use of an averaging period of 20 trading days, as proposed in section 5.3.3 of the Draft Guideline, effects noise reduction without giving undue weight to superseded prior expectations.



Use of a risk free rate determined using an averaging period of 20 trading days, set as close as practicably possible to the commencement of the regulatory period, would, in our view, be consistent with the requirements of rules 6.5.2(g) and 6A.6.2(g) of the NER, and of rule 87(7) of the NGR, that regard be had to the prevailing conditions in the market for equity funds when estimating the rate of return on equity.

APA understands that the AER's proposal is for the averaging period for the risk free rate of return to be used in estimation of the rate of return on equity to be nominated in advance, by the regulator, and set out in the draft decision for each regulatory determination. A different averaging period would be adopted for the risk free rate to be used in estimating the rate of return on debt. That averaging period would be agreed between the service provider and the AER. Provided our understanding is correct, we would not disagree with this aspect of the AER's rate of return on equity proposals.

5.2.2 Estimation of the equity beta

Estimation of a range for the equity beta of the SL CAPM, as the AER proposes, using among other things the observed equity beta for a comparator set of Australian energy networks will, we believe, be problematic. Cross checking against the betas of overseas energy networks and other Australian utilities will not assist.

As APA indicated in section 3 of these submissions, the comparator set of Australian energy networks (for which estimates of beta have been made in the past) will not constitute the benchmark efficient entity of the NER or of the NGR. Comparable entities used to construct the benchmark entity must be shown to be efficient, and must be shown to have degree of risk similar to that of the service provider in respect of its provision of regulated services. If this is not done – if beta estimation proceeds from data for an arbitrary set of Australian energy networks – there will be no reason to expect that an estimate of the rate of return on equity made using the beta so obtained will contribute to achievement of the allowed rate of return objective.

We acknowledge that proper construction of the benchmark efficient entity will limit the number of Australian comparators and the amount of data available for statistical parameter estimation. Parameter estimation will need to proceed carefully, and alternative models and methods will need to be employed to reveal any small sample biases.

The cross checking of the observed betas, as the AER proposes, against the betas for other Australian utilities will not, in our view, greatly assist. Those other utilities – which are in telecommunications, transport and water services – employ



very different technologies in serving different markets. They operate under different institutional, including regulatory, arrangements. There is no prior reason to expect that the betas of these other utilities might inform estimation of a rate of return on equity which contributes to the achievement of the allowed rate of return objective of the NER and the NGR.

The problem of ensuring comparability will be exacerbated if the betas of overseas energy networks are used as part of the process of cross checking. Institutional, regulatory and market structures are likely to be quite different to those in Australia. (This is certainly the case for the United States and Canada.) Understanding how these differences affect the betas of the overseas energy networks and how, then, those betas can be used in a process of cross checking Australian betas, will be difficult tasks.

We note below that US betas appear to be strongly countercyclical. Ascertaining the effect of the two economies being at different stages of the economic cycle will make cross checking of Australia betas against the betas of US energy networks particularly difficult.

5.2.3 Selecting a point estimate for beta

In selecting a point estimate for the equity beta of the foundation model, the AER proposes to have regard to the theory of the Black CAPM.

APA appreciates that this introduces a further element of flexibility into estimation of the rate of return on equity. However, it seems to us, that the flexibility which is provided has been unnecessarily restricted. Having regard to the theory of the Black CAPM will, in our view, not be particularly informative about beta or the rate of return on equity.

Appendix F of the Explanatory Statement explains that, although the Black CAPM is well grounded in economic theory, determining robust and transparent parameter estimates for the model is difficult.

The AER's concerns about the Black CAPM appear to arise from the views of Professors McKenzie and Partington, who argue that:

- NERA estimates of the return on the zero-beta portfolio (for APA Group, Envestra, Multinet and SP AusNet) were not robust,⁵ and

⁵ Michael McKenzie and Graham Partington, *Report to the AER: Review of NERA Report on the Black CAPM*, on behalf of the Securities Industry Research Centre of Asia-Pacific (SIRCA) Limited, August 24 2012.



