APPENDIX 7.6

Cost of debt transition

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REPORT PREPARED FOR ENERGEX

June 2015

Final

Cost of debt transition

1 Executive summary

1.1 Context

1 Frontier Economics (**Frontier**) has been retained by ENERGEX Ltd to provide our views on a range of issues relating to the transition between methods for determining the allowed return on debt in the Australian regulatory setting. We have been asked to specifically focus on the debt risk premium component of the regulatory allowance for the return on debt.

2 Under the previous National Electricity Rules (**NER**) the Australian Energy Regulator (**AER**) set the allowed return on debt using the *rate on the day* approach – the average yield on benchmark debt over the relevant rate-setting period close to the beginning of the regulatory control period. Under the current Rules, the AER proposes to set the allowed return on debt using the *trailing average* approach – the average yield on benchmark debt over the 10-year period immediately prior to the regulatory control period. The AER proposes to transition from one approach to the other over a 10-year transition period. Frontier has been engaged to consider a range of issues relating to the proposed transition arrangements that have been raised in:

a. The AER's recent final decisions. This report cites relevant passages from the JGN Final Decision (Final Decision: Jemena Gas Networks (NSW) Ltd Access Arrangement 2015-20, Attachment 3: Rate of Return) noting that the same or similar passages are contained in the AER's other recent final decisions;[1]

b. The AER's recent draft decisions. This report cites relevant passages from the JGN Draft Decision (Draft Decision: Jemena Gas Networks (NSW) Ltd Access Arrangement 2015-20, Attachment 3: Rate of Return) and the TransGrid Draft Decision (Draft Decision: TransGrid Transmission Determination 2015-16 to 2017-18, Attachment 3: Rate of Return) noting that the same or similar passages are contained in the AER's other recent draft decisions;[2]

c. The Lally (2014) report commissioned by the AER: Lally, M. (2014), *Transitional arrangements for the cost of debt*, 24 November.

d. The Lally (2015) report commissioned by the AER: Lally, M. (2015), *Review of submissions on the cost of debt*, 21 April.

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[1] For TransGrid, Ausgrid, Endeavour Energy, Essential Energy and ActewAGL.

[2] For Ausgrid, Endeavour Energy, Essential Energy and ActewAGL.

e. The Chairmont (2015) report commissioned by the AER: Chairmont (2015), *Cost of debt: Transitional analysis*, April.

f. SFG Consulting, 2015, *Return on debt transition arrangements under the NGR and NER*, 27 February.

3 The AER sets out its reasoning in detail in its November 2014 draft decisions. Its recent final decisions reaffirm the AER's position in relation to return on debt transition arrangements, but focus on issues that have been raised subsequent to the draft decisions. Consequently, in a number of places I provide references to the draft decisions, if the relevant point was raised or addressed in that context.

4 A copy of the Terms of Reference for this report is attached at Appendix 1.

1.2 Preparation of this report

5 This report has been authored by Professor Stephen Gray, Professor of Finance at the UQ Business School, University of Queensland and Director of Frontier Economics, a specialist economics and corporate finance consultancy. I have Honours degrees in Commerce and Law from the University of Queensland and a PhD in Financial Economics from Stanford University. I teach graduate level courses with a focus on cost of capital issues, I have published widely in high-level academic journals, and I have more than 15 years' experience advising regulators, government agencies and regulated businesses on cost of capital issues. I have published several papers on the estimation of gamma, including in the *Journal of Financial Economics*, one of the leading international finance journals.

6 My opinions set out in this report are based on the specialist knowledge acquired from my training and experience set out above. I have been provided with a copy of the Federal Court's Practice Note CM 7, entitled "Expert Witnesses in Proceedings in the Federal Court of Australia", which comprises the guidelines for expert witnesses in the Federal Court of Australia (Expert Witness Guidelines). I have read, understood and complied with the Expert Witness Guidelines.

7 I have previously provided a report in relation to cost of debt transition issues:

a. SFG Consulting, 2015, *Return on debt transition arrangements under the NGR and NER*, 27 February.

8 Since preparing that report, I have joined Frontier Economics and provide this report on that basis.

9 A copy of my CV is attached at Appendix 2 to this report.

1.3 Summary of conclusions

10 My main conclusions are:

a. The regulatory allowance for the return on debt has two components: a base risk-free rate and a debt risk premium (**DRP**);

b. There is debate between some service providers and the AER about the debt management strategy (or strategies) that would have been "efficient" under the previous Rules. Both strategies that have been considered involve the firm entering the forthcoming regulatory period with a DRP cost that reflects the 10-year trailing average. Thus, it appears to be uniformly accepted that, in relation to the DRP, the efficient cost over the forthcoming regulatory period will equal the 10-year trailing average;

