Appendix C: Rate of Return

Introduction and summary of changes

The capital already invested in the network and the financing and costs associated with that capital, has by far the greatest impact on prices. The cost of funding this capital is determined by multiplying the value of the asset base by the proposed rate of return.

It is more important than ever for Ergon Energy to ensure we have an appropriate rate of return to attract funds should we be required to.

Using advice of experts and consistent with the views of private sector industry participants, our required equity returns are consistent with statutory objectives, but higher than what was calculated by the AER in its Rate of Return Guideline. A departure from the guideline is therefore necessary. Our required cost of debt is relatively consistent with the AER's guideline calculations.

Ergon Energy has maintained our approach to calculating the rate of return. However, we have updated our proposal to reflect the latest market information.

Customer benefits

We have been able to propose a much lower rate of return, thanks to current market conditions, which is again supporting our commitments around electricity prices.

The updated rate of return of 7.41% in our revised Regulatory Proposal is below the 8.02% we proposed as a placeholder in October 2014 and a reduction on the previous period's 9.72% and the 8.50% rate set in the 2005-10 period (under the regulation of the QCA).

This supports our target to keep overall increases in network charges at 2014-15 levels for the four remaining years of the regulatory control period 2015-20.

Appendix C: Rate of Return

1 Introduction

This appendix describes Ergon Energy's approach to determining the rate of return that we propose to apply to Standard Control Services in the regulatory control period 2015-20.

We have updated our required rate of return from 8.02% in our October Regulatory Proposal to 7.41% (nominal), primarily based on changes to market conditions at the time our proposal was finalised. The reduction in the required rate of return largely reflects changes in market parameters. We have revised our proposed approach to estimating the cost of debt so that it better reflects NER requirements.

A reduced rate of return improves what we previously proposed as our 'best possible price' commitment outlined in *0A.00.01 – An Overview, Our Regulatory Proposal 2015-20.* We noted at the time of our October Regulatory Proposal that, to the extent that financing costs continue to improve relative to the assumptions contained in our proposal, we expected the AER to establish a rate of return commensurate with these conditions to deliver even better outcomes for customers in terms of what we charge to build, operate and maintain our network.

The AER did not do this. Instead the AER's Preliminary Determination imposed substantially lower allowances than any market-based measure of the costs of a benchmark network business implementing efficient financing practices.

As detailed in this appendix and supporting evidence, in relation to each of the AER's preliminary decisions on the rate of return, the AER fails to accommodate the contemporaneous market reflective return that the benchmark firm would actually earn in efficient capital markets. Specifically:

- With respect to the expected return on equity, the AER's approach of combining a very long run market risk premium which significantly understates the degree of risk we face with an extremely short run base interest rate delivers an allowed rate of return on equity clearly below the prevailing hurdle rates for our industry. The Reserve Bank of Australia (RBA) has now explained that the required return on equity has been relatively stable over recent months as the equity risk premium has increased to offset the material decline in base interest rates. The AER's Preliminary Determination fails to give any real weight to three of the four models that it has acknowledged are relevant. The AER must reflect these facts in its decisions.
- With respect to gamma, the AER's approach eschews estimates for gamma drawn from contemporaneous equity markets in favour of a 'conceptual analysis'. This imposes an artificial valuation that is substantially higher than any benchmark efficient firm would experience when seeking to raise capital in the real marketplace and does not represent the "value of imputation credits" within the meaning of the NER.
- With respect to the expected return on debt, the AER acknowledges that the benchmark efficient firm would have a portfolio of long-term debt with a staggered portfolio of issuance and maturity. However, the AER's approach depresses the allowed return below the level of costs associated with such a staggered portfolio in order to claw-back allegedly inflated gains from the immediately prior regulatory control period. These gains, to the extent they exist, can only have resulted from non-systematically selecting debt allowances for the whole five year regulatory control period over extremely short averaging windows in volatile debt markets.

All of these features of the AER's preliminary decision are contrary to the NER requirements in that they result in a significant divergence between the regulated allowances and efficient financing costs in prevailing market conditions.

In a number of respects, the AER's Preliminary Determination has applied confused and incorrect decision making tests. In most instances these tests appear to be a legacy of former regulatory arrangements that the Australian Energy Market Commission (AEMC) deliberately repealed.

In the past:

- The AER was required to use the Sharpe-Lintner Capital Asset Pricing Model (SL CAPM) when regulating electricity networks and strongly encouraged to use it for the gas networks. However, now *due regard must* be had to all the relevant models. We are concerned that the AER's approach is to start from the proposition that the SL CAPM is the incumbent model and, no matter how strong the case, it cannot be departed from.
- For electricity, the previous rules required the AER to apply its Statement of Regulatory Intent unless there was "persuasive evidence" to depart from it. However, now the requirement is to make the decision that best promotes the allowed rate of return objective whether or not that position was set out in the Rate of Return Guideline. Despite this, in a number of respects the AER's Preliminary Determination seeks to impose a substantial (and in some cases impractically high) hurdle upon the business' claims rather than setting the allowance on the best available information.

These previous approaches have now been superseded. When construed in the context of the regulatory instruments, the task at hand and the case law,[127] the decision-making test is required to take into account all of the relevant models and other inputs (which quite clearly must include fully estimating each model) and give *due weight* to each of these inputs in reaching a decision that best promotes the rate of return objective.

Our October Regulatory Proposal was established on the basis of the decision-making test outlined above. Our revised Regulatory Proposal, as explained below, has also been established on the same basis.

1.1 Context of our revised proposal

In the current regulatory process, there are four distinct avenues by which Ergon Energy may express our views:

(a) in the regulatory proposal itself (lodgement of which is provided for in clause 6.8.2 of the NER)

(b) in information "accompanying" the regulatory proposal (which a number of rules recognise as a distinct category of material from the regulatory proposal itself – see clauses 6.9.1(a)(3) and 6.11.1(b)(1) of the NER)

(c) in a submission lodged by the business during the periods in which the AER invited submissions on the Preliminary Determination (see clause 6.9.3(a)(5) of the NER)

(d) in the submissions in response to the revocation and substitution of the Preliminary Determination (see clause 11.60.4(b) of the NER which expressly states that "any person" may make a submission and which adds that "Without otherwise limiting the manner in which

[127] Re Dr Ken Michael AM; Ex parte EPIC Energy (WA) Nominees Pty Ltd & Anor [2002] WASCA 231.

the affected DNSP may make such submissions, the affected DNSP may make a submission in the form of revisions to the *regulatory proposal* that it submitted to the AER in relation to the distribution determination referred to in paragraph (a).").

This appendix relates to the last of these avenues. Therefore, this revised Regulatory Proposal forms part of our submission under (d) above and must be considered with other relevant material now the revocation and substitution process has commenced. In addition to our October Regulatory Proposal, this includes:

- all relevant evidence and material provided by Ergon Energy to the AER since our October Regulatory Proposal, including submissions made as part of the reset processes for the NSW and ACT DNSPs
- our submission in response to the AER's Preliminary Determination
- supporting evidence, documentation and material submitted with our submission to the AER's Preliminary Determination, in particular:
  - our submission in response to the rate of return (equity)
  - our submission in response to the rate of return (cost of debt)
  - our submission in response to gamma
  - expert reports, models and other evidence accompanying these submissions.

