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Dear Messrs Pattas, Roberts and Anderson

Submission in relation to the first round of regulatory determinations under the new Rules

CitiPower Pty and Powercor Australia Limited (**the Businesses**) welcome the opportunity to provide this submission in relation to each of the draft determinations set out in Attachment A. These determinations are the first to apply the new National Electricity Rules (**Rules**) adopted in 2012 by which the AER is to determine the cost of capital allowance for energy network businesses.

These new Rules apply a common framework to all energy networks and replace three different sets of rules that are applied to each of electricity transmission, electricity distribution and gas pipelines and as such the matters that are raised in the draft decision affect all energy networks.

The new Rules were intended to constitute a significant reform to the pre-existing arrangements which, for the electricity sector, involved moving away from the tightly prescribed use of:

- the SL-CAPM model for establishing the allowed rate of return for equity; and
- the “on the day” method of determining the allowed rate of return for debt.

Under these Rules, the AER is required to consider all the available inputs when setting the allowed rates of return for equity and debt. The Rules continue to provide that gamma is a market valuation of the imputation credits that would be distributed by a benchmark firm.

In reviewing the draft determinations, the Businesses are concerned that:

- The draft determinations proceed on the basis of an outdated assessment of the risks facing electricity distribution businesses in particular and this leads to a significant under-estimation of the required rate of return for equity.

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- The AER is approaching the task of establishing an allowed rate of return on equity in a manner which increases the likelihood of an approved rate of return which is not commensurate with the efficient costs of a benchmark firm and the requirements of the Rules.
- Although the central concept of introducing a trailing average for debt is a good one, there are a number of significant issues that need to be addressed in the way this would be implemented.
- For gamma, the Businesses have concerns the AER's "conceptual approach" is not correct and updating the data in the draft decisions to deliver a 0.4 instead of the value in the guidelines of 0.5 will not remedy the error.

Each of these issues is discussed further below under the following headings:

- Changing risk profile for electricity distribution network businesses
- Problems with the AER's Approach to Setting an Allowed Rate of Return for Equity
- The Business's Approach to the Allowed Return on Equity
- Implementing the Trailing Average Method for Debt
- Gamma.

Regards

A handwritten signature in blue ink that reads "Brent Cleeve". The signature is written in a cursive, flowing style.

Brent Cleeve
General Manager Regulation

Submission

1. *Changing risk profile for electricity distribution network businesses*

The draft determinations proceed on the basis that conceptually a “beta” value within a SL-CAPM model can adequately recompense the businesses for the returns required on risky investments and that a specific beta value of 0.7 is adequate for this purpose. The draft decisions and the guidelines they apply are largely based on a consideration by an analysis of risk by the AER itself, and a report Frontier Economics, both undertaken at the time of the AER’s WACC guideline process.

The Businesses do not consider the AER’s risk assessment alone at the time of the WACC guideline process will adequately compensate for risk energy network businesses are exposed to.

Firstly, the assessment by the AER and Frontier Economics that energy network businesses are less risky than the market average fails to acknowledge the significant new risks arising from new technologies such as solar power, battery storage, smart meters and the user-friendly service innovations that these technologies now enable. For the first time in a century, the combined effect of these developments is throwing into doubt the scale, design, direction for growth and longevity of electricity network investments.

The state of progress with respect to each of these disruptive technologies, and their potential effects, has have been described in detail in a submission put before the AER by the ENA during the Rate of Return Guideline (WACC Guideline) process and in the SA Power Networks regulatory proposal¹.

The Businesses support those submissions in the context of the AER’s decision making processes listed in Appendix A.

The draft determinations suggest that in addition to recompensing the business for risk through the beta, the business is insulated from risk as there is a constrained ability for the regulator to remove assets from the regulatory asset base through “optimisation” assessments and that asset utilisation and cost recovery risks are recompensed through this form of protection for “cash flows”. The AER does not have a proper basis for concluding that these mechanisms are effective in controlling new risks arising from these technologies.