- the near universal practice in risk measurement was to benchmark against a risk free rate as proxied by a yield on government securities, and not against the rate of return on a zero-beta portfolio.⁶

We do not see these as limiting the use of the Black CAPM, especially if the difficulties with the foundation model, and with the estimates made using that model, are recognised.

The Black CAPM was developed in response to the fact that early empirical work showed that the SL CAPM did not provide a good fit to observed rate of return data. A number of the assumptions which must be made to derive the SL CAPM – to give it its “strong theoretical foundation” – were questionable, and were quickly identified as being possible causes of the empirical failure of the model. Fischer Black identified the assumption of unrestricted borrowing and lending at the risk free rate of return as being problematic, and derived an asset pricing model within the mean-variance framework within which the CAPM was derived, without assuming the existence of a risk free asset, and without assuming unrestricted borrowing and lending.

As McKenzie and Partington point out, there may be a problem in that the derivation of the Black CAPM makes an assumption about short selling which does not accord with how stock lending market work.⁷ Nevertheless, the theoretical foundations of Black’s CAPM are at least as “strong” as those of the SL CAPM.

Although it may not be widely used by financial market practitioners, the Black CAPM is routinely applied in asset pricing studies. The model, and its econometric estimation, are discussed at length by Campbell, Lo and MacKinlay.⁸

Under the NER and the NGR the allowed rate of return is to be the rate which achieves the allowed rate of return objective. It is the rate of return outcome which is important, and not the method by which that outcome is obtained. Rate of return determination is no longer restricted to “well accepted financial models”. That, in the practice, risk measurement is benchmarked against the risk free rate of return, and not against the rate of return on a zero-beta portfolio, is of limited significance.

⁶ Michael McKenzie and Graham Partington, *Report to the AER: Risk, Asset Pricing models and WACC*, on behalf of the Securities Industry Research Centre of Asia-Pacific (SIRCA) Limited, June 27 2013.

⁷ Ibid, page 25.

⁸ John Y Campbell, Andrew W Lo and A Craig MacKinlay (1997), *The Econometrics of Financial Markets*, Princeton, New Jersey: Princeton University Press.



Use of the Black CAPM in estimation of the rate of return on equity does not have to be limited to use of the model as a theoretical proposition. The Black CAPM can provide an estimate of the rate of return on equity for the benchmark efficient entity which can be compared directly with the estimate obtained using the AER's foundation model.

5.2.4 Estimation of a range for the MRP

In estimating the rate of return on equity, the AER is proposing to have regard to the implementation of the SL CAPM proposed by Professor Wright. Professor Wright's implementation of the model does not treat estimation of the expected rate of return on equity as the sum of the risk free rate of return and the product of the equity beta and the market risk premium. It does not require an estimate of the market risk premium as a parameter in its own right.

The AER is proposing to use Professor Wright's implementation of the SL CAPM to inform the range of the rate of return on equity estimates, and to inform the overall rate of return on equity.

APA sees this as a further step in ensuring that the "right" estimate of the rate of return on equity is used in determining the rate of return.

In our view, Professor Wright's implementation accords more closely with the theoretical foundations of the SL CAPM than an implementation which treats the market risk premium as a parameter, and uses an average of historical excess returns over a long period as the estimate of that parameter.

The SL CAPM is derived by assuming that investors choose, at a point in time, portfolios of financial assets which yield returns one period later. Those returns are uncertain, and each investor is assumed to obtain expected utility from the random distribution of end of period wealth which depends only on the mean and variance of the portfolio returns.

An investor with a one period time horizon and concerned with maximising expected utility will choose a portfolio from among the financial assets which are available to minimise the variance of portfolio returns for a given level of expected return on the portfolio.

The financial assets available to the investor are:

- a risk free asset with a certain rate of return, r_f ; and
- a set of risky assets, each of which provides a rate of return, r_i , at the end of the period which is not known with certainty when a portfolio is chosen at the beginning of the period.



Although the returns on the risky assets are not known when portfolio choices are made, the joint probability distribution of those returns is assumed to be known by each investor.