1.2 Commercial and market context

The remaining value of capital investments Ergon Energy has made is represented by the approved RAB. Prices are set to enable us to recover our investment over time (a return of that capital or depreciation, referred to in Chapter 3), as well as the cost of funding investments through debt or equity (a return on capital or allowed rate of return).

An allowance for the return on capital is therefore a key revenue building block making up our revenue allowance. The return on capital is calculated as the product of the allowed rate of return and the opening value of the RAB used to provide Standard Control Services for that regulatory year.[128]

As an asset intensive business, Ergon Energy's financing requirements are substantial. Table 55 sets out the assumed funding requirements for Ergon Energy at the beginning of the regulatory control period.

Table 55: Assumed funding requirements, $m[129]

Assumed financing requirement represented by Opening RAB	$10,055.83
Investment requiring debt financing	$6,033.50
Investment requiring equity financing	$4,022.33

[128] NER, clause 6.5.2(a).

[129] Assumes capital structure consistent with the AER's Rate of Return Guideline.

Because all distribution network businesses are highly capital intensive, the return on capital tends to be the most significant of the building blocks that make up the ARR. This has been recognised by the AEMC in the context of the 2012 Rule change process: [130]

> "Given the capital intensity of energy networks, the rate of return is one of the key determinants of the network prices that consumers pay. The nature of the energy network sector requires service providers to make significant investments in assets over time to maintain and improve their networks. The rate of return allows service providers to attract the necessary funds from capital markets for these investments and service the debt they incur in borrowing the funds."

In the regulatory control period 2010-15, the return on capital made up more than half of Ergon Energy's total revenue requirement. The methods used to calculate the return on capital is therefore also one of the more contentious issues when establishing future revenue allowances. The determination of a forward-looking rate of return is an inherently subjective exercise as many of the parameters, in particular the expected return on equity, are not readily observable. Because of the subjectivity and sensitivity to future revenues, the rate of return has been the most debated issue in recent policy developments and regulatory reviews.

The allowed rate of return needs to be commensurate with the return that an investor would require to commit capital to the business, having regard to prevailing conditions in the market for funds. [131] The AEMC has acknowledged that:[132]

> "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."

The AER has also noted the adverse consequences of a rate of return set too high or too low:[133]

> "A good estimate of the rate of return is necessary to promote efficient prices in the long term interests of consumers. If the rate of return is set too low, the network business may not be able to attract sufficient funds to be able to make the required investments in the network and

[130] AEMC (2012), *Final Rule Determination, National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012*, ppii-iii.

[131] NER, clause 6.5.2(g). In the revised NER this clause now only relates to the return on equity. This still applies to the extent relevant in relation to the return on debt, recognising that under the trailing average approach the return on debt will reflect the cost of debt raised historically, with the prevailing return on debt 'averaged in' to that trailing average each year as part of the annual update.

[132] AEMC (2012), Ibid, p44.

[133] AER (2013a), *Better Regulation: Rate of Return Fact Sheet*, December 2013.

reliability may decline. On the flip side, if the rate of return is set too high, the network business may seek to spend too much and consumers will pay inefficiently high prices."

While risks occur if the rate of return is set too high or low, there is evidence to suggest that regulatory error tends to have asymmetric consequences. The Productivity Commission has stated: [134]

"Over-compensation may sometimes result in inefficiencies in timing of new investment in essential infrastructure (with flow-ons to investment in related markets), and occasionally lead to inefficient investment to by-pass parts of the network. However, it will never preclude socially worthwhile investments from proceeding.

On the other hand, if the truncation of balancing upside profits is expected to be substantial, major investments of considerable benefit to the community could be forgone, again with flow-on effects for investment in related markets.

In the Commission's view, the latter is likely to be a worse outcome."

In reporting to the Ministerial Council on Energy as part of its review of energy network pricing, the Expert Panel found:[135]

"Even if there is no systemic bias in regulatory decisions, the costs of regulatory error are asymmetric, i.e., errors leading to suppression of rates of return and under-provision of infrastructure are likely to outweigh the costs of errors leading to extraction of above-normal rates of return from regulated infrastructure."

The consequences of under-investment in electricity network infrastructure in Queensland are well known. Following a period of extended outages arising from a severe storm season and hot weather, the Queensland Government commissioned a review of electricity distribution and service delivery (the EDSD review), which concluded:[136]

"While the Panel accepts that it would not be economically prudent to "gold plate" the networks, it is clear that there needs to be sufficient expenditure to maintain them adequately and to develop them to meet new customer demands. For the reasons explained in this Report, the

[134] Productivity Commission (2001), *Review of the National Access Regime, Report no. 17*, AusInfo, Canberra, p83.

[135] Expert Panel on Energy Access Pricing (2006), *Report to the Ministerial Council on Energy*, April 2006, p77.

[136] Independent Panel (2004), *Detailed Report of the Independent Panel, Electricity Distribution and Service Delivery for the 21st Century*, p8.

Panel believes that the networks have not had sufficient expenditure outlaid on them to adequately maintain them and to meet increased demand from growth…"

The NER establish a framework based on the forward looking benchmark costs of raising debt and equity from the market to fund investment. The application of this same assumption to government and non-government owned businesses was explicitly considered and endorsed by the AEMC[137] and AER.[138]

It has therefore always been relevant to Ergon Energy to set an allowed rate of return at a level that would be sufficient to attract private capital, regardless of our government ownership. As acknowledged by the AEMC[139] and AER,[140] this is also consistent with the principle of competitive neutrality, which underpinned the corporatisation of government-owned businesses, including Ergon Energy.

Analysing the level of risk our business faces

The AER should wholly re-work its analysis of risk. The AER's Preliminary Determination analysis was based in significant part on a report it commissioned from Frontier Economics. Frontier Economics has now reviewed the use to which its work has been put by the AER. It relevantly states:

"The fact that the precise relationship between leverage and equity beta is not known with certainty does not mean that that the effect of leverage on beta should be disregarded when making comparisons between estimated equity betas. Such an approach would be at odds with accepted finance and regulatory practice.

The "financial risks" that we considered in our 2013 report for the AER are not the same as financial leverage and do not substitute for the leverage component of equity beta. The AER appears to have misunderstood this point in our 2013 report." [141]

The evidence that the AER presents in relation to US utility betas supports a re-levered equity beta estimate of close to 1."

"There have been developments in the roll-out and adoption of disruptive technologies since our 2013 report. There is more uncertainty about the future of the industry now than there was even two years ago, and it is not unreasonable to think that investors would take this into account when allocating scarce capital to this industry.

[137] AEMC (2012). Ibid.
[138] AER (2013b), *Better Regulation, Explanatory Statement, Rate of Return Guideline*, December 2013.
[139] AEMC (2012), Ibid, p79.
[140] AER (2013b), Ibid, p211.
[141] Frontier Economics (2015), *Review of the AER's conceptual analysis for equity beta*, May 2015, para 10, p4.

> The AER suggests that any systematic component of disruptive technology risk would be captured in its equity beta estimates. Our view is that this is very unlikely.
>
> The AER suggests that to the extent that the risks are non-systematic in nature, those risks would more appropriately be compensated through regulated cash flows (such as accelerated depreciation of assets). However, notwithstanding that the AER recognises that disruptive technologies may increase the risks faced by NSPs, the AER has made no allowances for these risks either through the rate of return or through regulated cash flows."[142]

As clearly evidenced by this additional work, the AER has failed to properly recognise the effect of a 60% leverage on the beta.

