

Final Plan Attachment 10.1

Financing Costs

December 2016

Page intentionally left blank

Contents

1.	Introduction 1	
2.	Regulatory Framework	3
2.1.	Rate of Return	3
3.	Return on Equity	5
3.1.	Introduction – Return on Equity	5
3.2.	Parameter Estimates	5
3.3.	Cross Checks on the Overall Return on Equity	16
3.4.	Return on Equity Averaging Period	17
3.5.	SL CAPM Parameter Estimates	17
4.	Return on Debt	18
4.1.	Introduction – Return on Debt	18
4.2.	Background – Return on Debt	18
4.3.	Regulatory Framework	20
4.4.	Final Plan Proposal	21
4.5.	Transition Approaches	21
4.6.	Implementation – Data Sources	24
4.7.	New Issue Premium	25
4.8.	Averaging Period	25
4.9.	Debt Raising Costs	25
5.	Gamma	26
5.1.	Introduction – Gamma	26
5.2.	Final Plan Proposal	28
5.3.	The AER’s Approach to Gamma	29
5.4.	Conceptual Approach	30
5.5.	Theta	34
5.6.	AER Estimates of the Equity Ownership Rates	40
5.7.	Tax Statistics	41
5.8.	Market Value Studies	42
6.	Rate of Return Proposal	44
7.	Interrelationships	45
7.1.	Return on Equity and the Value of Imputation Credits	45
7.2.	Interrelationship Between Forecasts of Rate of Return and Inflation	45

Page intentionally left blank

1. Introduction

This Attachment 10.1 deals with the allowed rate of return and the value of imputation credits (or gamma). The allowed rate of return is to be determined as a weighted average of the return on equity and the return on debt on a nominal vanilla basis consistent with the estimate of the value of imputation credits.¹ Network service providers require capital to invest in their business. These funds are provided by the owners (through equity) or lenders (through debt). Both the owners and lenders require a return on the funds provided and this return reflects the largest cost to networks.

In order to promote the National Gas Objective (NGO) it is important for the rate of return to be set to enable a network to attract necessary capital and undertake efficient investment in the network in the long term interests of its customers. To promote efficient investment, a regulated network must be provided with a reasonable opportunity to recover its efficient costs, which includes its financing costs. Relevantly, this requires:

- the allowed rate of return to be estimated such that it achieves the allowed rate of return objective (ARORO), being commensurate with the efficient financing costs of a benchmark efficient entity (BEE) with a similar degree of risk as that which applies to the service provider in respect of reference services;
- the return on equity must reflect the returns required by owners in order to invest in the BEE and have regard to prevailing market conditions; and
- the return on debt must provide the network with a reasonable opportunity to recover at least the efficient debt financing costs of the BEE.
- the estimate of the value of imputation credits used to adjust the tax allowance to reflect the value of those credits to equity investors, so that the overall return on equity is sufficient to attract efficient investment.

The AER published its Rate of Return Guideline in December 2013 (Guideline). The Australian Energy Regulator (AER) has, with some exceptions, largely applied its Guideline approach in its decisions made since 2013.

Since that time, a number of networks have sought merits (and judicial) review of the AER's decisions, including in relation to the return on equity and the return on debt. The Australian Competition Tribunal (ACT) handed down its decision on a number of reviews in February 2016.² The AER has sought judicial review of the ACT's decision by the Full Federal Court. In addition, a number of merits and judicial review applications remain on foot.³

For the reasons set out in our Final Plan (in particular, Chapter 10 – Financing Costs) and this attachment and accompanying expert reports:

- *Return on Equity* – AGN considers that much of the controversy relating to the estimation of the return on equity has been addressed by recent ACT decisions.⁴ We acknowledge that position and our proposal is to:

¹ National Gas Rules (NGR) 87(4)(b).

² The lead decision in *Application by PIAC, Ausgrid*, [2016] ACompT1. (*Ausgrid*)

³ For example, merits review applications by United Energy Distribution Pty Ltd (ACT 3 of 2016), CitiPower Pty Ltd (ACT 4 of 2016), Powercor Australia Ltd (ACT 5 of 2016), ActewAGL Distribution (ACT 6 of 2016), Jemena Electricity Networks (Vic) Ltd, ACT 7 of 2016 and AusNet Electricity Services Pty Ltd (ACT 8 of 2016) and judicial review of the Tribunal's decision in *Application by SA Power Networks* [2016] 4 CompT9 in NSD 2032/2016.

⁴ Per the Tribunal decision in *Ausgrid*

- use the Sharpe Lintner Capital Asset Pricing Model (SL CAPM) to estimate the required return on equity consistent with the AER's "*foundation model*" approach;
- apply an equity beta of 0.7; and
- apply an Market Risk Premium (MRP) of 6.5%.
 - We note however that the estimates of MRP and equity beta remain in contention and we have described the nature of the issues the subject of debate between networks and the AER in this Attachment.
- *Return on Debt* – as noted in Chapter 10 of our Final Plan, pending further clarity on the correct approach to the return on debt, we have decided to apply the AER's Guideline transition to a trailing average return on debt, calculated using a simple average of the Bloomberg Valuation Service broad BBB rated 10-year curve and Reserve Bank of Australia (RBA) broad-BBB rated 10-year curve. However, we will continue to monitor the outstanding legal reviews on these issues and update our proposal as necessary. This attachment identifies in more detail the issues under consideration in the outstanding legal reviews.
- *Gamma* – for the reasons set out in Chapter 10 of our Final Plan and this Attachment, it remains our view that the best estimate of gamma is 0.25. The estimate is based on the post-personal tax and personal cost market value of imputation credits to shareholders, consistent with what we consider to be the correct interpretation of the NGR and the most up to date and best estimate of the value of imputation credits. However, as with the Return on Debt, pending further clarity on the correct approach to estimating gamma, we have decided to apply the AER's estimate of 0.40. We will monitor outstanding legal reviews on this issue and update our proposal as necessary.

We rely upon the following expert reports contained in Attachments 10.2 to 10.8 and Supporting Information 1 relating to the return on equity and the return on debt submitted in support of our Final Plan:

- Attachment 10.2, CEG: Replication and Extension of Henry's beta analysis, September 2016;
- Attachment 10.3, Frontier Economics: The Market Risk Premium, September 2016;
- Attachment 10.4, CEG: The AER's Current Interpretation of the ARORO, September 2016; and
- Attachment 10.5, Frontier Economics: An updated dividend drop-off estimate of theta, September 2016.
- Attachment 10.6 Frontier Economics: Issues in the estimation of gamma, September 2016
- Attachment 10.7., Frontier Economics: Perspectives for the estimation of gamma, December 2016.
- Attachment 10.8., Averaging Period, December 2016.
- Supporting Information 1, CEG: Debt staggering of Australian businesses, December 2014
- Supporting Information 2, SFG Consulting. Dividend Drop-off Estimate of Theta RE Application by Energex Limited (No 2) [2010] ACompT7, March 2011
- Supporting Information 3, SFG Consulting. Updated Dividend Drop-off Estimate of Theta, Report for the Energy Networks Association, June 2013
- Supporting Information 4, SFG Consulting. An Appropriate Regulatory Estimate of Gamma, May 2014

2. Regulatory Framework

2.1. Rate of Return

The return on capital building block must be calculated by applying a rate of return determined in accordance with clause 87 of the NGR to the value of the regulatory asset base as at the beginning of the relevant regulatory year.⁵

The allowed rate of return must be determined such that it achieves the ARORO, being:

"That the rate of return for a 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 service provider in respect of the provision of reference services."⁶

The rate of return must be a weighted average of the return on equity and the return on debt and determined on a nominal vanilla basis that is consistent with the estimate of the value of imputation credits.⁷

In determining the allowed rate of return, regard must be had to:⁸

- relevant estimation methods, financial models, market data and other evidence;
- 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
- any interrelationships between the estimates of financial parameters that are relevant to the estimates of the return on equity and the return on debt.

The overarching requirements on the AER in estimating the rate of return are to:

- perform its regulatory functions in a manner that will or is likely to contribute to the achievement of the NGO, being to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas;⁹
- where there are two or more possible decisions open to the AER that will contribute to the achievement of the NGO, the AER must make the decision that it is satisfied will or is likely to contribute to the achievement of the NGO to the greatest degree;¹⁰
- take into account the Revenue and Pricing Principles (RPP), being relevantly:
 - that a service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in providing reference services and complying with a regulatory obligation or requirement or making a regulatory payment;¹¹
 - a service provider should be provided with effective incentives in order to promote economic efficiency with respect to reference services the service provider provides. The

⁵ NGR 87(1).

⁶ NGR 87(3).

⁷ NGR 87(4)(a).

⁸ NGR 87(5).

⁹ National Gas Law (NGL) 28(1)(a).

¹⁰ NGL 28(1)(iii)(A).

¹¹ NGL 28(2).

economic efficiency that should be promoted includes efficient investment in, or in connection with, a pipeline with which the service provider provides reference services, the efficient provision of pipeline services and the efficient use of the pipeline;

- reference tariff should allow for a return commensurate with the regulatory and commercial risks involved in providing the reference service to which that tariff relates;
- regard should be had to the economic costs and risks of the potential for under and over investment by a service provider in a pipeline with which the service provider provides pipeline services; and
- regard should be had to the economic costs and risks of the potential for under and over utilisation of a pipeline with which a service provider provides pipeline services.

Specific rules relevant to the return on equity and the return on debt are addressed below.

2.1.1. The Benchmark Efficient Entity (BEE)

A key concept in the determination of the allowed rate of return is the definition of the BEE. The ARORO requires that the rate of return be commensurate with the efficient financing costs of the BEE with a similar degree of risk as that which applies to the same service provider in respect of the provision of the prescribed transmission services.

In its Guideline and recent decisions the AER defines the BEE as a “*pure play, regulated energy network business operating within Australia’ acting efficiently.*”¹²

It is noted that the ACT recently found that the BEE referred to in the ARORO is not a regulated entity.¹³ Rather, the BEE is likely to refer to the hypothetical efficient competitor in a competitive market for those services.¹⁴ The ACT also found that the BEE will not necessarily be identical for all service providers.¹⁵ That decision is under judicial review by the Full Federal Court but the decision is yet to be handed down. AGN will monitor legal developments on this issue as they occur.

2.1.2. Gearing

A gearing ratio of 60%, as applied by the AER in its Guideline and recent decisions, is proposed.

2.1.3. Departure from the Guideline

For the reasons set out in our Final Plan and this Attachment, we have decided to apply the AER’s Guideline approach to the Return on Equity and the Return on Debt. We have taken the same approach to gamma, as to which we refer to section 5.2 of this Attachment.

We note however that uncertainty and contention remains with respect to these approaches and will monitor developments on these issues and update its proposal as necessary.

¹² AusNet, *Transmission Draft Decision 2017-18-2021-22*, Attachment 3-24.

¹³ *Application by PIAC, Ausgrid*, [2016] ACompT1, [907].

¹⁴ *Ibid* at [914].

¹⁵ *Ibid* at [907] and [916].

3. Return on Equity

3.1. Introduction – Return on Equity

Rule 87(6) requires the return on equity to be estimated such that it contributes to the achievement of the ARORO. In estimating the return, regard must also be had to the prevailing conditions in the market for equity funds 9NGR 87(7).

The AER published Rate of Return Guideline on 17 December 2013 (Guideline). In its Guideline, the AER estimates the cost of equity using the “*foundation model approach*”. The AER uses the SL-CAPM to provide what it describes as a starting point estimate. It then uses other relevant material to inform the parameter estimates for the SL-CAPM and to determine the final return on equity estimate.

Following the amendments to the rate of return rules in 2012, a number of network businesses proposed to estimate the return on equity using estimates from other models in addition to the SL-CAPM. However, the Tribunal in the *Ausgrid* decision found no error in the AER’s foundation model approach. Proposal

We remain of the view that the SL-CAPM has significant limitations and that a broader and deeper consideration of other models would be more consistent with the intention behind the Australian Energy Market Commission’s (AEMC’s) reforms of the Rate of Return Rules requiring all relevant models to be considered. However, we acknowledge the ACT in *Ausgrid* found that the AER’s foundation model approach was not subject to error.

Accordingly, in this proposal we have applied the foundation model approach and estimate the return on equity using the SL CAPM. The following section sets out our proposal in relation to the input parameters to the SL CAPM, namely the risk free rate, equity beta and the market risk premium.

3.2. Parameter Estimates

3.2.1. Risk Free Rate

Consistent with the Guideline, we propose that the risk free rate be estimated based on the average yield on Commonwealth Government Securities (CGS) with a 10-year term over its proposed averaging period.

3.2.2. Equity Beta

As set out in Chapter 10 of our Final Plan, we propose an equity beta of 0.7 consistent with the AER’s Guideline estimate.

However, AGN notes that updated estimates of the data relied upon by the AER show equity beta estimates have increased. The remainder of this section describes the outcomes of updating the data relied upon by the AER in deriving its equity beta estimate.

In its Guideline and recent decisions, the AER estimates equity beta at 0.7, from a range of 0.3 to 0.7. The AER relies primarily on empirical estimates set out in Professor Henry’s 2014 report. Professor Henry’s report presented empirical estimates of equity beta for a set of nine Australian energy network firms using data from 29 May 1991 to 28 June 2013.

In its recent decisions, the AER considered a number of Professor Henry's regression permutations and concluded that the empirical analysis supported a range for equity beta of 0.4 to 0.7.¹⁶ The AER also concluded that Henry's 2014 results indicated a best empirical estimate of approximately 0.5 for a benchmark efficient entity because most of the estimates are clustered around 0.5.¹⁷

The AER states that it also considered other empirical studies using different econometric techniques and comparator sets. The AER considered international empirical estimates and concluded that it was satisfied that an equity beta of 0.7 reflects a similar degree of systematic risk as the service provider is exposed to in providing regulated services because:

- *"Our range and point estimate are based on direct measurements (that is, empirical estimates) of the equity beta that businesses with a similar degree of risk as AusNet Services have exhibited in the past. We consider these are reliable indicators of the prevailing, forward-looking equity beta for an efficient business (or benchmark efficient entity) with a similar degree of risk as AusNet Services.*
- *Our range and point estimate are consistent with our conceptual analysis. This suggests the systematic risk of AusNet Services¹⁸ would be less than the systematic risk of the market as a whole (that is, its equity beta would be less than 1.0). Our conceptual analysis is supported by McKenzie and Partington.¹⁹*
- *The theoretical principles underpinning the Black Capital Asset Pricing Model (CAPM) are reasonably consistent with an equity beta towards the upper end of our range. For firms with an equity beta below 1.0, the Black CAPM theory may support using a higher equity beta than those estimated from businesses with a similar degree of risk as AusNet Services when used within a Sharpe-Lintner CAPM. This is a result of the Black CAPM relaxing an assumption underlying the SL CAPM, which allows for unlimited borrowing and lending at the risk free rate.²⁰ However, we do not consider the theory underlying the Black CAPM warrants a specific uplift or adjustment to the equity beta point estimate. The reasons for our use of the Black CAPM theory are set out in more detail in section B.2.3.*
- *We recognise the importance of providing stakeholders with transparency and predictability in our rate of return decisions, which we consider is consistent with the achievement of the ARORO.²¹ In this context, a point estimate of 0.7 is consistent with our Guideline (which was developed following extensive consultation) and is a modest step down from previous regulatory.²²"*

¹⁶ For example, AER Draft Decision, *AusNet Service Transmission Determination 2017-2018 to 2021-22*, July 2016 (AusNet Transmission Draft Decision), Attachment 3 -234.

