Attachment 11.10

Response to Draft Decision: Cost of Tax

2016/17 to 2020/21 Access Arrangement Information Response to Draft Decision

Australian Gas Networks

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1 Response to Draft Decision on Cost of Tax

1.1 Introduction

This attachment sets out Australian Gas Networks Limited's (AGN's) response to the AER's Draft Decision on Cost of Tax.

AGN proposed the following in its Initial Access Arrangement (AA) Proposal for the next (2016/17 to 2020/21) AA period in relation to the Cost of Tax:

- to continue to adopt a post-tax approach to determine the cost of tax component of total regulatory revenue;
- to update the South Australia tax asset base (TAB) from 1 July 2010 for actual capital expenditure through to 30 June 2016 consistent with that used to adjust the regulatory asset base (RAB) for over the current (2011/12 to 2015/16) AA period;
- that the opening TAB values for South Australia be adjusted for forecast information over the next AA period consistent with the forecast capital expenditure used for adjusting the South Australian RAB over this period;
- standard tax asset lives which reflect both the provisions of the *Income Tax Assessment Act* (ITAA) 1997 and the standard tax asset lives prescribed in the Tax Ruling 2015/2;
- to apply the weighted average method to calculate the remaining tax asset lives as at 1 July 2016; and
- to apply 0.25 as the value of imputation credits (gamma), as had been applied in the current AA period.

1.2 AER Draft Decision

1.2.1 Cost of Tax

The AER accepted the above methodology proposed by AGN in its Draft Decision. However, and as with the RAB, the AER did not approve AGN's proposed opening TAB of $616 million ($nominal) as at 1 July 2016, instead determining an opening RAB of $620 million ($nominal), which is 1.0% higher than AGN's proposal. This decision reflected amendments made by the AER in respect of the inflation indices proposed by AGN to adjust the RAB.

The AER also did not approve AGN's proposed closing TAB at 30 June 2021 of $1,072 million ($nominal), determining a closing TAB of $787 million ($nominal), which is 36% less than AGN's proposal. The lower TAB reflected the reductions made by the AER in the Draft Decision to AGN's capex forecast.

Finally, the AER did not approve AGN's proposed net corporate income tax allowance of $38 million ($ nominal) instead determining an amount of $11 million ($ nominal). This reflected the AER's Draft Decision to apply a value of gamma of 0.4, as opposed to AGN's proposed 0.25, and to make an adjustment to account for the tax treatment of revenue arising from the operation of the EBSS.

Table 1.1 below summarises the AER's Draft Decision for each element of AGN's Cost of Tax proposal.

TABLE 1.1: SUMMARY OF AER'S DRAFT DECISION ON COST OF TAX

	AER Draft Decision	AER Comment
Opening TAB 1 July 2016	Reject AGN Proposal	The AER adjusted the opening TAB as at 1 July 2016 for the use of different inflation indices over the current AA period.
Forecast Capex	Reject AGN Proposal	The AER did not approve AGN's proposed closing TAB primarily due to its proposed reduction in forecast capex.
Depreciation	Modify AGN Proposal	The AER accepted AGN's methodology used to determine the depreciation schedule, however the AER applied its own depreciation schedule reflecting its Draft Decision capex forecast.
Closing TAB 30 June 2021	Reject AGN Proposal	For those reasons described in the rows above, the AER did not accept AGN's proposed closing TAB at 30 June 2021.
EBSS Revenues	Reject AGN Proposal	EBSS revenues should be given identical income and expense tax status in the PTRM.
Distribution rate estimate	Reject AGN Proposal	The AER accepted that the distribution rate for all equity is 0.7 (as proposed by AGN), but also adopted a distribution rate of 0.77 as derived from listed equity in determining gamma.
Theta estimate	Reject AGN Proposal	The AER rejected AGN's proposed value for theta (value of distributed imputation credits) of 0.35 in favour of its own estimates of the "utilisation rate" ranging between 0 and 1.
Gamma estimate	Reject AGN Proposal	Based on its estimates of the distribution rate and theta, the AER rejected AGN's proposed value for gamma of 0.25 in favour of its own estimate of 0.4 (selected from a range of 0.3 to 0.5).
Cost of Tax	Reject AGN Proposal	The AER did not accept AGN's proposed cost of corporate income tax calculation for the next AA period by account of different estimates of TAB and gamma, as well as the adjustment for the EBSS.

1.3 AGN Response to the Draft Decision

AGN has accepted the AER's Draft Decision in respect of the opening TAB as at 1 July 2016, other than to update for actual 2014/15 capex and also accepts the AER's Draft Decision in respect of the tax treatment of the EBSS revenues. AGN however does not accept the AER's Draft Decision capex nor the use of a value of gamma of 0.4. Attachment 8.9 of this Revised AA Proposal AGN's describes in detail AGN's revised capex forecast for the next AA period.

In respect of gamma, the AER's approach to estimating gamma is premised on an incorrect interpretation of the NGR. The AER seeks to estimate gamma on a "pre-personal-costs" basis, which is equivalent to estimating gamma as the rate of utilisation (or assumed utilisation) of imputation credits, rather than their value to investors. To the extent that evidence of utilisation rates are relevant to estimating gamma (AGN submits the relevance of such evidence is only in determining an upper bound for theta, the value of distributed imputation credits), AGN also considers that the AER has made errors in its interpretation and use of key evidence.

Based on an updated dividend study previously endorsed by the Australian Competition Tribunal, AGN considers theta (the "utilisation rate" of franking credits) to be 0.35. Combined with a distribution rate of 0.7, this gives a value of gamma of 0.25 as per AGN's Initial AA Proposal.

TABLE 1.2: SUMMARY OF AGN'S RESPONSE TO THE AER DRAFT DECISION

	AER Draft Decision	AGN Response	AGN Comment
Opening TAB 1 July 2016	Reject AGN Proposal	Modify Draft Decision	AGN has accepted the AER's revisions to its opening TAB, however AGN has updated for actual 2014/15 capex.
Forecast Capex	Reject AGN Proposal	Respond to Draft Decision	AGN has revised its capex proposal for the next AA period (refer Attachment 8.9 of this revised AA proposal)
Depreciation	Modify AGN Proposal	Modify Draft Decision	AGN has modified the depreciation schedule to account for the revised capex forecast, however the methodology used to calculate remaining asset lives is as approved by the AER in its Draft Decision.
Closing TAB 30 June 2021	Reject AGN Proposal	Respond to Draft Decision	For those reasons described in the table above, AGN will propose a different closing TAB at 30 June 2021.
EBSS Revenues	Reject AGN Proposal	Accept Draft Decision	No comment.
Distribution rate estimate	Reject AGN Proposal	Respond to Draft Decision	AGN maintains the value of the distribution rate to determine gamma should is 0.7.
Theta estimate	Reject AGN Proposal	Respond to Draft Decision	AGN maintains the available evidence indicates the appropriate estimate of theta (value of distributed imputation credits) is 0.35.
Gamma estimate	Reject AGN Proposal	Respond to Draft Decision	AGN maintains its proposal for a gamma of 0.25, being the product of a distribution rate of 0.7 and a theta estimate of 0.35.
Cost of Tax	Reject AGN Proposal	Respond to Draft Decision	Due to revised assumptions for TAB and gamma, AGN has calculated a different cost of corporate income tax for the next AA period.

The remainder of this attachment details the revised TAB values for the current AA period and next AA period. Significant discussion is also given to explaining AGN's value of gamma as the proposed value of 0.25 represents a departure from the methods for estimating gamma set out in the Rate of Return Guideline.

1.3.1 Adjusting the Tax Asset Base

Table 1.3 summarises the forecast roll-forward of the TAB for the current AA period and incorporates AGN's actual 2014/15 capex. The closing Tab as 30 June 2016 is $618 million ($2015/16).

TABLE 1.3: TAB ROLL-FORWARD 2010/11 TO 2015/16

$m Nominal	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Opening TAB	243.8	270.3	311.3	375.5	451.7	525.3
Add Gross Capital Expenditure	39.1	55.8	81.5	98.4	102.2	118.6
Less Tax Depreciation	-12.6	-14.7	-17.4	-22.1	-28.7	-36.3
Closing TAB	270.3	311.3	375.5	451.7	525.3	607.6

The forecast TAB over the next AA period, taking into account forecast regulatory depreciation, capex and inflation, is set out in Table 1.4. This shows a closing TAB of $1,015 million as at 30 June 2021 in nominal dollar terms.