c. It also appears to be uniformly accepted that if the regulatory allowance for the DRP is set to immediately reflect the 10-year trailing average (i.e., if there is no transition) there will be a match between:

    i. The regulatory allowance for the DRP; and

    ii. The efficient cost of the benchmark efficient entity;

d. The AER considers that it should apply a transition process to the DRP such that, over the forthcoming regulatory period, the regulatory allowance will be less than the efficient cost;

e. The AER's rationale is that its proper application of the Rules in the previous regulatory period led to what the AER considers to be a generous allowance that should now be evened up via deliberate under-compensation in the forthcoming regulatory period;

f. The approach of deliberate under-compensation in the forthcoming regulatory period would appear to be inconsistent with:

    i. The requirement that the return on capital *for each regulatory year* must be determined so that it is *commensurate with the efficient financing costs of a benchmark efficient entity*;[3] and with

    ii. The desirability of minimising any difference between the return on debt and the return on debt of a benchmark efficient entity referred to in the allowed rate of return objective;[4]

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[3] For example, NER 6.5.2(a)–(c).

[4] For example, NER 6.5.2(k)(1).

g. The approach of deliberate under-compensation in the forthcoming regulatory period would also create regulatory risk and deter investment for the following reasons:

   i. **The regulatory adjustment is retrospective.** The AER proposes to deliberately under-compensate for the return on debt over the forthcoming regulatory period in relation to its perception of over-compensation in the previous regulatory period. There is no way for any investor to know whether the AER might apply such an "evening up" adjustment in the future or what the quantum of any such adjustment might be.

   ii. **The regulatory adjustment is, in effect, a rule change.** The AER does not consider that it misapplied the Rules in its previous determination. Rather, the AER's view is that its proper application of the Rules to its previous determination has produced an outcome that it disagrees with, and it now seeks to redress that by setting the forthcoming regulatory allowance below its own assessment of the efficient cost. In effect, this amounts to the AER retrospectively changing the rules that applied to the previous regulatory period. There is no way for a new investor in a regulated service provider to know whether the AER might, at some point in the future, decide that the proper application of the Rules have produced other past outcomes that it considers to be overly generous and in need of squaring up.

   iii. **The quantum of the regulatory adjustment is unspecified.** The AER has not quantified the extent to which it disagrees with the outcome of its application of the rules to the previous regulatory period, nor has it quantified the extent of its proposed under-compensation in the forthcoming regulatory period, nor has it suggested that there is any reason to think that the two would be of equal magnitude.

2 Debt management practices

2.1 Overview

11 In practice, infrastructure assets such as gas and electricity networks are partially financed by equity and partially financed by debt. Shareholders provide equity capital and take an ownership interest in the firm. They receive a return in the form of dividends[5] and/or capital gains. Debt holders (lenders) provide debt capital (loans) to the firm. They receive interest payments during the life of the loan and repayment of the loan amount at the expiry of the loan period.

12 The AER's Rate of Return Guideline provides that the benchmark efficient entity should be considered to raise 40% of its financing requirements in the form of equity and 60% in the form of debt. The proportion of debt financing is also known as "leverage" or "gearing." The AER's Guideline and recent draft and final decisions adopt 60% gearing for all energy network businesses, so I have adopted 60% gearing throughout this report.[6]

13 Given that the firm has decided on a total quantity of debt finance, it must then determine how that debt finance is to be issued and managed. The issues that the firm must decide upon include the following:

a. Whether to issue short-term debt (e.g., 1-year maturity) or long-term debt (e.g., 10-year maturity), or a mixture of the two;

b. Whether to issue fixed-rate or floating rate debt or a mixture of the two;

c. Whether to use swap contracts or some other derivative, in the context of the regulatory regime, to manage interest rate risk;

d. Whether to issue debt denominated in Australian dollars or foreign currencies, or a mixture of the two; and

e. Whether to stagger debt maturities, as a method of managing refinancing and/or interest rate risk, or whether to align debt maturities.

14 I have explained each of the issues in a previous report, SFG (2015), so I do not repeat them here. I do, however, make note of two points that are relevant to the remainder of this report:

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[5] Where the firm has paid corporate tax in Australia, dividends may also have imputation tax credits attached to them. To the extent that these credits are valued by investors, they provide another form of return.