¹⁷ Ibid at page 3-236.

¹⁸ More precisely, an efficient business (or benchmark efficient entity) with a similar degree of risk as that which applies to AusNet Services in the provision of standard control or prescribed transmission services.

¹⁹ See: McKenzie and Partington, *Report to the AER, Part A: Return on equity*, October 2014, pp. 10–12; Partington, *Report to the AER: Return on equity (Updated)*, April 2015, p. 31; Partington and Satchell, *Report to the AER: Return on equity and comment on submissions in relation to JGN*, May 2015, p. 6; Partington & Satchell, *Report to the AER: Analysis of criticism of 2015 determinations*, October 2015.

²⁰ However, the Black CAPM replaces this with an assumption of unlimited ability to short sell stocks.

²¹ Stakeholders, particularly service providers, sought greater certainty of process. See: AER, *Explanatory statement: Rate of return guideline*, December 2013, p. 51; AEMC, *Final rule determination*, November 2012, pp. 42–43, 45, 50; RARE Infrastructure Limited, *Submission to AER's rate of return guidelines consultation paper*, June 2013; The Financial Investor Group, *Response to the AER's rate of return guidelines consultation paper*, June 2013, p. 1; ENA, *Submission to AER's rate of return guidelines issues paper*, February 2013, p. 4; PIAC, *Submission to AER's rate of return guidelines issues paper*, February 2013, p. 17.

²² For example, AusNet, *Transmission Draft Decision*, Attachment 3 at 3- 64.

The AER notes that its direct measurements referred to in the first dot point above are primarily based on Professor Henry's 2014 report.²³

3.2.2.1. Updated Henry Estimates of Equity Beta

The empirical estimates in Henry's 2014 have been updated by CEG and appear as Attachment 10.2 to this Final Plan. CEG has replicated and updated Table 3-30 in the AER's Draft Decision for AusNet Services (Transmission) which sets out the average of re-levered equity beta estimates from Henry's 2014 analysis (OLS, Weekly).²⁴ CEG extended the analysis from the Henry report to June 2016.

The results of CEG's replication and extension of Henry's analysis on individual firm betas over the longest available period, the period excluding the GFC and the "last five years" are set out below²⁵.

Table 3.1: Summary of Extension Results for Re-levered OLS Weekly Individual Beta Estimates

	Longest Available Period	Longest Available Period (Excluding Tech Boom and GFC)	Last Five Years
Henry original results	0.52	0.56	0.46
CEG extension results	0.60	0.66	0.65
Change	0.08	0.10	0.19

Source: Bloomberg data, CEG analysis.

CEG has also replicated and extended Professor Henry's portfolio analysis which forms the basis of the AER's Table 3-31. The updated portfolio analysis is set out in the following table²⁶:

²³ Ibid page 3-64 and 3-65.

²⁴ AER, *Draft Decision AusNet Services transmission determination 2017-18 to 2021-22*, Attachment 3 at 3-234.

²⁵ CEG, *Replication and Extension of Henry's Beta Analysis*, September 2016, Table 13, page 15. Provided at Attachment 10.2 to the Final Plan.

²⁶ Ibid, Table 14 at page 16.

Table 3.2: Summary of Extension Results for Re-levered OLS Weekly Portfolio Beta Estimates

	P1	P2	P3	P4	P5	P6 ²⁷
Equal weighted						
Longest available period	0.52	0.56	0.52	0.53	0.52	0.54
Increase versus Henry	0.06	0.04	0.02	0.05	0.13	N/A
Longest available period (excl. tech boom and GFC)	0.56	0.56	0.58	0.61	0.61	0.64
Increase versus Henry	0.07	0.04	0.03	0.08	0.16	N/A
Value weighted						
Longest available period	0.61	0.76	0.44	0.46	0.54	0.55
Increase versus Henry	0.11	0.06	0.00	0.04	0.15	N/A
Longest available period (excl. tech boom and GFC)	0.66	0.76	0.53	0.56	0.65	0.66
Increase versus Henry	0.12	0.06	0.01	0.06	0.17	N/A

Source: Bloomberg data, CEG analysis.

As noted above, the AER considers an equity beta of 0.7 reflects a similar degree of systematic risk as the service provider, in the above case, AusNet Services. A primary reason why it holds this view is because its range and point estimate are based on direct measurements of the equity beta that businesses with a similar degree of risk as AusNet Services have exhibited in the past (being Professor Henry's estimates updated by CEG above).

CEG's update of Henry's 2014 empirical estimates show that equity betas have increased since the Henry 2014 report. More recent estimates also show an increase in equity beta. In addition to updating Henry's estimates, CEG has undertaken analysis of the last 52 weeks individual beta estimates (using the same approach as Professor Henry). This shows an average re-levered equity beta of 0.775.²⁸

The AER in choosing its point estimate of 0.7 from the top end of the range acknowledges the theoretical principles underpinning the Black CAPM are consistent with an equity beta towards the upper end of its range. That is, for firms with an equity beta below 1, the Black CAPM theory may support using a higher equity beta than those estimated from businesses with a similar degree of risk as AusNet Services when used within a SL-CAPM.

The AER says that it does not consider the theory underlying their Black CAPM warrants a specific uplift or adjustment to the equity beta point estimate but it does acknowledge that it is consistent with an equity beta towards the upper end of its range. What the CEG report shows is that using updated Henry 2014 estimates, equity beta has increased.

²⁷ Portfolio 6 was added by CEG and is the same as Portfolio 5, but excluding Envestra (now Australian Gas Networks) because it has been de-listed.

²⁸ CEG: *Replication and Extension of Henry's Beta Analysis*, September 2016 Table 12 at 13.

3.2.3. MRP

As set out in Chapter 10 of our Final Plan, we propose a MRP of 6.5%, consistent with the AER's Guideline estimate. However, AGN is aware that the estimate of MRP remains contentious and that some service providers have proposed a higher MRP.²⁹

The remainder of this section sets out the nature of the differences that remain on MRP and the basis on which a higher MRP has been proposed by some service providers.

3.2.3.1. The AER's Recent Decisions

In its Guideline and recent decisions³⁰, the AER's estimate for MRP is 6.5 %. In its Draft Decision for AusNet Services transmission, the AER commenced by establishing a range of MRP estimates from 4.8 to 8.84% from the bottom of its historical averages and the top of its construction of the Dividend Growth Model (DGM). It then derived its point estimate from within this range.

The historical excess returns relied upon by the AER are said to range from 4.8 % to 6.0 %. The AER refers to a baseline estimate for the MRP of 5.5% to 6.0% said to reflect a range based on arithmetic averages.

The AER's DGM estimates indicate a market risk premium estimate above this baseline with a range of 7.57 to 8.84 %. The AER considers its DGM model to be theoretically sound but to be subject to certain limitations in practically implementing it. The AER considers the DGM estimates provide some support for a point estimate above the range from historical returns. However the AER still uses its DGM estimate to establish the upper point of its range of MRP estimates and says it has not changed the weight it applies to the DGM.³¹

Consistent with the Guideline the AER gives limited consideration to other evidence but broadly concludes it supports its MRP estimate of 6.5%.

3.2.3.2. Historical Excess Returns

In the Guideline and its decisions up to April 2015 the AER's view was that the mean historical excess returns supported an MRP range of 5.0% to 6.5%. The bottom of that range was set to 20 basis points above the highest geometric mean estimate and the top of that range was set slightly above the highest arithmetic mean estimate. However, in the Draft Decision for AusNet Services transmission the AER appears to change its approach to reporting the evidence from historical excess returns. The AER says:³²

"Historical excess returns provide our baseline estimate and indicates a market risk premium of approximately 5.5 to 6.0 % from a range of 4.8 % to 6.0 %. We consider both geometric and arithmetic averages of historical returns. However, we consider there may be evidence of bias in the geometric averages. Therefore, our range for historical returns is based on arithmetic averages."

Frontier Economics has prepared a report (see Attachment 10.3 to the Final Plan) which considers and updates the evidence on which the AER's MRP estimate is based. Frontier has proposed a corrected arithmetic mean point estimate range of 5.5% to 6.5% and notes that its range is consistent with the estimates recently reported by the Economic Regulation Authority for corresponding time periods.

²⁹ For example, AusNet Transmission recently proposed an MRP of 7.5% for its 2017-18 to 2021-22 transmission proposal.

³⁰ For example AusNet Transmission Draft Decision, Attachment 3-45. Powerlink Transmission Draft Decision, Attachment 3-40.

³¹ AusNet, *Transmission Draft Decision*, Attachment 3-207.

³² AusNet, *Transmission Draft Decision*, Attachment 3-59. Powerlink, *Transmission Draft Decision*, Attachment 3-47.

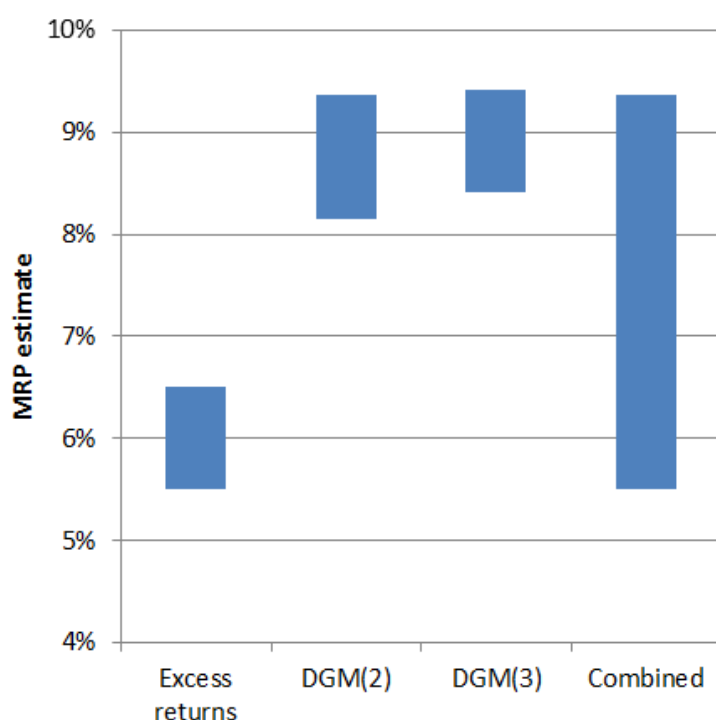
3.2.3.3. DGM Estimates

Frontier Economics calculate an updated (AER) DGM estimate using the AER's most recent DGM estimates of the required return on the market and subtracting the then prevailing 10-year government bond yield of 1.9%. This gives a range for the AER's three-stage DGM of 8.4% to 9.4%.³³

3.2.3.4. The Range of MRP Estimates

Frontier Economics then goes on to establish a combined range from the historical excess returns and DGM ranges referred to above. This is set out in Figure 3.1.

Figure 3.1: Current MRP Range – AER Guideline Approach



Source: Frontier Economics calculations based on estimates set out in the AusNet Draft Decision, Attachment 3.³⁴

3.2.3.5. A Point Estimate for the MRP

The AER's Guideline approach was to select a point estimate from within the combined range where:

"This point estimate lies between the historical average range and the range of estimates produced by the DGM. This reflects our consideration of the strengths and limitations of each source of evidence."³⁵

³³ Frontier Economics, *The Market Risk Premium*, September 2016, page 72, paragraph 273. Provided at Attachment 10.3 to the Final Plan.

³⁴ Frontier Economics, *The Market Risk Premium*, September 2016 page 11, paragraph 35. Provided at Attachment 10.3 to the Final Plan.

³⁵ AER. *Rate of Return Guideline*, Explanatory Statement, p. 97.

In the Draft Decision for AusNet Services transmission the AER altered its approach on the basis of its view that the DGM estimates are not reliable on their own, but that they provide some support for a point estimate above the range from historical returns.

Reliability of DGM Estimates

The AER says:³⁶

"We are not confident that the recent increases in estimates of the market risk premium from these models necessarily reflect an increase in the 'true' expected ten-year forward looking market risk premium. We consider our, and other, dividend growth models are likely to produce upward biased estimates in the current market. We also consider our, and other, models may not accurately track changes in the return on equity for the market. For these reasons, we do not consider that the dividend growth model estimates are reliable on their own, but that they do provide some support for a point estimate above the range from historical returns."

In Section 7.2 of the Frontier Report, Frontier explains why it does not consider the concerns the AER raises above should result in a change to the AER's Guideline approach and in particular the reliance placed on the AER's DGM estimates.

Frontier Economics form the view that even if the DGM estimates only provide some support for a point estimate above the range from historical returns, once that range is corrected to be 5.5% to 6.5%, an MRP estimate of 6.5% is too low.

Point Estimate from the Combined Range

Applying the same sorts of considerations as in the Guideline to the current evidence that the AER has compiled, Frontier Economics form the view that the result is an MRP estimate of 7.5%.³⁷

Frontier identifies the following factors that appear to be relevant to the AER's adoption of a point estimate MRP of 6.5% in the Guideline at that time:

- The AER's historical excess returns mid-point estimate is 6.0%³⁸ and its mid-point three-stage DGM estimate is 7.1%.³⁹ The mid-point of these two estimates is 6.55%;
- The AER adopted an upper bound of 6.5% from its historical excess returns approach and a lower bound of 6.7% from its three-stage DGM approach. The mid-point of this gap between the two ranges is 6.6%;
- The AER's historical excess returns range and two-stage DGM range overlapped in the region of 6.1% to 6.5%. The mid-point of this region of overlap is 6.3%;
- The combined range adopted by the AER was 5.0% (the lower bound of the excess returns range) and 7.5% (the upper bound of the DGM range). The mid-point of the combined range is 6.3%; and
- If the historical excess returns range is based on arithmetic means (which is consistent with the AER's subsequent decisions) the combined range is 5.7%⁴⁰ to 7.5%, with a mid-point of 6.6%.

³⁶ AusNet, *Transmission Draft Decision*, Attachment 3-59.

³⁷ Frontier Economics, *The Market Risk Premium*, September 2016, pages 71-73, paragraphs 270-274. Provided at Attachment 10.3 to the Final Plan.

³⁸ AER, *Rate of Return Guideline*, Explanatory Statement, page 93.