1.3 Legislative context

The AER's approach to the return on capital is incorrect in relation to equity, debt and gamma. The NER requires the AER to make a decision that sets an allowed rate of return that is commensurate with prevailing market conditions.[143] While real world equity returns have remained virtually constant, the AER's regulatory allowance has declined radically in lock-step with unprecedented falls in base interest rates.

The key reasons for the mismatch between the allowance and commensurate market returns are:

- The AER adopts the contemporaneous government bond rate as the estimate of the risk free rate in circumstances where the rate is at historically low levels without making adjustments to the rate of return to ensure the allowed rate of return objective is met.
- The AER combines a historically low short term risk free rate with a risk premium equal to the long run historical average of excess market returns.
- The AER fails to give any real weight to several of the key relevant finance models – contrary to the requirements of the NER to have regard to the insights arising from estimating all these models.
- The AER implements its favoured SL CAPM in an inconsistent and unpredictable way that causes the regulatory allowance to oscillate and vary up and down more profoundly than observed equity returns as we move through the economic cycle and which, even on a structural basis, delivers downwardly biased results for firms that are claimed to be 'low risk'.

Each of the three aspects of the rate of return –equity,[144] debt,[145] and gamma[146] – need to be amended so that the allowances are commensurate with market-based returns and in order for the regulatory allowance to foster long-term efficient investments necessary for the supply of safe and reliable electricity in the long-term interest of consumers.

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[142] Frontier Economics (2015), *Review of the AER's conceptual analysis for equity beta*, May 2015, para 10, p4.
[143] NER, clause 6.5.2(g).
[144] NER, clause 6.5.2(g).
[145] NER, clause 6.5.2(i).
[146] NER, clause 6.5.3.

Despite contrary assertions by the AER's economic consultants when discussing gamma,[147] these decisions on aspects of the rate of return are closely connected with each other because together they determine the return that investors in the business can earn on capital invested. All three components must comprise a consistent, prevailing market-based return that the benchmark firm would actually face (and can replicate) in the regulatory control period.

The regulatory framework in relation to the provision of Standard Control Services to our customers is contained in the NEL. The Revenue and Pricing Principles allow us to "at least" recover the efficient costs of providing these services.[148]

One of these Revenue and Pricing Principles stipulates that the price of these services "should allow for a return commensurate with the regulatory and commercial risks involved in providing the direct control network service to which that price or charge relates." This allowed rate of return reflects the efficient costs of financing the capital investments Ergon Energy needs to make in order to deliver our services to our customers.

The NER now requires the allowed rate of return to achieve the following objective (the 'allowed rate of return objective'):[149]

> "…the rate of return for a *Distribution Network Service Provider* is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the *Distribution Network Service Provider* in respect of the provision of *standard control services*…"

The substantive NER requirements mandate the decision to deliver efficient market based assessments for each of these three components using the best available information on the current effective financing costs for the benchmark efficient firm.

Importantly, consistent with the principles of incentive regulation, the NER requires that the allowed rate of return is based on the efficient benchmark costs of raising debt and equity from the capital markets to fund these investments. It is not based on Ergon Energy's actual financing costs. This provides an incentive for us to achieve efficiency gains and ensures that we cannot be rewarded for inefficient funding practices and costs.[150]

1.4 The Rate of Return Guideline

The AER must publish, and has published, a Rate of Return Guideline which addresses each of the issues that determine the rate of return on capital. Specifically, the Rate of Return Guideline[151] must set out:

[147] Handley J. (2015), *Advice on the NERA Report: Estimating Distribution and Redemption Rates for the Australian Energy Regulator*, 20 May 2015.

[148] NEL, clause 7A.

[149] NER, clause 6.5.2(c).

[150] AEMC (2012), p12.

[151] NER, clause 6.5.2(n).

(1) the methodologies that the *AER* proposes to use in estimating the *allowed rate of return*, including 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

(2) the estimation methods, financial models, market data and other evidence the *AER* proposes to take into account in estimating the return on equity, the return on debt and the value of imputation credits referred to in rule 6.5.3."

The Rate of Return Guideline is not binding and must be departed from if the outcomes of the guideline will not produce a rate of return that is consistent with the requirements of clause 6.5.2 of the NER and/or will not satisfy the allowed rate of return objective. This was not done in the AER's preliminary decision.

1.5 NER requirements

The substantive requirements for the AER's decision to deliver efficient market based assessments for each of these three components using the best available information on the current effective financing costs for the benchmark efficient firm are set out below:

"(b) The allowed rate of return is to be determined such that it achieves the allowed rate of return objective.

(c) The allowed rate of return objective is that the rate of return for a Distribution Network Service Provider is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk … "

"(e) In determining the allowed rate of return, regard must be had to:

(1) relevant estimation methods, financial models, market data and other evidence;

(2) the desirability of using an approach that leads to the consistent application of any estimates of financial parameters that are relevant to the estimates of, and that are common to, the return on equity and the return on debt; and

(3) any interrelationships between estimates of financial parameters that are relevant to the estimates of the return on equity and the return on debt.

…

(g) In estimating the return on equity under paragraph (f), regard must be had to the prevailing conditions in the market for equity funds.

…

(j) Subject to paragraph (h), the methodology adopted to estimate the return on debt may, without limitation, be designed to result in the return on debt reflecting:

(1) the return that would be required by debt investors in a benchmark efficient entity if it raised debt at the time or shortly before the making of the distribution determination for the regulatory control period;

(2) the average return that would have been required by debt investors in a benchmark efficient entity if it raised debt over an historical period prior to the commencement of a regulatory year in the regulatory control period; or

(3) some combination of the returns referred to in subparagraphs (1) and (2).

(k) In estimating the return on debt under paragraph (h), regard must be had to the following factors:

…

(4) any impacts (including in relation to the costs of servicing debt across regulatory control periods) on a benchmark efficient entity referred to in the allowed rate of return objective that could arise as a result of changing the methodology that is used to estimate the return on debt from one regulatory control period to the next."[152]

"γ is the value of imputation credits."[153]

Many features of the AER's decision are contrary to the requirements of the NER quoted above in that they result in a significant divergence between the regulated allowances and efficient financing costs in the prevailing market.

Inter-period look-backs or claw-backs are impermissible

With respect to the allowed return on debt, the AER's approach involves a departure from the prevailing financing costs of a benchmark efficient firm (given that it would have a portfolio with staggered debt issuance). The AER's approach also explicitly seeks to impose an inter-period

[152] NER, clause 6.5.2.
[153] NER, clause 6.5.3.

'look-back' when setting the allowance. Under-compensating Ergon Energy now, in order to reverse alleged past 'windfall gains' is contrary to the express language in the NER and is inconsistent with the fundamental basis for the economic regulatory system upon which the network regulatory aspects of the NEM are based.

The Australian economic regulatory system is an "incentive based" system known as "CPI-X" regulation. That system was based upon the "RPI-X" system initially developed by the UK's Royal Treasury for the regulation of British Telecom in the 1980s. The key aspect of this system is that, subject to well defined carry-over mechanisms, the business is allowed to earn an efficient contemporaneous benchmark return. The business can profit by out-performing the benchmark (or suffer losses where it under-performs the benchmark). Except to the limited extent of a well-defined incentive carry-over mechanism, at the time of each regulatory determination the question of whether the business out-performed or under-performed the benchmark is not a relevant consideration.

