Corporate Income Tax

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Approval and Amendment Record

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1. Purpose of this document

This document discusses three components of the cost of corporate income tax:

- Chapter 2 examines the value of imputation credits associated with the payment of corporate income tax on the part of investors. This component of the discussion is the most complex, and we do not agree with the AER's approach to gamma, but rather follow the direction of the Tribunal in this respect. Note that the discussion on gamma should be read with the chapter of our Rate of Return Overview Document on inter-relationships between parameters, as one of the more important inter-relationships for consideration by the regulator is that between gamma and the return on equity; specifically the MRP within the return on equity;
- Chapter 3 shows the method for calculating corporate income tax; and
- Chapter 4 shows the calculations themselves.

Key messages:

- We have adopted the position of the Tribunal in PIAC-Ausgrid and used a gamma of 0.25, as the AER has provided no subsequent evidence which would suggest it is no longer relevant.
- We remain of the view that the Tribunal was correct in its *Ausgrid* decision to conclude that gamma is properly interpreted as a market value, and not as a utilisation rate as in the AER's framework.
- We believe that the Tribunal erred in its *SAPN* decision by not reaching a conclusion on the meaning of value, and determining that this is an issue to be determined by the AER in the first instance and by the courts on review, with the Tribunal playing no role in determining the meaning of the law.
- It is this error, we consider, which led it to not reject the AER's approach to gamma. We note that the AER has not put on any substantive evidence since the *Ausgrid* decision which should change that decision and thus, consequent upon the *Ausgrid* findings on what "value" in the context of gamma means, the figure of 0.25 for gamma remains the correct one. In adopting this approach, we acknowledge that the matter is still in the process of being heard by the full Federal Court.

2. Value of imputation credits (gamma)

Prior to the Guidelines, gamma was set based on market value studies as directed by the Tribunal in 2011 and given a value of 0.25.[1] In the Guidelines, the AER sought to change both the basis for and value of gamma. It changed the basis from a market value to a utilisation rate, which meant that market value studies were given limited weight and equity ownership rates and taxation studies (previously only used as upper bounds) gained higher prominence. This has the effect of changing the value for gamma to 0.4 (0.5 in the Guidelines and subsequently amended by the AER).

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 NSW/ACT decisions made in October 2015. In its most recent decisions[2] 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.

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.[3]

For the reasons set out in this section and the accompanying expert reports, we remain of the view that the correct estimate of the value of imputation credits is 0.25 (the product of a distribution rate of 0.7 and theta of 0.35) and that estimate is adopted in this proposal.[4] 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 National Gas Rules and the most up to date and best estimate of the value of imputation credits.

The AER's approach to estimating gamma results in an overestimate of the "value of imputation credits" to equity investors and is inconsistent with the ordinary meaning of the National Gas Rules. 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. As a result, we will not be able to recover at least its efficient costs (including a return to equity holders).

2.1. Background and proposal

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 return on equity.[5] 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 is RAB and a required return on equity of 7%. In this case, the equity investors require a return of $70.6 The regulator will allow the firm to earn a pre-tax profit of $100, from which it will pay $30 corporate tax,7 leaving $70 to return to shareholders, as required.*

[1] [2011] ACompT 9, *Application by EnergexLimited*.

[2] For example, in the AER, *Draft Decision Powerlink Transmission Determination 2017-18 to 2021-22: Attachment 4 – Value of Imputation Credits,* September 2016

[3] Including the AER's judicial review application in respect of the Australian Competition Tribunal's decision in [2016] ACompT 1 (Ausgrid), [2016] ACompT11 (SAPN decision) and the merits review applications by the Victorian Electricity distributors and ActewAGL Gas, currently reserved by the Tribunal.

[4] Based on the update of the SFG dividend drop off study to 2016 in Supporting Document 17.1, and on Supporting Document 17.3

[5] NGR 87A .

[6] 7% × $1,000 = $70.

[7] Assuming a 30% corporate tax rate.

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 × 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).[8]

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.