³⁹ The AER has subsequently stated its preference for the three-stage specification of the DGM. See, for example, JGN *Draft Decision*, Attachment 3, Appendix C, page 222.

⁴⁰ AER, *Rate of Return Guideline*, Explanatory Statement, page 93.

Frontier reaches an estimate for the MRP adopting these factors as follows:

- The AER stated that its preferred historical excess returns estimate is 6.0%⁴¹ and its mid-point three-stage DGM estimate is now 9.0%. The mid-point of these two estimates is 7.5%;
- The upper bound of the AER's historical excess returns approach is 6.5% and the lower bound from the AER's three-stage DGM approach is 8.4%. The mid-point of this gap between the two ranges is 7.5%;
- At the time of the Guideline, the AER's historical excess returns range and its two-stage DGM range overlapped. In the current market conditions, the upper bound of the historical excess returns range is 6.5% and the lower bound of the two-stage DGM range is 8.2%. The mid-point of the gap between these two ranges is 7.4%; and
- The combined range is from 5.5% (the lower bound of the excess returns range) and 9.4% (the upper bound of the DGM range⁴²). The mid-point of the combined range is 7.5%.

3.2.3.6. Other Relevant Material

The AER has recently said:⁴³

"Survey evidence supports a market risk premium around 6.0 to 6.5 %. Other regulators' estimates are used as a cross check and indicate a market risk premium estimate of around 6.5 % is reasonable. Conditioning variables indicate that there has not been a material change in market conditions since our October and November 2015 decisions."

Use of Survey Evidence

Survey evidence is considered to be of limited utility because of methodological issues including nature of the respondents, the survey response rate and potential bias in the response rates of different groups, when the survey was conducted and the level of government bond yields at the time, the content and relevance of the questions asked and how and for what purpose the MRP is used.

It is also noted that MRP figures reported in surveys referred to by the AER in previous decisions are ex-imputation estimates and would have to be adjusted before they can be compared to the AER's (with-imputation) 6.5% MRP allowance.

Other Regulator's Decisions

It is noted that regulatory decisions made under regulatory regimes with characteristics similar to the Rules (or decisions are adjusted to be comparable to decisions made under the Rules) have estimated an MRP of over 7% and in some cases over 8%.⁴⁴

Conditioning Variables

Frontier Economics identify that conditioning variables should be subject to formal econometric mapping to a point estimate of the MRP and this is particularly difficult in market conditions of record low government bond yields. This is because some of the conditioning variables relate to required returns whereas others relate to risk premiums. For example, the dividend yield is related to overall required returns – a higher yield implies that a given set of dividends is being discounted at a higher rate. By contrast, corporate bond spreads relate to risk-premiums.

⁴¹ AER, *Rate of Return Guideline*, Explanatory Statement, page 97.

⁴² Note that the upper bound is currently the same for the AER's two-stage and three-stage DGM approaches.

⁴³ AusNet, *Transmission Draft Decision*, Attachment 3-59.

⁴⁴ Frontier Economics, *The Market Risk Premium*, September 2016 page 13, paragraph 39.

When government bond yields are near their long-run average levels, this distinction is much less important as risk premiums in the current and the historical data are computed by subtracting the same base risk-free rate. The analysis in the prevailing market conditions is complicated by the fact that current government bond yields are so far below the historical average over the period for which conditioning information is available.

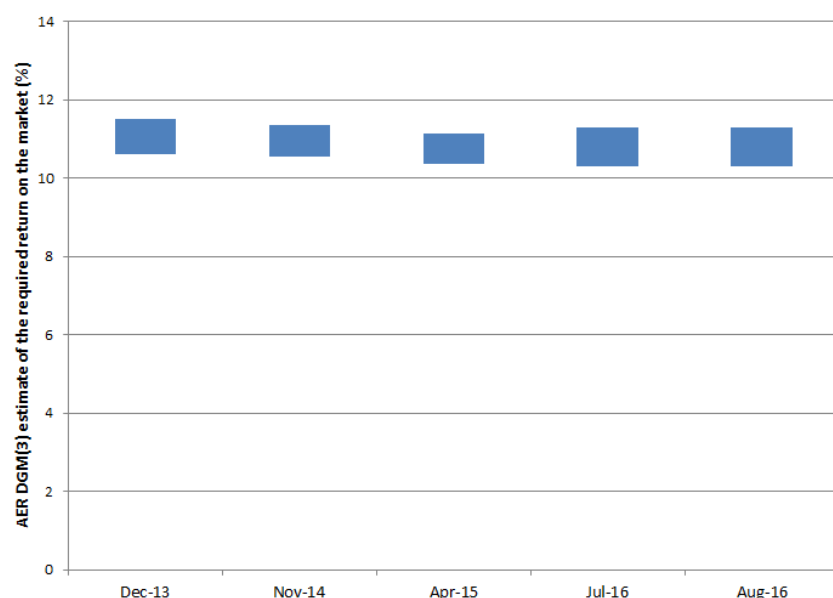
However, to the extent reliance is placed on conditioning variables, they are generally consistent with a stable required return on equity and a higher MRP than estimated by the AER.

3.2.3.7. Market and Other Evidence of the Required Return on Equity

The DGM and Wright estimates of the Required Return on Equity

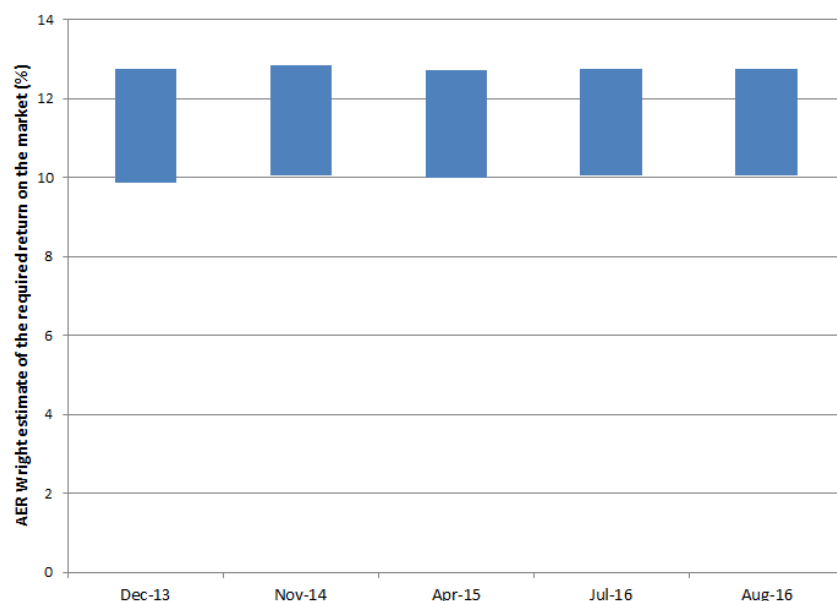
Frontier Economics point out that applying the DGM suggests that the overall required return on equity has remained stable since the AER's Guideline, even as government bond yields have fallen sharply. This is illustrated in the figure below.

Figure 3.2: AER Three-stage DGM Estimates of the Required Return on the Market



The AER also reports that its Wright estimates of the required return on the market have remained stable since the Guideline, as summarised in Figure 3.3.

Figure 3.3: AER Wright Estimates of the Required Return on the Market



Frontier Economics point out that evidence from a range of respected market participants is consistent with the evidence set out above – that the required return on equity has remained relatively stable even as government bond yields have fallen. This position is supported by:⁴⁵

- central banks such as the Reserve Bank of Australia and the Federal Reserve Bank of New York;
- other regulators such as Ofgem, FERC, the ERA, and IPART;
- corporate advisory firms such as McKinsey and NERA-US; and
- independent expert firms such as EY, KPMG, Deloitte, and Lonergan Edwards.

3.2.3.8. A Forward Looking MRP

The Rules requires a forward-looking estimate of the MRP that is commensurate with the prevailing conditions in the market for equity funds.

The historical excess returns approach estimates the MRP by taking the mean excess return over a long historical period and therefore reflects the average market conditions over the historical period that was used. This approach can only produce a forward-looking estimate that is commensurate with the prevailing conditions in the market in two circumstances:

- investors always require the same MRP in all market conditions; or
- the current market conditions are the same as the average market conditions over the historical period.

Frontier Economic's view is that neither of these conditions is likely to hold.

The prospect that investors always require the same risk premium in all market conditions is inconsistent with the generally accepted view that risk premiums are higher during recessions and

⁴⁵ Frontier Economics, *The Market Risk Premium*, September 2016 pages 46-54-, paragraphs 170-199.

financial crises and lower during economic expansions. It is also inconsistent with the AER's own view that the MRP likely varies over time.⁴⁶

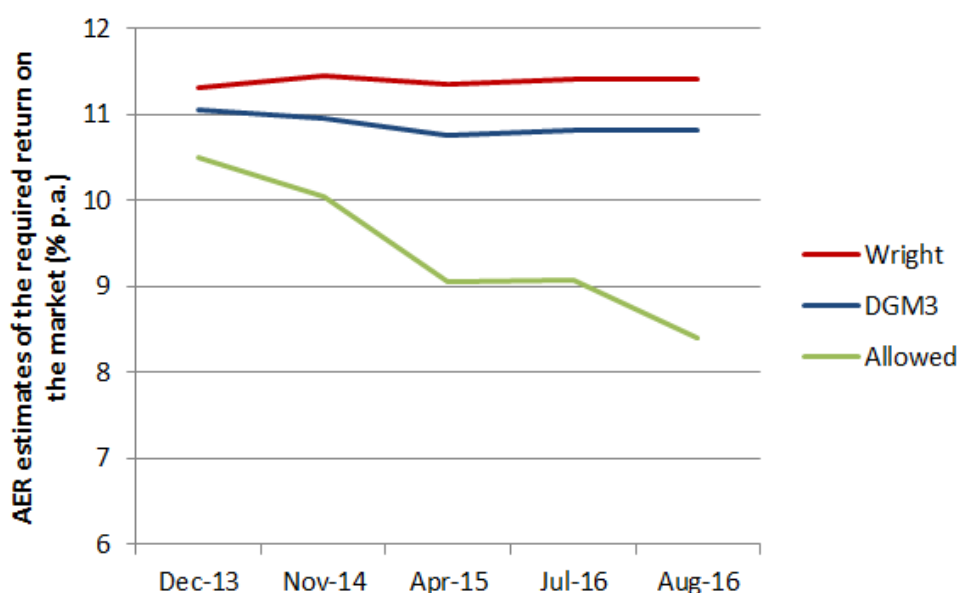
The alternative reason for the use of mean historical excess returns is that the current market conditions are the same as the average market conditions over the historical period. Frontier Economics view is that prevailing market conditions are very different from the average historical conditions in that government bond yields (to which the MRP is added to produce the allowed return on equity) have been at historically low levels.

A Consistent MRP Allowance

Frontier discusses in section 6 of its Report that the consequence of a continued MRP allowance of 6.5% is that the allowed return on equity falls one-for-one with falls in government bond yields. The AER adds its risk premium to the contemporaneous government bond yield and the sum is adopted as the allowed return on equity. Since government bond yields fell sharply since the Guideline, the AER's allowed return on equity has also fallen correspondingly.

However, Frontier Economics view is that the evidence shows the required return on equity has remained stable since the Guideline. The distinction between the AER's estimates and its regulatory allowance is summarised in Figure 3.4.

Figure 3.4: The Required Return on the Market – AER Estimates and Allowances



Source: Rate of Return Guideline, Explanatory Statement, Appendix; Ausgrid Draft Decision Attachment 3; Ausgrid Final Decision Attachment 3; AusNet Draft Decision Attachment 3.

The AER's required return on equity for the average firm⁴⁷ has fallen from 10.6%⁴⁸ in December 2013 to 8.4%⁴⁹ as at September 2016, a decline of more than 25% over the last two and a half years, as illustrated in Figure 3.5.

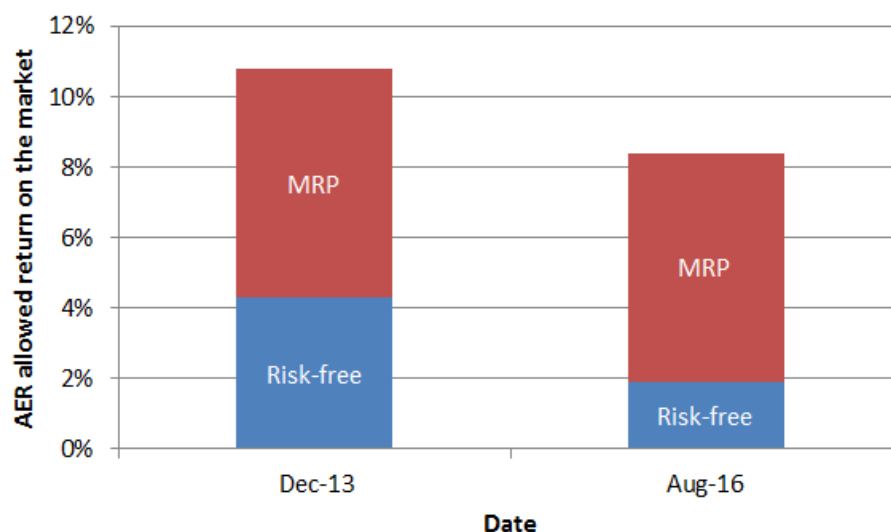
⁴⁶ AER (2013), *Rate of Return Guideline*, Explanatory Statement, page 91.

⁴⁷ Which, under the CAPM, is equal to the sum of the risk-free rate and the MRP.

⁴⁸ 4.1% + 6.5%.

⁴⁹ 1.9% + 6.5%.

Figure 3.5: AER Estimate of the Required Return on Equity for an Average Firm



Source: AER Rate of Return Guideline, December 2013; MRP allowance from AusNet Draft Decision, May 2016; RBA current 10-year government bond yield August 2016.

Frontier Economics view is that the evidence supports the propositions that:

- real-world investors do not determine the return that they require by simply adding a constant figure to the contemporaneous government bond yield; and
- the required return on equity has not fallen by over 25% in the last two and a half years.

3.3. Cross Checks on the Overall Return on Equity

In recent decisions the AER considers various cross checks of its return on equity estimate. The AER considers that in conducting cross checks the relevant matter is the equity risk premium. It is noted that under the Rules, it is the return on equity that is relevant and the equity risk premium is only one part of the overall return on equity.

Frontier notes that⁵⁰, even if it were the case that the equity risk premium allowed by the AER were consistent with that adopted by some market practitioners, the task would not finish there – it would still be necessary to consider the other elements of the return on equity. There is evidence that market practitioners regularly adopt higher risk-free rates and apply other uplifts to the return on equity. These adjustments and uplifts tend to increase in frequency and magnitude as government bond yields fall – as they have in the prevailing market conditions.