In this regard, we are particularly concerned that the AER's Preliminary Determination seeks to "claw back" alleged past wind-fall gains on past debt allowances by under-compensating the business relative to the AER's own current assessment of our efficient debt financing costs.

The AER did not provide any analysis or assessment of past over-compensation by Ergon Energy in its Preliminary Determination. The AER has assumed that such past over-compensation existed and that it was of a similar magnitude to the prospective under-compensation under the AER's proposed guideline transition. Our analysis of this issue demonstrates that there was no past windfall gain for Ergon Energy over the past three historical regulatory control periods from 2001 to 2015. In fact, there were windfall losses using a weighted trailing average approach which is the only weighting approach that can be used to undertake this analysis.[154]

2 Our proposed rate of return

Ergon Energy has developed our rate of return proposal with the objective of obtaining the best possible estimate under the NER, which reflects prevailing conditions in the market for funds. [155] Assuming 60% gearing[156], the proposed estimate for the first year of the regulatory control period is provided in Table 56 below.

Table 56: Summary of key rate of return parameters, 2015-20[157]

Key parameter	Ergon Energy's calculation
Return on equity	10.00%
Return on debt	5.68%
Rate of return	7.41%

[154] See our supporting submission, *QTC – Return on debt transition analysis*.

[155] S6.1.3(9) of the NER provide that Ergon Energy's building block proposal must provide a calculation of the proposed return on equity, return on debt and allowed rate of return, for each regulatory year of the regulatory control period, in accordance with clause 6.5.2, including any departure from the methodologies set out in the Rate of Return Guideline and the reasons for that departure.

[156] Consistent with the AER's Rate of Return Guideline.

[157] To calculate the WACC, the return on equity value has been rounded to 10.5%, consistent with the PTRM.

This is an indicative 'placeholder' estimate reflecting prevailing market rates in the period prior to the submission of this Regulatory Proposal. Consistent with the AER's normal practice, the return on debt and equity will be updated prior to the AER's Substitute Determination.

The return on debt will then be updated annually during the regulatory control period in accordance with the trailing average approach,[158] based on averaging periods to be agreed with the AER. For the purpose of this Regulatory Proposal, our estimate of the return on debt for the first year of the regulatory control period has been applied to each of the remaining four years of the regulatory control period. Section 4.9 of this appendix sets out the method of calculation of the proposed rate of return on debt which Ergon Energy proposes to apply in the first and each subsequent year of the regulatory control period.

The basis of Ergon Energy's proposal is summarised in Table 57, including identifying where Ergon Energy has departed from the AER's Rate of Return Guideline.

Table 57: Overview of Ergon Energy's proposed approach to estimating the allowed rate of return

Allowed rate of return component / parameter	Rate of Return Guideline approach/value	Ergon Energy's proposal and identified departures
Rate of return on equity	• The AER's starting point is the standard SL CAPM – its 'Foundation Model'. Value of certain parameters and overall rate of return on equity estimate informed by considering other models and relevant data/evidence • Estimate to be applied for the duration of the regulatory control period	Ergon Energy has departed from the AER's Rate of Return Guideline on the choice of model. We consider that the application of the SL CAPM as set out in the Rate of Return Guideline will not produce a return on equity estimate that satisfies the requirements of the NER and the allowed rate of return objective. Instead, it is proposed that these requirements would be satisfied by estimating the return on equity by applying all relevant models (the SL CAPM, Black CAPM, Dividend Discount Model and Fama-French model), as permitted under the NER.
Return on Equity: Risk free rate	• Observed yield on 10 year Commonwealth Government bonds • Averaged over a 20 business day period, where the period is nominated in advance by the AER and will be as close as practicably possible to the commencement of the regulatory control period	Ergon Energy's proposed approach complies with the AER's Rate of Return Guideline.
Return on Equity: Market Risk Premium	• 10 year forward looking estimate commensurate with prevailing conditions in the market for funds at the commencement of the regulatory control period • Evidence to be considered includes historical excess returns, dividend growth model, survey evidence, implied volatility and recent	Ergon Energy continues to depart from the AER's Rate of Return Guideline.

[158] Using the methodology specified in clause 6.5.2(j)(2) of the NER – known as the trailing average portfolio approach – the rate of return on debt, and consequently the allowed rate of return, will vary during each regulatory year of the regulatory control period 2015-20.

Allowed rate of return component / parameter	Rate of Return Guideline approach/value	Ergon Energy's proposal and identified departures
	regulatory determinations	
Return on Equity: Equity beta	• To be estimated using empirical analysis, which focuses on a small sample of domestic energy network businesses • International comparators and the Black CAPM will inform where the point estimate is selected from within the range • The AER's preferred value is 0.7.	Ergon Energy continues to depart from the AER's Rate of Return Guideline
Rate of return on debt	• BBB+ credit rating assumption • Based on historical trailing average portfolio approach, assuming one-tenth of the debt portfolio is refinanced each year (simple averaging approach) • Transitional formula will apply for the first ten years • Data used to produce the estimate will be sourced from an independent third party provider • Measured using an averaging period of 10 or more consecutive business days and no more than twelve months. Averaging periods must be nominated by the NSP at the start of the regulatory control period	Ergon Energy has complied with the Rate of Return Guideline in estimating the return on debt in relation to: • use of an independent third party provider to estimate the return on debt • nomination of our proposed averaging periods for each year of the regulatory control period. Ergon Energy has departed from the Rate of Return Guideline in relation to the adoption of the trailing average approach, with a transition – Ergon Energy now proposes to adopt the *Hybrid* cost of debt approach based on the AER's determination of the efficient debt management strategy for the benchmark efficient business. Ergon Energy continues to depart from the Rate of Return Guideline in respect of: • *the notional credit rating assumption:* the AER's BBB+ assumption • *the averaging approach:* instead of a simple average, Ergon Energy is proposing to apply a weighted average that reflects the approved capital expenditure and associated borrowing profile contained in the approved PTRM. This is because a simple average could still result in a material mismatch between the actual and allowed return on debt given the lumpy nature of an energy NSP's capital expenditure profile. This is not consistent with the NER requirements. Ergon Energy has used data from the RBA and the Bloomberg BVAL curve to estimate the swap risk premium consistent with the AER's simple averaging measurement approach in the Preliminary Determination. Ergon Energy has estimated the return on debt as the average of the 1-10 year swap rates published by the Australian Financial Markets Association plus the weighted

Allowed rate of return component / parameter	Rate of Return Guideline approach/value	Ergon Energy's proposal and identified departures
		trailing average swap risk premium using a hybrid approach plus the cost of the swap transactions required to effect the transition from the AER's efficient hybrid debt management approach under the previous NER to the trailing average approach under the new NER. For the first year of the regulatory control period, this results in a return on debt estimate of 5.68% based on the agreed averaging period for the base risk free rate and the historical 10 year average cost for the swap risk premium.
Gearing ratio	• Based on benchmark gearing ratio of 60% (debt to total value)	Ergon Energy has proposed the Rate of Return Guideline value of 60%.
Allowed rate of return	• Defined as a nominal vanilla Weighted Average Cost of Capital (WACC) • To be estimated based on a weighted average of the point estimates of the rate of return on equity and the rate of return on debt, assuming a 60% gearing ratio • To be updated annually each year for adjustments to the rate of return on debt	The return on equity has been estimated based on the four relevant models specified above. This results in an estimate rounded to the nearest one decimal place consistent with the PTRM, resulting in an input value of 10.0%. Combining this with the return on debt of 5.68%, Ergon Energy's proposed WACC is 7.41% (post tax nominal vanilla).
Imputation credits	• Value of 0.5 assigned to imputation credits	Ergon Energy has departed from the AER's Rate of Return Guideline because we consider that there are a number of material flaws in the AER's reasoning and approach. Ergon Energy has proposed a value of 0.25, which we consider will better meet the requirements of the NER.