Second, as discussed in the next section of this submission, the SL-CAPM is acknowledged to produce downwardly biased returns for businesses with the characteristics of energy network businesses and part of the explanation for this is that other models are better at modelling and explaining how investors assess risk and seek for it to be compensated. Moreover, the model - like all models - is a simplification of reality. The assumption underpinning it and the process for estimating its input parameters mean it cannot be expected to reflect that reality perfectly, and in fact evidence suggests otherwise. This should put the AER and other users on notice to look for other evidence to support any return on equity estimate or to overcome identified limitations.

¹ Pages 306 to 309

2. ***Problems with the AER's Approach to Setting an Allowed Rate of Return for Equity***

The businesses and the AER approaches the task of establishing an allowance for equity significantly differently given the interpretation of the Rules around the AER's consideration of the full range of relevant models and data available when determining the return for equity. The draft decisions proceed on the basis that it is sufficient to consider all the available material and then choose to accord some relevant inputs a very substantial weight, some a very constrained role and others no role at all. By contrast, the businesses consider that the Rules should be interpreted in the same way the equivalent language was interpreted in the DBNGP case². We are of the view that all the relevant information needs to be given a *real weight* that is proportionate to its probative merits. It is not acceptable to acknowledge that inputs are relevant and ascribe them no weight or to give such inputs a highly constrained role that does not reflect their probative value.

The AEMC's explanatory statement that accompanies the Rules repeats a number of times that all the relevant material must be considered.³ For example:⁴

"Whether or not the estimated rate of return meets the allowed rate of return objective will invariably require some level of judgement, but this judgement should be based with reference to all relevant estimation methods, financial models, market data and other evidence that could reasonably be expected to inform a regulator's decision.

...

In addition, the regulator must make a judgement in the context of the overall objective as to the best method(s) and information sources to use, including what weight to give to the different methods and information in making the estimate."

It would be a hollow exercise for the AEMC to have reformed the Rules to permit a departure from the SL-CAPM, required an evaluation of all the available alternatives and then permit the decision maker to disregard models or inputs that are found to be relevant and essentially revert to the pre-existing approach.

The very concept of a "foundation model" and its implementation prevent or improperly constrains a proper assessment on the merits of how much real weight each input should be accorded.

Another issue arises is through the AER's use of extra-legislative criteria⁵ that distract and distort a proper application of the allowed rate of return objective, the national electricity objective and the revenue and pricing principles directly to the models and other inputs. A number of these criteria are, on their face, irrelevant (for example whether the model is 'fit for purpose' – ie whether it was originally developed for the purpose that it is now being put⁶ and whether the methodologies are "complex"⁷). Other criteria are applied in a way that improperly closes off a full consideration of the material (for example whether a model is "well accepted"⁸).

² re Michael AM; ex parte Epic Energy (WA) Nominees Pty Ltd & anor [2002] WASCA231 at paragraph 55.

³ Pages i, iii, 26, 27, 30,31, 48

⁴ Page 48

⁵ AER, Rate of Return Guideline Explanatory Statement, Page 31.

⁶ AER, Rate of Return Guideline Explanatory Statement, 17 December 2013, Page 31, Criterion 2(a)

⁷ AER, Rate of Return Guideline Explanatory Statement, 17 December 2013, Page 31, Criterion 2(b)

⁸ AER, Rate of Return Guideline Explanatory Statement, 17 December 2013, Page 31, Criterion 1(a)

Neither the concept of a foundation model, nor the criteria, are found in the Rules or the National Electricity Law or the Rules and in effect they amount to an improper recasting of the Rules.

Our second concern is that the AER's assessment of the SL-CAPM and other models does not seem to be balanced:

- There is an inadequate acknowledgement of the flaws of the SL-CAPM;⁹
- There is an inadequate recognition of the value that other models have in addressing flaws in the SL-CAPM;¹⁰ and
- Inadequate weight is given to an empirical testing of the various models and empirical testing strongly favours models other than the SL-CAPM.¹¹

Equally, the criticisms of other models are excessively harsh:

- There is a suggestion that the Fama French model is lacking because it arose from empirical observation rather than "theory" when in fact all theories are developed as a way to explain observed phenomena;
- Regardless of which came first – theory or empirical testing – the order does not affect the relevance of the model;¹² and
- There is a spurious distinction between a model's ability to explain past equity returns as opposed to explaining future equity returns.¹³ Unless there is a reason why the world has changed there is no basis for doubting the prospective usefulness of a model that very well explains past returns.