[6] AER Rate of Return Guideline, p. 9; JGN Draft Decision, Attachment 3, p. 6; JGN Final Decision, Attachment 3, p. 11.

a. The return on debt consists of two components – a base risk-free rate and a debt risk premium (**DRP**). The base risk-free rate is the rate that the market would require from lending to a borrower that presents negligible risk of being unable to service the debt in full. The DRP is a premium to compensate the lender for risks including, for example, the risk that the particular borrower might default or be downgraded such that the market value of the debt falls. Other things being equal, the more likely the lender is to default, the higher the DRP required by lenders.

b. One important choice that must be made by a firm that issues debt is whether to stagger or align the maturity dates of its various loan agreements. It is much more common for firms to stagger their debt maturity dates to mitigate refinancing risk and interest rate risk. For example, a firm may issue 10% of its debt requirements each year in the form of 10-year debt. In this case, only 10% of the firm's debt would mature in each year. Thus, even if there is a problem with refinancing it would pertain only to a small proportion of the firm's debt. That is, each year only 10% of the firm's debt would be exposed to the risk that debt markets were effectively closed or that interest rates were much higher than expected. The combination of issuing long-term debt with staggered maturity dates is a common and effective means of mitigating refinancing and interest rate risk. This approach provides the firm with a long period over which to refinance (enabling the firm to refinance at a time when market conditions are relatively favourable) and it exposes only a small proportion of the firm's debt to refinancing requirements each year.

2.2 Efficient debt management practice

2.2.1 Definition of efficient practice

15 The AER's Rate of Return Guideline sets out a definition for the efficient debt management strategy of the benchmark efficient entity:

> …we interpret 'the efficient financing costs of a benchmark efficient entity' as financing costs resulting from the benchmark efficient entity minimising the expected present value of its financing costs over the life of its assets.[7]

16 In my view it is reasonable to consider that efficient service providers would be seeking to minimise the expected present value of its financing costs in the sense that the service provider would weigh up considerations such as the rate of

[7] AER Rate of Return Guideline, Explanatory Statement, p. 103.

interest (long-term debt is, on average, more expensive than short-term debt), refinancing and interest rate risk (for example, the firm would bear a very large cost if it was unable to refinance on reasonable terms during a financial crisis), and transaction costs (for example, there are fixed costs associated with every debt issuance and with hedging activities). Indeed, all firms that issue debt finance weigh up these considerations in determining the debt management strategy that is most efficient given their particular characteristics and circumstances.

2.2.2 The efficient practice of a regulated infrastructure service provider under the previous Rules

Approaches employed by service providers under the previous Rules

17 Prior to the November 2012 amendments to the NER, the regulatory allowance in relation to the return on debt was determined using what has become known as the *rate on the day* approach. Under this approach, the regulator would estimate the required return on debt at the beginning of each regulatory period and apply that return to the total amount of debt financing.

18 Suppose, for example, the firm in question has a regulated asset base of $1,000 and (regulatory) gearing of 60%, in which case there is $600 of debt finance. Suppose also that the regulator has determined that the benchmark efficient entity would have a BBB+ credit rating and would issue debt with 10-years to maturity. The regulator would then estimate the yield on 10-year BBB+ debt at the beginning of each regulatory determination.[8] Suppose the regulator determined that the 10-year BBB+ yield was 8%. The regulatory allowance for the return on debt would then be $600 × 8% = $48 per year.

19 Under the rate on the day approach that the AER adopted under the previous Rules, it was impossible for service providers to replicate the regulatory benchmark. There was no implementable financing strategy that could replicate the regulatory benchmark. In this regard, the AER notes that:

> The on-the-day approach did not match any particular viable financing practice for the benchmark efficient entity.[9]

20 As a result, a range of different financing strategies were adopted by different service providers. The most common strategies[10] were:

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[8] This would be done over the course of a 10- to 40-day "averaging period" or "rate-setting period" close to the beginning of the regulatory period.

[9] JGN Draft Decision, Attachment 3, p. 113.

[10] The strategies adopted by service providers under the previous Rules are summarised in the SFG (2012) report for the AEMC.

a. **"Trailing average" or "fixed-rate staggered maturity" approach**: A number of service providers adopted the approach of issuing fixed-rate debt on a staggered maturity cycle.[11] This is the approach that is generally adopted by unregulated infrastructure service providers. It is also the same approach that the AER now considers would be adopted by the benchmark efficient entity under the current Rules; and

b. **"Hybrid" approach**: A number of service providers adopted the strategy of issuing floating rate debt (or fixed rate debt converted to floating rate debt using interest rate swaps) on a staggered maturity cycle and using interest rate swaps to fix the rate at the beginning of each regulatory period.[12] This is the approach that the AER considers to have been the efficient approach under the previous Rules.

21 Under the trailing average approach, the firm issues 10% of its debt financing needs each year as fixed-rate 10-year debt. Thus, each year 10% of the firm's debt matures and it is replaced by a new issuance of 10-year fixed-rate debt.

22 Under the hybrid approach, the service provider would also issue approximately 10% of its total debt requirements each year, but in the form of 10-year floating rate debt (or 10-year fixed-rate debt swapped to floating). This would commit the firm to debt service costs that consisted of a floating base rate that changed from quarter to quarter (usually set according to the bank bill swap rate) plus a fixed debt risk premium that is determined when the debt is first issued and which is fixed for the life of the loan.