TABLE 1.4: TAB ROLL-FORWARD 2016/17 TO 2020/21

$m Nominal	2016/17	2017/18	2018/19	2019/20	2020/21
Opening TAB	607.6	692.8	786.0	860.5	954.9
Add Gross Capital Expenditure	126.1	142.8	134.6	160.2	121.7
Less Tax Depreciation	-40.9	-49.6	-60.1	-65.9	-76.1
Closing TAB	692.8	786.0	860.5	954.9	1000.5

1.3.2 Gamma (Value of Imputation Credits)

The AER's Draft Decision estimate of gamma does not reflect the value of imputation credits to investors. Applying a value of gamma of 0.4 in the Draft Decision is an on over-estimation of gamma, meaning that the reduction to the overall return to account for imputation credits is too large.

The National Gas Rules (NGR) now require an estimate of "the value of imputation credits". Importantly, clause 6.5.3 of the National Electricity Rules (NER) was amended in November 2012 to change the definition of gamma from "the assumed utilisation of imputation credits" to "the value of imputation credits". NGR 87A was inserted at the same time and was drafted in equivalent terms to the amended clause 6.5.3 of the NER.

The change to the NER (and hence the language of the new NGR 87A) was entirely appropriate, given that the estimate of gamma determines an amount to deduct from allowed revenue to reflect the value that investors obtain from imputation credits.[1]

The AER's approach to estimating gamma is premised on an incorrect interpretation of the NGR. The AER seeks to estimate gamma on a "pre-personal-costs" basis, which is equivalent to estimating gamma as the rate of utilisation (or assumed utilisation) of imputation credits, rather than their value to investors.

As a result, the AER has erred in its use of evidence in relation to gamma:

- the AER uses equity ownership rates as direct evidence of the value of distributed credits (theta), when in fact equity ownership rates are no more than an upper bound (or maximum) for this value;
- the AER also uses redemption rates as direct evidence of the value of distributed credits (theta), when in fact redemption rates are no more than an upper bound (or maximum) for this value; and
- the AER has erred in concluding that market value studies can reflect factors, such as differential personal taxes and risk, which are not relevant to the task of measuring theta, whereas market value studies are direct evidence of the value of imputation credits to investors.

Further, the AER has made errors in its interpretation and use of key evidence, including by proceeding on the incorrect footing that estimates of theta based on data for listed companies can only be combined with estimates of the "listed equity" distribution rate.

On a proper interpretation of the empirical evidence:

- both tax statistics and equity ownership data indicate that theta can be no higher than 0.45, and that therefore the upper bound for gamma is 0.3;
- the best evidence as to the value of imputation credits – from SFG's updated dividend drop-off study – indicates that theta is approximately 0.35 and that gamma is 0.25.

[1] NGR 87A.

Even on the AER's interpretation of the NGR, its gamma estimate cannot be supported. The evidence demonstrates that if gamma is estimated on a "pre personal costs" basis, the best estimate is approximately 0.3, not 0.4.

1.3.2.1 The AER's Draft Decision approach to estimating gamma

In the Draft Decision, the AER adopts a similar approach to estimating gamma as in recent decisions. This involves:

1. Conceptualising gamma as the before-personal-tax and before-personal-costs value of imputation credits. In line with this conceptual approach, the AER estimates gamma as the product of the distribution rate and the utilisation value to investors in the market per dollar of imputation credits distributed (referred to as the "*utilisation rate*").[2]

2. Deriving estimates of the distribution rate and theta for each of "all equity" and "listed equity".[3] For theta, the AER derives a number of different estimates, based on three different estimation methods:

    a. the equity ownership approach, which uses Australian Bureau of Statistics (ABS) data to estimate the proportion of equity in Australian companies held by domestic investors;

    b. tax statistics, which indicate the proportion of distributed imputation credits that are redeemed by investors; and

    c. market value studies.

3. Calculating gamma values based on its pairing of:

    d. its estimate of the distribution rate for all equity with its estimates of theta for all equity based on the equity ownership approach and tax statistics; and

    e. its estimate of the distribution rate for listed equity with its estimates of theta for listed equity based on the equity ownership approach and market value studies.

4. Determining a range for gamma based on "*the overlap of evidence from the equity ownership*" approach (i.e. the overlap between the gamma ranges calculated by the AER based on the equity ownership approach for each of "all equity" and "listed equity").[4] The AER considered that the overlap of the evidence from the equity ownership approach suggests a value for gamma between 0.40 and 0.42.

5. Selecting a point within the range defined by step 4 by reference to evidence from tax statistics and market value studies. The AER observed that both tax statistics and SFG's market value study suggest a value for gamma lower than 0.4. On this basis, the AER adopted a value for gamma at the lower end of the range suggested by the overlap of the evidence from the equity ownership approach (that is, 0.4).[5]

As discussed below, the AER has made errors at each of these steps in its reasoning.

For reasons set out below, AGN maintains its position that the best estimate of gamma is 0.25. This estimate reflects a proper interpretation of the NGR and the best empirical evidence in relation to the value of imputation credits.

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2 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. 4-16.

3 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. 4-18.

4 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. 4-19.

5 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. 4-19.

1.3.2.2 The AER's conceptual approach to estimating gamma

The AER's conceptual approach to estimating gamma appears to have evolved since it published the Rate of Return Guideline in December 2013.

In the Rate of Return Guideline, the AER approached gamma as a measure of the proportion of imputation credits that can be utilised. The AER defined theta as "*the extent to which investors can use the imputation credits they receive to reduce their tax (or receive a refund)*".[6] Thus, in the Rate of Return Guideline, the AER appeared to treat gamma as a measure of the utilisation, or eligibility to utilise/potential for utilisation of imputation credits.

In the Draft Decision the AER seeks to estimate gamma as the "*before-personal-tax and before-personal-costs*" value of imputation credits. The AER appears to acknowledge in the Draft Decision that gamma is a measure of the value of imputation credits to investors,[7] not simply their utilisation, or potential for utilisation. However the AER states that this value must be measured on a "*before-personal-tax and before-personal-costs basis*".[8] Consistent with this, the AER estimates the utilisation rate (theta) as "*the before-personal-tax and before-personal-costs utilisation value to investors in the market per dollar of imputation credits distributed*".[9]

Thus, between the Guideline and the Draft Decision, the AER appears to have shifted from treating gamma as a "utilisation" (or potential utilisation/eligibility for utilisation) concept to treating it as a "value" concept.

However, because the AER seeks to estimate value on a before-personal-tax and before-personal-costs basis, its approach is in fact unchanged. Since the AER ignores the effect of any factors which might reduce the value of imputation credits that are redeemed, its approach to estimating value is effectively equivalent to estimating the rate of imputation credit utilisation (or potential for utilisation) or to assuming that those factors have no affect—which it has not tested nor has any evidence to support. The AER explains this in the Draft Decision as follows:[10]

> *"In the Guideline, we also defined the utilisation rate as the extent to which investors can use the imputation credits they receive to reduce their tax (or receive a refund). In this decision, consistent with Handley's advice, we consider the utilisation rate is the utilisation value to investors in the market per dollar of imputation credits distributed. However, we consider that our views in the Guideline and in this decision are broadly equivalent; that is, our definition of the utilisation rate in this preliminary decision still reflects the extent to which investors in the market can use the imputation credits they receive. This is because, as discussed above and in sections A.5, A.7 and A.8.1, to be consistent with the Officer framework (and therefore the building block framework in the NER/NGR) the utilisation rate should reflect the before-personal-tax and before-personal-costs value of imputation credits to investors. On a before-personal-tax and before-personal-costs basis, an investor that is eligible to fully utilise imputation credits should value each dollar of imputation credits received at one dollar (that is, have a utilisation rate of 1)."*

In effect, the AER continues to interpret gamma as a measure of the utilisation of imputation credits, or a measure of investors' eligibility to utilise those credits.

As explained in AGN's AA revision proposal, this approach is contrary to the requirements of the NGR and represents a significant departure from conventional and previous regulatory practice.

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6 AER, *Better Regulation: Explanatory Statement Rate of Return Guideline*, December 2013, p159.

7 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. 4-16.

8 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. 4-16.

9 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. 4-33.

10 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. 4-53.

AGN considers that it is clear from the language of NGR 87A that the AER is required to estimate the value of imputation credits, not the utilisation of imputation credits, or a measure of investors' eligibility to utilise those credits. NGR 87A refers to the "*value of imputation credits*", not utilisation. Indeed, the NER were recently amended to change the definition of gamma from "*the assumed utilisation of imputation credits*" to "*the value of imputation credits*" and the new NGR 87A adopted this "*value*" definition.