In these circumstances, the expected rate of return on risky financial asset i is given by:

$$E(r_i) = r_f + \beta_i \times [E(r_m) - r_f],$$

where:

- $E(r_i)$ is the expected return on asset i ;
- β_i is the covariance of the return on asset i and the return on the market portfolio of all financial assets divided by the variance of return on the market portfolio; and
- $E(r_m)$ is the expected return on the market portfolio.

This is the SL CAPM.

If the SL CAPM is to be used to estimate the expected rate of return on a particular financial asset (asset i), estimates are required of:

- the risk free rate of return, r_f , at the time investors are choosing portfolios;
- β_i (the equity beta of asset i); and
- the expected rate of return on the market portfolio, $E(r_m)$, at the time of portfolio choice.

The difference $E(r_m) - r_f$ is usually referred to as the market risk premium (MRP). It is often, and in APA's view incorrectly, treated as a single parameter which must be estimated for application of the SL CAPM. Estimation of this single parameter usually proceeds from historical data on the equity risk premium.

If a long term average of observed risk premiums is used to estimate the MRP, this implies that $E(r_m) - r_f$ is estimated as

$$\frac{1}{n} \sum_{t=1}^n (r_{mt} - r_{ft}) = \bar{r}_m - \bar{r}_f$$

where \bar{r}_m is the average return on the market over the n years of the averaging period, and \bar{r}_f is the average risk free rate over the same historical period.

\bar{r}_m might be used as an estimate of the expected return on the market portfolio.



However, there is no place in the SL CAPM for a long term average of the rate of return on the risk free asset; there is no place for \bar{r}_f . In keeping with the derivation of the model, and its focus on the current choice of a portfolio of financial assets, the conceptually correct estimate of the risk free rate of return is the estimate of that rate at the time of portfolio choice. Investors are choosing, at that time, portfolios comprising the risk free asset with its known (at the time of portfolio choice) rate of return, and risky assets with uncertain rates of return but in relation to which the market portfolio has expected return $E(r_m)$.

The use of a long term average of past risk free rates is not only incorrect. It is also unnecessary. At the time the expected rate of return on financial asset i is to be estimated, an estimate of the current risk free rate is available.

If the MRP is estimated as a long term average of observed market risk premiums, the conceptually correct current risk free rate of return in the model is replaced – incorrectly – by an average of the risk free rate over some prior period. The result is an estimate of the rate of return on equity which might, only by chance, be an estimate which contributes to the allowed rate of return objective.

5.3 Use of the SL CAPM as a foundation model

The vast literature on asset pricing which has accumulated since the 1960s, generally attests to the fact that that SL CAPM does not provide a particularly good explanation of returns.

Early in the history of the SL CAPM, Miller and Scholes found a coefficient of determination for the model of only 0.19.⁹ Roll explored the issue in his presidential address to the American Finance Association in 1987.¹⁰ Using Australian data, Durack, Durand and Maller found that the explanatory power of the SL CAPM was poor with a coefficient of determination of only 7.25 per cent.¹¹ This was, they noted, in keeping with the coefficient of determination of 1.35% reported by Jagannathan and Wang in a then recent (1996) study which used US data.¹²

⁹ Merton H Miller and Myron Scholes (1972), "Rates of Return in Relation to Risk: A Re-examination of Some Recent Findings," in Michael C Jensen (ed.), *Studies in the Theory of Capital Markets*, New York: Praeger.

¹⁰ Richard Roll (1988), " R^2 ", *Journal of Finance*, 43(3): pages 541-566.

¹¹ Nick Durack, Robert B Durand, Ross A Maller (2004), "A best choice among asset pricing models? The Conditional Capital Asset Pricing Model in Australia", *Accounting and Finance*, 44(2), pages 139-162.

¹² Ravi Jagannathan and Zhenyu Wang (1996), "The Conditional CAPM and the Cross Section of Returns", *Journal of Finance*, 51(1), pages 3-53.