Frontier gives two examples of its concerns with the AER's approach.⁵¹ Firstly, that the AER's conclusion that its allowed equity risk premium lies within the Grant Samuel range did not recognise that Grant Samuel did not consider its mechanistic range as being appropriate for current market conditions and that Grant Samuel corrected that range to one (adjusted for imputation) that the AER's equity risk premium falls outside (below). Second, an example is given of an adjustment to the risk-free rate which, when taken into account, also produces a premium materially above the AER's allowance.

⁵⁰ Frontier Economics, *The Market Risk Premium*, September 2016, page 44, paragraph 165. Provided at Attachment 10.3 to the Final Plan.

⁵¹ Ibid, pages –41-43, paragraphs 154-160.

3.4. Return on Equity Averaging Period

AGN has used as a placeholder averaging period of 20 business days ending 30 September 2016.

3.5. SL CAPM Parameter Estimates

The following parameter estimates are based on the indicative averaging period identified above. AGN will update these estimates after the Draft Decision.

Table 3.3: SL CAPM Parameter Estimates

Parameters	Proposal
Risk Free Rate	2.03%
Equity Beta	0.7
MRP	6.5%
Return on Equity	6.58%

4. Return on Debt

4.1. Introduction – Return on Debt

We agree with the AER's approach to determining the return on debt using a trailing average approach on the basis that this approach recognises that, in practice, the actual return on debt of a BEE will be determined by historical rates at the time of debt issue. This approach better reflects the actual practice of energy networks and other businesses who raise debt with staggered maturities, and is a more replicable approach, than the "*on-the-day*" methodology previously adopted by the AER. We agree that the trailing average approach reflects an efficient debt financing strategy. We also agree with the AER's use of a 10-year debt term in estimating the return on debt.

However, there remains significant uncertainty around the correct approach to estimating the return on debt, including whether there should be a transition to the trailing average approach and if so, in what form. In this proposal, we have decided to apply the 10-year transition (from the previous "*on-the-day*" approach to a trailing average approach to estimating the return on debt) proposed by the AER in the Rate of Return Guideline pending further clarity on the appropriateness of this approach given a number of diverse recent decisions and unresolved legal processes regarding this issue (discussed further below).

4.2. Background – Return on Debt

Prior to the issue of its Rate of Return Guideline in December 2013 (Guideline), the AER's approach to estimating the cost of debt involved the use of an "*on-the-day*" approach, under which a fixed prevailing rate of return on debt was estimated and applied throughout the regulatory control period.

In the Guideline, the AER proposed to move to a trailing average approach to estimating the cost of debt under which:

"...The trailing average will be calculated using a simple 10 year average and will be updated annually. The yearly average will be calculated over a period of 10 or more consecutive business days using yield estimates from an independent third party service provider for a 10 year debt term and the closest proximate for a BBB+ credit rating. There will be a 10 year transition period from the current 'on the day' approach to the trailing average portfolio approach."⁵²

The trailing average approach estimates the average return that would have been required by debt investors in a BEE if it raised debt over a 10-year historical period prior to the commencement of the regulatory period. It assumes that the benchmark efficient entity would have a staggered debt portfolio where 10% of its debt is refinanced each year.

In the Explanatory Statement for the Guideline, the AER has acknowledged that the trailing average (as compared to the "*on-the-day*" approach) "*more closely aligns with the efficient debt financing practices of regulated businesses and means that prices are likely to be less volatile over time*".⁵³ The AER's change to this methodology was also described as "*a major change in the regulatory framework... arrived at... through an extensive consultation process and analysis*".⁵⁴

⁵² Guideline, page 4.

⁵³ Explanatory Statement – Rate of Return Guideline, page 12.

⁵⁴ Explanatory Statement – Rate of Return Guideline, page 101.

As noted above, we agree with the AER that the trailing average approach better reflects the actual practice of energy networks and other businesses who raise debt with staggered maturities, is clearly better aligned with the actual financing practices of the BEE (whether regulated or unregulated), and is a more replicable approach, than the “on-the-day” methodology previously adopted by the AER. AGN agrees with the AER that a trailing average approach reflects an efficient debt financing strategy.⁵⁵

The question that arises is whether, and in what form, a transition from the “*on the day*” methodology to the trailing average approach is needed.

4.2.1. Background-Transition

The 10-year transition proposed by the AER (and adopted by AGN in its proposal) involves a transition of the entire return on debt (which is comprised of a risk-free rate (base rate) component and a debt risk premium (DRP) component) over a ten year period such that:

- in the first year, the return on debt is based entirely on the prevailing rate of return (similar to the “*on-the-day*” approach);
- in the second year, the prevailing rate of return is given 90% weight and 10% weight is given to the observed rate in the first year;
- in the third year, the prevailing rate of return is given 80% weight and 10% weight is given to the observed rates in each of the first and second years; and
- so on, until in the tenth year the rate of return represents a full trailing average with equal weighting given to each of the observed rates over the previous ten years.⁵⁶

The AER first implemented the trailing average approach to estimating the cost of debt, and its proposed 10-year transition, in a number of distribution determinations made under the NER in April 2015⁵⁷ and an access arrangement final decision made under the National Gas Rules in June 2015.⁵⁸

The businesses the subject of those determinations and decisions sought merits review of the AER’s decisions in respect of the return on debt (amongst other things) and, on 26 February 2016, the ACT found error in the AER’s decisions for each service provider and remitted the decisions “*in relation to the trailing average approach*” to the AER to be remade.⁵⁹ Those remitters are yet to be completed by the AER.

The AER has sought judicial review of the ACT’s decisions in *Ausgrid*,⁶⁰ including in relation to the return on debt, which reviews were heard by the Full Federal Court in October 2016. The Court’s decisions on those applications remain reserved.

In its recent draft and final decisions for various businesses, and notwithstanding the ACT’s findings in *Ausgrid*, the AER has maintained the same approach to a 10-year transition to the

⁵⁵ *Explanatory Statement – Rate of Return Guideline*, page 12.

⁵⁶ *Guideline*, pages 19-20.

⁵⁷ Distribution determination final decisions published on 30 April 2015 for each of Ausgrid, Endeavour Energy, Essential Energy and ActewAGL Distribution.

⁵⁸ Final access arrangement decision published on 3 June 2015 for Jemena Gas Networks (NSW) Ltd.

⁵⁹ *Applications by Public Interest Advocacy Centre Ltd and Ausgrid* [2016] ACompT 1 order 1(b); *Applications by Public Interest Advocacy Centre Ltd and Endeavour Energy* [2016] ACompT 2, order 1(b); *Applications by Public Interest Advocacy Centre Ltd and Essential Energy* [2016] ACompT 3, order 1(b); *Application by ActewAGL Distribution* [2016] ACompT 4, order 1(c); *Application by Jemena Gas Networks (NSW) Ltd* [2016] ACompT 5, order 1(a).

⁶⁰ Action nos. NSD 415, 416, 418, 419 and 420 of 2016 in the Full Federal Court of Australia.

implementation of the trailing average, although it has sought to justify that approach on a different basis.

We agree with the change to using a trailing average approach to estimate the return on debt and, while it has concerns about the transition approach adopted by the AER and notes the current legal uncertainty regarding the issue (discussed further below), AGN has applied the AER's Guideline approach to transition in this proposal, pending further clarity from the ongoing legal reviews.

4.3. Regulatory Framework

NGR 87 (10) provides that:

- the return on debt must be estimated such that it contributes to the ARORO (NGR 87(8));
- the return on debt may be estimated using a methodology which results in the return on debt being the same or different (or potentially different) for each regulatory year in the access arrangement period (in the latter case, any resulting change to the annual revenue requirement must be effected through the automatic application of a formula specified in the access arrangement decision (NGR 87(9) and 87(12));
- the methodology adopted to estimate the return on debt may, without limitation, be designed to result in the return on debt reflecting either of, or a combination of, the following:
 - the return that would be required by debt investors in a BEE if it raised debt at the time or shortly before the making of the access arrangement decision for the access arrangement period;
 - the average return that would have been required by debt investors in a BEE if it raised debt over an historical period prior to the commencement of a regulatory year in the access arrangement period,

Also, NGR 87 (11) provides that:

- regard must be had to the following factors in estimating the return on debt:
 - the desirability of minimising any difference between the estimated return on debt and the return on debt of a BEE referred to in the ARORO;
 - the interrelationship between the return on equity and the return on debt;
 - the incentives that the return on debt may provide in relation to capital expenditure over the access arrangement period, including as to the timing of any capital expenditure; and
 - any impacts (including in relation to the costs of servicing debt across access arrangement periods) on a BEE that could arise as a result of changing the methodology that is used to estimate the return on debt from one access arrangement period to the next,

Calculating the rate of return on debt requires the making of estimates. NGR 74 provides that such estimates must be arrived at on a reasonable basis and must represent the best estimate possible in the circumstances.

In relation to the return on debt, the AER is also required to make its decision in a manner that will or is likely to contribute to the achievement of the national gas objective (NGO).⁶¹ Further, where there are two or more possible decisions that will or will be likely to contribute to the achievement of the NGO, the AER must make the decision that it is satisfied will or is likely to

⁶¹ Section 28(1)(a) of the NGL.

contribute to the NGO to the greatest degree and specify the reasons as to the basis on which that is the case.⁶²

The AER must also take into account the revenue and pricing principles (RPP) set out in section 24 of the NGL.

4.4. Final Plan Proposal

AGN submits that its proposal as reflected in this Final Plan is consistent with the Guideline, but notes that it will monitor legal developments on the specific topics discussed below, relevant to the estimation of the return on debt, and amend its proposal if necessary once any further clarity is provided.

AGN proposes that the return on debt be estimated:

- using a 10-year transition from the “on-the-day” approach to a trailing average approach in the manner set out in the Guideline. That is, the return on debt is to be updated each regulatory year through the application of a formula, being that set out in section 6.3.2 of the Guideline;⁶³
- adopting a 10-year debt term for the BEE (as per the Guideline);
- adopting a BBB+ credit rating for the BEE (as per the Guideline);
- adopting a gearing ratio of 60% for the BEE (as per the Guideline); and
- using a simple average of two independent third party data sources, namely:
 - the 10 year estimate from the non-financial corporate BBB rated data series published by the RBA (adjusted to extrapolate the data series from a ‘target’ 10 year term to an ‘effective’ 10 year term, to interpolate the monthly data points to produce daily estimates, and to convert the estimates from semi-annual to an effective annual rate); and
 - the 10 year yield estimate from the Australian corporate BBB rated Bloomberg Valuation Service (BVAL) data series published by Bloomberg (adjusted to convert the estimates from semi-annual to an effective annual rate);

This approach gives rise to an indicative cost of debt of 4.42% in the first year of the access arrangement period calculated over AGN’s placeholder averaging period.

4.5. Transition Approaches

As noted above, there remains uncertainty (and unresolved legal processes) as to the appropriate form of transition (from the “on-the-day” approach to a trailing average approach) that satisfies the requirements of the NGR, as discussed below. This includes whether any extended transition is required at all and, if so, whether the transition should apply to both the base rate and DRP components of the return on debt, or just to the base rate component.

In the face of such uncertainty, AGN has applied the Guideline approach to transition, but sets out below a summary of the unresolved issues which are the subject of ongoing legal reviews. AGN will continue to monitor these issues as they develop.

⁶² Section 28(1)(b)(iii) of the NGL.

⁶³ *Guideline*, pages 19-20.

4.5.1. Immediate or No Transition

The NGR require that both the overall allowed rate of return be determined such that it achieves the ARORO,⁶⁴ and that the return on debt for each regulatory year be estimated such that it contributes to the achievement of the ARORO.⁶⁵

The ARORO is that:

*"...the rate of return for a 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 service provider in respect of the provision of reference services..."*⁶⁶

The AER stated in the Guideline, and continues to maintain (notwithstanding the recent decisions of the ACT⁶⁷) that the BEE referred to in the ARORO is a "pure play, regulated energy network business operating within Australia".⁶⁸

Prior to the ACT's decision in *Ausgrid*, the assumption that the BEE was a regulated energy network business formed a key part of the AER's reasoning for applying a full transition from the "on-the-day" approach to the trailing average approach (i.e. the Guideline transition approach). In the Explanatory Statement for the Guideline, the AER stated that one of the considerations in applying the transition was "that the benchmark efficient firm is likely to need a transition in moving from the current 'on the day' approach to the trailing average approach".⁶⁹

The rationale, therefore, in the Guideline for the transition was that the BEE had previously adopted efficient financing practices in response to the previous "on-the-day" approach (such as entering into hedging contracts) that would need to be unwound in moving to the trailing average approach. This rationale, of course, is only valid if the BEE is assumed to be a regulated entity that structured its debt financing practices to meet the requirements of the previous method of regulation. An unregulated BEE would have engaged in efficient financing practices unaffected by the AER's previous regulatory practice.

However, in *Ausgrid*, the ACT found the BEE referred to in the ARORO should be considered to be an unregulated entity.⁷⁰ The ACT held that:

*"The BEE, in the view of the Tribunal[ACT], is likely to refer to the hypothetical efficient competitor in a competitive market for those services. Such a BEE is not a regulated competitor, because the regulation is imposed as a proxy for the hypothetical unregulated competitor. Otherwise, the starting point would be a regulated competitor in a hypothetically regulated market. That would not be consistent with the policy underlying the purpose of the NEL and the NGL in relation to the fixing of terms on which monopoly providers may operate. Indeed, the concept of a regulated efficient entity as the base comparator would divert the AER from the role of fixing the terms for supply of services on a proxy basis compared to those likely to obtain in a competitive market, and focus its attention on some different and unidentified regulated market."*⁷¹

⁶⁴ NGR 87(2).

⁶⁵ NGR 87(8).

⁶⁶ NGR 87(3).

⁶⁷ *Ausgrid* et al.

⁶⁸ For example see AER's Draft Decision for Powerlink (29 September 2016), Attachment 3, pages 3-20, 3-29, 3-135 to 3-136.

⁶⁹ *Explanatory Statement – Rate of Return Guideline*, page 120. See also pages 121-122.

⁷⁰ *Ausgrid* at [907].

⁷¹ *Ausgrid* at [914].

While the ACT determined a different approach to the BEE in *Ausgrid*, it remitted the issue of the return on debt to the AER and did not determine what transition, if any, should have been applied. The AER has however sought judicial review of the ACT's decisions in *Ausgrid et al.*⁷² Those applications for judicial review were heard by the Full Federal Court in October 2016, and the Full Federal Court is yet to deliver its decisions on those applications.

The ACT's finding in *Ausgrid* that the BEE is unregulated leads to an argument that no transition to the trailing average approach is required, and the trailing average approach should be implemented immediately.