This section sets out our approach to estimating the value of imputation credits for the BEE and explains why this approach differs from the AER's Guidelines, and recent decisions by the AER.

We rely on the following expert evidence to support its proposed value for gamma of 0.25 which are submitted with this Proposal:[9]

- Frontier Economics, *An Updated Dividend Drop-off Estimate of Theta*, September 2016 – Supporting Document 17.1 of this submission.
- Frontier Economics, Issues in the estimation of gamma, September 2016 – Supporting Document 17.2 of this submission.
- Frontier Economics, *Perspectives for the Estimation of Gamma*, December 2016 – Supporting Document 17.3 of this submission

We also rely upon the following earlier reports:

- SFG Consulting, *Dividend Drop-off Estimate of Theta Re Application by Energex Limited (No 2) [2010] ACompT7,* March 2011
- SFG Consulting, *Updated Dividend Drop-off Estimate of Theta, Report for the Energy Networks Association*, June 2013
- SFG Consulting, *An Appropriate Regulatory Estimate of Gamma*, May 2014.

2.1.1. Legislative 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:

[8] Supporting Document 17.1, paragraph 12 to 15.

[9] We note all of the reports prior to December 2016 were also provided by Ausnet in response to its July 2016 Draft Decision.

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 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.[10] 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.[11]

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

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.

2.1.2. Proposal and departure from Guidelines

We propose to apply a value of imputation credits of 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 Supporting Document 17.1.

This approach reflects the correct approach to estimating the value of imputation credits which is consistent with the Rules and gives rise to the best estimate of gamma presently available. This proposal is a departure from the AER's Rate of Return Guidelines. The reasons for the departure are set out in detail in this section, and are summarised as follows:

- The Guideline approach misinterprets NGR 87A and in particular the "value" of imputation credits required to be determined by that Rule;
- Consequently the Guideline estimates the wrong thing, being the utilisation rate;
- Even the AER's estimate of the utilisation rate exceeds the maximum upper bound of theta reflected in tax statistics;
- The Guideline approach incorrectly and unreasonably places no, or low, reliance on market value studies, which provide a direct estimate of the value of distributed credits consistent with the Rules; and
- Consequently the Guideline 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 also changed from its Guideline approach to the distribution rate. This proposal 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.

2.2. The AER's approach to Gamma

In September 2016, the AER published its Draft Decision 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 Guidelines of 0.5).

[10] Section 28(1)(a) of the National Gas Law.
[11] Section 28(1)(b)(iii) of the National Gas Law.

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 Tribunals' decision in *PIAC-Ausgrid* and in *SAPN*; both currently the subject of judicial review. The updated evidence relied upon by the AER in its recent decisions is set out in tables 4-3 and 4-4 reproduced below:

Table 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[12]
Tax statistics	0.48	0.7	0.34
Tax statistics (Lally recommended distribution rate)	0.48	0.83	0.40

Source: AER, Draft decision AusNet Services transmission determination 2017-18 to 2021-22: Attachment 4 – Value of imputation credits, July 2016, Table 4.3 p4-29.

Table 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
SFG dividend drop off study	*0.35 (0.4)*(a)		*0.26 (0.30)*(b)

Source: AER, Draft decision AusNet Services transmission determination 2017-18 to 2021-22: Attachment 4 – Value of imputation credits, July 2016, Table 4.4 p4-29

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

1. The AER continues to apply 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 leads the AER to derive the estimate of gamma as the product of the distribution rate and the utilisation value to investors in the market.
2. In respect of the distribution rate, the AER now considers three subsets of information:
    a. a market wide (all equity) distribution rate based on the cumulative payout ratio of 0.7 – this is not contentious;
    b. a listed equity only distribution rate of 0.75; and
    c. a rate of 0.83 recommended by Dr Lally on the basis of the top 20 ASX firms.
3. In respect of theta (the AER's "utilisation rate"), the AER:
    a. continues to place most reliance on the equity ownership approach;
    b. places some reliance on taxation statistics;
    c. does not accept that these approaches provide nothing more than an upper bound estimate of theta; and
    d. places very little, if any, weight on market value studies which directly estimate theta.
4. The AER pairs estimates of the distribution rate and its utilisation rate using subsets of all equity and listed equity estimates.