23 At the beginning of the regulatory period (during the rate setting period) the firm would enter 5-year interest rate swap contracts in relation to its entire debt financing requirements. These swaps would commit the firm to pay a fixed rate for the next five years, while receiving floating rate payments (which would simply be passed through to the lenders of the floating rate debt or the counterparty to the pay fixed receive floating interest rate swaps). Thus, the firm has effectively converted its floating rate commitments to the five-year fixed rate at the beginning of the regulatory period.

24 Note that, whether the firm adopts the trailing average approach or the hybrid approach, the DRP will be fixed at the time the debt is issued. Thus, at the beginning of the forthcoming regulatory period, the DRP that the firm must

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[11] The AER accepts that the NSW network service providers in fact adopted this strategy under the previous Rules. See, for example, the TransGrid Draft Decision, p. 114.

[12] This approach is also known as the CKI approach during the AEMC rule determination consultation because it is the approach that was adopted by the service providers that are partially owned by CKI: namely SA Power Networks, CitiPower and Powercor.

service will be the trailing average of the DRPs that were in the market over the previous 10 years.

25 That is, whether the firm was employing the trailing average or the hybrid strategies under the previous Rules, the firm's debt risk premium is fixed at the time the floating rate debt was initially issued. Consequently, for 10% of the firm's debt the DRP was fixed according to market conditions nine years ago, for another 10% of the firm's debt the DRP was fixed according to market conditions eight years ago, and so on.

The AER's views about the efficient approach under the previous Rules

26 In its recent draft decisions,[13] the AER sets out what it considers to be the single efficient debt management strategy under the previous Rules as follows:

> We consider an efficient financing practice of the benchmark efficient entity under the on-the-day approach [i.e., under the previous Rules] would have been to borrow long term and stagger the borrowing so that only a small proportion of the debt matured each year. We consider the benchmark efficient entity would have combined this practice with interest rate swap contracts to match the risk free rate component of its return on debt to the on-the-day rate.[418] Specifically, we consider an efficient financing practice would have been:
>
> • to borrow long term (10 year) debt and stagger the borrowing so that only a small proportion (around 10 per cent) of the debt matured each year
>
> • to borrow using floating rate debt (or to borrow fixed rate debt and convert this to floating rate debt using fixed-to-floating interest rate swaps at the time of issuing the debt and which extended for the term of the debt, being 10 years), and
>
> • to enter into floating-to-fixed interest rate swaps at, or around, the time of the service provider's averaging period and which extended for the term of the access arrangement period, being typically 5 years).[14]

27 The AER further, correctly, notes that under this approach:

> This financing strategy would have resulted in the risk free rate component of the benchmark efficient entity's actual return on debt matching the on-the-day rate, while the debt risk premium component each year would reflect the historical average of the debt risk premiums over the previous 10 years.[15]

28 In summary:

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[13] The AER sets out its reasoning in detail in its November 2014 draft decisions. Its recent final decisions reaffirm the AER's position in relation to return on debt transition arrangements, but focus on issues that have been raised subsequent to the draft decisions.

[14] JGN Draft Decision, Attachment 3, pp. 113-114. This view has been confirmed in the AER's recent final decisions.

[15] AER Rate of Return Guideline, Explanatory Statement, p. 114.

a. The AER has determined that it considers the hybrid approach to be the single efficient debt management approach under the previous Rules;

b. Under that approach, the firm will enter the forthcoming regulatory period with a DRP component that reflects the 10-year trailing average;

c. Even if the firm had instead adopted the trailing average debt management strategy, it would still enter the forthcoming regulatory period with a DRP component that reflects the 10-year trailing average.

2.2.3 The efficient practice of a regulated infrastructure service provider under the current Rules

29 The new Rules state that the regulator may set the allowed return on debt on the basis of (a) the rate on the day approach,[16] (b) the trailing average approach, or (c) the hybrid approach.[17] In its rate of return Guideline, the AER has indicated that it will adopt the *trailing average approach* for determining the allowed return on debt under the current Rules. Under this approach, the allowed return on debt is set according to an average of the AER's estimate of the required return on debt over each of the last ten years. This approach has broad support from service providers and energy users.[18]

30 In this regard, the AER has stated that:

> We consider that holding a portfolio of debt with staggered maturity dates is likely an efficient debt financing practice of the benchmark efficient entity operating under the trailing average portfolio approach.
>
> We consider that the regulatory return on debt allowance under the trailing average portfolio approach is, therefore, commensurate with the efficient debt financing costs of the benchmark efficient entity.[19]

31 If the regulator adopts the trailing average approach and the service provider adopts the trailing average debt management strategy, there will be an effective match between the allowed return on debt and the efficient debt service cost.