Ever since its adoption 40 years ago, the SL-CAPM has been acknowledged to have significant weaknesses but superior models were not widely available. Today a lot more is known about the weaknesses and why it is that the SL-CAPM performs poorly in empirical tests and alternative asset pricing models are widely available.¹⁴ The SL-CAPM is a highly simplified model that takes a risk free rate and adds the product of a "beta" with a general market risk premium.

Over time preferable asset pricing models have become widely accessible. The Black CAPM has a more flexible functional form and can more closely model observed returns and be used for predictions.¹⁵ The Fama-French model has put forward additional variables that can have considerable explanatory power when seeking to explain or predict market rates of return.¹⁶

Further, the previous approach of prescribing the use of a single asset pricing model excludes other ways to establish fair returns including methods that attack the task in a different way rather than seeking to value assets such as the dividend growth model were not given significant weight even though they have been employed by for decades by energy regulators such as the Federal Energy Regulatory Commission in the United States.:

⁹ Compare SFG Consulting, The required return on equity for regulated gas and electricity network businesses 6 June 2014, pages 8, 20 to 24 with AER, Rate of Return Guideline Explanatory Statement, Appendix A, pages 10 to 12.

¹⁰ Compare SFG Consulting, The required return on equity for regulated gas and electricity network businesses 6 June 2014, pages 8, 26 to 40 with AER Rate of Return Guideline Explanatory Statement, Appendix A, pages 17

¹¹ Compare SFG Consulting, The required return on equity for regulated gas and electricity network businesses 6 June 2014, pages 8, 25, 35 with AER Rate of Return Guideline Explanatory Statement, Appendix A, pages 8, 11 to 12

¹² AER Rate of Return Guideline Explanatory Statement, 17 December 2013, Appendix A, page 8

¹³ AER Rate of Return Guideline Explanatory Statement, 17 December 2013, Appendix A, pages 19 to 20

¹⁴ SFG Consulting, 6 June 2014, page 25, 35 and SFG Consulting 22 May 2014, Cost of equity in the Black Capital Asset Pricing Model

¹⁵ SFG Consulting, The required return on equity for regulated gas and electricity network businesses 6 June 2014, page 8: "The Black CAPM provides a better fit to the empirical data than the Sharpe-Lintner CAPM..."

¹⁶ SFG Consulting, The required return on equity for regulated gas and electricity network businesses 6 June 2014, page 8: "The Fama-French model has the advantage of providing an unambiguously better fit to the data than the Sharpe-Lintner CAPM."

“The return on equity is derived from a range of equity returns developed using a Discounted Cash Flow (DCF) analysis of a proxy group of publicly held natural gas companies. The Commission currently uses a two-stage Discounted Cash Flow (DCF) methodology. The two-stage method projects different rates of growth in projected dividend cash flows for each of the two stages, one stage reflecting short term growth estimates and the other long term growth estimates. These estimates are then weighted, two-thirds for the short-term growth projection and one-third on the long-term growth, and utilized in determining a range of reasonable equity returns.”¹⁷

However, the draft determinations make only minor adjustments to the approach that has existed since the advent of modern economic infrastructure regulation in Australia.