Recent estimates, made by the Western Australian Economic Regulation Authority (ERA) for its Draft Rate of Return Guidelines, similarly indicate that the SL CAPM does not explain investor returns with precision (and this is recognised by the ERA). Table 23 of the ERA's Draft Explanatory Statement shows that the coefficients of determination for the market model which appears to have been used to obtain ordinary least squares estimates of beta for individual Australian utility businesses are quite small, the largest (for APA) being 16.19%. Most of the beta estimates made are statistically significant at the 5 per cent level, indicating that beta is likely to have a role to play in an explanation of the return on equity. However, the low values for the coefficient of determination indicate that only a small proportion of the variation in the ERA's equity returns data is explained by beta. Other factors, as yet unidentified, and therefore omitted from the ERA's regressions, can be expected to play a major role in explaining those equity returns.

The SL CAPM assumes the equity beta is constant. The possibility that it is not, and is time varying, cannot be dismissed.¹³ Brooks, Faff and Lee suggest that this time variability may be driven by a number of macroeconomic variables which are thought to have a role in explaining returns but which are not specified in a single factor model like the SL CAPM. The time variability of betas is not uniquely Australian.¹⁴ Andersen, Bollerslev, Diebold and Wu report that US equity market betas vary with macroeconomic indicators such as industrial production growth, and are strongly countercyclical. Moreover, the macroeconomic effects on expected returns are large enough to be economically important.¹⁵ This countercyclical time variation in US betas is likely to make their use in the cross checking of Australian equity betas a challenging task.

If the SL CAPM does not explain a large proportion of the variation in the data on equity returns, then it cannot, in any specific set of circumstances, provide a precise estimate of the rate of return on equity in those circumstances.

¹³ See, for example, Robert W Faff, John H H Lee and Tim R L Fry (1992), "Time Stationarity of Systematic Risk: Some Australian Evidence", *Journal of Business Finance and Accounting* 19(2), pages 253-270; Robert D Brooks, Robert W Faff and John H H Lee (1992), "The Form of time variation of systematic risk: some Australian evidence", *Applied Financial Economics*, 2, pages 191-198; Robert D Brooks, Robert W Faff and John H H Lee (1994), "Beta Stability and portfolio formation", *Pacific-Basin Finance Journal*, 2, pages 463-479; Robert D Brooks, Robert W Faff and Thomas Josev (1997), "Beta stability and monthly seasonal effects: evidence from the Australian capital market", *Applied Economics Letters*, 4, pages 563-566; and Nick Durack, Robert B Durand, Ross A Maller (2004), "A best choice among asset pricing models? The Conditional Capital Asset Pricing Model in Australia", *Accounting and Finance*, 44(2), pages 139-162.

¹⁴ See Tim Bollerslev, Robert F Engle and Jeffrey M Wooldridge (1988), "A Capital Asset Pricing Model with Time-Varying Covariances", *Journal of Political Economy*, 96(1), pages 116-131.

¹⁵ Torben G Andersen, Tim Bollerslev, Francis X Diebold and Jin Wu (2005), "A Framework for Exploring the Macroeconomic Determinants of Systematic Risk", *American Economic Association Papers and Proceedings*, 95(2), pages 398-403.



Where a financial model cannot explain equity returns with precision, and where estimates made of the parameters of that model are also imprecise, then there is no reason to expect that rate of return estimates made using that model and that estimation method can contribute to achieving the allowed rate of return objective.

If the SL CAPM cannot explain investor returns with precision but the model is used, as the foundation model, to estimate the rate of return on equity, then its use should be supplemented by other evidence, including the estimates from alternative financial models and market data on equity returns, to establish a rate of return which contributes to achievement of the allowed rate of return objective.

As we noted above, we do not believe that there are strong reasons for rejecting use of the Black CAPM as a financial model relevant to estimation of the rate of return on equity.

Arbitrage Pricing Theory (APT) is also clearly relevant to the estimation of equity returns. It is particularly relevant if explicit consideration is to be given to the economic factors driving differences in risk which are reflected in differences in rates of return on equity between sectors (electricity and gas; transmission and distribution). An extensive theoretical literature, beginning with the paper by Ross, attests to the fact that APT is based on theoretical foundations at least as “strong” as those of the SL CAPM.¹⁶ We note, in particular, the paper by Conner, which demonstrates that the linear factor model of APT has an equivalent equilibrium representation when the market portfolio is a well-diversified portfolio, and the factors are pervasive in the economy. That the factors are pervasive permits investor diversification away from idiosyncratic risk with the implication that only systematic risk is priced.¹⁷

We fully appreciate the argument that, because economic theory does not provide strong guidance on the factors to be used when implementing the APT, there are risks of “data-mining” and an estimated model which may not predict future asset returns.