Further, a value-based approach to estimating gamma (and theta) will best promote the NGO, as it provides for overall returns which promote efficient investment. As noted by Professor Gray:[11]

> *"Under the building block approach, the regulator makes an estimate of gamma and then reduces the return that is available to investors from dividends and capital gains from the firm accordingly. In my view, it is clear that this is consistent with a value interpretation. If the value of foregone dividends and capital gains is greater than the value of received imputation credits, the investors will be left under-compensated, and vice versa."*

If gamma is treated as merely a measure of utilisation, or if the value of imputation credits is assessed before personal costs and taxation (i.e. ignoring these costs to investors), the overall return to equity-holders will be less than what is required to promote efficient investment. Quite simply, there will be certain costs incurred by investors – such as transactions costs involved in redeeming credits – which are not accounted for.

The value of imputation credits to investors will necessarily reflect (and will be net of) any transactions costs or other personal costs incurred in redeeming credits. Such costs cannot simply be assumed away. If such costs are assumed away, then the resulting estimate of theta (and therefore gamma) will overstate the true value of imputation credits to investors.

Therefore, AGN maintains its position that the estimate of theta must simply reflect the value of imputation credits to investors. It would be an error to seek to estimate theta as a hypothetical before-personal-tax and before-personal-costs value.

1.3.2.3 Estimates of the distribution rate

The appropriate measure of the distribution rate

The AER refers to a distribution rate for "all equity" and for "listed equity" only. The "all equity" figure is based on analysis of the cumulative payout ratio across all Australian companies, using ATO data. The "listed equity" figure is also based on ATO data, but with an allocation of total tax paid between public and private companies.[12]

AGN considers that it is neither necessary nor appropriate to separately identify a distribution rate for a limited set of listed businesses only. This is because the distribution rate for all equity is likely to be a reasonable proxy for that of the benchmark entity. On the other hand, for reasons discussed below, the distribution rate for a limited set of listed businesses is likely to be a poor proxy for that of the benchmark entity.

Whereas the AER's definition of the benchmark entity is assumed to operate solely within Australia,[13] the distribution rate for listed equity is likely to be skewed by the practices of multinational firms with significant foreign earnings. Almost two thirds of the value of listed entities comprises the top 20 firms, which tend to be large multinational firms with significant foreign earnings. The presence of material foreign earnings can

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11 SFG, *Estimating gamma for regulatory purposes*, February 2015, [12] (Attachment 11.4 to AGN's AA revision proposal).

12 NERA, *Estimating Distribution and Redemption Rates from Taxation Statistics*, March 2015, section 3.3 (Attachment 11.7 to AGN's AA revision proposal).

13 The AER's definition of the benchmark efficient entity is a pure play, regulated energy network business *operating within Australia*: AER, *Rate of Return Guideline*, p7; AER, *Explanatory Statement, Rate of Return Guideline*, pg. 32-35, see in particular the discussion of 'Operating within Australia' on pg. 35.

have a significant impact on a firm's distribution rate because imputation credits are only created when tax is paid on Australian earnings, but may be distributed with any dividend (whether distributing Australian earnings or foreign earnings). This means that for a given dividend payout ratio (i.e., the proportion of profits that are distributed as dividends), the imputation credit distribution rate will be higher (as a proportion of total credits created) for an entity with more foreign profits.

This is illustrated by way of example by Professor Gray.[14] Professor Gray compares two hypothetical firms with the same dividend payout ratio (i.e., the proportion of profits that are distributed as dividends), but with different levels of foreign earnings. His example shows that the existence of foreign earnings leads to a materially higher distribution rate, even where the dividend payout ratio is the same.

The effect of foreign earnings on the distribution rate can also be seen in the empirical estimates of the distribution rate for different company types. As may be expected, the distribution rate for top-20 ASX listed companies (many of which will have material foreign earnings) is significantly higher than the average distribution rate across all companies (0.84 compared to 0.68). When top-20 ASX listed companies are removed from the public company set, the distribution rate for public companies falls to around the rate across all companies (0.69).

TABLE 1.5: DISTRIBUTION RATE BY COMPANY TYPE[15]

Firm type	Distribution rate
Top-20 ASX listed	0.840
Public but not top-20 ASX listed	0.693
All publicly listed	0.755
Private	0.505
All	0.676

Given that the BEE, by definition, is a business with no foreign profits, it would be inappropriate to use a measure of the distribution rate that is skewed by businesses with material foreign earnings.

In the Draft Decision the AER suggests that, although the listed equity distribution rate may be unrepresentative of the distribution rate for the BEE, it may nonetheless be necessary to use a listed equity distribution rate for "*internal consistency*".[16] The AER considers that where an estimate of theta is based on the value of imputation credits to a particular set of investors, the distribution rate that is combined with that theta estimate must be for the same set of investors. On this reasoning, the AER considers that if an estimate of theta based on listed equity data is used, this must be combined with a listed equity distribution rate.

For reasons discussed in section 1.3.2.5 below, AGN does not agree that estimates of theta based on listed equity data must be paired with a listed equity distribution rate. The distribution rate and theta are separate parameters and need not be estimated using the same dataset. Whereas the distribution rate is a measure of the credit distribution practices of the BEE, theta is a measure of the value of credits to investors (or potential investors). In each case it must be considered which approach will provide the best estimate for the BEE, and there is no reason why this ought to be the same across all parameters. For reasons discussed above, the distribution rate for the BEE will be best proxied by the distribution rate across all companies. On the other hand, for reasons set out below, to the extent that the rate of equity ownership is relevant to theta, the most informative measure is that for listed equity. Put another way, the BEE is an entity with solely Australian earnings, but as likely to be foreign owned as any listed entity.

14 SFG, *Estimating gamma for regulatory purposes*, 6 February 2015, pg. 45 (Attachment 11.4 to AGN's AA revision proposal).

15 NERA, *Estimating Distribution and Redemption Rates from Taxation Statistics*, March 2015, pg. 23 (Attachment 11.7 to AGN's AA revision proposal).

16 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. 4-87.

This position is supported by Frontier Economics in its expert report accompanying this submission.[17] Frontier notes that whether the BEE is defined narrowly (as the firms that the AER regulates) or more broadly, for the purposes of estimating the distribution rate it would not include firms that have foreign-sourced profits to assist in the distribution of imputation credits. Thus, the distribution rate should not be estimated with reference to the top 20 ASX-listed firms, or with reference to any estimate that is materially affected by the top 20 firms. For this reason, Frontier recommends excluding the influence of the top 20 firms from any estimate of the distribution rate for the BEE. Frontier notes that but for the top 20 listed firms, the distribution rate estimate for listed equity is 70%, which is in line with the distribution rate for all equity.

Distribution rate for all equity

AGN agrees with the AER's conclusion in the Draft Decision that the best estimate of the distribution rate across all equity is 0.7.

Recent analysis by NERA (referred to in Table 1.5 above) indicates that the distribution rate across all equity is now slightly below 0.7, at around 0.68.[18] Therefore 0.7 represents a reasonable and conservative estimate.

1.3.2.4 Estimates of the value of distributed credits (theta)

Types of evidence relied on by the AER to estimate theta

There are three types of evidence referred to by the AER in relation to theta. These are, in order of weight given by the AER:

- equity ownership rates (i.e. the share of Australian equity held by domestic investors);
- redemption rates from tax statistics; and
- market value studies.

This section will address the relevance of each of the forms of evidence relied on by the AER in the Draft Decision, to the task of estimating the value of imputation credits to investors.

Equity ownership rates

The AER continues to rely on the equity ownership approach as direct evidence of the value of distributed imputation credits. The AER states that its estimate of the value of distributed imputation credits "*primarily reflects*" the evidence from the equity ownership approach.[19]

The AER's estimates of the equity ownership rate provide a binding constraint on its estimates of theta and gamma. As noted above, the AER adopts a range for gamma based on "*the overlap of evidence from the equity ownership*" approach.[20] Other evidence is then only used to determine where in this range the AER's point estimate of gamma should lie. Since other evidence indicates a gamma that is below the AER's range from the equity ownership approach, this other evidence is effectively disregarded by the AER. It is only the AER's estimates of the equity ownership rate that are consistent with its estimates of theta and gamma.

In relying on equity ownership rates as direct evidence of the value of distributed imputation credits, the AER at least implicitly assumes that:

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17 Frontier, *The appropriate use of tax statistics when estimating gamma*, January 2016, pg. 15 (Attachment 11.11 to this Revised AA Proposal).

18 NERA, *Estimating Distribution and Redemption Rates from Taxation Statistics*, March 2015, p23 (Attachment 11.7 to AGN's AA revision proposal).

19 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. -17.

20 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. 4-19.