[12] 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: Lally, M, *Gamma and the ACT Decision*, May 2016, p. 6.

5. 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.
6. The AER derives a range for gamma of 0.3 to 0.5.
7. The AER chooses a point estimate of 0.4 from its range of 0.3 to 0.5. This point estimate is said to be 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.[13]

We and the AER remain divided on these issues and each is addressed below.

2.2.1. Conceptual Approach

The AER continues to base 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).[14]

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 Tribunal in the *Ausgrid* Decision. The key findings of the Tribunal 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.**[15]
- 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 networks' 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.[16]
- The 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 ignores 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.

[13] See, for example, AER, *Draft Decision AusNet Services Transmission Determination 2017-18 to 2021-22: Attachment 4 – Value of Imputation Credits,* July 2016, pp 4-29, 4-30.

[14] See, for example, AER, AER, *Draft Decision AusNet Services Transmission Determination 2017-18 to 2021-22: Attachment 4 – Value of Imputation Credits,* July 2016, pp 4-22.

[15] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1061

[16] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1065 to 1067

- Importantly: "…*the Tribunal does not accept the AER's approach that imputation credits are valued at their claimable amount or face value… 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*."[17]
- The Tribunal found that the AER had not satisfied it that its conception and estimated methods were consistent with the requirements of the NER, including the RPP.[18]

We submit that, consistent with the Tribunal'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 credits at less than their full face value. This must 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 × 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.*[19]

We consider the decision of the Tribunal in *Ausgrid* in respect of gamma to be correct and that the only approach to estimating gamma which complies with the Rules is one which estimates 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.

It is acknowledged that the decision in *Ausgrid* is under review by the Full Federal Court. It is also acknowledged that the Tribunal in the *SAPN decision* also considered the AER's conceptual approach to gamma and came to a different conclusion to the Tribunal in *Ausgrid*, finding no error in the AER's approach. However, the *SAPN* Decision did not resolve the proper construction of NGR 87A, in particular what needs to be estimated under that Rule. Rather the Tribunal deferred to the AER's judgment.

The Tribunal's decision in the *SAPN* Decision is now also subject to a judicial review application.[20] For the reasons set out later in this section we consider the Tribunal's approach in the *SAPN* Decision to be incorrect.

2.2.2. 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 Guidelines. 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 1, 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.

[17] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1081
[18] [2016] ACompT 1, *Application by PIAC Ausgrid*, paragraph 108.
[19] Supporting Document 17.1 paragraph 16
[20] By Application for Judicial Review filed on 25 November 2016, NSD 2032/2016,

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

The AER obtained a new report from Dr Lally published with the recent Ausnet Draft Decision.[21] 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, 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. However, the AER continues to hold the view that it is open for it to do so.

The AER's reliance on a listed equity subset of the distribution rate is in error because:

- 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 AER's 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 AER's reliance on 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.[22] 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%).[23]"*

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.

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 Tribunal 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.[24] 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 the only approach that can reflect an estimate of the rate for the BEE and which can be used to estimate the value of imputation credits for the purposes of NGR 87A.

[21] Lally, M, *Gamma and the ACT Decision*: 23 May 2016.
[22] Supporting Document 17.2, section 2.2
[23] Supporting Document 17.2, paragraph 36
[24] [2016] ACompT 11, *Application by SAPN*, paragraph 184

2.2.3. Theta

As noted above, the AER's conceptual approach to gamma leads it to estimate the parameter theta (which 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.[25] 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 Tribunal in *Ausgrid*. In contrast, the Tribunal in the *SAPN* Decision did not decide this central question.