Nevertheless, APT is a well-developed and well-recognised approach to asset pricing theory. The issue with APT is not that it has limitations per se; all asset pricing models have limitations. The issue is whether, with careful implementation, those limitations can be dealt with to the extent that the model is

¹⁶ Stephen A Ross (1976), “The Arbitrage Theory of Capital Asset Pricing,” *Journal of Economic Theory*, 13, pages 341-360.

¹⁷ Gregory Connor (1984), “A Unified Beta Pricing Theory”, *Journal of Economic Theory*, 34(1): pages 13-31.



at least as good as, if not superior to, the SL CAPM with its acknowledged limitations, for the purpose of establishing the rate of return on equity of the benchmark efficient entity of the NER and the NGR.

In these circumstances, a form of comparative analysis will be required. A foundation model – the SL CAPM – might still be used, and provide an initial range for an estimate of the rate of return on equity. However, there should be no presumption that the final (point) estimate of the rate of return on equity will lie within this initial range.

Given the imprecision of the model, the ranges of estimates obtained when applying the SL CAPM should not be regarded as being any more than indicative. That, for example, the Black CAPM produces an estimate of the rate of return on equity outside the range of estimates obtained using the SL CAPM should not be taken to mean that the result from the Black CAPM is invalid. It is an indication that further investigation is required before a particular rate of return on equity is found to contribute to achievement of the allowed rate of return objective.

The imprecision of the SL CAPM as a theoretical proposition, and imprecision in beta estimation, also mean that this comparative analysis cannot be construed, as some have suggested, as providing a check on the results obtained using the SL CAPM. There are no prior reasons for expecting that implementation of the SL CAPM, using the AER's still to be disclosed proposal for estimation of the equity beta, can lead to estimates of the rate of the rate of return on equity which are "about right", and all that is required is that the estimates be "checked". The "reasonableness checks" which have been applied in the past have been vague and do not specifically inform estimation of the rate of return on equity.

The results obtained using the SL CAPM should be compared with estimates of the rate of return on equity made using other financial models, other estimation methods and other data. This comparative analysis, which is well established – under the name "triangulation" – in other social sciences, will be a carefully reasoned assessment of the results from alternative financial models, alternative estimation methods and different data sources, made in the context of the specific circumstances of the each service provider and its provision of reference services.

This is no more than the requirements of the NER and the NGR that regard be had to relevant estimation methods, financial models, market data and other evidence.



6 Rate of return on debt

APA generally supports the approach to estimation of the rate of return on debt proposed in the Draft Guideline. We recognise the advantages of the trailing average portfolio approach, we can see benefits in updating the rate of return on debt estimate annually, and we appreciate the need to implement transitional arrangements.

There are, however, specific aspects of the AER's proposal which are of concern to us, and these are discussed in this section of these submissions.

6.1 Use of a single model

APA accepts that the trailing average portfolio approach can be used to estimate the rate of return on debt.

We are, however, uncertain about the quality of the resulting estimate, and note that no consideration is given in either the Draft Guideline, or the Explanatory Statement, to how use of the approach might result in an estimate that is consistent with the allowed rate of return objective.

In the Draft Explanatory Statement accompanying its Draft Rate of Return Guidelines, the ERA in Western Australian reported comparisons it had made of the debt risk premiums obtained by applying its on-the-day approach with premiums estimated using the Nelson-Siegel method of yield curve modelling. These comparisons were reported to demonstrate that the regulator's proposed implementation of the on-the-day approach led to estimates which were not dissimilar to those which might be obtained using the more complex Nelson-Siegel method, suggesting that on-the-day approach estimates of rates of return on debt could be those required by the allowed rate of return objective. (We understand that there are now concerns about the way in which the ERA estimated its yield curves using the Nelson-Siegel method.)