A significant part of the reasoning supporting the reselection of the SL-CAPM as a foundation model is explicitly conservative. Important factors in selecting this model included giving weight to the idea that other regulators adopt the SL-CAPM or the AER’s perceptions as to whether the model is “well accepted”¹⁸. This is analogous to the rejection in the 1600s of Galileo Galilei’s submissions that an astronomical model in which the Earth revolves around the Sun better explains observed phenomena than the then “well accepted” Earth-centric model. If an existing model is shown to be flawed in ways that newer models are not, collective inertia is not a proper decision making constraint upon giving the newer model(s) real weight according to the substantive contributions they can make. It cannot be the case that by removing any reference within the Rules to the incumbency of the SL-CAPM, the AEMC intended a “chicken and egg” situation that prevents the regulator from moving to adopt a new model until another regulator has.¹⁹

The Businesses have devoted a substantial effort individually and through the Energy Networks Association to assemble a wealth of theoretical and empirical analysis to enable the AER to establish an allowed rate of return that integrates all the insights now available to finance theorists and market practitioners.²⁰ Many of these insights were not available when the SL-CAPM was first employed for economic regulation in Australia and the fact that past practice has did not take them into account is not a basis today to exclude them. Indeed the preponderance of that evidence now available speaks very loudly of the need for change.

The above concerns with respect to a failure to recognise and respond to problems with the existing regulatory approach are even more acute when the draft decision determines to not even significantly reform the way in which the AER has implements the SL-CAPM. In the current economic conditions, the AER’s previous approach to specifying that model (ie by combining an immediate contemporaneous measure of the risk free rate with a market risk premium derived from more than 100 years-worth of data) delivers values that are necessarily materially lower than prevailing market returns.

Experts explain that there is no one-to-one relationship between movements in the risk free rate and the risk adjusted returns that investors require. In fact the market risk premium tends to fluctuate in the reverse direction from risk free rates.²¹

¹⁷ FERC June 1999, Cost-of-Service Rates Manual for gas pipelines, page 16

¹⁸ AER Rate of Return Guideline Explanatory Statement, 17 December 2013, Page 31.

¹⁹ AER, Rate of Return Guideline Explanatory Statement, 17 December 2013, Appendix A, pages 12 - 13

²⁰ ENA, Response to the Draft Rate of Return Guideline of the Australian Energy Regulator 11 October 2013

²¹ SFG Consulting, The required return on equity for regulated gas and electricity network businesses 6 June 2014, page 51 to 53

Although the expert work is informative at an aggregate level, there are also occasions when this concept is readily apparent to any intelligent observer. For example, shortly after the collapse of Lehman Brothers two key propositions were inescapably prominent to finance market practitioners and the general business community alike – at the same time that investors became nervous and were demanding significantly increased returns, central banks were significantly reducing wholesale interest rates to try and stimulate the economy. This is a stark example of what the expert evidence shows is generally the case: the market risk premium and risk free rates tend to move in opposite directions.

This means that adding a long run average market risk premium to an immediately observed risk free rate will deliver downwardly biased results when risk free rates are low and upwardly biased results when risk free rates are high. In the current environment of record low risk free rates, a simple addition of a very long term market risk premium with an instantaneous risk free rate is almost bound to significantly under compensate equity investors.

Indeed, the approach in the draft determination²² delivers a nominal post tax return on equity of just 8.1% which is very substantially lower than five years previously which provided for a return on equity of, in Ausgrid case 11.82% and similar figures for other businesses. More than two percentage points of that drop can be attributed to the fall in the underlying risk free rate. While the risk free rate has dropped in this way, there is simply no evidence available from which to conclude that equity investors' required rates have fallen in proportion to the fall in the risk free rate.

Most of the businesses that are the subject of the draft determinations are government owned and they do not have direct experience in dealing with market sourced equity investors but our business does. In our considered opinion, equity investors expect to receive considerably higher post tax returns in the current economic environment than the 8.1% produced by the AER's modelling and we disagree that the AER's approach produces an allowed rate of return that is commensurate with prevailing conditions.

It might be tempting to jump to the conclusion that under-compensating investors at this time is of little concern if, once the economic cycle turns, the current under-compensation could be off-set by future over-compensation but this is not the case. If there is a mismatch in either direction between prevailing rates and regulatory allowances inefficiencies will arise. Firstly, there are costs for the businesses of absorbing inter-temporal fluctuations in returns through explicitly or implicitly carrying a balance sheet provision for such a mismatch. Secondly, at times of under-compensation timely investments are discouraged or delayed and at times of over-compensation the opposite effect applies and there is an incentive to invest earlier than required. Neither is efficient. Note also that these effects are pro-cyclical which means that the direction of the mismatch encourages businesses to reduce capital expenditures at times that input costs are likely to be low and to increase capital expenditures at times when input costs are likely to be high.