3 Proposed return on equity

We remain of the view that the approach to establishing the allowed return on equity that was set out in our October Regulatory Proposal is correct and a materially preferable approach to that which appears in the Preliminary Determination. Indeed it is necessary for the Preliminary Determination to be revoked and substituted in this respect for the final decision to accord with the allowed rate of return objective in the NEL.

3.1 The evidence base upon which our submission is based

Ergon Energy jointly commissioned SFG Consulting (SFG) to undertake extensive analysis of the methods used to estimate the return on equity within the context of the NER requirements. The outcomes are summarised in SFG's summary report, *The Required Return on Equity for Regulated*

Gas and Electricity Network Businesses (the SFG Cost of Equity Report), which forms part of this Regulatory Proposal.[159]

SFG concluded that there is a broad range of evidence that is relevant to the estimation of the required return on equity for the benchmark efficient entity. In particular, four models are proposed as relevant evidence. SFG analyses this evidence, along with the relevant strengths and weaknesses. The relevant methods and models are used in estimating the return on equity, having regard to prevailing conditions in the market for equity funds.

The analysis by SFG demonstrates that the return on equity that would result if the Rate of Return Guideline was applied is too low and is well below the estimates produced by applying other relevant models and evidence.

Although the AER was not persuaded by the original expert reports that we submitted in support of our proposal, they should be reconsidered by the AER before making the Substitute Determination for our business because they provide a thorough analysis of why the 'multi-model' approach is preferable to the 'foundation model' approach. In many cases the AER has not properly recognised the insights models other than the SL CAPM provide into equity markets and the flaws those models reveal in the AER's approach.

Since the October Regulatory Proposal and before the Preliminary Determination was published, Ergon Energy jointly procured the following additional reports that support the original proposal, including:

- NERA – Review of the Literature in Support of the Sharpe-Lintner CAPM; the Black CAPM and the Fama-French Three-Factor Model (March 2015)
- SFG Consulting – The foundation model approach of the Australian Energy Regulator to estimating the cost of equity (March 2015)
- SFG Consulting – The required return on equity for the benchmark efficient entity (February 2015)
- NERA – Historical Estimates of the Market Risk Premium (February 2015)
- NERA – Empirical Performance of the Sharpe-Lintner and Black CAPM (February 2015)
- SFG Consulting – Beta and the Black Capital Asset Pricing Model (13 February 2015)
- SFG Consulting – Using the Fama-French model to estimate the required return on equity (February 2015)
- SFG Consulting – Share prices, the dividend discount model and the cost of equity for the market and a benchmark energy network (18 February 2015)
- Incenta Economic Consulting – Further update on the required return on equity from Independent expert reports (February 2015).

These reports were lodged by other businesses and Ergon Energy with the AER prior to the Preliminary Determination and Ergon Energy also requested that the AER consider many of these reports in our various submissions to the AER as part of our reset process but they have not yet formed a formal part of our submissions.

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[159] *08.01.01 — SFG Consulting: The Required Return on Equity for Regulated Gas and Electricity Network Businesses*. The *SFG Cost of Equity Report* issued in May 2014 has been updated to reflect more up-to-date market parameters. The addendum, *08.01.02 – (Revised) Frontier Economics: Addendum to Cost of Equity Report*, is also attached to this Regulatory Proposal.

For the purposes of our revised Regulatory Proposal, we have procured a number of additional reports and have included these documents as part of our documentation suite. We have relied on these reports in revising our proposal and responding to the AER's preliminary decision on the rate of return and gamma. Details of our response and the associated evidence can be found in the following response documents:

- *Rate of Return (Cost of Equity) – Response*
- *Rate of Return (Cost of Debt) – Response*
- *Value of Imputation Credits – Response.*

3.2 Our reasons for departure are enhanced by the additional evidence

Our supporting submission, *Rate of Return (Cost of Equity) – Response,* summarises the additional evidence relied upon by us to support the necessary move away from the sole or predominant reliance on the SL CAPM when setting our allowed rate of return for equity. There is extensive support for the use of each of the dividend growth model/discounted cash flow, Black CAPM and Fama-French Three Factor Model concurrently with the SL CAPM.

For the reasons outlined in this appendix and our supporting submission, and the evidence underpinning those submissions, we do not consider there to be any concrete reason to depart from our October Regulatory Proposal in respect of the determination of the cost of equity. When the Preliminary Determination is revoked and substituted with the Substitute Determination, that determination should employ SFG's multi-model approach as we initially proposed.

Our supporting document emphasises the need for the AER to engage as part of the revoking and substitution process with material presented by us which demonstrates:

- The AER is required to, but has not, compared the outcomes of its decision-making process against returns currently observable in the financial market to ensure it is compensating us for the efficient financing costs of the benchmark entity.
- The AER's foundation model approach departs from the requirements of the NER in that it imposes restrictive constraints that effectively prohibit other evidence from affecting the allowed rate of return.
- The conclusions of the AER and its expert regarding the dividend growth model or discounted cash flow approaches being new models with no widespread use and acceptance are wrong and should be corrected.
- The AER has misunderstood how to assign a beta to an electricity network business with a 60:40 debt to equity capital structure facing the advent of disruptive technologies.
- The AER fails to take the necessary steps to address the downward bias in returns that the SL CAPM delivers for betas of below 1.
- Although the AER accepts the Fama-French model is "relevant", it excludes the model from its development of the allowed rate of return.

3.3 Other considerations – CCP

In our meeting with CCP representatives in March 2014, Ergon Energy was requested to make some comparison between what current rates of return are being proposed and

- what is currently being considered by the Office of Gas and Electricity Markets

- what expected returns on equity are received by some of our customer groups.

Similar questions were raised with our customer representative groups in discussions with them as part of our regulatory proposal development process. We asked Synergies to look at the specific issues raised by the CCP and customers and their report forms part of our Regulatory Proposal.[160]

The Synergies report does indicate that the issues raised by the CCP and customers are not determinative in the setting of a forward-looking rate of return under the NER. Nevertheless, in our engagement with customers, the quantum of the rate of return and DNSP departures from the AER's Rate of Return Guideline were subject to criticism.

We have heard our customers and their disappointment with the quantum of the rate of return. We do note that market rates of return have improved since the time of our 2010-15 Distribution Determination and this has contributed to lower revenue requirements for the regulatory control period 2015-20. Changes to the NER also provide some comfort to customers that financing costs will be updated annually to reflect the most up to date market analysis.

Finally, we note at the beginning of this chapter that there are consequences for setting rates of return which are too low. The approach we have taken is focused toward long-term stability for customers and equity holders as well as debt financiers. It is also aimed at minimising short-term volatility in financial markets. We believe such an approach is consistent with customers' long-term interests and those of the financiers of regulated businesses.