The Ausgrid Decision

The Tribunal 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.[26]

The Tribunal 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.[27]

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: [28]

- 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;
  - 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 Tribunal 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;[29]

[25] AER, *Draft Decision AusNet Services Transmission Determination 2017-18 to 2021-22: Attachment 4 – Value of Imputation Credits,* July 2016, pp 4-35
[26] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1025.
[27] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1079 and 1080
[28] As set out in SFG Consulting, *An Appropriate Regulatory Estimate of Gamma,* May 2014, section 2
[29] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1038

- 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);[30]
- 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;[31] and
- Assumes the value of imputation credits rather than deriving it from market data,[32]

make any attempt to assess the value of imputation credits to shareholders[33] or consider the likely existence of factors, such as the 45 day rule, which reduce the 'value' of imputation credits to shareholders[34] and accordingly can do nothing more than provide upper bounds on the estimate of theta.[35]

The Tribunal 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.[36]

The Tribunal accordingly rejected the AER's submission that it is the amount which is "claimable" or their "face value" or which is "available" for redemption.[37] Overall, the Tribunal 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.[38]

The AER's approach does not estimate the "value" of imputation credits

The AER's 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. As the Tribunal in *Ausgrid* confirmed, 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 is can be seen from the following summary table.

[30] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1039
[31] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1039
[32] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1043
[33] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1095
[34] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraphs 1042, 1046 and 1095
[35] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraphs 1048 and 1095
[36] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1092
[37] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1100
[38] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1061

Table 3: Evidence relied on by the AER

Factor	Equity ownership approach	Taxation 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	×	×	✓

As Frontier Economics explains[39], the AER's approach using the AER's PTRM 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.[40] 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, producing a mish-mash that has no economic meaning.[41] Frontier Economics worked example demonstrates this clearly.[42]

In the second step above, the AER's 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 basis[43].

The SAPN Decision

In the *SAPN decision*, the Tribunal characterised the issue by reference to a consideration of the differences between the average investor and the marginal investor. The Tribunal stated that different theoretical models, all of which are simplifications of reality, with different strengths and weaknesses, and with different degrees of support among

[39] Supporting Submission 17.3, section 2.1.

[40] 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.

[41] Supporting Submission 17.3, section 2.2.

[42] Supporting Submission 17.3, section 2.2

[43] Supporting Submission 17.3, section 2.3.

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.[44]

The Tribunal referred to two alternative theoretical approaches, being the "average investor" and the "marginal investor" approaches. The Tribunal 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.[45] The Tribunal 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 Tribunal found that the AER made no error in giving most weight to the "utilisation" approach. The Tribunal's view was that the AER t 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.[46]

However, the debate between the AER and networks 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. [47]

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.[48] Therefore it is not correct to say there is a choice between theoretical "average investor" and "marginal investor" perspectives. Rather, the choice is between:

- 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.[49]

The marginal investor analysis in the Tribunal's decision in SAPN is not relevant to the central issues between networks and the AER on gamma. As noted above, the Tribunal 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 Tribunal, 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 Tribunal failed to determine the correct question, being the construction of the "value of imputation credits" in the Rules, and that the Tribunal considered matters which it was not entitled to consider, such as the marginal investor and average investor analysis.[50] SAPN's application for judicial review of the Tribunal's decision is yet to be heard.

We submit that the meaning of "value" of imputation credits in the National Gas Rules is clear and, as found by the Tribunal in *Ausgrid,* requires an estimate of gamma that reflects the value, as in worth, of imputation credits to investors.

[44] [2016] ACompT 11, *Application by SAPN*, paragraph 138.

[45] [2016] ACompT 11, *Application by SAPN*, paragraph 144.

[46] [2016] ACompT 11, *Application by SAPN*, paragraph 159.

[47] Supporting Submission 17.3, section 1.1.

[48] Supporting Submission 17.3, December 2016 paragraph 4.

[49] Supporting Submission 17.3, December 2016 section 1.