- all domestic investors are eligible to utilise imputation credits, while foreign investors are not (Assumption 1); and

- eligible investors (i.e. domestic investors) value imputation credits at their full face value because each dollar of imputation credits received can be fully returned to them in the form of a reduction in tax payable (Assumption 2).

Both of these assumptions are incorrect.

Assumption 1 is known to be incorrect due to certain tax rules which prevent redemption of credits by domestic investors in some circumstances. In particular, not all domestic investors are eligible to utilise imputation credits, for example due to the 45-day holding rule[21] or because they are in a tax loss position.

The AER acknowledges the 45-day rule but considers that it can be assumed to have a negligible effect.[22] However, the analysis underpinning this conclusion is based on data that is known to be unreliable. The AER relies on analysis of the ATO dividend data presented in an expert report by Dr Neville Hathaway dated September 2013.[23] However that report explained that there "*appears to be a big problem with the data*" in that a large amount of credits are not accounted for in the ATO dividend data – i.e. there is $87.5 billion in franking credits that appear in the ATO tax paid and franking account balance (FAB) data, but which are missing from the dividend data. Dr Hathaway expresses more confidence in the ATO tax paid and FAB data, and says that it is likely to be the dividend data where the problem lies.[24] The AER analysis on the effect of the 45-day rule appears to be entirely based on the ATO dividend data, despite Dr Hathaway's warnings regarding the reliability of this data. The AER does not appear to take into account the point made by Dr Hathaway, that the dividend data appears to grossly underestimate the amount of imputation credits distributed, or to assess whether this data is reliable enough to analyse the impact of the 45-day rule.[25]

The ATO tax paid and FAB data (which Dr Hathaway considers to be more reliable) indicates that the redemption rate for imputation credits is materially below the domestic equity ownership rate across all equity, suggesting that equity ownership figures do overstate the level of actual utilisation. The AER (correctly) observes that the current redemption rate is 0.45, which is significantly below the domestic equity ownership rate across all equity (currently 0.6).[26] This indicates that factors such as the 45-day rule or tax losses are in fact preventing or deterring the redemption of imputation credits by some domestic investors.

As for Assumption 2 above, AGN's AA revision proposal identified a number of reasons why even eligible investors will not value imputation credits at their full face value. These include transaction costs associated with the redemption of imputation credits and portfolio effects (discussed below).

Given that neither of these assumptions hold, equity ownership rates cannot be used as direct evidence of the value of distributed imputation credits. Equity ownership rates will only indicate the maximum set of investors who may be eligible to redeem imputation credits and who may therefore place some value on imputation credits. Certainly theta cannot be higher than the domestic equity ownership rate, since foreign

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21 Although the 'qualified persons' rules, and the 45-day holding rule within those rules, were repealed from the *Income Tax Assessment Act 1936* (ITAA36) in 2002, they still have ongoing application as a result of being imported into the imputation rules by section 207-145(1)(a) of the *Income Tax Assessment Act 1997* (ITAA97). Section 207-145(1)(a) of the ITAA97 provides that the amount of the franking credit on a distribution is not included in the assessable income of an entity or allowed as a credit where the entity is not a 'qualified person' in relation to the distribution. A 'qualified person' for the purposes of this 'section' (per section 160APHO(2)) is, broadly, a taxpayer who has held shares or an interest in shares on which a dividend has been paid, 'at risk' for a continuous period of not less than 45 days. To work out whether the shares are 'at risk', a taxpayer is required to first work out their 'net position', which is determined under the rules contained in the repealed section 160APHJ of the ITAA36.

22 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. 4-72

23 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. 4-71. Table 4.6 refers to the following report as its data source: Dr Neville Hathaway, *Imputation credit redemption ATO data 1988-2011: Where have all the credits gone?*, September 2013. It appears that the data in Table 4.6 is drawn from Figure 4 of Dr Hathaway's report, which (as explained in [51] and [52] of that report) relies on the ATO dividend data.

24 Dr Neville Hathaway, *Imputation credit redemption ATO data 1988-2011: Where have all the credits gone?,* September 2013, [50].

25 The figures in Table 4.6 on p4-71 of the Draft Decision appear to be taken from Figure 4 on page 18 of Dr Hathaway's report, which is based on the ATO dividend data.

26 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. 4-19.

investors cannot place any value on imputation credits and it would be unreasonable to place more value on a redeemed credit than the dollar value of tax that can be offset by it. However the domestic equity ownership rate cannot be used as direct evidence of the value of imputation credits, because it does not account for the fact that:

- some domestic investors may be ineligible to redeem imputation credits; and
- even eligible investors will not value imputation credits at their full face value.

Therefore the AER has erred in concluding that equity ownership rates are direct evidence of the value of imputation credits (or evidence from which a value can be inferred) and in giving these measures the primary role in the determination of a point estimate for theta.

Tax statistics

The AER also appears to rely on redemption rates from tax statistics as direct evidence of the value of distributed imputation credits. The AER states that it has placed "*some reliance*" on tax statistics in estimating theta, but less reliance than is placed on equity ownership rates.[27]

Redemption rates from tax statistics will be closer to the true value of imputation credits than domestic equity ownership rates. This is because redemption rates account for certain factors impacting on the value of imputation credits which are not accounted for in the domestic equity ownership rate – for example, redemption rates will reflect the fact that some domestic investors are not eligible to redeem credits due to the 45-day holding rule, and that some investors face costs and other barriers that deter them from utilising imputation credits.

However redemption rates from tax statistics also cannot be used as direct evidence of the value of distributed imputation credits, because redemption rates do not take into account the fact that investors may value redeemed credits at less than their full face value. As noted above, AGN's AA revision proposal identified a number of reasons why investors will not value imputation credits at their full face value, including:

- Transaction costs: Transaction costs associated with the redemption of credits may include requirements to keep records and follow administrative processes. This can be contrasted with realisation of cash dividends, which are paid directly into bank accounts. The transaction costs associated with redemption of imputation credits will tend to reduce their value to investors (meaning that the value of credits redeemed will be less than their face value) and may also dissuade some investors from redeeming credits (thus reducing the redemption rate).
- Time value of money: There will typically be a significant delay (which can be years) between credit distribution and the investor obtaining a tax credit. This may be a period of several years in some cases, for example where credits are distributed through other companies or trusts, or where the ultimate investor is initially in a tax loss position. Over this period, the value of the imputation credit to the investor may be expected to diminish, due to the time value of money.

[27] AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg. 4-25.

- Portfolio effects: Portfolio effects refer to the impact of shifting the investor's portfolio away from the optimal construction (including overseas investments) in order to take advantage of imputation. An investor who would otherwise invest overseas (to get a better return from the overall portfolio) might choose instead to make that investment in Australia to obtain the benefit of an imputation credit. This reallocation of portfolio investment would tend to continue with the relevant imputation credit having less and less marginal value until an equilibrium is reached with the credit having no additional value: that is, on average, the value of the imputation credits will be less than the face value. To the extent that an investor reduces the value of their overall portfolio simply to increase the extent to which they can redeem imputation credits, this lost value will be reflected in a lower valuation of the imputation credits. These portfolio effects are further explained in the expert report of Professor Stephen Gray which accompanied AGN's AA revision proposal.[28]

Redemption rates from tax statistics can only indicate the upper bound for theta. Theta clearly cannot be higher than the proportion of credits that are redeemed by investors, since credits that will never be redeemed have no value. However theta may be (and for reasons referred to above, is likely to be) less than the redemption rate.

Therefore the AER has erred in giving redemption rates a direct role in the determination of a point estimate for theta, and in failing to recognise that redemption rates are an upper bound for theta.

Market value studies

The AER places least weight on market value studies, as it considers that these studies have a number of limitations, including:[29]

- these studies can produce nonsensical estimates of the utilisation rate – that is, greater than one or less than zero;
- the results of these studies can reflect factors, such as differential personal taxes and risk, which are not relevant to the utilisation rate;
- the results of these studies might not be reflective of the value of imputation credits to investors in the market as a whole;
- these studies can be data intensive and employ complex and sometimes 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 (the 'allocation problem').

In effect, the AER is raising two questions in relation to market value studies:

- Are they measuring the right thing? (reflected in the second point above)
- How well are they measuring it? (reflected in the other four points)

[28] SFG, *An appropriate regulatory estimate of gamma*, 21 May 2014 (Attachment 11.3 to AGN's Initial AA Proposal).

[29] AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg.4-29 to 30.

(A) Are market value studies measuring the right thing?

The first concern flows from the AER's conceptual definition of theta, which seeks to exclude the effects of personal taxes and personal costs. Since market values will reflect the impact of personal costs and taxation, the AER considers that a market value approach may not be compatible with its revised definition of theta.