We agree that the NER and the NGR may not require that the AER discuss and provide details of all possible variations of approaches to estimation of the rate of return on debt. However, the NER and NGR require that an estimate of that rate of return contribute to achievement of the allowed rate of return objective. The rules also require that the AER explain how its methodologies are proposed to result in the determination of a rate of return on debt in a way that is consistent with the objective. These requirements can, we believe, be more easily satisfied by comparing the results from use of a number of models rather than by reliance on a single model.



6.2 Benchmark term of debt

Section 6.3.1 of the Draft Guideline advises that the trailing average portfolio approach is to be applied with the length of the trailing average set to seven years. The Explanatory Statement explains that the period of seven years has been set having regard to:

- evidence which suggests that the average term of debt is less than 10 years;
- issues arising in the automatic updating of the trailing average portfolio return; and
- the difference in the term premium between seven years and 10 years not being material.

APA understands the AER's proposal in respect of the benchmark term to be the benchmark term at issuance of debt, and not the benchmark term to maturity of issued debt. It is the term at issuance which drives a service provider's cost of debt, and not (as the ERA in Western Australian assumed for its Draft Guidelines) the term to maturity of issued debt.

APA concurs with a proposal to estimate the rate of return on debt using a benchmark term at issuance.

This benchmark term at issuance should, in our view, be established by reference to the average term at issuance of the debt of the benchmark efficient entity. We expect that that term will be longer than seven years, and will probably be around 10 years.

Work undertaken by advisory firms CEG and PwC for the Energy Networks Association has indicated (it is not based on the benchmark efficient entity) an average term of 10 years at issuance. In section 7.3.3 of the Explanatory Statement, the AER rejects the results of that work after raising issues about the methodologies employed. The Energy Networks Association has advised us that CEG and PwC have now reviewed their earlier advice, and have responded to the issues raised by the AER. The evidence continues to support an average term of around 10 years.

In these circumstances, issues which might arise in the automatic updating of the trailing average portfolio return, and the materiality of the difference in the term premium at seven years and at 10 years, are not factors which should be considered in setting the benchmark term. They are not factors which can justify a change in the assumed benchmark from the average term at issuance of the debt of the benchmark efficient entity. Were such a change to be made, there



would be no reason to expect that the resulting estimate of the rate of return on debt could contribute to achievement of the allowed rate of return objective.

6.3 Estimation procedure

The current year estimate of the rate of return on debt in the proposed trailing average is to be made:

- using published yields from an independent third party data services provider;
- assuming a credit rating of BBB+ from Standard and Poors, or an equivalent rating from another recognised rating agency; and
- using the benchmark term of seven years.

Our views on the benchmark term were set out above.

6.3.1 Yields from an independent third party data services provider

We see the AER's proposal to use published yields from an independent third party data services provider as facilitating an estimate of the rate of return on debt which more closely accords with the efficient financing costs of the benchmark efficient entity than would be the case if the AER were to develop, maintain and use its own data on debt issues.

6.3.2 Credit rating

A Standard and Poors credit rating of BBB+ (or equivalent) is to be used in estimating the current year rate of return on debt. Section 7.3.4 of the Explanatory Statement explains that adoption of a credit rating of BBB+ is:

- consistent with the definition of the benchmark efficient entity
- a recognition of the relative stability of the credit ratings of regulated energy businesses;
- supported by empirical evidence; and
- consistent with previous practice.

APA is concerned that the credit rating is to be determined from a sample of network service providers in the Australian electricity and gas sectors. As we indicated in section 3 of these submissions, there is no obvious reason to expect that risks between service providers in the electricity and gas sectors, and between transmission and distribution, are sufficiently similar to allow the



assumption of a single benchmark efficient entity. There is, then, no basis for the use of a single credit rating determined for the single “benchmark”.

If a credit rating is required for the purpose of estimation of the rate of return on debt, then it must be the credit rating of the benchmark efficient entity. If it is not, then there will be no reason to expect that any rate of return on debt determined using that credit rating will contribute to the achievement of the allowed rate of return objective.

Again, we are led back to the benchmark efficient entity being central to determination of the rate of return required by the NER and the NGR, and to proper construction of the benchmark entity before rate of return determination can proceed.