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

2.2.4. Best Method for determining 'Value'

The Tribunal 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.[51] Ultimately, the Tribunal 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.[52] The Tribunal noted this as consistent with methods used for calculating other parameters of the cost of debt and equity from market data.[53]

The Tribunal concluded that the AER had erred in that it had not satisfied the Tribunal that its conception (as to value) or estimation (as to method) was consistent with the National Electricity Rules, including the revenue and pricing principles.[54]

Having rejected the conception and estimation of gamma by the AER, the Tribunal adopted the theta estimate in the 2013 SFG Study.[55] The Tribunal noted that that study represented only one view and that it was faced with selecting between competing views.[56] The Tribunal was satisfied that the SFG point estimate of 0.35 for theta was the best estimate.[57]

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

> "*The Tribunal 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*:[58]

However, the Tribunal 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 Tribunal considered only one of the AER's concerns to be substantive, given the Tribunal's view that the methodology and approach of the SFG study relied on by SAPN is generally acceptable (or "state-of-the-art")[59]. 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.[60] We submit there are a number of answers to this concern:

- The Tribunal 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 noted 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.[61]
- The Tribunal's reasons are affected by the misconception (as explained by Frontier Economics[62]) that dividend drop-off studies only measure the value of imputation credits to the notional "marginal investor".

[51] [2016] ACompT 1, *Application by PIAC and Ausgrid* paragraph 1082.
[52] [2016] ACompT 1, *Application by PIAC and Ausgrid* paragraph 1096.
[53] [2016] ACompT 1, *Application by PIAC and Ausgrid* paragraph 1097.
[54] [2016] ACompT 1, *Application by PIAC and Ausgrid* paragraph 1084.
[55] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1118.
[56] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 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)*.
[57] [2016] ACompT 1, *Application by PIAC and Ausgrid,* paragraph 1103.
[58] [2016] ACompT 11, *Application by SAPN*, paragraph 163.
[59] [2016] ACompT 11, *Application by SAPN*, paragraph 165.
[60] [2016] ACompT 11, *Application by SAPN*, paragraph 171.
[61] For example, [2016] ACompT 11, *Application by SAPN*, paragraphs 146, 174 and 178.
[62] Supporting Submission 17.3, section 1.

- 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 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 Tribunal found in *Ausgrid,* the assessment of theta must be based on market value studies.

For these reasons, we contend that the correct approach was that adopted by the Tribunal in *Ausgrid.* That decision was based on a 2013 update of the SFG dividend drop off study which had previously been endorsed by the Tribunal in *Application by Energex Limited (Gamma) (No 5)*.[63] 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.[64]

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 Tribunal in previous decisions. We submit that it is the best estimate of theta currently available and adopts an estimate of 0.35 in this proposal.

2.2.5. 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:[65]

- 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 AER accepts that there are limitations to the equity ownership approach but does not consider them significant.[66] We disagree. The AER's estimates derived from the equity ownership approach are above the maximum upper bound for theta which is derived from tax statistics (0.48), as confirmed by the Tribunal in *Ausgrid.* This of itself shows error. The AER does not accept that tax statistics do form an upper bound and this is addressed in the following section.