An unregulated BEE, in the current and previous access arrangement period, would not have structured its debt financing strategy to respond to the AER's previous "*on-the-day*" approach (as an unregulated entity in the competitive market is not affected by the AER's regulatory approach). Rather, the unregulated BEE would have structured its debt financing strategy in such a way that mirrors the trailing average approach. This is because the unregulated BEE, operating in a workably competitive market, is likely to already hold a staggered long term (i.e. of approximately 10 year term) debt portfolio, such that no transition to that position is required.

Since the ACT's decision in *Ausgrid*, the AER has continued to adopt the Guideline transition approach in its Draft and Final Decisions, although justified on a different basis.⁷³ The AER now justifies the Guideline transition on the basis of a so-called "*zero NPV investment condition*", which other businesses have recently identified concerns with.⁷⁴

For the reasons set out above, there remains uncertainty about the proper definition of the BEE referenced by the ARORO (whether it is a regulated or an unregulated entity) and whether an immediate implementation of the trailing average approach (i.e. with no transition) satisfies the NGR, the ARORO and NGO (and to a greater degree that the Guideline transition approach).

4.5.2. The "Hybrid Transition" Alternative

Since the publication of the Guideline, other businesses have proposed a hybrid transition of just the base rate component of the return on debt. The ACT has recently considered proposed hybrid transitions in the merits review applications made by Jemena Gas Networks (NSW) Ltd⁷⁵ and SA Power Networks.⁷⁶

It is accepted by the AER that businesses (and the BEE) cannot hedge, and have not hedged, the DRP component of the return on debt.⁷⁷ The AER has also previously accepted (based on advice from Chairmont, who recommended the adoption of the hybrid transition⁷⁸) that the hybrid transition would "*provide a good match*" between the allowed return on debt and the efficient financing costs of a BEE (being the focus of the ARORO).⁷⁹

However, the AER continues to maintain a preference for the Guideline transition approach over a hybrid transition.

Although in *JGN* the ACT found error in the AER's approach to the return on debt (in relation to the definition of the BEE as discussed above), and remitted to the matter to the AER, the merits of

⁷² Action nos. NSD 415, 416, 418, 419 and 420 of 2016 in the Full Federal Court of Australia.

⁷³ For example see AER's Draft Decision for Powerlink (29 September 2016), Attachment 3.

⁷⁴ CEG, *The AER's Current Interpretation of the ARORO*, September 2016, section 9, report for AusNet Services.

⁷⁵ *Application by Jemena Gas Networks (NSW) Ltd* [2016] ACompT 5 (*JGN*).

⁷⁶ *Application by SA Power Networks* [2016] ACompT 11 (*SAPN*).

⁷⁷ *Explanatory Statement – Rate of Return Guideline*, page 105.

⁷⁸ Chairmont: *Financing Practices Under Regulation: Past and Transitional*, October 2015.

⁷⁹ For example see AER's Final Decision for SA Power Networks (29 October 2015), Attachment 3, page 3-165.

the hybrid transition approach (as proposed by Jemena Gas Networks (NSW) Ltd) were not addressed in any detail by the ACT in that decision.

The hybrid transition approach was discussed in more detail by the ACT more recently in *SAPN*, which found no error in the AER's approach in rejecting the hybrid transition approach proposed by SA Power Network in favour of the AER's Guideline transition approach.

Critically, in doing so, the ACT found that the AER had not erred in interpreting rule 6.5.2(k)(4) of the National Electricity Rules – the equivalent of NGR 87(11)(d) which requires the AER to have regard to any impacts (including in relation to the costs of servicing debt across access arrangement periods) on a BEE referred to in the ARORO that could arise as a result of changing the methodology that is used to estimate the return on debt from one access arrangement period to the next – as enabling a consideration of more than just the periods immediately surrounding the change in regulatory approach, and including the effects over the life of the asset.⁸⁰ This, the ACT said, justified the attention given by the AER to its "NPV=0" criterion in assessing the return on debt.⁸¹

AGN has concerns both about the ACT's interpretation of the equivalent of NGR 87(11)(d), and the logic of the AER's so-called "NPV=0" criterion, and AGN notes that there remains uncertainty around the hybrid transition because SA Power Networks has sought judicial review of the ACT's decision in *SAPN*, which application is yet to be heard by the Court,⁸² and because the AER is yet to reconsider Jemena Gas Networks (NSW) Ltd's proposed hybrid on remitter.

Further, the ACT's decision in *SAPN* did not consider at all the definition of the BEE as both parties appear to have proceeded on the basis that the BEE was a regulated entity.

4.5.3. Other Outstanding Reviews

In addition to the uncertainty arising from the matters set out above, both the immediate implementation and hybrid transition approaches were raised before the ACT again even more recently in merits review applications made by (predominantly) Victorian electricity businesses.⁸³ Those matters were heard by the ACT in November 2016 and the ACT is yet to deliver its determinations on those Applications.

4.6. Implementation – Data Sources

As noted above, AGN's proposal is to calculate the return on debt using the AER's approach relying upon a simple average of two independent third party data sources, namely:

- the 10 year estimate from the non-financial corporate BBB rated data series published by the RBA (adjusted to extrapolate the data series from a 'target' 10 year term to an 'effective' 10 year term, to interpolate the monthly data points to produce daily estimates, and to convert the estimates from semi-annual to an effective annual rate); and
- the 10 year yield estimate from the Australian corporate BBB rated BVAL data series published by Bloomberg (adjusted to convert the estimates from semi-annual to an effective annual rate);

⁸⁰ *SAPN*, [289].

⁸¹ *SAPN*, [289].

⁸² Action no. NSD 2032 of 2016 in the Federal Court of Australia.

⁸³ Action nos. ACT 3, 4, 5, 6, 7 and 8 of 2016 in the Tribunal.

4.7. New Issue Premium

AGN notes that there is cogent evidence that there exists a cost “*premium*” to businesses issuing bonds into the primary debt market that it not accounted for in the data sources used by the AER to estimate the return on debt (being observations on the secondary debt market).

Despite the evidence for the existence of such a premium (quantified by CEG at 27 basis points on 10-year BBB rated debt⁸⁴), AGN does not seek, in this proposal, to add any explicit allowance for the “*new issue premium*” to its return on debt proposal but notes that the existence of such a premium results in our proposed return on debt being conservative.

4.8. Averaging Period

AGN proposes that the return on debt be calculated over the averaging periods set out in confidential Attachment 10.8.

4.9. Debt Raising Costs

AGN’s forecast operating expenditure includes an amount of \$5 million in respect of debt raising costs for the next AA period, consistent with the AER’s decision in respect of debt raising costs for our South Australian distribution network.⁸⁵

⁸⁴ See, for example, CEG, *The new issue premium*, October 2014, a report for Citipower, Jemena, Powercor, SA Power Networks, AusNet Services and United Energy, p. 54; and CEG, *Critique of AER analysis of New Issue Premium*, December 2015, report for Australian Gas Networks, CitiPower, Jemena Electricity Networks, Powercor and United Energy.

⁸⁵ Final Decision, Australian Gas Networks Access Arrangement 2016 to 2021, 26 May 2016 (Attachment 3. Section K.2).

5. Gamma

5.1. Introduction – Gamma

The AER's conceptual approach, relying on the pre-personal tax and pre-personal costs value of imputation credits, and the evidence on which it relies to derive its gamma estimate, has not changed from its New South Wales/Australian Capital Territory decisions made in October 2015. In its most recent decisions⁸⁶ the AER has continued to apply an estimate of the value of imputation credits of 0.4, selected from within a range of 0.3 to 0.5.

For the reasons set out in this Attachment and the accompanying expert reports, our view is that the best estimate of the value of imputation credits is 0.25 (the product of a distribution rate of 0.7 and theta of 0.35)⁸⁷. The estimate is based on the post-personal tax and personal cost market value of imputation credits to shareholders, consistent with the correct interpretation of the NGR and the most up to date and best estimate of the value of imputation credits.

Our concern is that the AER's approach to estimating gamma gives rise to an overestimate of the "value of imputation credits" to equity investors. If the value of imputation credits is overestimated, the deduction from revenues for the value of imputation tax credits is too large with the effect that the return to equity holders will be too small.

There have been a number of recent merits and judicial reviews of the AER's approach to gamma which have resulted in conflicting outcomes. At the time of this proposal a number of legal reviews in respect of gamma remain unresolved.⁸⁸ Therefore, given the current uncertainty arising from legal reviews, we intend to continue to discuss the approach to gamma with the AER through the review process.

For the purposes of this Final Plan we have applied a value for gamma of 0.4 based on the most recent decision made by the AER for our South Australian network. As with return on equity and return on debt, we will continue to monitor this issue and update our proposed value for gamma, if required, once the legal review outcomes are known.

5.1.1. Background – Gamma

Under Australia's dividend imputation tax system, dividends that are paid out of company profits that have been taxed in Australia have imputation credits attached to them. A proportion of those credits will be redeemed against the domestic personal tax obligations of shareholders who receive them. However credits distributed to non-resident shareholders cannot be redeemed. Further, not all credits distributed to resident shareholders are in fact redeemed.

The National Gas Rules provide for the value of imputation credits to be taken into account in estimating the cost of corporate income tax building block, rather than by an adjustment to the

⁸⁶ For example, in the AER's Draft Decision: Powerlink transmissions determination 2017-18 to 2021-22.

⁸⁷ Based on an update of the SFG dividend drop off study to 2016; Frontier Economics: *An updated dividend drop-off estimate of theta*, September 2016. Contained in Attachment 10.5. We also rely upon Frontier Economics: *Perspectives for the estimation of gamma*, December 2016. Contained in Attachment 10.6.

⁸⁸ Including the AER's judicial review application in respect of the Australian Competition Tribunal's decision in *Ausgrid et al*, SA Power Networks judicial review application in respect of the Tribunal decision in *Application by SA Power Networks* [2016] ACompT11 and the merits review applications by the Victorian Electricity distributors and ActewAGL Gas, currently reserved by the Tribunal (ACT Nos 3 to 8 of 2016).

return on equity.⁸⁹ Gamma is the factor used to adjust the estimate of the taxable income (ETI) of the BEE for the value attributed to imputation credits.

Frontier Economics explains the role of gamma in the regulatory settings as follows:

"In the Australian regulatory setting, the regulator estimates the return that investors would require to provide equity capital to the firm and then allows the firm to charge prices so that it is able to pay that return to the investors. In the absence of imputation, this process is straightforward.

"Consider, for example, a firm with \$1,000 of equity in its RAB and a required return on equity of 7%. In this case, the equity investors require a return of \$70.⁹⁰ The regulator will allow the firm to earn a pre-tax profit of \$100, from which it will pay \$30 corporate tax,⁹¹ leaving \$70 to return to shareholders, as required.

Now consider the same example with imputation, and where the regulator has determined that gamma should be set to 0.4, as the AER has done in its recent decisions. In this case, the regulator will allow the firm to earn a pre-tax profit of \$85.37, from which it will pay \$25.61 corporate tax (30%), leaving \$59.76 to distribute to shareholders. The \$25.61 of corporate tax will create \$25.61 of imputation credits that are assumed to have a value of $0.4 \times 25.61 = \$10.24$. Thus, the shareholders receive \$59.76 from the firm plus imputation credits that are assumed to have a value of \$10.24, providing the total return of \$70.00 that is required.

In summary, the return that shareholders would otherwise receive from the firm (\$70.00) is reduced by the regulator's estimate of the value of imputation credits (\$10.24).⁹²

It is common ground that the value of imputation credits is calculated using the Monkhouse approach, as the product of a distribution rate (payout ratio or F) and theta (which the AER terms the "utilisation rate"). What is not common ground is the approach and evidence relied upon to derive those two parameters.

5.1.2. Regulatory Framework

NGR 76 provides that one of the building blocks for determining the revenue requirement is the estimated cost of corporate income tax to be determined in accordance with NGR 87A.

NGR 87A specifies the following manner by which the cost of tax is to be estimated:

The estimated cost of corporate income tax of a service provider for each regulatory year of an access arrangement period (ETC_t) is to be estimated in accordance with the following formula:

$$ETC_t = (ETI_t \times r_t) (1 - \gamma)$$

Where

ETI_t is an estimate of the taxable income for that regulatory year that would be earned by a benchmark efficient entity as a result of the provision of reference services if such

⁸⁹ NGR 87A.

⁹⁰ $7\% \times \$1,000 = \70 .

⁹¹ Assuming a 30% corporate tax rate.

⁹² Frontier Economics, *An updated dividend drop off estimate of theta*, September 2016, at [12] to [15]. Provided at Attachment 10.5 to the Final Plan.

an entity, rather than the service provider, operated the business of the service provider;

r_t is the expected statutory income tax rate for that regulatory year as determined by the AER; and

γ is the value of imputation credits.

NGR 87(4)(b) also requires the allowed rate of return to be determined on a nominal vanilla basis that is consistent with the estimate of the value of imputation credits referred to in Rule 87A.

In relation to the estimate of gamma, the AER is required to make its decision in a manner that will or is likely to contribute to the achievement of the NGO.⁹³ Further, where there are two or more possible decisions that will or will be likely to contribute to the achievement of the NGO, the AER must make the decision that it is satisfied will or is likely to contribute to the NGO to the greatest degree and specify the reasons as to the basis on which that is the case.⁹⁴

The AER must also take into account the RPP set out in section 24 of the NGL.

Also of relevance to gamma is NGR 74(2) which requires that an estimate must be arrived at on a reasonable basis and must represent the best forecast or estimate possible in the circumstances.

5.2. Final Plan Proposal

As noted in section 10.5.2 of our Final Plan, we consider that the best estimate of the value of imputation credits is 0.25, calculated as the product of:

- a distribution rate of 0.70, based on market wide ATO data; and
- a theta of 0.35, based on the (updated) dividend drop off study performed by Professor Stephen Gray and updated to 2016.⁹⁵

In our view this approach is consistent with the Rules and gives rise to the best estimate of gamma presently available. However, in light of the ongoing uncertainty arising from the numerous conflicting legal reviews on this issue, for the purposes of this Final Plan, we have applied a value for gamma of 0.4 based on the AER's decision for our South Australian network. We will however monitor developments on this issue and update our proposal in relation to gamma if required.

Our view that the best estimate of gamma is 0.25 differs from the AER's approach and estimate of gamma in the Guideline. The reasons our view departs from the AER's view in the Guideline are set out in detail in this attachment, and are summarised as follows:

- we consider that NGR 87A requires the estimate of the "value of imputation credits" to be by reference to the value to equity investors and based on market value studies, being the only direct measure of that "value";
- a utilisation rate approach will not give rise to the best estimate of gamma which is consistent with NGR 87A because it does not estimate "value" to equity investors as contemplated by that Rule;
- in addition utilisation rate estimates exceed the maximum upper bound of theta reflected in tax statistics; and

⁹³ Section 28(1)(a) of the National Gas Law.

⁹⁴ Section 28(1)(b)(iii) of the National Gas Law.

⁹⁵ Frontier Economics: An updated dividend drop off estimate, September 2016. Provided at Attachment 10.5 to the Final Plan.