It is appropriate, therefore, that the Rules require (as they do) that each determination provides for a regulatory allowance that is commensurate with the prevailing efficient costs for a benchmark firm at the time. In the AEMC's words:

*"If the allowed rate of return is not determined with regard to the prevailing market conditions, it will either be above or below the return that is required by capital market investors at the time of the determination. The Commission was of the view that neither of these outcomes is efficient nor in the long term interest of energy consumers."*²³

²² AER, Draft Decision Ausgrid distribution determination 2015-16 to 2018-19, November 2014, Attachment 3, page 3-45

²³ AEMC Rule Determination, 29 November 2012, page 44

In the current economic environment, this requires a significant change from the status quo.

3. *The Business's Approach to the Allowed Return on Equity*

The Businesses support the approach in the SFG Consulting report²⁴ that gives considered weight to:

- to the rates of return predicted by the Black CAPM, Fama French and dividend growth models; and
- to both the Wright and Ibbotson approaches to estimating the market risk premium parameters for the SL-CAPM and other asset pricing models thereby addressing the mismatch between instantaneous risk free rates and a long run market risk premium.

The approach adopted by SFG Consulting, and the allowed rates of return it calculates, constitute a modest, balanced, inclusive and responsible proposal that would deliver an allowed return on equity that is in line with current market conditions. The approach proposed does not opportunistically seize upon the model or particular inputs that delivers the highest returns but instead accepted that all models should contribute to the resulting allowance – including the Ibbotson SL-CAPM even though it is known to be downwardly biased and delivers materially lower results than all the other available models and could legitimately be characterised as an 'outlier'.

It is a great disappointment, therefore, that the draft determinations reject this approach and instead make only relatively minor adjustments to a "business as usual" approach that relies principally on a model that was "state of the art" more than 40 years ago for both the central focus of deriving a point estimate, and a source of strict constraint on the use of other information. The net effect at the end of the day is almost as if all the detailed work of interested parties contributing to the AEMC rule change process and rate of return guideline had not occurred at all.

The Businesses commends the SFG Consulting paper to the AER and encourage you to reconsider the 'foundation model' approach in favour of an approach that gives real weight to all of the models that SFG Consulting considers. In the current environment an allowed return on equity approach as established by SFG Consulting is appropriate and consistent with our views concerning the prevailing efficient costs of equity capital in our industry.

4. *Implementing the Trailing Average Method for Cost of Debt*

The Businesses support the adoption of a regulatory framework that reflects the efficient costs of a benchmark entity. We agree with the AER²⁵ that both under the old Rules and the new Rules efficient debt raising practices had to effectively manage refinancing risks and, therefore, efficient debt portfolios necessarily involve staggered maturities and that annual updating better reflects efficient practices. However, there are a number of ways in which we consider the approach to establishing the allowed rate of return for debt does not reflect the efficient costs of a benchmark firm.

The first consideration concerns the credit rating. In the Businesses view, the benchmark credit rating should be a BBB credit rating based on the median credit rating of the businesses that do not benefit from the implicit support of significant Australian or foreign government equity.

²⁴ SFG Consulting, The required return on equity for regulated gas and electricity network businesses 6 June 2014, pages 7 and 8

²⁵ AER Rate of Return Guideline Explanatory Statement, 17 December 2013, Page 107

The second consideration is that not all the efficient costs have been included in the AER's proposed allowance. The AER draws its benchmarks from independent service providers who report on secondary market trades. However, businesses do not sell their debt in piecemeal quantities on secondary traded markets. Rather electricity network businesses must issue bonds in substantial tranches and CEG has established²⁶ that a new issue premium of approximately 30 basis points is borne by electricity network businesses.