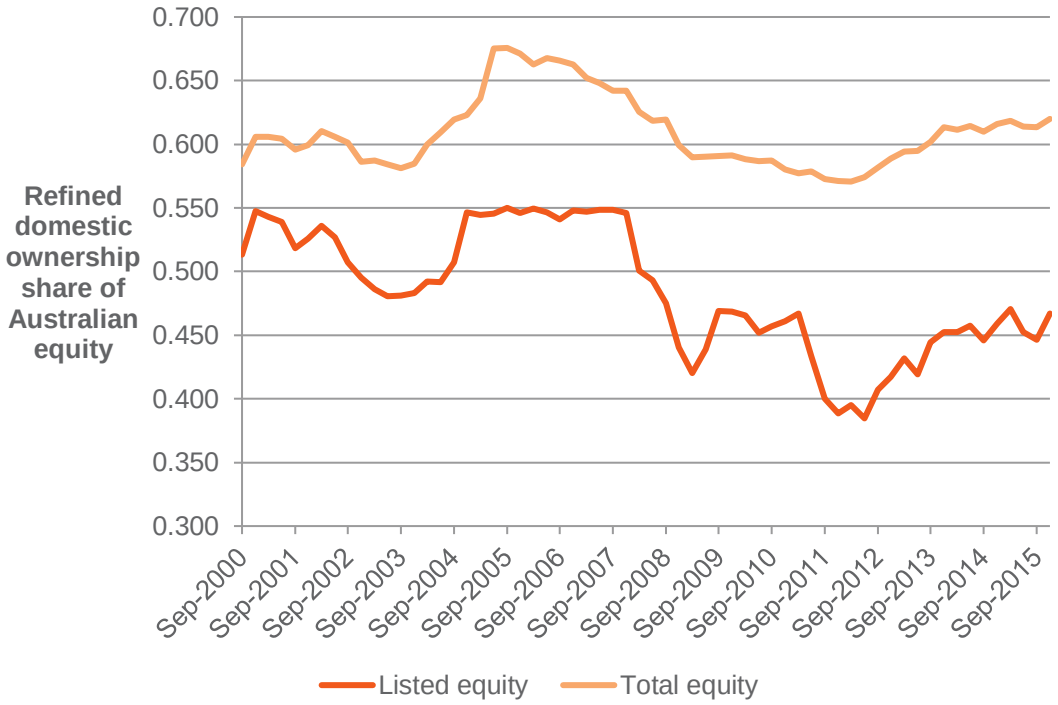
The above estimates are slightly lower than the AER's estimates in its Rate of Return Guidelines and earlier decisions. The AER's change in ranges since its November 2014 decisions is said to be in part a response to submissions from the networks, SFG and the advice from Handley. The AER:

- No longer relies on estimates of the single domestic ownership share (on the advice of Handley); and
- Now considers only the period since September 2000 rather than data going back to the 1980s.[67]

[63] [2011] A CompT 9.
[64] Supporting Submission 17.3, Section 5.
[65] AER, *Draft Decision AusNet Services Transmission Determination 2017-18 to 2021-22: Attachment 4 – Value of Imputation Credits,* July 2016, pp 4-36
[66] AER, *Draft Decision AusNet Services Transmission Determination 2017-18 to 2021-22: Attachment 4 – Value of Imputation Credits,* July 2016, pp 4-142
[67] AER, *Draft Decision AusNet Services Transmission Determination 2017-18 to 2021-22: Attachment 4 – Value of Imputation Credits,* July 2016, pp 4-148.

In the Powerlink transmission draft decision published in September 2016, the AER presented its updated domestic ownership share of total equity in Figure 1.[68]

Figure 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 is 47% domestic ownership. As can be seen from Figure 1 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.

2.2.6. 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.[69]

As confirmed by the Tribunal 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 Tribunal and are addressed above. To summarise, tax rules, transaction 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 Tribunal 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.

[68] AER, *Draft Decision Powerlink Transmission Determination 2017-18 to 2021-22: Attachment 4 – Value of Imputation Credits*, September 2016, p4-147.

[69] AER, *Draft Decision AusNet Services Transmission Determination 2017-18 to 2021-22: Attachment 4 – Value of Imputation Credits,* July 2016, pp 4-38

The AER now estimates the redemption rate from tax statistics to be 0.48, based on updated statistics to the 2014 tax year.[70] The AER disputes the Tribunal'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 This issue is also raised by the Tribunal in the *SAPN* Decision.[71]

However, as Frontier Economics explains (in the attached report which was not before the Tribunal in the *SAPN* Decision), 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.[72]

It is also noted that the AER relies on tax statistics in seeking to demonstrate that the 45 day tax rule has no effect.[73] 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.

2.2.7. Market Value Studies

We remain of the view 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 Tribunal 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*".[74]

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.[75]

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:[76]

- 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).[76]

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.[77]

[70] AER, *Draft Decision AusNet Services Transmission Determination 2017-18 to 2021-22: Attachment 4 – Value of Imputation Credits*, July 2016, pp 4-150.
[71] 2016] ACompT 11, *Application by SAPN*, paragraph 193

[72] Supporting Document 17.2, section 3
[73] See, for example, AER, *Draft decision Powerlink Transmission Determination 2017-18 to 2021-22: Attachment 4 – Value of imputation credits,* September 2016, pp 4-107 to 4-112.