3.4 Ergon Energy's proposed return on equity

Based on the evidence before us, updated for more recent market data, Ergon Energy's proposed return on equity is 10.04%,[161] as shown in Table 58.

Table 58: Ergon Energy's proposed return on equity

Model	Weighting	Return on equity
Sharpe-Lintner CAPM	12.50%	9.41%
Black CAPM	25.00%	10.02%
Fama-French	37.50%	10.02%
Dividend Discount Model	25.00%	10.39%
Weighted average		**10.04%**

Ergon Energy is submitting an estimate that makes appropriate use of all relevant models that have a role to play in informing the required return on equity in the current market and therefore satisfies the requirements of the NER, including satisfying the allowed rate of return objective.

If the AER continues to (incorrectly) limit its foundation model to the SL CAPM, it must apply a different approach to estimate that model than the approach set out in its Rate of Return Guideline. Ergon Energy's proposed alternative approach, which is set out in the SFG Cost of Equity Report,[162] and updated in its revised report, involves using all relevant models and evidence to estimate the parameters in the SL CAPM. This re-specified SL CAPM arrives at the same estimate as would result from the application of Ergon Energy's proposed multi-model approach.

[160] Refer to *08.01.04 – Synergies Economic Consulting: Response to Issues Raised by Consumer Challenge Panel*.

[161] The calculated WACC is based on a rounded estimate of 10.00%, as per the PTRM.

[162] *08.01.01 – SFG Cost of Equity Report*, p92.

4 Rate of return on debt

Like the return on equity, the return on debt must be estimated so that it contributes to the allowed rate of return objective.[163] The NER now permits an approach that could result in the return on debt changing in different regulatory years in the regulatory control period (or it could continue to be set for the entire period).[164]

The AER intends to transition NSPs from the current "on the day" approach to the trailing average portfolio approach over a period of 10 years. As a consequence, in the first regulatory year of the transitional period the allowed return on debt will be based on the estimated prevailing rate of return on debt for that year (consistent with the "on the day" approach), with prevailing rates in subsequent years progressively averaged in, with the prevailing rate in each year having a weight of 10%.

The transition to the trailing average method is without question the most significant issue concerning the debt allowance in this regulatory control period for our business.

Ergon Energy's October Regulatory Proposal estimated the return on debt in a way that would comply with the AER's Rate of Return Guideline in relation to the following areas:

- adoption of a ten year term to maturity
- adoption of the trailing average approach, with annual updates, which will be implemented over the ten year transition period
- the use of an independent third party data provider to estimate the return on debt.

We followed the AER's Rate of Return Guideline in these respects because, at the time of our October Regulatory Proposal, this allowed Ergon Energy to recover a return on debt consistent with the allowed rate of return objective and the NER.

We departed from the AER's Rate of Return Guideline in two areas where applying the Rate of Return Guideline would not have produced a return on debt consistent with the NER:

- the notional credit rating assumption (Ergon Energy proposed that this should be BBB)
- the weighting approach (Ergon Energy proposed that this should be a weighted average, based on changes in the PTRM debt balances).

However, since the time of our October Regulatory Proposal, further downward movements in base interest rates have further depressed the overall WACC and revealed errors in the AER's approach on debt and, in particular, its approach to transition. The transition to a trailing average approach for the cost of debt leads to a mismatch between our regulated return and the efficient financing costs of a benchmark entity with a long-term staggered debt portfolio and base rate hedging (as acknowledged by the AER as the efficient approach to financing under the "on the day" method).

The mismatch arises because the AER's transition applies an "on the day" debt benchmark at a time of record low interest rates to the majority of our debt throughout the regulatory control period 2015-20. This "on-the-day" debt benchmark will still contribute a 50% weight to our debt allowance at the commencement of the following regulatory control period when, in reality, the benchmark efficient debt was raised at higher costs.

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[163] NER, clause 6.5.2(h).

[164] NER, clause 6.5.2(i).

4.5 Revisions to our October Regulatory Proposal

Our revised Regulatory Proposal estimates the return on debt in a way that:

- maintains the position in our October Regulatory Proposal concerning consistency with the Rate of Return Guideline on:
    - adoption of a 10 year term to maturity
    - use of an independent third party data provider to estimate the return on debt
- maintains our departure from the Rate of Return Guideline concerning:
    - the notional credit rating assumption
    - the weighting approach
- departs from the Guideline and adopts the "hybrid" transition (also referred to as Option 3 in the AER's Preliminary Determination).

4.6 The evidence base upon which our submission is based

Since the October Regulatory Proposal, we have observed developments in financial markets, and in the regulatory process. In response:

- TransGrid and Networks NSW have sought a cost of debt that applies no transition as they employed the trailing average approach under the previous NER. They have argued that the trailing average approach was the efficient approach for them – that their large size prevented them from adopting the hybrid approach because the swaps market is not sufficiently deep to meet their requirements.
- The AER has raised new matters in relation to the debt financing practices of the benchmark efficient entity. The new analysis and evidence referred to by the AER implies that there is no longer an appropriate basis for adopting the transitional arrangements set out in the Rate of Return Guideline and adopted by Ergon Energy in our October Regulatory Proposal.
- Jemena Gas Networks submitted changes to proposed approach to debt transition and included the following expert reports in support of its revisions:
    - Gray (SFG Consulting) – Return on debt transition arrangements under the NGR and NER (February 2015)
    - Hird and Young (CEG) – Critique of the AER's JGN draft decision on the cost of debt (April 2015).
- After initially proposing an allowed return determined by gradually moving from the "on the day" method of determining debt to the trailing average method in a manner that was consistent with the AER's Rate of Return Guideline, SA Power Networks advocated for a different approach. They considered establishing the allowed rate of return for debt commonly referred to as the "hybrid" approach would provide a transition path that a benchmark firm could in reality implement.[165]

[165] SA Power Networks (2015), *SA Power Networks response to the AER's Issues Paper: SA Power Networks electricity distribution regulatory proposal 2015-16 to 2019-20*, 30 January 2015, p10.

Additionally, the Queensland Treasury Corporation (QTC) has also provided us independent evidence in support of our preferred approach to calculating the cost of debt based on PTRM-weighting.[166]

4.7 Our reasons for departure are enhanced by the additional evidence

Our supporting submission, *Rate of Return (Cost of Debt) – Response,* summarises the additional evidence supporting the necessary move away from the AER's Rate of Return Guideline when calculating the return on debt. Our decision to revise our approach follows new evidence provided by the AER and other NSPs in recent regulatory determination processes, and advice obtained from Frontier Economics[167] and QTC.[168]

The AER's Preliminary Determination in respect of debt applies the Rate of Return Guideline in full and imposes substantially lower allowances than any market-based measure of the costs of a benchmark network business implementing efficient financing practices.

For the reasons outlined in this appendix and our supporting submission and the evidence underpinning those submissions, there are no concrete reasons why we should change our view on the departures we proposed in the October Regulatory Proposal in relation to the cost of debt. On the evidence before us, we consider there is reason to further depart from the AER's Rate of Return Guideline in relation to the approach to transition. These departures should be made when the Preliminary Determination is revoked and substituted with the Substitute Determination.