As noted above, AGN does not agree with the AER's revised definition of theta (i.e. the qualified version which ignores the effects of personal costs and taxation). As explained in AGN's AA revision proposal, theta must reflect the value of distributed imputation credits to investors, which will necessarily reflect (and will be net of) any transaction costs or other personal costs incurred in redeeming credits.

If the conventional definition of theta is adopted – i.e. defining theta as the value of distributed imputation credits to investors – then use of market value studies is entirely compatible with this definition. Market value studies will reflect the value of imputation credits to investors, as reflected in market prices for traded securities.

Indeed, of the three approaches identified by the AER to estimate theta, an approach based on market value studies is the only approach that is entirely compatible with a definition of theta that is consistent with the NGR and the NGO. As discussed above, both equity ownership rates and redemption rates from tax statistics will overstate the true value of theta, since they will not reflect certain factors which affect the value of imputation credits to investors.

Use of market value studies – and more generally, the adoption of a market value measure – is also consistent with how other rate of return parameters are estimated.[30] Other rate of return parameters such as the MRP and DRP are estimated based on the return required by investors as reflected in market prices. The market value measures of these parameters are not adjusted to account for personal costs or other factors which may be reflected in market prices.

In any event, even if the AER's definition of theta were to be adopted, there is a relatively simple adjustment that can be made to estimates from market value studies to address this concern. As explained by Associate Professor Handley, this involves 'grossing up' the theta estimate from a market value study to reflect the effect of personal costs. If this adjustment were to be made to the estimate from the estimate from Professor Gray's dividend drop-off study, it would result in a small increase in the theta estimate, from 0.35 to 0.4.[31] (For clarity, AGN does not agree with this adjustment, because the AER's conceptual definition of theta is clearly wrong. However, if the AER's definition was to be adopted, then this does not require wholesale rejection of market value evidence, since an adjustment can be made to account for differences between the AER's definition and the conventional definition.)

(B) Do market value studies accurately measure that thing?

The AER lists several methodological concerns with dividend drop-off studies, several of which are not relevant to the particular study relied on by AGN.

In particular, the AER's concern about 'nonsensical results' clearly does not apply to Professor Gray's dividend drop-off study. Professor Gray's study produces a theta estimate of 0.35, which is an entirely sensible result given that:

- it is within the theoretical bounds for theta (i.e. it is between zero and one);
- it is below the domestic equity ownership rate for both listed equity (0.46) and all equity (0.6). As noted above, the domestic equity ownership rate indicates the maximum set of investors who may be eligible to redeem imputation credits and who may therefore place some value on imputation credits, and therefore it may be expected that the value for theta would be below this figure; and

[30] NGR 87(4)(b) requires the rate of return and the value of imputation credits to be measured on a consistent basis.

[31] John C Handley, *Advice on the Value of Imputation Credits*, 29 September 2014, p43.

- it is also below the redemption rate indicated by tax statistics (0.45). Again, this may be expected given that redemption rates will indicate the upper bound for theta and do not capture certain factors affecting value, such as the time value of money, transaction costs and portfolio effects.

Indeed, the result of the SFG study is consistent with the other evidence and a result that is to be expected in light of that evidence.

Similarly, the AER's concern about "*problematic estimation methodologies*" may apply to some market value studies but does not apply to the particular study relied on by AGN. The methodology used in Professor Gray's study is the product of a consultative development process involving the AER and several regulated businesses and overseen by the Tribunal in the Energex review. The methodology used in Professor Gray's study was designed specifically to overcome the methodological shortcomings of previous studies (e.g. shortcomings in the methodology employed by Beggs and Skeels (2006), which were identified by the Tribunal in the Energex review). In accepting the conclusions of Professor Gray's study, the Tribunal expressed confidence in those conclusions in light of the careful scrutiny to which the methodology had been subjected, and the way in which it had been designed to overcome shortcomings of previous studies.[32]

Professor Gray notes that the dividend drop-off literature has evolved over time, and that the SFG studies use current state-of-the-art techniques. Professor Gray explains:[33]

> *"In relation to dividend drop-off studies, I first note that the dividend drop-off literature has evolved over time, as do all areas of scientific investigation. This evolution has seen the development of different variations of the econometric specification, different variations of regression analysis, and different types of sensitivity and stability analyses. It has also seen material growth in the available data. The SFG studies use the latest available data, and they apply a range of econometric specifications, regression analysis and sensitivity and stability analyses that have been developed in the literature. The SFG estimate of 0.35 is based on this comprehensive analysis. It is not as though the SFG studies use one of the reasonable approaches and other studies use different reasonable approaches. The SFG studies are comprehensive state-of-the-art studies."*

Box 1 below outlines the process by which the methodology used in Professor Gray's study was developed, and the conclusions of the Tribunal in relation to that methodology. In light of this, it cannot be said that Professor Gray's study shares the same methodological issues as previous market value studies. Rather, this study was specifically designed to overcome the shortcomings of previous studies.

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32 *Application by Energex Limited (Gamma) (No 5)* [2011] ACompT 9, [22].

33 SFG, *Estimating gamma for regulatory purposes*, February 2015, [177] (Attachment 11.4 to AGN's Initial AA Proposal).

Box 1: Key conclusions of the Tribunal in Energex in relation to the SFG methodology.

In Application by Energex Limited (No 2) [2010] ACompT 7, the Tribunal had before it two market value studies which produced different estimates of theta – a study by Beggs and Skeels (2006) and a study by SFG (2010) which sought to replicate the Beggs and Skeels (2006) methodology. The Tribunal identified shortcomings in the methodology used in both studies and observed that the results of both studies should be treated with caution.

The Tribunal therefore sought a new "state-of-the-art" dividend drop-off study.[34] To this end, the Tribunal directed that the AER seek a re-estimation by SFG of theta using the dividend drop-off method, but without the constraint that the study replicates the Beggs and Skeels (2006) study. The Tribunal encouraged the AER to seek expert statistical or econometric advice to review the approach prior to the estimation proceeding and to consider any possible enhancements to the dataset. It was said that the new study should employ the approach that is agreed upon by SFG and the AER as best in the circumstances.

The terms of reference for the new study were settled between the AER and the businesses involved in the Energex review (Energex, Ergon and ETSA Utilities), with oversight from the Tribunal. The AER and the businesses also had the opportunity to comment on a draft of the report, and SFG's responses to those comments are incorporated in the final report.

In submissions to the Tribunal, the AER raised eight "compliance" issues with the final SFG (2011) study – these were perceived issues of non-compliance by SFG with the agreed terms of reference. The Tribunal was not concerned by any of these issues and considered that they raised no important or significant questions of principle. The Tribunal concluded that any departures from the agreed terms of reference were justified, or even necessary and observed that calling them "major compliance issues" was unnecessarily pejorative.[35]

The Tribunal was ultimately satisfied that the procedures used by SFG (2011) to select and filter the data were appropriate and did not give rise to any significant bias in the results obtained from the analysis. It was also not suggested by the AER that the data selection and filtering techniques had given rise to any bias.[36]

In relation to the model specification and estimation procedure, the Tribunal concluded:[37]

In respect of the model specification and estimation procedure, the Tribunal is persuaded by SFG's reasoning in reaching its conclusions. Indeed, the careful scrutiny to which SFG's report has been subjected, and SFG's comprehensive response, gives the Tribunal confidence in those conclusions. In that context, the Tribunal notes that in commissioning such a study, it hoped that the results would provide the best possible estimates of theta and gamma from a dividend drop-off study. The terms of reference were developed with the intention of redressing the shortcomings and limitations of earlier studies as far as possible.

Ultimately, the Tribunal was satisfied that the SFG (2011) study was the best study available at that time for the purposes of estimating gamma in accordance with the NER.[38] The Tribunal did not accept the submission of the AER that either minor issues in the construction of the database or econometric issues would justify giving the SFG study less weight and earlier studies some weight.

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34 *Application by Energex Limited (No 2)* [2010] ACompT 7, [146]-[147].

35 *Application by Energex Limited (Gamma) (No 5)* [2011] ACompT 9, [18].

36 *Application by Energex Limited (Gamma) (No 5)* [2011] ACompT 9, [19].

37 *Application by Energex Limited (Gamma) (No 5)* [2011] ACompT 9, [22].

38 *Application by Energex Limited (Gamma) (No 5)* [2011] ACompT 9, [29].