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[16] This is the regulatory approach that was adopted under the previous Rules, whereby the allowed return on debt was set to the relevant yield at the beginning of each regulatory period.

[17] NGR 87(10); NER 6.5.2(j); NER 6A.6.2(j).

[18] Although I note that Jemena Gas Networks have submitted that the hybrid approach is the most efficient debt management approach for a service provider with its characteristics and in its circumstances. For example, see the Jemena submission to the AER's Rate of Return Guideline process at http://www.aer.gov.au/sites/default/files/Jemena%2C%20Submission%20to%20draft%20AER%20rate%20of%20return%20guideline%20-%2011%20Oct%202013.pdf.

[19] AER Rate of Return Guideline, Explanatory Statement, p. 102.

The AER's assessment of the efficient practice of the benchmark efficient entity

32 In summary, in relation to the DRP component, the AER has concluded that:

a. The benchmark efficient entity will enter the forthcoming regulatory period with a DRP component that reflects the 10-year trailing average; and

b. Under the new Rules, the benchmark efficient entity will continue to have a DRP that reflects the 10-year trailing average.

3 "Windfall gains" and losses and transition arrangements

3.1 Transition arrangements in relation to the DRP component of the cost of debt

33 In its recent draft decisions, the AER states that its position is that the immediate application of a trailing average to the DRP component would result in a match between the regulatory allowance and the actual cost of the efficient service provider over the forthcoming regulatory period. For example, the AER states that under the efficient financing practice:

> …the debt risk premium component each year would reflect the historical average of the debt risk premiums over the previous 10 years.[20]

and:

> Without a transitional regime, there would be no mis-match after the regime change.[21]

34 However, the AER's position is that the usual regulatory objective of matching the regulatory allowance to the efficient cost over the forthcoming regulatory period is over-ridden in this case. In particular, the AER's position is that over the forthcoming regulatory period the regulatory allowance should be set so that the service provider under-recovers relative to the efficient cost – in order to balance out a perceived over-recovery in the prior regulatory period.

35 In the remainder of this section, I consider the various aspects of the AER's position on transition arrangements in relation to the DRP component of the return on debt.

3.2 The concept of a windfall gain or loss in relation to the DRP component of the return on debt

36 As noted above, under the rate on the day approach that the AER adopted under the previous Rules, it was impossible for service providers to replicate the regulatory allowance. The AER has noted that there was no implementable financing strategy that could replicate the regulatory allowance:

> The on-the-day approach did not match any particular viable financing practice for the benchmark efficient entity. [22]

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[20] TransGrid Draft Decision, Attachment 3, p.107.

[21] TransGrid Draft Decision, Attachment 3, p.303.

37 Consequently, there is an inevitable mis-match between the regulatory allowance for the return on debt and the benchmark cost of debt (i.e., the cost of debt that would be incurred by a firm following what the AER considered to be the efficient debt management strategy). Depending on current and past market conditions, that mis-match may result in the benchmark efficient entity being over- or under-compensated, relative to the regulator's benchmark, in any particular regulatory period. That is, the allowed return may be higher or lower than the actual cost of debt that would have been incurred by a firm following what the regulator considered to be the efficient debt management practice.[23]

38 In relation to the regulatory allowance for the return on debt, Lally (2014, p. 17) implicitly defines a "windfall gain" in terms of the debt risk premium only. He assumes that, under the previous Rules, the firm would have adopted the hybrid debt management approach if it was operating efficiently, in which case there would have been an effective match between the regulatory allowance and the actual cost of debt in relation to the base risk-free rate, but not in relation to the DRP.[24] He then defines a windfall gain to have occurred where the allowed debt risk premium exceeds the debt risk premium that would have been incurred by a firm adopting the hybrid approach, which he considers to be the efficient approach for all service providers irrespective of their particular characteristics.

39 That is, Lally's definition of a windfall gain is an ex post one – he says that the outcome over the last 5-year regulatory period turned out to be an allowed DRP that was higher than the DRP that would actually have been incurred by the benchmark efficient entity. When the regulatory allowance was set (at the beginning of the last regulatory period), it was impossible to know in advance whether it might turn out to be above or below the DRP that would actually have been incurred by the benchmark efficient entity.

40 That is, the benchmark efficient entity was subjected to the risk that the allowed DRP might not match the incurred DRP and Lally (2014) defines the outcome of that mis-match to be a windfall gain or loss, depending on the ex post outcome. Although I question whether the realised outcome of such a risky scenario can be

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[22] For example, JGN Draft Decision, Attachment 3, p. 113.