- an estimate based on a utilisation rate approach gives rise to an estimate of gamma which is an overestimate of the value actually placed on imputation credits by shareholders.

In recent decisions the AER has changed from its Guideline approach to the distribution rate. Our view that the distribution rate should be 0.7 departs from the AER's approach to the distribution rate in its recent decisions insofar as the AER has regard to a listed equity subset of estimates.

5.3. The AER's Approach to Gamma

In September 2016 the AER published its Draft Decisions in respect of the Powerlink transmission determination for 2017-18 to 2021-22 and TasNetworks (formerly Aurora Energy) distribution determination for 2017-18 to 2018-19.

The AER's range for gamma of 0.3 to 0.5 and estimate of the value of imputation credits of 0.4 remains unchanged from previous decisions (although it is a departure from the point estimate in the Rate of Return Guideline of 0.5). While the AER has updated its estimates of the distribution rate and its utilisation rate and obtained a new report from Dr Lally, its approach remains the same as that applied in its October 2015 decisions the subject of the ACTs' decision is *Ausgrid* and in the *SAPN decision*, also the subject of review.⁹⁶ The updated evidence relied upon by the AER in its Powerlink Draft Decision is set out in tables 4-3 and 4-4 reproduced below:

Table 5.1: Estimates of the Value of Imputation Credits – Evidence from all Equity

Evidence on Utilisation Rate	Utilisation Rate	Distribution Rate	Value of Imputation Credits
Equity ownership approach	0.56 to 0.68	0.7	0.40 to 0.47
Equity ownership approach (Lally recommended distribution rate)	0.56 to 0.68	0.83	0.46 to 0.56 ⁹⁷
Tax statistics	0.48	0.7	0.34
Tax statistics (Lally recommended distribution rate)	0.48	0.83	0.40

Source: AER analysis; Lally, *Gamma and the ACT Decision*, May 2016, page 6.

Table 5.2: Estimates of the Value of Imputation Credits – Evidence from Listed Equity

Evidence on Utilisation Rate	Utilisation Rate	Distribution Rate	Value of Imputation Credits
Equity ownership approach	0.38 to 0.55	0.75	0.28 to 0.41 ^(a)
Implied market value studies	0 to 1	0.75	0 to 0.75
<i>SFG dividend drop off study</i>	0.35 (0.4) ^(a)		0.26 (0.30) ^(b)

Source: AER analysis.

⁹⁶ In *Ausgrid*.

⁹⁷ Lally recommends a gamma estimate of at least 0.5 which is based on a distribution rate of at least 0.83 and a utilisation rate of 0.6. See: M. Lally, *Gamma and the ACT Decision*, May 2016, p. 6.

The central planks of the AER's approach, as reflected in its recent decisions, are as follows:

- The AER applies a conceptual approach to estimating gamma which assumes the value of imputation credits reflects a pre-personal tax and pre-personal cost valuation exercise. This approach assumes one dollar of claimed imputation credits has a post company tax value of one dollar to investors before personal taxes and transaction costs. In other words, investors value imputation credits at their full face value. This conceptual definition results in the AER deriving the estimate of gamma as the product of the distribution rate and the utilisation value to investors in the market.
- In respect of the distribution rate, the AER considers three subsets of information:
 - a market wide (all equity) distribution rate based on the cumulative payout ratio of 0.7 – this is not contentious;
 - a listed equity only distribution rate of 0.75; and
 - a rate of 0.83 recommended by Dr Lally on the basis of the top 20 ASX firms.
- In respect of theta (the AER's "utilisation rate"), the AER:
 - places most reliance on the equity ownership approach;
 - places some reliance on taxation statistics;
 - does not accept that these approaches provide nothing more than an upper bound estimate of theta; and
 - places very little, if any, weight on market value studies which directly estimate theta.
- The AER pairs estimates of the distribution rate and its utilisation rate using subsets of all equity and listed equity estimates.
- The AER also now introduces into its range an estimate of the gamma preferred by Dr Lally, combining a distribution rate of 0.83 with its equity ownership and tax statistics estimates.
- The AER derives a range for gamma of 0.3 to 0.5.
- The AER chooses a point estimate of 0.4 from its range of 0.3 to 0.5. This point estimate is based primarily on the equity ownership approach, which suggests a value of 0.28 to 0.47. Less reliance is placed on evidence from tax statistics which suggests a value around 0.34. Even less reliance is placed on market value studies which the AER says suggest a value between 0 and 0.75.⁹⁸

The AER and network businesses have differing views on these issues and each is addressed below.

5.4. Conceptual Approach

The AER bases its approach to estimating gamma on a conceptual framework which considers that the value of imputation credits is a post-tax value before the impact of personal taxes and personal costs. The AER considers this conceptual approach to be consistent with the Officer framework and it leads it to view the value of imputation credits as the proportion of company tax returned to investors through the utilisation of imputation credits (the utilisation rate approach).⁹⁹

⁹⁸ AusNet Services, *Transmission Draft Decision*, 2017-18-2021-22 (AusNet Transmission Draft Decision), Attachment 4-29, 4-30. Powerlink Transmission Determination, *Draft Decision 2017-2018-2021-22*, (Powerlink Transmission Draft Decision), Attachment 4-27, 4-28.

⁹⁹ For example see AusNet Transmission Draft Decision, Attachment 4-22, Powerlink Transmission Draft Decision 4-20.

The AER approach assumes that, once the effects of personal tax and costs are excluded, an equity investor who is able to fully utilise imputation credits will value each credit at its full face value.

The AER's conceptual approach was recently considered by the ACT in the *Ausgrid* decision. The key findings of the ACT were:

- The proper concern is not the extent to which imputation credits may be translated into real money. Instead it involves a determination of the cost of taxation to a network service provider, and the extent to which that cost must be reduced to reflect the impact of the dividend imputation system on the network service provider. The reduction in the cost of income tax represented by gamma reflects the personal taxation benefits (as opposed to other benefits such as dividends) gained by shareholders from holding equity in the network service provider and the value of those benefits as ascribed by shareholders. Consequently it is necessary to consider both the eligibility of investors to redeem imputation credits and the extent to which investors determine the worth of imputation credits to them.¹⁰⁰
- The parties agreed that gamma may be significantly less than the face amount of the distributed credit because they cannot always be utilised by an investor, e.g. foreign investors. However, the network businesses' position was that shareholders who utilise imputation credits may not value them at their full face amount for reasons such as the time value of money, transaction costs and portfolio effects.
- Such costs are characterised by the AER as personal costs that should not be taken into account because of the requirements for consistency in the Officer framework.¹⁰¹
- The ACT found that difficulty with the AER's approach is that:
 - Market value studies of imputation credits suggest that investors may not value cash dividends and eligibility to reduce their income tax liabilities equally.
 - The AER's approach does not consider the fact that other parameters in the WACC calculations are market values that already incorporate the effects of the differences in investors' tax positions and transaction costs.
 - There is no inconsistency between the use of market studies to estimate the value of imputation credits and the methods used to calculate other parameters of the costs of debt and equity from market data.
- The ACT found that the "*The value is not what can be claimed or utilised, but what is claimed or utilised as demonstrated by the behaviour of the shareholder recipients of the imputation credits.*"¹⁰²
- Ultimately the ACT was not satisfied that the AER's s conception and estimation methods were consistent with the requirements of the NER, including the RPP.¹⁰³

AGN's view is that, consistent with the ACT's decision in *Ausgrid*, the "value of imputation credits" required to be estimated under NGR 87A should be given its ordinary meaning that reflects its role in the regulatory framework, namely to prevent an over-estimate of the required return to investors in light of the benefit of imputation credits. The value to equity holders of imputation credits is impacted by personal costs and personal taxes which cause investors to value imputation

¹⁰⁰ *Ausgrid*, [1061].

¹⁰¹ *Ausgrid*, [1065]-[1067].

¹⁰² *Ausgrid*, [1081].

¹⁰³ *Ausgrid*, [1084].

credits at less than their full face value. This should be reflected in the estimate of the value of imputation credits.

Frontier Economics illustrate the consequence of applying an approach which does not reflect the "value" to investors as follows:

"To illustrate the key point of contention in relation to gamma, suppose that the regulator estimates that 40% of all credits that are created will be redeemed and sets gamma on that basis, whereas imputation credits are only valued (in aggregate by the equity market) at 25% of the face amount. In this case, the regulator will reduce the return that the shareholders would otherwise receive by \$10.24, but the credits received by those shareholders would only have a value to them of $0.25 \times 25.61 = \$6.40$. This would result in shareholders being under-compensated as their return is reduced by \$10.24 in relation to credits that are only worth \$6.40 to them.¹⁰⁴"

We consider the decision of the ACT in *Ausgrid* in respect of gamma should be preferred and that the approach to estimating gamma should reflect the value equity holders place on imputation credits, after personal tax and after personal costs. This gives rise to an estimation of theta which is based on market value studies only, as addressed further below.

However, it is acknowledged that the decision in *Ausgrid* is under review by the Full Federal Court and that the ACT in the *SAPN decision* also considered the AER's conceptual approach to gamma and came to a different conclusion to the ACT in *Ausgrid*. The issues are addressed further below.

5.4.1. Distribution Rate

The distribution rate reflects the proportion of imputation credits distributed to equity holders. In its recent decisions the AER changed its approach to estimating the distribution rate from its historic approach and from the approach set out in the Rate of Return Guideline.

In particular, the AER has departed from its estimate of 0.7 as set out in its Guideline. In its Draft Decision on Powerlink's transmission determination, the AER now relies on three different estimates of the distribution rate which it uses in its range for gamma:

- a market wide (all equity) distribution rate of 0.7;
- a listed equity only distribution rate of 0.75; and
- a listed equity distribution rate 0.83 derived by Dr Lally from the financial reports of the top 20 ASX listed firms.

As can be seen from table 4.4 extracted above, the AER pairs its listed equity distribution rate of 0.75 with its estimates of theta using the equity ownership approach and implied market value studies. The AER combines the Lally ASX listed distribution rate of 0.83 with its equity ownership and tax statistics estimates of the utilisation rate.

It is agreed between the AER and network businesses that the market wide (all equity) distribution rate is 0.7. Where views differ is whether regard should be had to a subset of listed equity only distribution rates in addition to the rate determined from all equity.

The AER obtained a new report from Dr Lally published with its recent decisions, including the AusNet Transmission Draft Decision.¹⁰⁵ The AER sought Dr Lally's advice on whether estimates of the distribution rate should be based upon the same data as that for theta. Dr Lally advised that,

¹⁰⁴ Frontier Economics, *An Updated Dividend Drop-off Estimate of Theta*, September 2016, at [16]. Provided at Attachment 10.5 to the Final Plan.

¹⁰⁵ Dr Martin Lally: *Gamma and the ACT Decision*: 23 May 2016.

because the distribution rate is a firm specific parameter whereas theta is a market parameter, theta must be estimated using market wide data, while the distribution rate could be estimated using firm, industry or sector wide data according to which was judged to provide the best estimate. Consequently it is not essential to combine or pair the estimates as the AER has done.¹⁰⁶ However, the AER continues to hold the view that it is open for it to do so.

The network businesses however consider the distribution rate derived from the listed equity subset does not recognise that:

- What is required for the purpose of estimating the value of imputation credits under NGR 87A is the best estimate of the distribution rate for the BEE.
- The rate is firm specific and different types of firms will have different distribution rates. It follows that all entities should be taken into account in order to derive a market wide distribution estimate.
- The listed equity estimates are dominated by a small number of large multinational firms that are able to attach imputation credits to dividends that are distributed out of foreign sourced income. Firms with significant foreign operations will have higher distribution rates than firms without such operations.
- By definition, the BEE is an Australian firm with no access to foreign income. The use of listed equity only is inconsistent with estimating the distribution rate for the BEE. This includes in relation to the estimate provided by Dr Lally of 0.83 based on the top 20 ASX listed firms.
- Frontier Economics demonstrate that the 20 companies in the Lally sample are predominantly large multinationals with a material amount of foreign sourced income which can be used to distribute imputation credits.¹⁰⁷ Dr Lally's report relied upon by the AER examines 7 of the 20 firms and concludes that, among the 7 firms, those with relatively more foreign profits had lower imputation credit distribution rates. However, the relevant question is whether large multinationals have higher imputation credit distribution rates than other firms. Further, Frontier Economics show that the analysis of the top 7 firms by Dr Lally did not control for differences in dividend payout ratios.
- Frontier Economics conclusion is that:
 - "a. Mathematically, for any given dividend payout ratio, the imputation credit distribution rate is an increasing function of the proportion of foreign profits; and*
 - b. The evidence clearly supports the proposition that large multinationals are able to distribute a higher proportion of the imputation credits that they create (83%) relative to the average Australian firm (70%).¹⁰⁸"*

The view of network businesses (which AGN shares) is that an approach which relies on a subset of listed equity estimates of the distribution rate does not give rise to an estimate which is appropriate for, or reflective of, the BEE and gives rise to an overestimate of the distribution rate. The sample of all equity is less affected by the multinational firms (which comprise a smaller proportion of all equity than of listed equity) and so is more appropriate when estimating the distribution rate for the BEE.

¹⁰⁶ At pages 25-26

¹⁰⁷ Frontier Economics, *Issues in the Estimation of Gamma*, September 2016, section 2. Provided at Attachment 10.6 to the Final Plan.

¹⁰⁸ Ibid. September 2016 at [36].

The AER now accepts that it is not “necessary” to match estimates of distribution rates and theta (its utilisation rate) from the same data sets, but it considers the choice is open to it and continues to rely on listed equity only estimates.

In the *SAPN decision*, the ACT found that there was no compelling reason to believe that the average unlisted company is any better or worse proxy than the average listed company for the purposes of estimating the distribution rate for the BEE.¹⁰⁹ However, this does not address the issue that estimates for listed only entities are influenced by foreign earnings.

Our view is that the market wide distribution rate of 0.7 is consistent with an estimate of the distribution rate for the BEE.

5.5. Theta

As noted above, the AER’s conceptual approach to gamma leads it to estimate the parameter theta (what it terms the “*utilisation rate*”) based on the extent to which investors can utilise the imputation credits they receive to reduce their tax or obtain a refund. This approach assumes imputation credits expected to be utilised are valued at full face value on a post company pre personal tax basis.¹¹⁰ This interpretation leads the AER to rely primarily on the equity ownership approach to estimate theta and, to some extent, on taxation statistics of redemption rates and to place little, if any, reliance on market value studies.

The issue between the AER and networks is whether the Rules require the estimation of gamma by reference to “*value*” to shareholders or their assumed ability to redeem or utilise imputation credits. This issue was considered carefully by the ACT in *Ausgrid*. In contrast, the ACT in the *SAPN decision* did not decide this central question.