If each of a number of entities have been shown to have a degree of risk similar to that of the service provider in the provision of reference services, and have been shown to be efficient, then the median credit rating of those entities could be the credit rating used estimating the rate of return on debt in accordance with the requirements of the NER and the NGR.

The proper determination of a “benchmark” credit rating is particularly important given the reliance that the AER intends to place on the credit rating in estimation of the rate of return on equity. By relying on the credit rating in the way proposed in the Draft Guideline and the Explanatory Statement, the AER is effectively assuming that the only risk to which the holders of debt securities are exposed is the default risk of the benchmark. Those security holders are, however, also exposed to systematic risk.¹⁸ Recently published research indicates that default risk accounts for only a small fraction of yield spreads for investment-grade bonds.¹⁹

We are concerned about the reliance placed on the credit rating in estimating the rate of return on debt. In a report on estimation of the rate of return on debt prepared for DBP (Dampier Bunbury Pipeline) and submitted to the ERA in March 2013 during consultation on the Western Australian regulator’s rate of return guidelines, The Brattle Group advised that the credit rating should not be considered in isolation:

¹⁸ See, for example, Edwin J Elton, Martin J Gruber, Deepak Agrawal and Christopher Mann (2001), “Explaining the Rate Spread on Corporate Bonds”, *Journal of Finance*, 56(1): pages 247-277; and Edwin J Elton, Martin J Gruber, Deepak Agrawal and Christopher Mann (2004), “Factors affecting the valuation of corporate bonds”, *Journal of Banking & Finance*, 28: 2747-2767.

¹⁹ Jing-Zhi Huang and Ming Huang (2012), “How Much of the Corporate-Treasury Yield Spread is due to Credit Risk?”, *Review of Asset Pricing Studies*, 2(2): pages 153-202.



Determining what constitutes a benchmark efficient entity of similar risks or finding a sample of entities with a similar risk profile is not trivial. In particular, the use of the yield on a generic index selected by credit rating is not sufficient, because entities within a given rating differ with respect to their coverage ratios, capital structures, cash flow variability, level of capital expenditures, and fundamental demand/supply conditions. All of these factors affect the cost of debt that the entity will face.²⁰

This is a view with which we concur.

6.4 Annual updating

APA understands the reasons for, and is generally supportive of, the AER's proposal to update the allowed rate of return in each year of a regulatory period by updating the estimate of the rate of return on debt used in determining that allowed rate.

If the allowed rate of return is updated annually as proposed, then rules 6.5.2(l) and 6A.6.2(l) of the NER, and rule 87(12) of the NGR, require that a change to the service provider's total revenue be effected through the automatic application of a formula. This formula is to be established for each service provider individually, and is to be set out in a regulatory decision pertaining to the service provider. We expect that the form of this formula and its use will involve some complexity. The way in which the AER intends to flow the annually updated rate of return through to regulated revenue should, therefore, be the subject of consultation, and (at minimum) key principles should be set out in the rate of return guidelines.

²⁰ The Brattle Group, *Estimating the Cost of Debt*, 4 March 2013, attached to DBP, Response to Consultation Paper: Guidelines for the Rate of Return for Gas Transmission and Distribution Networks, 6 March 2013.



7 Value of imputation credits (gamma)

Rules 6.5.3 and 6A.6.4 of the NER, and rule 87A of the NGR, require that the estimate of a service provider's cost of corporate income tax used in determining its regulated revenue and regulated tariffs, take into account the value of franking credits available to certain classes of equity investors. This value of franking credits represents a component of the return available to those equity investors.

The AEMC advised, in its November 2012 *Rule Determination*, that:

*The final rule requires the allowed rate of return to be determined on a nominal vanilla WACC basis with proper regard to dividend imputation (gamma). This is also consistent with the existing WACC approach in the NER rate of return frameworks in that it requires a consistent treatment of cash flows and the discount rate to properly incorporate the gamma factor.*²¹

In this context, the value to be attributed to imputation credits – the parameter γ in the formulas of rules 6.5.3 and 6A.6.4 of the NER, and in rule 87A of the NGR – should be the market equilibrium value consistent with the market equilibrium expected rate of return on equity of the benchmark efficient entity.²²

In section 7 of the Draft Guideline, the AER advises that the value of imputation credits is to be estimated as a market wide parameter and determined as the product of:

- a payout ratio; and
- a utilisation rate.