[23] The issue here is that it was impossible for any service provider to replicate the regulatory allowance – even if the service provider was following exactly what the AER considered to be the benchmark efficient strategy. This is because the regulatory allowance did not correspond to any implementable financing strategy. A separate issue is that service providers are not bound to follow what the regulator considers to be the efficient strategy. This separate issue is not important to the point at hand, where the regulator is concerned only about the benchmark efficient entity.

[24] The assumption that the efficient firm would have adopted the hybrid approach is made on the basis that the benchmark efficient firm would have regard to the incentives created by the regulatory regime when designing its debt management strategy, that the hybrid approach is the preferred strategy under the incentives created by the previous Rules, and that the benchmark efficient firm would have been able to implement the hybrid strategy.

properly described as a "windfall," I adopt that terminology throughout this report so that the key conceptual points are not confused by differences in terminology.

41 Symmetrically, Lally (2014) defines a windfall loss to occur where the allowed debt risk premium is less than the debt risk premium that would have been incurred by a firm adopting the hybrid approach.

42 Lally (2014, p. 24) also states that windfall gains and losses violate what he calls the "NPV=0 principle." Lally notes that the NPV=0 terminology is "an alternative way of expressing the problem of windfall gains" and that "mitigating the windfall gain…can be equivalently expressed as producing results that better conform to the NPV=0 principle." I adopt the terminology of windfall gains and losses throughout this report, noting that the concepts are identical if expressed in terms of an "NPV=0 principle."

43 In this regard I note that the Revenue and Pricing Principles require that:

> A regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs the operator incurs.[25]

and that the service provider will recover the efficient cost of debt if:

a. The allowed return on debt is not materially higher than the efficient cost of debt; and

b. The allowed return on debt is not materially lower than the efficient cost of debt.

44 Where the allowed return on debt is equal to the efficient cost of debt, the firm is compensated for the efficient cost of debt and customers pay no more than what is required to cover the efficient cost of debt.

3.3 No DRP transition means no DRP windfall

45 Whether the firm had adopted hybrid or the Trailing average approach under the previous Rules, the DRP has been locked in progressively over the last 10 years when the firm issued debt. Consequently, as of today, the DRP component of the firm's actual efficient cost of debt is equal to the 10-year trailing average.

46 If, under the current Rules, the AER moves immediately to a 10-year trailing average for the DRP component of the return on debt there would be no windfall gain in relation to the DRP. This is because, over the forthcoming regulatory period there would be a match between:

a. The allowed DRP – which would be set according to the 10-year trailing average; and

[25] NGL 24(2); NEL 7A(2).

b. The DRP that would be incurred by the benchmark firm – also set according to the 10-year trailing average.

47 In summary, if, in its current decision, the AER were to set the DRP component of the return on debt using a 10-year trailing average with no transition period, there would be no windfall gain or loss over the forthcoming regulatory period – the allowed return would match the efficient debt service cost in relation to the DRP component.

48 In my view, the analysis in relation to the DRP could stop at this point. Setting the allowed return on debt using the trailing average approach, with no transition period, would represent fair compensation in the forthcoming regulatory period for the DRP component of the debt service cost under what the AER has deemed to be the efficient strategy. Thus, the service provider would receive fair compensation (no more and no less) from the immediate application of the trailing average approach for determining the DRP. The concept of the regulator allowing fair compensation for the efficient financing costs of the benchmark efficient entity has support in the allowed rate of return objective in the Rules:

> …the rate of return for a service provider is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the service provider in respect of the provision of reference services.[26]

49 As discussed in some detail below, there is no dispute in the AER's recent draft or final decisions, or their consultant reports, over the proposition that the service provider would receive no windfall gain in relation to the DRP over any future regulatory period if the AER were to implement the trailing average approach immediately with no transition – because there would be a match between the regulatory benchmark assumption and the efficient cost under the efficient strategy. Rather, Lally (2014)[27] and the AER's draft decisions[28] argue that part of the regulator's role is to "square up" any perceived windfall gains (i.e., mismatches between the allowed return on debt and the cost of debt under the hybrid debt management strategy) from past regulatory periods. This is confirmed by Lally (2015) and the AER's recent final decisions.

3.4 The relevance of past windfall gains and losses

50 Lally (2014) notes that under the previous rules there was an inevitable mismatch between the return on debt allowed by the regulator and the actual debt service cost incurred by the regulated firm. The allowed return on debt was set

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[26] NGR 87(2)(3); NER 6.5.2(c); NER 6A.6.2(c).

[27] Lally (2014), p. 25.

