

13 February 2015



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Dear Mr Anderson, Mr Roberts and Mr Pattas,

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

Australian Gas Networks (**AGN**) provides this submission in relation to each of the draft determinations set out in Appendix A. These determinations are the first to apply the new National Electricity Rules and National Gas 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 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 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, AGN is concerned that:

- The draft determinations proceed on the basis of an outdated assessment of the risks facing distribution businesses and this leads to a significant under-estimation of the required rate of return for equity.

- The AER is approaching the task of establishing an allowed rate of return on equity in a way that is misconceived and cannot possibly result in a rate of return that is commensurate with the efficient costs of a benchmark firm nor accords with 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 with the AER's approach that need to be addressed. AGN is considering its position in light of the AER's draft determinations.
- For gamma, the AER's "conceptual approach" is simply not correct and updating the data in the draft decisions to deliver a 0.4 instead of the value in the guideline of 0.5 will not remedy the error.

Each of these issues is discussed further in the submissions attached to this letter.

Regards



Craig de Laine
Group Manager Regulation



AGN Submission

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

The draft determinations proceed on the basis that conceptually a gearing ratio, a "beta" value within in a SL-CAPM model and a benchmark credit rating can adequately recompense the businesses for the returns required on risky investments and that a specific beta value of 0.7, and a credit rating of BBB+ are 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 from Frontier Economics, both undertaken at the time of the AER's WACC guideline process.

It is simply not the case that an adequate compensation for risk can be provided that way.

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 disruptive 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 network investments.

The state of progress with respect to each of these disruptive technologies, and their potential effects, 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 proposal.¹

AGN repeats 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 these risks particularly if the "death spiral" effect described in the SA Power Networks proposal were to occur.

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 assumptions 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.

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

A significant disagreement inherent in the different way in which the businesses and the AER approach the task of establishing an allowance for equity, concerns the rule requirement that the AER considers the full range of relevant models and data available. 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 case.²

¹ Pages 306 to 309.

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

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 similar error arises through the 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

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 fails to:

- acknowledge the flaws of the SL-CAPM;⁹
- recognise the value that other models have in addressing flaws in the SL-CAPM;¹⁰ and
- give adequate weight to an empirical testing of the various models and empirical testing strongly favours models other than the SL-CAPM.¹¹

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).

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.

Equally, the AER's criticisms of other models are ill placed and misconceived:

- There is a suggestion that the Fama French three factor 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 for decades by energy regulators such as the Federal Energy Regulatory Commission in the United States:

"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

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 10 and 11.

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."*

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.

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 network businesses have devoted 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 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 significantly reform the way in which the AER 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

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 determinations²² deliver 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, in Ausgrid case of 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.

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

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

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 deny 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

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*

AGN supports the approach in the SFG Consulting report²⁴ that gives real weight 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 parameter to the SL-CAPM and other asset pricing models—thereby addressing the mis-match 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 disappointing, 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.

²³ AEMC Rule Determination, 29 November 2012, page 44.

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

Indeed, the only material differences in approach by the AER in the draft determinations compared with the old rules is that the value of beta has been reduced to 0.7 and the value of gamma has increased to 0.4 and each of these changes is unrelated to the adoption of the new rules. 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 WACC guideline had not occurred at all.

AGN commends the SFG Consulting paper to you and requests that you reconsider and abandon the 'foundation model' approach in favour of an approach that gives real weight to all of the models that both the AER and SFG Consulting agree are the relevant models to consider.

In the current environment an allowed rate of return on equity of approximately 10% (as established using SFG Consulting's weightings) 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 Debt*

AGN supports the adoption of a regulatory framework that reflects the efficient costs of a benchmark efficient entity. AGN is currently considering its position on the approach to the cost of debt in light of the AER's draft determinations. However, AGN notes 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 network businesses must issue bonds in substantial tranches and CEG has established²⁵ that a new issue premium of approximately 30 basis points is borne by network businesses.
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- indirect costs of raising debt must be taken into account when setting an allowed rate of return;
- to the extent that 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 AER's transitional approach to the trailing average does not appear to be commensurate with the benchmark efficient entity's efficient financing costs.

AGN will make further submissions on the cost of debt approach in due course.

5. *Gamma*

Notwithstanding the detailed material set out in the draft determinations, AGN 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.

²⁵ CEG, The New Issue Premium, October 2014.

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 unconvincing. 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 AGN's view, 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 Consulting²⁶ 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, AGN considers that 0.25 is the most appropriate market valuation of gamma.

²⁶ 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