[74] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1095
[75] AER, *Draft Decision AusNet Services Transmission Determination 2017-18 to 2021-22: Attachment 4 – Value of imputation credits*, July 2016, pp 4-40.
[76] AER, *Draft Decision AusNet Services Transmission Determination 2017-18 to 2021-22: Attachment 4 – Value of Imputation Credits*, July 2016, pp, 4-40.
[77] SFG, *Estimating Gamma for Regulatory Purposes*, February 2015 pp 38 to 39.

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*".[78] Professor Gray responded again to those alleged limitations in his February 2015 report (SFG).[79]

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 Tribunal in *Ausgrid* accepted that explanation.[80]

The AER continues to hold the view that dividend drop off studies are subject to a number of limitations, including Professor Gray's study, 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.[81]

The Tribunal's consideration of Professor Gray's dividend drop-off study in both *Ausgrid* and the *SAPN decision* are addressed above and we contend 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 Tribunal to 2016. Professor Gray concludes that the updated dataset supports an unchanged estimate of theta of 0.35.[82]

[78] AER, *Preliminary Decision SA Power Networks Determination 2015-16 to 2019-20: Attachment 4 – Value of Imputation Credits*, April 2015, p 4-84 and AER, *Final Decision Jemena Gas Networks (NSW) Access Arrangement 2015-2020: Attachment 4 – Value of Imputation Credits*, June 2015, p 4-86.
[79] SFG, *Estimating Gamma for Regulatory Purposes*, February 2015 Section 7
[80] [2016] ACompT 1, *Application by PIAC and Ausgrid*, paragraph 1103
[81] Supporting Document 17.3, section 4 and 5.
[82] Supporting Document 17.1, paragraph 100

3. Method for calculating corporate income tax

NGR Rule 87A(1) requires the estimated cost of corporate income tax to be calculated for each regulatory year in accordance with the 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 standard control services if such an entity, rather than the service provider, operated the business of the service provider, such estimate being determined in accordance with the AER's PTRM;

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.

For these purposes:

- The estimate of the pre-tax income must be fundamentally based on that of a benchmark efficient service provider; and
- The estimate must take into account the estimated depreciation for that regulatory year, for tax purposes, of a benchmark efficient service provider. The value of the assets of the service provider is presumed to be included in the RAB for that regulatory year.

A key element of the above NGR is that the allowance for tax must be for the provision of reference services by the 'benchmark efficient entity'.

Differences arise between these regulatory concepts and actual tax filings because the filings concern real businesses with a different range of activities. We have determined the estimate of corporate tax, ETC_t, by applying the AER's PTRM.

4. Calculation of corporate income tax allowance

We have applied the AER's Roll Forward Model to assess the progression of the tax asset base over the current regulatory period, from January 2013 to December 2017. The method used for determining the opening tax asset base in January 2018, in the current Roll Forward Model, is consistent with the method that was used by the AER to perform tax asset calculations in the AER's PTRM for 2013 to 2017. The classification of assets in the tax asset base of the Roll-Forward Model, as at January 2018, corresponds with the classification of assets in the RAB.

In the AER's PTRM for the forthcoming regulatory period, there is a similar alignment between the classification of assets in the tax asset base and in the RAB. A straight-line method of depreciation has been used in the Tax Asset Base, consistent with the method that has already been adopted for the RAB.

The AER's PTRM calculates tax depreciation on a straight line or "prime cost" method. Under this method, the original cost of the asset is depreciated over the effective life of that asset for tax purposes, which generally gives rise to the same amount of depreciation deductions in each year for that asset. In the AER's PTRM, forecast capex is treated in a comparable manner in the sense that it is depreciated on a straight line method over the effective life of the asset for tax purposes.