[28] For example, JGN Draft Decision, Attachment 3, pp. 116-119.

using the on the day approach applied to 10-year debt. It is impossible (and imprudent and inefficient) for regulated firms (other than very small firms) to issue 100% of their debt financing requirements at the beginning of each regulatory period.[29] And even if the regulated firm was able to issue all of its debt requirements at a point in time, there would still be a mis-match in that the allowed return is based on the 10-year yield whereas the regulator will re-set the regulatory allowance every five years. Thus, even if the regulated firm did issue all of its debt in the form of 10-year bonds at the beginning of a regulatory period to match the regulatory allowance, there would then be a mis-match for the subsequent regulatory period, when the firm's debt remains on foot and the regulatory allowance is updated.[30]

51 Consequently, in every regulatory period under the previous AER approach there was inevitably a difference between the regulatory allowance and whatever was considered to be the efficient debt management practice – because it was impossible to match the regulatory allowance with *any* debt management strategy. Whatever debt management strategy the regulated business employed, it would receive what Lally defines to be a windfall gain in some regulatory periods and it would sustain a windfall loss in other regulatory periods.

52 Lally (2014) proposes that service providers received a "windfall gain" in relation to the DRP component of the cost of debt in the most recent regulatory period and should therefore be made to incur a windfall loss in the forthcoming regulatory period – before moving to the new regime where there will be no further windfall gains or losses:

> …during this favorable window for the firm, if the regulator switches immediately to a trailing average (from which point the DRP allowed will match that incurred), this accumulated benefit will be retained by the firm rather than gradually eroded away and this 'windfall' benefit to the firm comes at the expense of its customers. This problem could be avoided by deferring any switch to a trailing average until the current DRP spike has fully subsided. An alternative approach would be to use a transitional process because it proxies for deferral of the switch.[31]

53 That is, Lally (2014) suggests that, under the previous regulatory approach, a period of windfall gain is likely to be followed by a period of windfall loss and that the previous regulatory approach should be maintained to force the service

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[29] I understand that no networks outside of Tasmania have employed a strategy that even approximates the issuance of all debt financing requirements at the beginning of each regulatory period. The Tasmanian networks have never had total debt financing requirements that exceed even $1 billion (AER State of the Energy Market, 2014).

[30] That is, at the end of the first five-year regulatory period the firm would have fixed-rate debt that matures five years hence. The fixed rate would have been locked in five years prior and would almost certainly differ from the allowed return set for the second five-year regulatory period.

[31] Lally (2014), p. 17.

provider to incur a windfall loss that serves to balance out the windfall gain that it might have obtained in the previous regulatory period. He notes that a transition period acts as a proxy for such a deferral.

54 This raises the key question of whether it is appropriate for a regulator to keep a mental accounting of what it considers to be any windfall gains or losses from past regulatory determinations, and to then seek to "square the ledger" in the current determination.[32] Dr Lally holds a well-known view that such squaring up from one determination to the next is appropriate. For example, the QCA comments on a report it commissioned from Dr Lally as follows:

> Dr Lally considers that the critical feature of compensation is that it should be provided over the life of the regulatory assets rather than over each regulatory cycle within the life of the assets. As a result, while a regulator's estimation process might yield a biased estimate of a parameter (e.g. the market risk premium) under certain economic conditions, the more relevant consideration is the accuracy of the method over the life of the regulated assets. In other words, a method for estimating the market risk premium should not be rejected simply because it is biased under certain economic conditions (Lally, 2012b: 13).[33]

55 That is, the Lally rationale is couched in terms of windfall losses in some periods offsetting windfall gains in other periods, producing an NPV=0 outcome over the life of the asset. In my view, the goal should be to set the allowed return on the basis of the efficient costs of the benchmark efficient entity in every regulatory period, rather than having negative deviations in some periods that might offset positive deviations in other periods.

56 In this regard, the AEMC's view is that the regulator should not seek to offset a perceived windfall gain in one determination by imposing a windfall loss in the next, but rather the regulator should seek to provide an appropriate regulatory allowance for each determination:

> If the allowed rate of return is not determined with regard to the prevailing market conditions, it will either be above or below the return that is required by capital market investors **at the time of the determination**. The Commission was of the view that neither of these outcomes is efficient nor in the long term interest of energy consumers.[34]

57 My view is consistent with that expressed by the AEMC – the best regulatory approach is one in which the regulator seeks to set a fair regulatory allowance at

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[32] In this subsection I deal with the conceptual point about "squaring the ledger." In subsequent sections, I consider implementation issues. For example, even if it was appropriate for the regulator to seek to square up unintentional windfall gains from the prior period with intentional windfall losses in forthcoming periods, there would seem to be no way for the regulator to know when the ledger had finally been squared.

[33] QCA MRP Discussion Paper, pp. 16-17.

[34] AEMC Rule Change Final Determination, p.44, emphasis added.

every determination, and that the regulator should not have regard to its assessment of what it considers to be the running balance of any windfall gains or losses from past determinations.