This is the approach of Monkhouse, which has been generally accepted for regulatory purposes in Australia.²³

In the following sections of these submissions we comment on the AER's proposed estimates of the payout ratio and the utilisation rate.

²¹ Australian Energy Market Commission, *Rule Determination, National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012, National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012*, 29 November 2012, page 68.

²² See Peter H L Monkhouse (1993), "The cost of equity under the Australian dividend imputation tax system", *Accounting and Finance*, 33(2), pages 1-18; and Justin Wood (1997), "A simple model for pricing imputation tax credits under Australia's dividend imputation tax system", *Pacific-Basin Finance Journal*, 5(4), pages 465-480.

²³ Peter H L Monkhouse (1996), "The value of projects under the dividend imputation tax system", *Accounting and Finance*, 36(2), pages 185-212.



7.1 Payout ratio

In section 7.3.1 of the Draft Guideline, the AER proposes that payout ratio be estimated as the average (cumulative) payout rate from 1987 (the year in which dividend imputation was introduced), to the last year for which tax data are available. The resulting estimate is 0.7.

The payout ratio is the ratio of the amount of franking credits distributed to shareholders (attached to dividends) to the amount of franking credits created by a firm. It is the proportion of franking credits created which might be used by shareholders to secure a reduction in personal income tax.

The payout ratio provides information on the quantity of imputation credits available to equity investors rather than their value to those investors. That value is estimated using the utilisation rate.

7.2 Utilisation rate

The Explanatory Statement defines the utilisation rate as the before-personal-tax reduction in company tax per \$1 of imputation credits received by the representative investor. The Draft Guideline proposes an estimate of this rate of 0.7, based on a body of evidence, which includes:

- information from the Australia Bureau of Statistics (ABS) that 71 per cent of Australian equity is currently held by domestic investors (the equity ownership approach);
- tax statistics;
- implied market value studies; and
- other supporting evidence (including observations about market practice, government tax policy, imputation equity funds)

The use of ABS domestic equity ownership data (the AER's equity ownership approach) is new. It is explained in section 8.3.5 of the Explanatory Statement.

The equity ownership approach may, like the earlier approach based on tax statistics, indicate an upper bound on the value of the utilisation rate. But, like the tax statistics approach, it does not lead to an estimate of the market value of imputation credits.

Of the body of evidence considered by the AER, only the implied market value studies lead to explicit estimates of the market value of imputation credits. We understand that these implied market value studies have used a number of different approaches and methods, and that each of those approaches and



methods has recognised strengths and limitations. Nevertheless, dividend drop-off studies have achieved a degree of acceptance for estimating the utilisation rate as evidenced by the Australian Competition Tribunal's decision to use the results from a well-designed and executed dividend drop off study undertaken by Professor Stephen Gray.

7.3 Conclusions on the value of imputation credits

APA concurs with the AER's proposal to estimate the value of franking credits as a market wide parameter determined as the product of:

- a payout ratio; and
- a utilisation rate.

We also agree that 0.7 is a current estimate of the payout ratio.

APA is however, concerned about the proposed estimate of the utilisation rate of 0.7. The Explanatory Statement does not, in our view, make a case for the estimate of the utilisation rate in the Draft Guideline, and does not therefore make a case for an estimate of γ of 0.5.

The AER's estimate of the utilisation rate does not seem to us to be an estimate which can lead to a market value for imputation credits. In the context of the NGR, such an estimate would not meet the requirement of rule 74(2) for an estimate which is arrived at on a reasonable basis and which represents the best estimate possible in the circumstances.

We understand that the valuation of imputation credits is an area of continuing research which may lead to new approaches and methods. At present, though, we see no reason for departing from the dividend drop-off methods for estimation of the utilisation rate which were refined and further developed by Professor Gray for the Australian Competition Tribunal. Those methods currently indicate a utilisation rate of around 0.35, implying an estimate of γ of about 0.25.