Similarly, energy network businesses cannot manage cash flows on the unrealistic basis that incoming debt perfectly coincides with repayment obligations for expiring instruments. We can only raise debt efficiently by holding a Standard & Poors (or equivalent) credit rating and that agency requires that there is a buffer of time such that new debt is raised approximately three to six months prior to old debt expiring. During this over-lap period, we borrow at long term rates while the surplus can only earn the over-night interest rate. These costs are commonly referred to as the indirect costs of raising debt and they must be taken into account when setting an allowed rate of return.

To the extent that our operational expenditure or capital expenditure allowances do not make provision for the direct costs of raising debt (ie underwriters fees, legal fees and the like) these also need to be included in the WACC calculation.

The third consideration is the transition path of cost of debt. Rule 6.5.2(j) provides that the allowance for debt may be determined using the "on the day" method, on the basis of an average of the costs of debt raised over a historical period prior to the determination or a combination of the two. Rule 6.5.2(k) provides that the allowance would take account of any impacts on the benchmark efficient firm arising from a change in methodology.

The Businesses are aware and understand why from the NSW electricity businesses' perspective they would consider that a transition is unnecessary for their businesses given that they have already effectively adopted a trailing average even before the new Rules came into effect.

Under the previous regulatory arrangements, an efficient benchmark business needed to manage as best it could:

- refinancing risk (ie the risk that it may not be possible or economic to refinance a business's entire debt portfolio at one time or a substantial part of it); and
- the risk of disparities in interest rates between the averaging period used for the "on the day" methodology and the interest rates prevailing at the time debt was actually raised.

In 2009, as part of consultation on the AER's WACC parameter reset determination, the corporate treasurers of the Envestra (paragraphs 5.16, 5.17, 6.4 and 6.5),²⁷ Jemena (see paragraph 5.19, 5.23 and 5.25),²⁸ SP Ausnet (paragraphs 4.9 to 4.15 and 5.1 to 5.9)²⁹ and Citipower and Powercor (paragraphs 5.2, 5.4, 7.1 and 7.2)³⁰ each provided the AER with statements explaining how under the

²⁶ CEG, The New Issue Premium, October 2014.

²⁷ Statement of Gregory Meredith (Envestra), an appendix to the Joint Industry Associations' submission to the AER on the WACC parameters review of February 2009

²⁸ Statement of Sim Buck Khim (Jemena), an appendix to the Joint Industry Associations' submission to the AER on the WACC parameters review of February 2009

²⁹ Statement of Alastair Watson (SP AusNet), an appendix to the Joint Industry Associations' submission to the AER on the WACC parameters review of February 2009

³⁰ Statement of Andrew Noble (Citipower and Powercor), an appendix to the Joint Industry Associations' submission to the AER on the WACC parameters review of February 2009

previous Rules no business would prudently raise all its debt in the “on-the-day” averaging period. Rather all businesses sought to stagger their maturities to avoid refinancing risk and then generally undertook hedging transactions to control their exposures to interest rate movements as well as they reasonably could.

Although there is an actively traded market for swaps against the prevailing yields on Commonwealth Government securities, there is no equivalent for generic BBB debt and therefore it is not possible to hedge movements in the debt risk premium. Indeed an ability to better manage volatility in the debt risk premium is one of the principal advantages of ultimately moving to the trailing average method. This has been acknowledged by the AER³¹:

“For an Australian efficient operator there is no market to effectively, and in a cost efficient manner, hedge their DRP.”

The AER has acknowledged that this is how an efficient benchmark firm would have managed its debt portfolio at that time:³²

*“Given the observed practices of regulated network businesses and the definition of the benchmark efficient entity, we consider that the following practice is likely to constitute **an efficient debt financing practice of the benchmark efficient entity** under the current ‘on the day’ approach:*

- *holding a debt portfolio with staggered maturity dates and using swap transactions to hedge interest rate exposure for the duration of a regulatory control period...”*
(emphasis added)

The above finding was restated in the draft Ausgrid determination³³.

Under the previous Rules, the “on-the-day” methodology was mandatory and the flexibility concerning whether and how the AER might recompense the businesses for their efficient costs was constrained.