Our supporting submission emphasises that as part of the revoking and substitution process there is a need for the AER to properly engage with material presented by us which demonstrates:

- The AER's approach to transition leads to a mismatch between the permitted return and the actual costs of a long-term staggered debt portfolio and base rate hedging that the AER has acknowledged to be the efficient approach to financing under the "on the day" method.
- The AER's transition effectively substitutes an "on the day" debt benchmark taken at a time of record low interest rates for the actual efficient costs of a benchmark efficient firm.
- The AER proposes to set an allowed rate of return during the regulatory control period that effectively and incorrectly starts the regulatory control period with another 100% "on the day" allowance that will only progressively be replaced over the next 10 years.
- There is no correct basis to "carry over" alleged windfall gains or losses from any previous regulatory control periods when applying the rate of return objective on a forward looking basis.
- On a proper assessment, Ergon Energy is under-compensated if the AER proceeds with a transition on the debt risk premium component of the return on debt in the regulatory control period 2015-20.
- Given there is no windfall gain or loss to be brought to account because it is both factually absent and legally impermissible, the only appropriate transition is one that approximates the actual transactions that an electricity network business would enter into to move from a

[166] *QTC – PTRM-weighted trailing average report*.
[167] *Frontier Economics – Cost of debt transition.*
[168] *QTC – Return on debt transition analysis.*

staggered long-term debt portfolio with base rate hedging to the long-term position in which the hedging component is progressively unwound.

- Our proposed PTRM-weighted trailing average correctly compensates a NSP who considers the prevailing cost of debt to be fairly priced when planned capital expenditure is undertaken, which is reasonable in an efficient market.
- The benchmark credit rating should be set having regard to the median over a period that appropriately balances the need for contemporaneous data but long enough for small short-term credit ratings movements not to affect the benchmark.

4.8 Other Issues

Nomination of future averaging periods

While Ergon Energy has concerns with the requirement to nominate averaging periods for the remaining four years of the regulatory control period so far in advance, the possibility that the AER will impose these future averaging periods could present significant issues for how Ergon Energy manages our future funding and refinancing activities. Nevertheless, as indicated in our Framework and Approach submission, Ergon Energy's proposed averaging periods for the remaining years of the regulatory control period 2015-20 were included in our October Regulatory Proposal.[169]

Summary of the methodology applied to estimate the proposed return on debt

Our October Regulatory Proposal summarised the approach that Ergon Energy applied to estimate the return on debt. For details of the calculation please refer to *08.01.11 – QTC: Extrapolating the RBA BBB curve to a 10-year tenor*. We still maintain this is a preferable approach. However, we have used the method outlined in the AER's Preliminary Determination for deriving a 10 year benchmark from data of shorter tenors. We reserve the right to revisit the choice of methodology in future regulatory determination processes.

4.9 Proposed return on debt

Application of the above approach results in a return on debt estimate of 5.68%, comprising a base swap rate of 2.92% and a swap risk premium of 2.53% plus swap transaction costs of 0.23%. Ergon Energy proposes that this approach results in the best estimate of the return on debt having regard to the requirements of the NER, including satisfying the allowed rate of return objective.

4.10 Equity raising costs

Ergon Energy proposes equity raising costs of $1.74 million (in real $2014-15). Equity raising costs have been included in the forecast capital expenditure in 2015-16 and have been calculated using the methodology embodied within the AER's PTRM.

5 Gearing

The NER require that the allowed rate of return be calculated as a weighted average of the return on equity and the return on debt for each regulatory year. The gearing ratio reflects the weight that is assigned to the return on debt.

[169] Refer to Ergon Energy's supporting document *08.02.04 – Proposed Averaging Period for the Cost of Debt*.

The AER's Rate of Return Guideline specifies a preferred value of 60% for the gearing ratio.

Ergon Energy has adopted a gearing of 60%.

6 Imputation credits

Ergon Energy proposes a gamma of 0.25, which reflects a distribution rate of 0.7 and theta of 0.35. This was the position adopted in the October Regulatory Proposal. We remain of the view that the approach to determining gamma set out in our October Regulatory Proposal is correct.

The gamma determined in the AER's Preliminary Determination is erroneous and needs to be revoked and substituted in the Substitute Determination by a figure of 0.25 in order to comply with the NER.

6.1 The evidence base for our submission

There is broad consensus among NSPs in relation to gamma. The same supporting materials and submissions presented by Ergon Energy have also been presented to the AER at the same time by other NSPs. Ergon Energy and other NSPs jointly commissioned a report from SFG Consulting on the value of gamma.[170] The purpose of this analysis was to obtain the best estimate for gamma at the current time, having regard to the requirements of the NER. The analysis draws upon the Tribunal's findings on gamma as part of the appeal submitted by Ergon Energy, Energex and (now) SA Power Networks.[171]

In the Preliminary Determination, the AER notes that in addition to the material that we submitted with our October Regulatory Proposal, there have been two additional reports jointly commissioned by Ergon Energy and a range of other NSPs. These are:

- *SFG Consulting – Estimating gamma for regulatory purposes*[172]
- *NERA – Distribution and redemption rates from taxation statistics.*[173]

In our view, the existing body of empirical work thoroughly supports a figure of no more than 0.25 and we do not propose to submit any new studies at this time. However, we are concerned that the AER's Preliminary Determination has not properly addressed the points that our experts and its own have made. Consequently, we have asked Gray and Hall to prepare a report that revisits key aspects of the existing materials and which collates the various ways in which the body of evidence contradicts the AER's gamma estimate of 0.4. This report, *Frontier Economics – An appropriate regulatory estimate of gamma*,[174] is lodged with our submission.

6.2 Evidence continues to support Ergon Energy's proposal

Our supporting submission, *Value of Imputation Credits – Response,* summarises the additional evidence supporting the value of gamma that Ergon Energy adopted in our October Regulatory Proposal.

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[170] *08.01.03 – SFG Consulting: An Appropriate Regulatory Estimate of Gamma (SFG Gamma Report)*.

[171] Application by Energex Limited (Gamma) (No 5) [2011] ACompT 9.

[172] SFG Consulting (2015), *Estimating gamma for regulatory purposes*, 6 February 2015.

[173] NERA (2015), *Estimating Distribution and Redemption Rates from Taxation Statistics*, March 2015.

[174] Frontier Economics (2015), *An appropriate regulatory estimate for gamma*, June 2015.

That document provides a clear foundation for the AER, when revoking and substituting the Substitute Determination in place of the Preliminary Determination, to replace the gamma of 0.4 with a gamma of no more than 0.25 because:

- The AER has used estimates of the utilisation rate produced by the equity ownership approach without making adjustments for the fact that simplifying assumptions underlying that approach do not hold in practice.
- The AER has used estimates of the utilisation rate produced by taxation statistics to support a value for the utilisation rate at the lower end of the range suggested by the equity ownership approach when the evidence before the AER is that the taxation statistics are an upper bound on the utilisation rate.
- The NER require gamma be a market based value.
- Gray and Hall's robust dividend drop-off studies deliver a value for theta of 0.35.
- The AER's criticisms and adjustments to Gray and Hall's work are unfounded.
- Gray, Hall and NERA agree that amongst different market valuation methods, dividend drop-off studies tend to give high values for gamma.
- The AER's partial reliance on distribution rates of 80% is inconsistent with its conception of the benchmark firm and each of the legitimate measures is approximately 70%.
- Combining a theta of 0.35 with a distribution rate of 70% gives a gamma of 0.25.