The other two issues referred to by the AER – the allocation problem, and the possibility that the results of these studies might not be reflective of the value of credits to investors in the market as a whole – have previously been considered and addressed by Professor Gray. These issues are again addressed in Professor Gray's most recent report.[39] As noted in AGN's AA revision proposal:

- in relation to whether estimates reflect the value of credits to investors in the market as a whole, and whether there may be some impact on the theta estimate from 'abnormal trading' around ex-dividend day, Professor Gray notes that to the extent this effect is material it would result in the dividend drop-off (and therefore the theta estimate) being higher than it otherwise would be.40 This is because any increase in trading around ex-dividend day would be driven by a subset of investors who trade shares to capture the dividend and imputation credit and who are therefore likely to value imputation credits highly (i.e. higher than the average investor). These investors tend to buy shares shortly before payout of dividends (which pushes up the share price) and tend to sell shortly after (which pushes down the share price), the overall effect of which is to increase the size of the price drop-off; and

- in relation to the allocation issue, Professor Gray notes that empirical evidence provides a very clear and consistent view of the combined value of cash and imputation credits.41 This evidence indicates that the combined value is one dollar. The relevant evidence includes the recent studies by SFG (2011 and 2013) and Vo et al (2013). Allocation can be made based on this clear evidence as to combined value of the cash/credit package.

In summary, the general set of 'limitations' referred to by the AER do not provide a justification for placing limited weight on the particular market value study relied on by AGN. Several of the general limitations do not apply to the SFG study that is relied on by AGN, and the other concerns have been comprehensively addressed by Professor Gray.

The AER's approach to considering market value studies – which involves simply identifying limitations which **may** apply to these studies in general, without considering whether those limitations apply to the particular study relied on by AGN – is unreasonable. Without considering whether the potential limitations it has identified actually apply to the SFG study, the AER cannot reasonably form a view that this study is unreliable or should be given limited weight.

Accordingly, the AER has erred in placing only limited weight on all market value studies in estimating theta. AGN considers that approach to be incorrect. Market value studies that are methodologically robust – in particular the SFG study – can and should be used as direct evidence of the value of imputation credits.

Market value studies are the only form of evidence which can provide the basis for a point estimate of theta, rather than just an upper bound.

Estimates relied on by the AER

Range of estimates for the equity ownership rate

The AER concludes that a reasonable estimate of the equity ownership rate is between:[42]

- 0.56 and 0.68, if all equity is considered; and

- 0.38 and 0.55, if only listed equity is considered.

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39 SFG, *Estimating gamma for regulatory purposes*, February 2015, [185], (Attachment 11.4 to AGN's Initial AA Proposal).

40 SFG, *An appropriate regulatory estimate of gamma*, May 2014, [150]-[153] (Attachment 11.3 to AGN's Initial AA Proposal).

41 SFG, *An appropriate regulatory estimate of gamma*, May 2014, [158]-[163] (Attachment 11.3 to AGN's Initial AA Proposal).

42 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg.4-26.

The AER then combines these ranges with its estimates of the distribution rate to derive corresponding ranges for gamma. The AER's gamma estimate is taken from the point of overlap between these two ranges.

AGN has three concerns with the AER's approach to the construction of ranges for the equity ownership rate:

- first, the AER has erroneously treated equity ownership rates as direct evidence of theta. For reasons discussed above, equity ownership rates provide at best an upper bound for theta;
- secondly, the AER has used estimates of the "listed equity" and "all equity" equity ownership rate, without proper consideration of which measure is likely to be most appropriate for the BEE; and
- thirdly, the AER has inappropriately taken a range for the equity ownership rate over a long period, rather than assessing the current equity ownership rate.

The first issue is addressed in above. The second and third issues are addressed below.

(A) Listed equity and all equity measures

Given that measures of the equity ownership rate are available both for all equity and listed equity only, it is necessary to consider which of these measures is likely to be most appropriate in estimating the value of imputation credits to investors in the BEE.

To the extent that equity ownership rates are relevant (i.e. as an absolute upper bound on theta), the relevant measure is the listed equity measure. This is because the equity ownership rate for the BEE is best proxied by the listed equity ownership rate.

Businesses with the characteristics of the BEE are likely to be at least as attractive to foreign investors as listed companies. This is evident from:

- the large proportion of privately owned network businesses that are partly or wholly foreign owned (refer to Table 1.6 below); and
- the interest shown by foreign investors in recent sales of network businesses.[43]

[43] For example, short-listed bidders for TransGrid assets included consortia that included China State Grid and interests from Canada, Abu Dhabi and Kuwait.

TABLE 1.6: FOREIGN OWNERSHIP OF PRIVATELY OWNED NETWORK BUSINESSES IN VICTORIA AND SA

Business	Foreign owners (incl. via holding companies)	Foreign ownership share	Domestic owners	Domestic ownership share
JEN	Singapore Power International, State Grid Corporation	100%	N/A	0%
United Energy	Singapore Power International, State Grid Corporation	34%	DUET Group	66%
Citipower	Cheung Kong Group	51%	Spark Infrastructure	49%
Powercor	Cheung Kong Group	51%	Spark Infrastructure	49%
AusNet	Singapore Power International, State Grid Corporation	51%	N/A	49%[44]
SA Power Networks	Cheung Kong Group/Power Assets	51%	Spark Infrastructure	49%
ElectraNet	State Grid Corporation	80%	Hastings Utilities Trust	20%
Australian Gas Networks	Cheung Kong Group	100%	N/A	0%

The equity ownership rate for all equity is unlikely to be a good proxy for the equity ownership rate for a BEE, since the "all equity" group will include a very large number of small, privately-owned and family companies, and will therefore include many businesses that are comparatively unattractive or inaccessible to foreign investors (e.g. the local corner store).

(B) Time period for measuring the equity ownership rate

The AER derived its ranges for the equity ownership rate by considering the range for this metric over a period commencing in July 2000. The period since July 2000 was chosen on the basis that a change in the tax law occurred in July 2000, entitling domestic investors to a refund for excess credits.

There is no apparent basis for taking figures up to 15 years old. Rather, to the extent that domestic equity ownership is relevant, what is required is an estimate that is commensurate with the prevailing conditions in the market, and current rates of equity ownership. It is the current rate of domestic equity ownership that will affect the ability of current investors to redeem (and therefore place some value on) imputation credits. The domestic equity ownership rate at some previous point in time is not relevant to this. The AER's approach in this regard is entirely inconsistent with the estimate of many other parameters, such as the risk free rate. There is no reason to think that the figures for the prevailing rate of equity ownership are unreliable.

The domestic ownership rate (as analysed by the AER) is currently 0.45 for listed equity and 0.6 for all equity. To suggest that the current equity ownership rate could be as high as 0.55 for listed equity, or as high as 0.68 for all equity, is simply incorrect.

Even if it were appropriate to consider the equity ownership rate over some extended period, the AER's choice of period is arbitrary. As noted above, the AER justifies its choice of period on the basis that a change in the tax law occurred in July 2000, entitling domestic investors to a refund for excess credits. However the choice of this event as the starting point for the data series is arbitrary, given that there are more recent events (such as the GFC) which are likely to have caused a change in the rate of foreign ownership.

The chart presented in the Draft Decision (reproduced below) shows that the AER's choice of period is significant to its conclusion on the domestic equity ownership rate. If, for example, the AER had confined its consideration to a period after the onset of the GFC, it would have drawn very different conclusions as to