Under the new Rules, however, the AER has greater flexibility in setting the returns on debt. However:

- it is mandatory under rule 6.5.2(a) and (b) to determine the debt allowance consistent with the rate of return objective which requires that the rate of return to be commensurate with the efficient financing costs of the of a benchmark efficient entity; and
- where there is discretion to be exercised that it be done in accordance with the revenue and pricing principles of the NEL including providing network businesses with a reasonable opportunity to recover its efficient costs.

Having made the factual finding that it is efficient under the previous Rules for a business to raise debt on a staggered basis and hedge to the averaging period, it would be an error not to establish the rate of return on a basis that enables the businesses to recover the efficient costs of doing so.

The transition path in the guidelines is not established on that basis and it is at significant risk of failing to comply with the rule 6.5.2(a) and the section 7A of the NEL unless it can be demonstrated that the transition path in the guideline provides *at least* as high a return as a transition path that is explicitly calculated on the basis of the costs of a business with a portfolio of debt with staggered maturities and hedging.

³¹ AER, Better Regulation, Explanatory Statement, Rate of Return guideline, page 122

³² AER, Better Regulation, Explanatory Statement, Rate of Return guideline, page 107

³³ Page 3-115

5. *Gamma*

Notwithstanding the detailed material set out in the draft determinations, the Businesses considers that a correct and internally consistent regulatory determination requires that the gamma be established based on a true market valuation as are all the other WACC parameters.

Although gamma is an input into the corporate income tax calculation, the value adopted for gamma ultimately has a role determining returns for equity-holders. If the value ascribed to imputation credits is higher than the value that equity-holders place on them, the overall return to equity-holders will be less than what is required to promote efficient investment in, and efficient operation and use of, energy network services for the long term interests of consumers.

A secondary reason why gamma needs to be established as a market value concerns internal consistency. If a market valuation for gamma is not adopted, the market valuations of other WACC parameters would not make sense where the valuations rely on investors' market valuations for gamma.

While it is interesting to consider the original writings by Officer, there are limitations to the usefulness of doing this. While his work clearly recognised the fundamental point – the need for imputation credits to be considered – a lot of much more detailed work has subsequently been done to explore fully how the concept should be implemented in practice.

The draft determination acknowledges that there are apparent ambiguities in the way in which Officer's original documents described gamma because reference was made to both "value of a dollar of tax credit to the shareholder" and to the "proportion of the tax collected from the company will be rebated against personal tax".

On page 4-34, Handley is quoted asserting that these two terms were used interchangeably with the "proportion of tax" concept being what Officer intended but this is questionable. It would seem more likely that Officer had in mind a valuation concept but had not researched the issue of why the market valuation might diverge significantly from the face value and for that reason he used the terms interchangeably.

In any event, when looking at the broader picture in which energy network businesses need to compete in equity markets to attract investment capital, it is a market valuation which is relevant.

Neither the 'equity ownership approach' developed by the AER nor an examination of tax statistics concerning the nominal dollar amounts are suitable for establishing a market valuation. In the Businesses view, because neither the equity ownership approach nor the tax statistics approach are relevant (except in as much as tax statistics provide an upper bound on the value of gamma because it is highly unlikely that the market valuation could ever materially exceed the nominal value of the credits).

SFG Consulting³⁴ provides the most comprehensive and up to date analysis using market valuation methodologies and a number of criticisms have been levelled at his work in the draft determinations. SFG Consulting has responded to those criticisms in full. Based on the SFG Consulting work, the Businesses considers that 0.25 is the most appropriate market valuation of gamma.

³⁴ SFG Consulting, An appropriate regulatory estimate of gamma, May 2014

Appendix A: Australian Energy Regulator Draft Determinations

ActewAGL, 27 November 2014

AusGrid, 27 November 2014

Directlink, 27 November 2014

Endevour Energy, 27 November 2014

Essential Energy, 27 November 2014

Jemena Gas Networks (NSW), 27 November 2014

TasNetworks, transmission determination, , 27 November 2014

TransGrid, 27 November 2014