7 Materially Preferable NEO Decision

It is essential that electricity NSPs are permitted to earn a fair market return at all times in order to promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity. If a fair return is not permitted, the business cannot attract the equity investments needed to maintain assets and replace them when required.

In the short-term, no discernible difference in service may be observed because investment decisions are made for the long-term. However, in the short-term incentives arise to delay replacement investments or efficient capital augmentations and instead to continue to rely on the existing assets beyond when they should be most efficiently replaced.

In the longer term, if regulatory determinations were to persist with providing inadequate returns for more than a single five year regulatory control period, and if investors responded by refusing to provide any further equity injections when capital was needed (as they might reasonably do), NSPs may be required to take on a higher leverage putting the whole business at a higher risk of long run financial failure.

Financial failures are, of course, a very low probability but high risk consequence event for consumers and other end users – even when considered over a long-term horizon. Nevertheless, a significantly below market return during the current five year regulatory control period, would negatively affect investors (debt and equity) perception of the sovereign risk of investing. This would raise the long-term revenue expectations when investing to the long-term detriment of consumers across the NEM.

For the reasons explained in our submission, the Preliminary Determination did not provide a fair rate of return for the capital invested. The below market equity allowance arises from the use of the systematically downwardly biased SL CAPM, exacerbated by its 1:1 relationship with base

interest rates (which over the period of the NEM are at an all-time low), to constrain the contribution made by all the other available models. All those models deliver higher returns on equity.

As Gray and Hall's report on gamma explains, the level of gamma significantly affects the returns that investors received and it is essential that electricity NSPs are permitted to earn a fair market return at all times in order to promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity. For the reasons explained above and in our submission, a gamma of 0.4 will not deliver a fair rate of return for the capital invested.

Additionally, as explained above, the AER has failed to provide an adequate risk adjusted return in the face of the rapid uptake of disruptive technologies.

The Preliminary Determination's debt allowance is also inadequate particularly because of the inappropriate transitional arrangements accompanying the introduction of the trailing average. The short-fall in the debt allowance is borne by equity holders because debt holders take a fixed market return regardless of the below-market regulatory allowance.

Each of the above errors in the Preliminary Determination (i.e. the use of the foundation model, the failure to take adequate account of other models, inadequate returns in the face of low base interest rates, a failure to compensate for the risk of disruptive technologies and the inadequate debt allowance) taken separately or combined, put unacceptable stress on our ability to raise equity and undermine our ability to invest for the long-term. Unless these flaws are rectified, end customers of electricity would ultimately bare the ill effects.

Further, we are concerned that the approach in the Preliminary Determination leads to excess volatility in returns which will send confusing investment signals to end consumers. As we have explained, the AER's SL CAPM is delivering unprecedented depressed returns due to the link with very low base interest rates. The transition path to the 10 year trailing average also initially locks in unprecedented low interest rates by applying a 100% weighting to the "on the day" method in the first regulatory year at a time when interest rates are at a record low and only very slowly reducing that proportion.

This approach to setting the equity and debt allowances will result in very substantial increases as the interest rate cycle turns. When interest rates are at above average levels, this will flow through to equity and debt allowances, which could (but for the low beta bias of the SL CAPM) tend to result in permitted revenues rocketing upwards and over-stimulating network investments.

Individual households are unlikely to be in a good position to make long-term cost-benefit assessments and speculative property developers do not have incentives to take long-term perspectives. Where regulated returns are inappropriately volatile, at high points in prices there is a significant risk that inefficient levels of disconnection could be "kick started". Above efficient levels of disconnection are to the detriment of both those who disconnect (and are then left with long run investments in battery storage and PV panels to pay-off even when network prices reduce again) and there is also significant detriment to those who remain connected and must bear the costs of stranded assets.

8 Supporting documentation

The following documents referenced in this appendix accompany our Regulatory Proposal:

Name	Ref	File name
An Overview, Our Regulatory Proposal 2015-20	0A.00.01	An Overview Our Regulatory Proposal
SFG Consulting: The Required Return on Equity for Regulated Gas and Electricity Network Businesses (SFG Cost of Equity Report)	08.01.01	SFG Cost of Equity Report
(Revised) Frontier Economics: Addendum to Cost of Equity Report	08.01.02	(Revised) Frontier Economics: Addendum to Cost of Equity Report
SFG Consulting: An Appropriate Regulatory Estimate of Gamma	08.01.03	SFG Gamma Report
Synergies Economic Consulting: Response to Issues Raised by Consumer Challenge Panel	08.01.04	Synergies Response to Issues Raised by the CCP
QTC: Extrapolating the RBA BBB curve to a 10-year tenor	08.01.11	QTC Extrapolating the RBA Curve
Proposed Averaging Period on the Cost of Debt	08.02.04	Proposed Averaging Period for the Cost of Debt
CEG: Critique of the AER's JGN Draft Decision on the cost of debt	N/A	CEG: Critique of the AER's JGN Draft Decision on the cost of debt
Frontier: Review of the AER's conceptual analysis for equity beta	N/A	Frontier: Review of the AER's conceptual analysis for equity beta
Frontier: Cost of debt transition	N/A	Frontier: Cost of debt transition
Frontier: An appropriate regulatory estimate of gamma	N/A	Frontier: An appropriate regulatory estimate of gamma
Incenta: Further update on the required return on equity from independent expert reports	N/A	Incenta: Further update on the required return on equity from independent expert reports
NERA: Empirical performance of SL and Black CAPMs	N/A	NERA: Empirical performance of SL and Black CAPMs
NERA: Historical estimates of the market risk premium	N/A	NERA: Historical estimates of the market risk premium
NERA: Review of the Literature in support of the SL CAPM, the Black CAPM and the Fama-French Model	N/A	NERA: Review of the Literature in support of the SL CAPM, the Black CAPM and the Fama-French Model
NERA: Estimating Distribution and Redemption Rates from Taxation Statistics	N/A	NERA: Estimating Distribution and Redemption Rates from Taxation Statistics
QTC: PTRM-weighted trailing average report	N/A	QTC: PTRM-weighted trailing average report
QTC: Return on debt transition analysis	N/A	QTC: Return on debt transition analysis
SFG: Beta and Black CAPM	N/A	SFG: Beta and Black CAPM

Name	Ref	File name
SFG: Shared prices, the dividend discount model and the cost of equity for the market and a benchmark energy network	N/A	SFG: Shared prices, the dividend discount model and the cost of equity for the market and a benchmark energy network
SFG: The foundation model approach of the AER to estimating the cost of equity	N/A	SFG: The foundation model approach of the AER to estimating the cost of equity
SFG: The required return on equity for the benchmark efficient entity	N/A	SFG: The required return on equity for the benchmark efficient entity
SFG: Using the Fama-French model to estimate the required return on equity	N/A	SFG: Using the Fama-French model to estimate the required return on equity
SFG: Estimating gamma for regulatory purposes	N/A	SFG: Estimating gamma for regulatory purposes
Rate of Return (Cost of Equity) – Response	N/A	Ergon Energy – Rate of Return (Cost of Equity) – Response
Rate of Return (Cost of Debt) – Response	N/A	Ergon Energy – Rate of Return (Cost of Debt) – Response
Value of Imputation Credits – Response	N/A	Ergon Energy – Value of Imputation Credits – Response

Additional documentation supporting our revised Regulatory Proposal can also be found in our responses on equity, debt and the value of imputation credits.