5.5.1. The Ausgrid Decision

The ACT in *Ausgrid* noted that the change in the definition of gamma in the National Electricity Rules in 2012 from “*assumed utilisation of imputation credits*” to “*value of imputation credits*” did not change gamma’s meaning. Rather the issue in *Ausgrid* was what “*value of imputation credits*” in (equivalent) Rule 6A.6.4 meant.¹¹¹

The ACT found that it is how shareholders act in the market place (as analysed by market studies and dividend drop-off studies), in relation to the utilisation of franking credits available to them, which informs the value of imputation credits.¹¹²

There are a number of explanations as to why the value of distributed imputation credits as identified from market-based studies that is reflected in share prices may be less than the face value of those credits:¹¹³

- some of the credits that are distributed to shareholders are never redeemed, including because:
 - credits distributed to non-resident investors cannot be redeemed under the dividend imputation legislation;

¹⁰⁹ SAPN decision at [184].

¹¹⁰ AusNet Transmission Draft Decision, at 4-35, Powerlink Transmission Draft Decision at 4-98

¹¹¹ *Ausgrid*, [1025].

¹¹² *Ausgrid*, [1079], [1080].

¹¹³ As set out in SFG Consulting (May 2014): *An appropriate regulatory estimate of gamma, section 2*.

- credits distributed to resident investors who sell the shares within 45 days of their purchase cannot be redeemed (i.e. the **45 day rule**); and
- some credits distributed to resident investors are not redeemed because some investors fail to keep the required records and simply do not claim them;
- there is a time delay (which can be up to two years or more) in obtaining any benefit from imputation credits – whereas dividends are available to the investor as soon as they are paid, the imputation credits that are attached to that dividend only have value after the investor's end-of-year tax return is filed and processed;
- due to the administrative costs involved in the redemption of imputation credits;
- due to the costs of loss of diversification in resident investors' portfolios who hold more domestic dividend-paying shares than they otherwise would because they are attracted by the possibility of receiving imputation credits.

This difference (between "face value" and "market value") was acknowledged by the ACT and it noted that neither:

- tax statistics, which:
 - assume a dollar value for each dollar of imputation credits redeemed; and
 - measure the actual rate of redemption of distributed imputation credits by eligible investors from information reported in tax returns; nor
- the equity ownership approach, which:
 - seeks to calculate a value-weighted proportion of domestic investors in the Australian equity market as a reasonable estimate of theta;¹¹⁴
 - assumes that an investor that is eligible to fully utilise imputation credits they receive has a utilisation rate of 1 (i.e. they gain 100 percent of the "value" of the imputation credits) whereas an investor that is ineligible to redeem imputation credits has a utilisation rate of 0 (i.e. they gain no "value" from the imputation credits);¹¹⁵
 - uses this dollar value of imputation credits to a relevant class of investors to attempt to estimate the proportion of those investors in the total;¹¹⁶ and
 - assumes the value of imputation credits rather than deriving it from market data,¹¹⁷

make any attempt to assess the value of imputation credits to shareholders¹¹⁸ or consider the likely existence of factors, such as the 45 day rule, which reduce the 'value' of imputation credits to shareholders¹¹⁹ and accordingly can do nothing more than provide upper bounds on the estimate of theta.¹²⁰

The ACT found that the estimate of theta produced by tax statistics (and to some extent market value studies) was in fact evidence that Australian investors do *not* value imputation credits at their face amount, including because they may be unable to use them.¹²¹

¹¹⁴ Ausgrid, [1038].

¹¹⁵ Ausgrid, [1039].

¹¹⁶ Ausgrid, [1039].

¹¹⁷ Ausgrid, [1043].

¹¹⁸ Ausgrid, [1095].

¹¹⁹ Ausgrid, [1042], [1046], [1095].

¹²⁰ Ausgrid, [1048], [1095].

¹²¹ Ausgrid, [1092].

The ACT accordingly disagreed that it is the amount which is “claimable” or their “face value” or which is “available” for redemption which is relevant.¹²² Overall, the ACT concluded that it is necessary to consider both the eligibility of investors to redeem imputation credits and the extent to which investors determine the worth of imputation credits to them.¹²³

5.5.2. The SAPN Decision

In the *SAPN decision*, the ACT characterised the issue by reference to a consideration of the differences between the average investor and the marginal investor. The ACT stated that different theoretical models, all of which are simplifications of reality, with different strengths and weaknesses, and with different degrees of support among experts, may suggest differing approaches. Judgment about the weight to be given to alternative approaches is required, with resulting consequences for judgements about the subsequent issues.¹²⁴

The ACT referred to two alternative theoretical approaches, being the “average investor” and the “marginal investor” approaches. The ACT considered that that the market based (dividend drop-off study) approach taken by SA Power Networks appeared to align with a “marginal investor” approach, while the AER’s approach appeared to align with the “average investor” approach.¹²⁵ The ACT took the view, reflected in what it considered to be the diversity of expert opinion, that there is no generally accepted theoretical model for explaining the valuation of imputation credits. It found that the available empirical evidence is inadequate to enable confident discrimination between the two alternative perspectives of the average and marginal investor.

Ultimately the ACT found that the AER made no error in giving most weight to the “utilisation” approach. The ACT’s view was that the AER considered the range of alternative approaches, recognised the diversity of views of experts on their merits (both theoretical and empirical), and made a judgment call.¹²⁶

However, the debate between the AER and network businesses in relation to gamma is not in relation to the definition of the relevant investor. As Frontier Economics explains, estimating gamma does not in fact involve a choice between the theoretical “average” and “marginal investor” perspectives. Under certain theoretical asset pricing models, the value of imputation credits that is reflected in stock prices will be a complex weighted average (by investor wealth and risk aversion) of the ability of each investor to utilise imputation credits. Under the assumptions of the theoretical representative investor models, there would be an equivalence between the complex weighted-average and the observed market price.¹²⁷

However, in practice estimates of the market value differ from the AER’s estimates of the average utilisation rate. Frontier explains that is because (a) the assumptions of the theoretical model do not hold in practice, and (b) in any event, the AER estimates a simple average of utilisation rates rather than the complex weighted average that is required by those models.¹²⁸ Therefore it is not correct to say there is a choice between theoretical “average investor” and “marginal investor” perspectives. Rather, the choice is between:

¹²² Ausgrid, [1100].

¹²³ Ausgrid, [1061].

¹²⁴ *SAPN decision*, [138].

¹²⁵ *SAPN decision* at [144].

¹²⁶ *SAPN decision*, [159].

¹²⁷ Frontier Economics: *Perspectives for the estimation of gamma*, December 2016 section 1.1. Provided at Attachment 10.7 to the Final Plan.

¹²⁸ Frontier Economics: *Perspectives for the estimation of gamma*, December 2016 section paragraph 4. Provided at Attachment 10.7 to the Final Plan.

- An estimate of what the value of credits would have been if the assumptions of the theoretical model did hold in the real world, and if the simple average was the same as the complex weighted average; or
- An estimate of the market value of credits, which reflects the outworking of the process by which a market-clearing price is obtained, even where that process is too complex to be captured by a simple economic model.¹²⁹

The marginal investor analysis in the ACT's decision in *SAPN* is not relevant to the central issues between network businesses and the AER on gamma. As noted above, the ACT in the *SAPN* decision did not determine that central issue being the correct interpretation of NGR 87A and what it requires to be estimated. That issue is a question of legal interpretation and, with respect to the ACT, cannot accurately be described as a "judgment call". It is also not a matter which is to be (or can be) resolved by reference to expert opinion.

The *SAPN* decision is the subject of an application for judicial review, including on grounds that the ACT did not to determine the correct question, being the construction of the "value of imputation credits" in the Rules, and that the ACT considered matters which it was not entitled to consider, such as the marginal investor and average investor analysis.¹³⁰ SAPN's application for judicial review of the ACT's decision is yet to be heard.

AGN considers that the ACT's decision in *Ausgrid*, which requires an estimate of gamma that reflects the value, as in worth, of imputation credits to investors, should be preferred. However we acknowledge the contrary outcome reached in the *SAPN* decision and the ongoing legal challenges to both decisions and that uncertainty is reflected in the approach we have taken in our Final Plan.

5.5.3. Best Method for Determining 'Value'

The ACT in *Ausgrid* noted that the valuation in question may be a complex exercise depending on the inference to be drawn from a range of data sources.¹³¹ Ultimately, the ACT concluded that because tax statistics and equity ownership approaches could be no better than providing "upper bounds" of the estimate of theta, the assessment must rely on market studies.¹³² The ACT noted this as consistent with methods used for calculating other parameters of the cost of debt and equity from market data.¹³³

The utilisation rate approach on a pre-personal tax and personal cost basis does not reflect the "value of imputation credits" required to be estimated by NGR 87A because it does not account for the matters that cause equity holders to value imputation credits at less than their face value. The ACT in *Ausgrid* confirmed that the only method that does take account of such factors and is therefore consistent with the "value" of imputation credits referred to in NGR 87A is a market based approach. This can be seen from the following summary table.

¹²⁹ Frontier Economics: *Perspectives for the estimation of gamma*, December 2016 section 1. Provided at Attachment 10.7 to the Final Plan.

¹³⁰ Originating application for judicial review, *SA Power Networks v Australian Competition Tribunal & Anor* NSD 2023/2016, filed 25 November 2016, paragraphs 1 to 6.

¹³¹ *Ausgrid*, [1082].

¹³² *Ausgrid*, [1096].

¹³³ *Ausgrid*, [1097].

Table 5.3: Summary Assessment of Approaches to Estimating Gamma

Factor	Equity Ownership Approach	Tax Statistics Approach	Market Value Studies
Not all imputation credits that are created when companies pay tax are distributed. This is because some company profits are not paid out in dividends, but are instead reinvested in the business.	✓	✓	✓
Foreign investors are unable to redeem imputation credits that they receive.	✓	✓	✓
Some domestic investors are unable to redeem imputation credits, for example due to the 45-day holding rule.	✗	✓	✓
Some domestic investors who are eligible to redeem imputation credits do not redeem them. The cost or administrative burden for some shareholders (such as small shareholders) may deter redemption.	✗	✓	✓
Some investors who do redeem imputation credits may not value them at their full face value. This may be due to various factors, such as time delays, transactions costs or portfolio effects.	✗	✗	✓

Frontier Economics explains¹³⁴, the AER's approach using the post-tax revenue model requires an estimate of gamma in two steps:

- In the estimate of the total required return on equity, which includes the benefits of imputation credits.
- As a deduction for the value of imputation credits (through the corporate tax building block).

The effect of these steps is to produce an ex-imputation required return on equity.

In the first step, the AER estimates the total required return on equity using the SL-CAPM. The AER's primary estimate of the MRP is the mean of historical excess returns over various long historical periods beginning in 1883. These estimates take the return on a broad stock market index each year and subtract the risk-free rate that was available to investors in that year.

Prior to the introduction of imputation in 1987, the observed stock market return already reflected the total return.¹³⁵ However, post-imputation the observed market return is not the total return to equity holders – since it reflects only dividends and capital gains, the estimated value of imputation credits must be added via a process that the AER calls "grossing-up."

Frontier Economics explain why this grossing-up must reflect the market value of credits. The stock market index reflects the market value of dividends and capital gains, so the market value of imputation credits must be added to it. Adding anything other than the market value of credits would result in apples being added to oranges.¹³⁶ Frontier Economics worked example demonstrates this.¹³⁷

¹³⁴ *Frontier Economics: Perspectives for the estimation of gamma*, December 2016 section 2.1. Provided at Attachment 10.7 to the Final Plan.

¹³⁵ That is, prior to 1987, shareholders received returns in the form of dividends and capital gains, both of which are reflected in the observed market index.

¹³⁶ *Frontier Economics: Perspectives for the Estimation of Gamma*, December 2016, section 2.2. Provided at Attachment 10.7 to the Final Plan.

¹³⁷ *Ibid.*

In the second step above, the PTRM removes the estimated value of imputation credits to produce an estimate of the ex-imputation required return on equity, which then flows into the revenue allowance. Frontier Economics explain why step must also be done on a market value basis¹³⁸.

The ACT in *Ausgrid* adopted the theta estimate in the 2013 SFG Study.¹³⁹ The ACT noted that that study represented only one view and that it was faced with selecting between competing views.¹⁴⁰ The ACT was satisfied that the SFG point estimate of 0.35 for theta was the best estimate.¹⁴¹

The ACT in the *SAPN Decision* also noted a number of positive attributes of the methodology employed in the SFG dividend drop-off study:

*"The Tribuna[ACT][notes that the SFG study is very clear about the data used and econometric techniques employed. Different specifications (reflecting statistical considerations required to achieve unbiased, efficient estimates) of the basic relationship estimated generate similar results. That basic relationship links the fall in stock price on the ex-dividend date (the drop-off) to the amount of the cash dividend and the amount of the franking (imputation) credit. Because the study includes dividend events which may involve no, partial, or full franking, it is able to estimate the sensitivity of the drop-off to both the size of dividend and the size of the franking credit in a regression relationship."*¹⁴²

However, the ACT in the *SAPN Decision* then noted a number of concerns that had been raised by the AER in relation to dividend drop-off studies. The ACT considered only one of the AER's concerns to be substantive, given the ACT's view that the methodology and approach of the SFG study relied on by SAPN is generally acceptable (or "state-of-the-art")¹⁴³. The substantive concern was said to be whether valid tax related valuation parameters can be reliably inferred from the results of dividend drop-off studies.¹⁴⁴ There are a number of responses to this:

- The ACT refers to a passage of the AER's final decision for SAPN where it is said that the value of imputation credits as estimated through a dividend drop-off study is not necessarily a correct post company tax value before personal taxes and personal transaction costs. However the concern expressed by the AER was that the estimates of theta from dividend drop-off studies did not conform to its conceptual approach. For the reasons stated above, it is submitted that personal costs and taxes are relevant and elsewhere in the *SAPN decision* it appears to be accepted as such and that the only issue is measuring their precise effect.¹⁴⁵
- The ACT's reasons are affected by the misconception (as explained by Frontier Economics¹⁴⁶) that dividend drop-off studies only measure the value of imputation credits to the notional "marginal investor".
- The estimation of parameters in the regulatory context routinely involves consideration and use of empirical estimation methodologies which are imperfect and subject to limitations. The regulatory task is to find the most reliable empirical estimate of those that are available. In

¹³⁸ Ibid, Section 2.3.

¹³⁹ *Ausgrid*, [1118].

¹⁴⁰ *Ausgrid*, [1118]. As set out at [1053], the Network Applicants' preferred value of gamma was based on the theta estimate of 0.35 from the 2013 SFG Study, which was intended to update the previous 2011 SFG Study, reported and relied upon in *Gamma (No 5)*, which in turn was produced in response to the Tribunal's concerns with previous studies as expressed in *Gamma (No 2)*.

¹⁴¹ *Ausgrid*, [1103].

¹⁴² *SAPN decision* at [163]

¹⁴³ *SAPN decision* at [165].