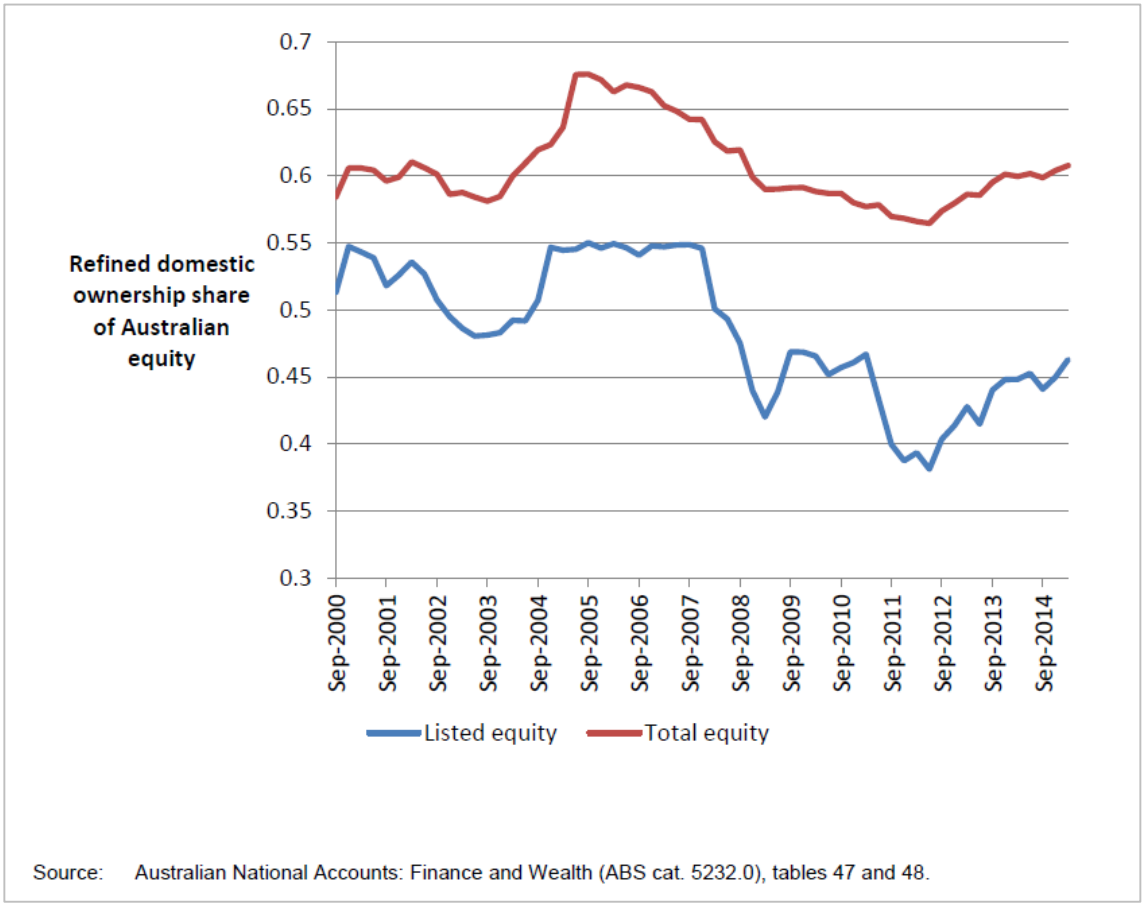
[44] This is likely to overstate the level of domestic ownership in AusNet. Of the 49% that is not held by Singapore Power International and State Grid Corporation, it is not clear how much is held by foreign investors. For the purposes of this analysis, it is assumed that none of the remaining 49% is held by foreign investors.

the domestic equity ownership rate. Since September 2008, the domestic equity ownership share has been in a much narrower range of 0.56 to 0.61, and for listed equity it has been in the range of approximately 0.38 to 0.47. This simple change to the period of analysis would have to significantly alter the AER's conclusion on gamma, since:

- the AER could not have identified an overlap between its estimates of gamma based on equity ownership for listed and all equity. Taking the more recent (post-GFC) period to measure the equity ownership rate leads to a range for gamma of 0.29 to 0.36 based on all equity measures, and a range of 0.40 to 0.43 based on all equity. Since there is no overlap between these ranges, it is not clear how the AER would have derived a primary range for gamma had it used a shorter period of analysis for the equity ownership rate; and

- if this more recent period were to be adopted, the AER's gamma estimate of 0.4 could not be reconciled with the evidence on the equity ownership rate for listed equity. Indeed, the AER's estimate of gamma would not be consistent with any of the evidence for listed equity.

FIGURE 1.1: REFINED DOMESTIC OWNERSHIP SHARE OF AUSTRALIAN EQUITY



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

(C) The relevant measure of the equity ownership rate

For reasons set out above, to the extent that equity ownership rates are relevant in providing an absolute upper bound for theta, the correct figure to use is the current listed equity figure. The AER's analysis shows that the current listed equity ownership rate is 0.46.[45]

[45] AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021*", November 2015, pg.4-26.

When combined with a distribution rate of 0.7, this evidence indicates that the absolute upper bound for gamma is 0.32. Gamma can be no higher than 0.32, but may be lower than this.

Estimate from tax statistics

The AER concludes that the redemption rate from tax statistics is 0.45, based on analysis by Hathaway and a recent update from NERA.

This estimate is robust and provides a firm upper bound for theta. As noted by NERA, this figure is drawn from the tax statistics that are considered to be more reliable.[46]

Thus, tax statistics indicate that theta cannot be higher than 0.45, and therefore gamma cannot be higher than 0.32.

Range of estimates from market value studies

The AER considers that market value studies support a range for the utilisation rate of between zero and one.[47]

Although the AER says that it has had "*particular regard*" to the SFG (2013) study, it is not clear from the Draft Decision what weight (if any) this study is given by the AER.[48] The AER's final estimate of gamma is clearly inconsistent with the findings of this study.

Besides stating that it has had "*particular regard*" to the SFG study, the Draft Decision does not reveal any meaningful consideration of the relative merits of the available market value studies. AGN has proposed to rely on a specific market value study, being the study designed to overcome the limitations of prior studies. However instead of assessing the merits of this particular study, the AER has grouped this study with a range of other studies and sought to assess the merits of this broad group of studies at a very general level only. The AER has not performed any analysis of the relative merits or deficiencies of the SFG study, nor has there been any expert review of this particular study to identify its relative merits or limitations. The only particular consideration given to the SFG study is in the AER's high level assessment of whether its set of general limitations associated with market value studies (discussed above) apply to the that study.[49]

The AER appears to consider that all market value studies should be given equal (or similar) weight, regardless of the:

- time period for estimation (including whether the study relates to the period before or after changes to the tax law in 2000);
- robustness of the methodology; and
- quality of data and filtering techniques.

This is an erroneous and unreasonable approach to consideration of market value studies. As the AER is aware, many of the earlier market value studies have methodological shortcomings and rely on very old data. As explained above, the SFG study relied on by AGN was specifically designed to overcome the shortcomings of previous studies. In particular, the methodology used in the SFG study:

- was designed, at the request of the Tribunal, to overcome shortcomings in previous studies (particularly the Beggs and Skeels (2006) study);

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46 NERA, *Estimating Distribution and Redemption Rates from Taxation Statistics*, March 2015, p25 (Attachment 11.7 to AGN's Initial AA Proposal).

47 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg.4-19.

48 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg.4-33.

49 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg.4-108 to 112.

- was the product of a consultative process involving the AER;
- relies on more recent data than previous studies; and
- has been endorsed by the Tribunal.

In effect, the SFG study was designed to supersede previous studies, both in terms of its methodology and the currency of the underlying data.

As noted above, the SFG study was found by the Tribunal (at the time of its May 2011 decision in Energex) to be "*the best dividend drop-off study currently available*".[50] The Tribunal also did not accept the submission of the AER that either minor issues in the construction of the database or econometric issues justified giving the SFG study less weight and earlier studies (particularly the previous Beggs and Skeels (2006) study) some weight. The Tribunal observed that "*the Beggs and Skeels study, despite not being subjected to anything like the same level scrutiny [sic], is known to suffer by comparison with the SFG study on those and other grounds*".[51]

Unlike the Tribunal in Energex, the AER in its Draft Decision gives no consideration to the relative strengths and weaknesses of the available market value studies. Rather, the AER has simply grouped all market value studies together and referred to a range of estimates emerging from this broad group.

The approach taken in the Draft Decision is even more simplistic than the approach in the Rate of Return Guideline. In the Guideline, the AER at least excluded studies from the pre-2000 period when different tax laws were in operation. However in the Draft Decision the AER has brought back the pre-2000 studies, the effect of which is to widen the AER's range of theta estimates from 0 to 0.5, to 0 to 1.0. Again, this simple change has significant implications for the AER's conclusion on gamma – if the range were restricted to 0 to 0.5 based on the post-2000 studies, this would indicate a range for gamma of 0 to 0.35 (based on a distribution rate of 0.7) or 0 to 0.39 (based on a distribution rate of 0.77), in any case below the AER's final point estimate.

AGN maintains its view that the best estimate of theta from market value studies is 0.35. This reflects the output of the best dividend drop-off study currently available.

Lally / Handley adjustment to estimates from dividend drop-off studies

The AER states that, as a minimum, the output of the SFG study requires an adjustment for the apparent incorrect valuation of cash dividends that would also be expected to be reflected in the estimated value of distributed imputation credits.[52] The adjustment is to address the AER's concern that dividend drop off studies, including SFG's study, that estimate a value for cash dividends at a materially different amount to their face value are not correctly estimating a post-tax value before personal taxes and personal transaction costs.[53] The proposed adjustment is based on advice from Handley and Lally, and involves dividing the value of imputation credits by the value of dividends from the same study.[54] Applying this adjustment to the SFG study would lead to an adjustment of the output from 0.35 to 0.40.