In order to produce tax standard lives, information was sourced from tax rulings published by the ATO, the most pertinent ruling being TR 2014/4 from July 2014. A process was adopted to combine the lives for published tax asset categories into effective groupings which corresponded with the tax asset base categories in the AER's PTRM. In effect, weighted average standard asset lives were determined for the broad, higher level categories that are represented in the 'Inputs' worksheet of the AER's PTRM. The discussion which accompanies Table 4 explains the rationale for the approach, and refers to the other data sources used.

Tax remaining lives were calculated after making use of the existing information on RAB standard lives and RAB remaining lives. The preferred approach was to set the remaining lives of assets in the tax asset base categories to be equal to the remaining lives used in the corresponding RAB categories.

Table 4: The calculation of weighted average tax standard lives nominal

ATO Tax Asset Descriptions	ATO standard lives	AER PTRM RAB categories	Weighted average tax standard lives
Pipelines - transmission, spur or lateral/Pipelines (including high, medium and low pressure)	50.0	Transmission and distribution	34.8
Piplelines (including high, medium and low pressure)	50.0	Services	33.0
Pipelines (including high, medium and low pressure)	50.0	Cathodic Protection	44.3
Regulators	40.0	Supply Regs/Valve stations	13.9
		Meters to 2017	5.0
Gas meters	15.0	Meters from 2018 (New)	-
		Land	-
Building maintenance units	35.0	Buildings	31.8
Computers: Generally	4.0	IT	1.7
Control systems (excl computers)	10.0	SCADA	-
		Other	11.1

Source: ATO (2014), Tax Ruling, TR 2014/4, Australian Taxation Office, July 2014.

The tax asset lives that were sourced from the ATO were inserted into Table 4 as shown above. The ATO tax asset categories, for which the lives were collected, appeared to offer an approximate concordance back to the RAB categories. When the capex based weights were applied to the ATO tax asset lives, presented for different types of electricity network assets, weighted average tax standard lives were produced, and these have been reported in Table 4. The tax standard lives have been employed in the AER's PTRM.

The components of the cost of corporate income tax calculation are presented in the AER's PTRM and Roll Forward Model as part of this Regulatory Proposal. Table 5 below details our forecast of the cost of corporate income tax for the forthcoming Access Arrangement period.

Table 5: Cost of Corporate Income Tax ($M, Real 2017)

	2018	2019	2020	2021	2022	Total
Cost of corporate income tax	17.4	16.0	20.8	21.1	20.8	96.1

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5. Supporting documentation

The following documents support our forecast for the forthcoming access arrangement period.

	Document name
17.0.1	Corporate Income Tax Overview Document
17.1	Frontier Economics, *An Updated Dividend Drop-off Estimate of Theta*, September 2016
17.2	Frontier Economics, *Issues in the Estimation of Gamma*, September 2016
17.3	Frontier Economics, Perspectives for the estimation of gamma, December 2016
17.4	SFG Consulting, *Dividend Drop-off Estimate of Theta Re Application by Energex Limited (No 2) [2010] ACompT7,* March 2011
17.5	SFG Consulting, *Updated Dividend Drop-off Estimate of Theta, Report for the Energy Networks Association*, June 2013
17.6	SFG Consulting, *An Appropriate Regulatory Estimate of Gamma*, May 2014
17.7	AER, *Draft decision Powerlink transmission determination 2017-18 to 2021-22: Attachment 4 – Value of imputation credits,* September 2016
17.8	AER, *Preliminary Decision SA Power Networks Determination 2015-16 to 2019-20: Attachment 4 – Value of imputation credits*, April 2015
17.9	AER, *Final Decision Jemena Gas Networks (NSW) Access Arrangement 2015-2020: Attachment 4 – Value of imputation credits*, June 2015
17.10	SFG, *Estimating Gamma for Regulatory Purposes*, February 2015
17.11	Lally, M, *Gamma and the ACT Decision*, May 2016
17.12	AER, *Draft Decision AusNet Services Transmission Determination 2017-18 to 2021-22: Attachment 4 – Value of imputation credits,* July 2016,
17.13	AER Draft Decision Powerlink Attachment 4 Value of imputation credits_September 2016