¹⁴⁴ *SAPN decision* at [171]

¹⁴⁵ For example at [146], [174], [178].

¹⁴⁶ Frontier Economics *Perspectives for the estimation of gamma*, December 2016, section 1. Provided at Attachment 10.7 to the Final Plan.

this context, the method's relied upon primarily by the AER (the equity ownership approach and tax statistics can only provide upper bound estimates) and as the ACT found in *Ausgrid*, the assessment of theta must be based on market value studies.

We consider that the preferred approach was that adopted by the ACT in *Ausgrid*. That decision was based on a 2013 update of the SFG dividend drop off study which had previously been endorsed by the ACT in *Application by Energex Limited (Gamma) (No 5)*.¹⁴⁷ The author of the dividend drop off studies was Professor Stephen Gray (now at Frontier Economics).

Professor Gray has further updated the 2013 dividend drop off study to June 2016. Professor Gray followed the approach adopted in the 2011 and 2013 SFG Reports for compiling the dataset and performing statistical analysis on the dataset. Professor Gray has extended the dataset from the 2013 update through to June 2016 and having undertaken the same analysis concludes that the updated dataset supports an unchanged estimate of theta of 0.35.¹⁴⁸

The dividend drop off study updated to 2016 reflects the most up to date market value study available using the same approach as endorsed by the ACT in previous decisions. AGN considers that it is the best estimate of theta currently available, but the ongoing uncertainty on the issues discussed in this section are acknowledged and lead to the position we have taken in our Final Plan to adopt the AER's estimate of gamma pending further clarity.

5.6. AER Estimates of the Equity Ownership Rates

The AER places significant reliance on the equity ownership approach in estimating the utilisation rate because it says:¹⁴⁹

- it is well aligned with the definition of the utilisation rate in the Monkhouse framework;
- it employs a simple and intuitive methodology;
- it uses a reliable and transparent source of data; and
- it provides estimates of the utilisation rate for investors in both all equity and listed only equity.

The AER's current estimated ranges are:

- 0.56 to 0.68 (all equity); and
- 0.38 to 0.55 (listed equity only).

The estimates derived from the equity ownership approach are above the maximum upper bound for theta which is derived from tax statistics (0.48). The AER does not accept that tax statistics do form an upper bound and this is addressed in the following section.

The above estimates are slightly lower than the AER's estimates in its Rate of Return Guideline and earlier decisions. The AER's change in ranges since its November 2014 decisions is said to be in part a response to submissions from the networks, SFG and the advice from Handley. The AER:

- no longer relies on estimates of the single domestic ownership share (on the advice of Handley); and

¹⁴⁷ [2011] A CompT 9.

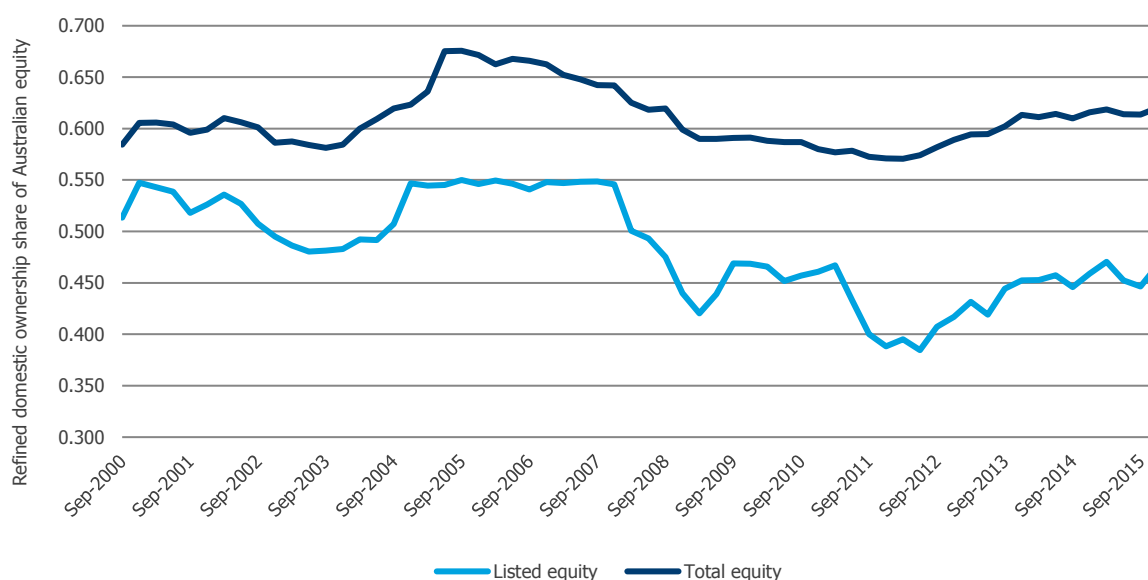
¹⁴⁸ Frontier Economics, *An Updated Dividend Drop Off Estimate of Theta*, September 2016, Section 5. Provided at Attachment 10.5 to the Final Plan.

¹⁴⁹ AusNet Transmission Draft Decision Attachment 4-36, Powerlink Transmission Draft Decision Attachment 4-141

- now considers only the period since September 2000 rather than data going back to the 1980s.¹⁵⁰

In the Powerlink transmission draft decision published in September 2016, the AER presented its updated domestic ownership share of total equity in Figure 4.3:¹⁵¹

Figure 5.1: Refined Domestic Ownership Share of Australian Equity



Source: Australian National Accounts: Finance and Wealth (ABS cat. 5232.0), tables 47 and 48.

The equity ownership estimates in the AER's recent decisions are still 16 years old, and as such, could not reflect prevailing conditions in the market. Further:

- the most recent estimate for listed Australian equity appears to be approximately 47% domestic ownership. As can be seen from Figure 4.3 extracted above, the estimate has not been materially above that since the GFC. and
- the most recent estimate using all equity appears to be approximately 0.62. The all equity estimate has only been above that during the pre GFC bull market.

5.7. Tax Statistics

The AER places "a degree" of reliance on tax statistics in arriving at its estimate for gamma but, given limitations with the statistics, less reliance than on equity ownership rates but more than market value studies.¹⁵²

As confirmed by the ACT in *Ausgrid* and set out above, redemption rates derived from tax statistics do not take into account factors that result in investors valuing redeemed credits at less than their full face value. The reasons why an investor will value a redeemed credit at less than its full face value were identified by the ACT and are addressed above. To summarise, tax rules, transaction

¹⁵⁰ AusNet Transmission, *Draft Decision*, at 4-148. Powerlink Transmission, *Draft Decision*, 4-147

¹⁵¹ Powerlink Transmission, *Draft Decision*, Attachment 4-147.

¹⁵² AusNet, *Transmission Draft Decision*, 4-38. Powerlink Transmission, *Draft Decision*, 4-37.

costs, the time value of money and the portfolio effect mean that the true value of redeemed credits could be less than their full face value.

The ACT in *Ausgrid* has confirmed that for these reasons redemption rates derived from tax statistics can only ever indicate the upper bound for the utilisation rate and do not provide direct evidence of the “value” of distributed credits to equity holders.

The AER now estimates the redemption rate from tax statistics to be 0.48, based on updated statistics to the 2014 tax year.¹⁵³ The AER disputes the ACT’s findings in *Ausgrid* that tax statistics can only provide an upper bound and remains of the view that a point estimate can be used.

The premise for the AER’s position is that, based on Professor Hathaway’s advice, tax statistics are unreliable and uncertain and therefore do not reflect an upper bound, nor is the current estimate inconsistent with a higher estimate of gamma than 0.4.

However, as Frontier Economics explains in Attachment 10¹⁵⁴, the reliability issue relates to the statistics of credits distributed. Under the AER’s conceptual approach, the relevant terms for the purposes of estimating gamma are credits redeemed and credits created and no reliability issues are raised with respect to those terms. The 0.34 upper bound derived from tax statistics is relevant evidence of that upper bound which is unaffected by concerns about the reliability.¹⁵⁵

It is also noted that the AER relies on tax statistics in seeking to demonstrate that the 45 day tax rule has no effect.¹⁵⁶ However the analysis undertaken by the AER relies upon the ATO data which Professor Hathaway considers to be unreliable. The result is an illogical result that implied imputation credits received are slightly less than imputation credits utilised. That result is impossible. The fact that the redemption rate is significantly below the domestic equity ownership rate shows that the 45 day rule is affecting the eligibility of some domestic investors to redeem imputation credits.

5.8. Market Value Studies

Our view remains that the only method that provides an estimate of the value, as in worth, of distributed imputation credits to equity investors, as required by NGR 87A, is the use of market value studies. This is the approach that complies with the Rules, and results in an estimate of gamma that is consistent with the achievement of the NGO and the considerations required by the RPP. The ACT has firmly found that: “*Given that two of the three approaches adapted by the AER are considered no better than upper bounds, it follows that the assessment of theta must rely on market studies*”.¹⁵⁷

The AER says that its re-definition of gamma and re-evaluation of its approach to the utilisation rate has led it to a position of not relying exclusively on market value studies. The AER prefers equity ownership and tax statistic estimates because they provide more direct and simpler evidence of the utilisation rate than market value studies.¹⁵⁸

Further, the AER says it does not consider it reasonable to rely exclusively on the results of the SFG dividend drop-off study. The AER has identified what it considers to be a number of limitations on market value studies. In particular:¹⁵⁹

¹⁵³ AusNet, *Transmission Draft Decision*, 4-150. Powerlink Transmission, *Draft Decision*, 4-149.

¹⁵⁴ The Frontier report was not before the Tribunal in the *SAPN decision*.

¹⁵⁵ Frontier Economics, *Issues in the estimation of gamma*, September 2016, section 3. Provided at Attachment 10.6 to the Final Plan.

¹⁵⁶ See *Powerlink Transmission Draft Decision*, 4-107 to 4-112.

¹⁵⁷ *Ausgrid*, [1095].

¹⁵⁸ AusNet, *Transmission Draft Decision* 4-40. Powerlink Transmission *Draft Decision* 4-39

- the studies can produce nonsensical estimates (i.e. greater than one or less than zero);
- the results from market value studies can reflect factors, such as differential personal taxes and risks, which are not relevant to the utilisation rate;
- the results may not be reflective of the value of imputation credits to investors in the market as a whole;
- the studies can be data intensive and employ complex and problematic estimation methodologies; and
- it is only the value of the combined package of dividends and imputation credits that can be observed using dividend drop-off studies and there is no consensus on how to separate the value of dividends from the value of imputation credits (often referred to as the allocation problem).¹⁵⁹

SFG Consulting provided a response as to why the AER's concerns in its November 2014 decisions do not apply to its 2011 dividend drop off study.¹⁶⁰

In its 2015 decisions, the AER concluded that "*there is reasonable evidence to suggest that several of the limitations do apply to SFG's dividend drop off study*".¹⁶¹ Professor Gray responded again to those concerns in his February 2015 report (Frontier Economics).¹⁶²

The AER also asserts that Professor Gray's drop off studies should be 'recalibrated' by dividing them upwards by an amount of 0.05, giving rise to an estimate of around 0.40. The idea of making an adjustment arises from the possibility that investors may value not only imputation credits but also dividends at less than their "face value". Professor Gray has provided further analysis of whether this is an appropriate adjustment to make. In his June 2015 report (pg. 37), Professor Gray reaffirms why no adjustment should be made. The ACT in *Ausgrid* accepted that explanation.¹⁶³

The AER continues to hold the view that dividend drop off studies, including Professor Gray's study, are subject to a number of limitations, and that any such estimates need to be adjusted to convert to a pre-personal cost and tax basis. Professor Gray has shown that no such adjustments are necessary.¹⁶⁴

The ACT's consideration of Professor Gray's dividend drop-off study in both *Ausgrid* and the *SAPN decision* are addressed above and we consider that it continues to be the best available approach to estimating theta.

As noted above, Professor Gray has further updated the dividend drop off study endorsed by the ACT to 2016. Professor Gray concludes that the updated dataset supports an unchanged estimate of theta of 0.35.¹⁶⁵

¹⁵⁹ AusNet, *Transmission Draft Decision 4-40*. Powerlink *Transmission Draft Decision 4-39*.

¹⁶⁰ SFG *Estimating Gamma for Regulatory Purposes*, February 2015 pages 38 to 39.

¹⁶¹ SAPN Preliminary Decision 4-84, JGN Final Decision 4-86.

¹⁶² Section 5.3.

¹⁶³ At [1103].

¹⁶⁴ Frontier Economics: *Issues in the estimation of gamma*, September 2016, section 4 and 5. Provided at Attachment 10.6 to the Final Plan.

¹⁶⁵ Frontier Economics: *An updated dividend drop-off estimate of theta*, September 2016, at [100]. Provided at Attachment 10.5 to the Final Plan.

6. Rate of Return Proposal

Set out below is our indicative proposed Rate of Return based on our place-holder averaging period. As noted in our Final Plan, we have applied the AER's approach in the decision on our South Australian network pending further clarity on these issues arising from legal reviews and further engagement with the AER and stakeholders. We will continue to monitor the outcomes of the current legal reviews and make any required adjustments to our proposal once more certainty is provided.

Table 6.1: Rate of Return Proposal

Parameters	Proposal
Return on Equity	6.58%
Return on Debt	4.42%
Inflation (see following section)	2.39%
Leverage	60%
Gamma (see Attachment 10.7)	0.40
Corporate Tax Rate	30%
Nominal Vanilla Rate of Return	5.28%

7. Interrelationships

7.1. Return on Equity and the Value of Imputation Credits

There is a recognised interrelationship between the return on equity and the value of imputation credits. Some estimates of the MRP need to be grossed up for the value of imputation credits and a higher theta estimate implies a higher required return on equity. This interrelationship is explicitly recognised in NGR 87(4)(b).

If the AER were to adopt an estimate of theta to 0.35, while maintaining its current approach to estimating the MRP no adjustment to the AER's MRP estimate of 6.5% would be necessary. This is because the historic excess returns estimates on which the AER primarily relies for its MRP are relatively insensitive to the estimate of theta.¹⁶⁶

7.2. Interrelationship Between Forecasts of Rate of Return and Inflation

As noted in the submissions on Inflation, there is an interrelationship between:

- 1 The method for and the estimate of expected inflation and the amount that is deducted from the annual revenue requirement. As explained above, if actual inflation turns out to be materially lower than had been forecast, the deduction from the annual revenue requirement will be too large. This will lead to under-recovery of costs over the long-term.
- 2 The allowed rate of return and the estimate of expected inflation. The deduction from the annual revenue requirement for indexation is needed to avoid a "*double counting*" of inflation. This results from the application of a nominal rate of return to an indexed capital base. It is therefore important that the forecast of inflation that is being deducted from the annual revenue requirement is consistent with expectations which are built in to the nominal rate of return.

¹⁶⁶ Ibid, section 8.7.