The proposed adjustment is an extension of the AER's conceptual framework for estimating gamma. The AER expresses concern that market value studies are not producing estimates on a pre-personal-tax and pre-personal-costs basis, and it therefore makes an adjustment to remove the effect of these factors.

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50 *Application by Energex Limited (Gamma) (No 5)* [2011] ACompT 9, [29].

51 *Application by Energex Limited (Gamma) (No 5)* [2011] ACompT 9, [29].

52 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg.4-32.

53 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg.4-31 to 32.

54 AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg.4-31.

For reasons set out in section 1.3.2.2 above, AGN does not agree with the AER's conceptual framework. Specifically, AGN does not agree that gamma should be estimated on a pre-personal-tax and pre-personal-costs basis. For the same reasons, AGN does not agree that the output of market value studies should be adjusted to remove the effect of personal taxes and personal transaction costs.

AGN notes however that if the AER's view on the conceptual framework were to be accepted, the Handley/Lally adjustment would provide a simple way of adjusting market value studies so that they could be used within this framework.[55] As noted above, if the Handley/Lally adjustment is applied to the SFG study, this leads to a theta estimate of 0.4. This implies that even if the AER's conceptual framework were to be adopted, a reasonable estimate of theta is likely to be around 0.4, implying a gamma of approximately 0.3.

1.3.2.5 Pairing of estimates for "all equity" and "listed equity"

In the Draft Decision, the AER pairs estimates of theta based on listed equity data with its distribution rate for listed equity, and similarly pairs estimates of theta based on all equity data with its distribution rate for all equity. The AER considers that it would be inappropriate to pair an estimate of theta from only listed equity with an estimate of the distribution rate from all equity (and vice versa).[56]

The AER does not explain why it is necessary or desirable to use the same set of companies to estimate the distribution rate and theta. Rather, the AER appears to consider that consistency of datasets is desirable in and of itself.

AGN does not agree that estimates of theta based on listed equity data can only be "paired with" a listed equity distribution rate. The distribution rate and theta are separate parameters and need not be estimated using the same dataset. Whereas the distribution rate is a measure of the credit distribution practices of the BEE, theta is a measure of the value of credits to investors (or potential investors). In each case it must be considered which dataset or empirical measure will provide the best estimate for the BEE, and there is no reason why this ought to be the same across all parameters.

For reasons discussed above, the appropriate dataset for estimating the distribution rate may well be different to that used for estimating theta. This is because the characteristics of investors (or potential investors) in the BEE are likely to be more aligned with investors in listed entities, but the credit distribution rate of the BEE is unlikely to be aligned with that of a large listed entity. The BEE is likely to be at least as attractive to foreign investors as a listed entity, but unlike many large listed entities, it will not have material foreign earnings (which tend to increase the distribution rate for large listed entities).

It is for this reason that AGN proposes to adopt the best estimate of each parameter based on the most representative dataset in each case, without the constraint that the datasets for each parameter must be the same.

1.3.2.6 Approach to deriving an estimate of gamma

The AER's approach to assessment of the empirical evidence in the Draft Decision involves two steps:

- first, the AER determines a range for gamma, based on the "overlap of the evidence from the equity ownership approach" (i.e. the overlap between the ranges for listed and all equity respectively); and
- secondly, the AER selects a point in that range based on the evidence from tax statistics and market value studies.

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[55] AGN notes the AER appears to consider that this adjustment may not be sufficient to remove the effect of all factors affecting investors' valuation of imputation credits, since there may be some factors which affect investors' valuation of imputation credits only, and not dividends (Draft Decision, p4-108). AGN does not agree with this reasoning. The AER has not identified what these additional factors are, or to what extent they ought to be ignored in estimating the value of imputation credits to investors. Therefore the AER cannot reasonably conclude that some further adjustment would be warranted, beyond that recommended by Lally and Handley.

[56] AER 2015, "*Attachment 4 – Value of Imputation Credits | Draft Decision: Australian Gas Networks 2016 to 2021"*, November 2015, pg.4-18.

The first step is arbitrary, since it involves looking for an overlap between the ranges produced by two different measures and then taking that point of overlap as a binding constraint on the gamma estimate. Since the listed and all equity measures of the equity ownership rate are based on different datasets, there is no reason to expect that the ranges produced by these two measures would necessarily overlap. Indeed, as noted above, it is only because the AER takes such a long historical period to estimate its ranges for the equity ownership rate that the two ranges do overlap.

More importantly, there is no reason to expect that the value for gamma would lie at the point of overlap between these two ranges. The point of overlap indicates nothing about the value of gamma. Rather, it is driven by the AER's choice of time period for estimating ranges for the equity ownership rate. The point of overlap can be made larger or smaller (or made to disappear altogether) simply by varying the time period for analysis of the equity ownership rate.

The second step is similarly arbitrary, in that it uses different types of evidence to indicate where in a pre-determined range the final estimate of gamma should lie. What the AER fails to recognise is that the equity ownership rate, the redemption rate and the market value are each measuring different things. The fact that the gamma estimates based on redemption rates and market value studies are both lower than the range of estimates from the equity ownership approach is to be expected, once it is borne in mind what these measures represent. Properly interpreted, the evidence from tax statistics and market value studies indicates that the value for gamma is (as it must by definition be) below the range from the equity ownership approach, not that it is at the lower end of that range.

As a result of this approach, the AER's estimate of gamma can only be reconciled with its range of estimates for the equity ownership rate. The AER's estimate is significantly above the values indicated by tax statistics and market value studies.

1.3.2.7 The correct interpretation of the empirical evidence

When correctly interpreted, the evidence presented in the Draft Decision demonstrates that:

- the distribution rate for the BEE is approximately 0.7;
- the upper bound for theta, as indicated by equity ownership rates and tax statistics, is approximately 0.45, which implies an upper bound for gamma of 0.32;
- the best estimate of the value of distributed imputation credits, on the AER's conceptual framework (i.e. ignoring personal costs), is 0.4, which implies a gamma of 0.28; and
- the best estimate of the value of distributed imputation credits, based on a proper application of the NGR, is 0.35, which implies a gamma of 0.25.

The AER's gamma estimate of 0.4 is not consistent with the evidence presented in the Draft Decision. This value is well above even the upper bound values indicated by the equity ownership approach and tax statistics.

1.3.2.8 Interrelationships with the Rate of Return

There is a well-recognised interrelationship between the return on equity and the value of imputation credits. Since the market risk premium (a component of the return on equity) needs to be grossed up for the value of imputation credits, a higher theta estimate implies a higher required return on equity. This interrelationship is explicitly recognised in NGR 87(4)(b). The interrelationships between gamma and the rate of return are discussed in Attachment 10.26 to this Revised AA Proposal.

1.3.2.9 Summary

As explained above, when correctly interpreted, the evidence in relation to gamma demonstrates that:

- the distribution rate for the BEE is approximately 0.7;

- the upper bound for theta, as indicated by equity ownership rates and tax statistics, is approximately 0.45. This implies an upper bound for gamma of 0.32;
- the best estimate of the value of distributed imputation credits, on the AER's conceptual framework (i.e. ignoring personal costs), is 0.4. This implies a gamma of 0.28;
- the best estimate of the value of distributed imputation credits, based on a proper application of the NGR, is 0.35. This implies a gamma of 0.25.

For these reasons, AGN maintains its proposal for a gamma of 0.25, as a product of the distribution rate of 0.7 and a theta estimate of 0.35.

AGN's proposal represents a departure from the methods for estimating gamma set out in the Rate of Return Guideline. AGN's reasons for departure are set out in this section 1.3.2.

1.3.3 Calculating the Cost of Tax

The benchmark cost of tax calculation, applying the approach and parameters explained in this attachment, is shown in Table 1.7.

TABLE 1.7: REVISED BENCHMARK COST OF TAX CALCULATION 2016/17 TO 2020/21

$m Nominal	2016/17	2017/18	2018/19	2019/20	2020/21
Total revenue	225.4	230.8	244.9	260.0	264.9
Plus capital contributions	0.7	0.7	0.7	1.0	0.8
Less opex	72.9	75.8	78.9	80.6	82.4
Less depreciation	40.9	49.6	60.1	65.9	76.1
Less interest	66.6	69.7	71.2	70.1	70.4
Less Tax Expense Revenue Adjustments	5.7	-2.6	-3.4	0.4	0.0
Taxable income	39.9	38.9	38.8	43.9	36.8
Tax Payable	12.0	11.7	11.7	13.2	11.1
Value of imputation credits	3.0	2.9	2.9	3.3	2.8
Benchmark cost of tax	9.0	8.8	8.8	9.9	8.3