58 Moreover, I note that the allowed rate of return objective requires that:

> …the rate of return for a service provider is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the service provider in respect of the provision of reference services.[35]

59 In particular, the allowed rate of return objective provides for the regulator setting the allowed return to be commensurate with the efficient financing costs of a benchmark efficient entity. It does not provide for an exception in cases where the regulator considers that it should set the allowed return to be different from the efficient financing costs of a benchmark efficient entity in order to square up what it considers to be windfall gains or losses from prior regulatory periods.

60 Moreover, it would be effectively impossible for a regulator to keep a running balance of amounts of under- and over-compensation over various different regulatory periods over the course of the life of an asset. This is because the composition of assets in the regulatory asset base is constantly changing over time as new assets are introduced and existing assets are depreciated or retired. Also, when a new asset is purchased, the regulator cannot even know for certain how long it will be retained by the firm, in which case the regulator would not know how long a period will be available to square up any under-or over-compensation early in the life of the asset. In my view, a materially better approach is for the regulator to seek to allow an appropriate return that is commensurate with the efficient financing costs in every regulatory period.

3.5 Clawbacks or squaring up?

61 Lally (2014) recognises his proposed deferral of the AER's new efficient approach to determining the allowed return on debt might be interpreted as a clawback of benefits from past regulatory periods, but he rejects that interpretation as follows:

> It might be argued that the transitional process would involve 'clawing back' past gains. I think that 'clawing back' relates to a situation in which gains have arisen from a past event, that past event will not give rise to future consequences that will naturally erode those gains, and the transitional process does erode the gains. However, in the present situation, the gains have arisen from a DRP spike and the natural reversion in the DRP back to its earlier level would erode these gains back to zero. Switching to a trailing

[35] NGR 87(2)(3); NER 6.5.2(c); NER 6A.6.2(c).

> average in mid-stream without a transitional regime locks in the accumulated gains up to that point. So, the use of a transitional regime to prevent this does not constitute a claw back. It instead constitutes a process that mimics the erosion in the gains for the businesses that would have occurred naturally under the earlier regime.[36]

62 However, in my view, the Lally approach represents the textbook example of a clawback from prior regulatory periods. Lally (2014) proposes that service providers have received a windfall benefit in the prior regulatory period, and therefore it should be made to suffer a windfall loss in the current regulatory period before we move to the new efficient regulatory approach where there will no longer be any windfall gains or losses. If this is not a clawback, it is difficult to imagine that anything could possibly amount to a clawback.

63 In my view, the passage from Lally (2014) that is set out above is not, in any sense, an argument about whether or not the proposed deferral of the new efficient approach for determining the allowed return on debt amounts to a clawback. Rather, Lally is arguing that what is obviously a clawback is in fact a reasonable clawback that "would have occurred naturally under the earlier regime."

64 It is my view that, from an economic perspective, it is very dangerous to select which regulatory approach should be applied in order to "balance out" or "square up" perceived benefits or losses from prior regulatory periods. In the case at hand, there is widespread agreement that the previous regulatory approach for determining the allowed return on debt was inefficient and did not match the actual cost of debt from any implementable strategy. There is also widespread agreement that the proposed new regulatory approach will result in the allowed return on debt being commensurate with the efficient debt service costs. Thus, the question is whether what is widely regarded to be a substandard approach should be maintained in preference to what is widely regarded as a superior and more efficient approach. The only reason that has been presented for maintaining the previous substandard approach is to act as a mechanism for squaring up perceived problems previously caused by that very approach.

65 In this regard, the AEMC has included in the Rules a number of factors to be considered when estimating the return on debt including:

> …the desirability of minimising any difference between the return on debt and the return on debt of a benchmark efficient entity referred to in the allowed rate of return objective.[37]

66 The Rules do not refer to the deliberate maintenance of a *difference* between the allowed return on debt and the return on debt of a benchmark efficient entity in

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[36] Lally (2014), pp. 21-22.

[37] NGR 87 (11)(a); NER 6.5.2(k)(1); NER 6A.6.2(k)(1).

order to rectify the regulator's perception of windfall gains or losses from prior regulatory periods. By contrast, they specifically refer to the desirability of *matching* the allowed return on debt to the cost of debt borne by the benchmark efficient entity.

67 In my view, having identified that there are problems with the previous approach, and that the new approach will produce more efficient outcomes, the previous approach should not be maintained simply to claw back perceived gains that may have been accrued over the previous regulatory period under the previous regime.[38] From an economic perspective, the ex post clawing back of gains accrued during one regulatory period creates regulatory risk and uncertainty and interferes with the incentive for the regulated business to operate efficiently. These problems are exacerbated when the means of clawing back prior gains is the continued application of a regulatory approach that is widely regarded as being substandard and in need of change. In circumstances where investors do not know, at the time of committing capital, which "windfall" gains or losses the regulator might seek to balance up in future determinations, or how the regulator may seek to apply any balancing up, they will perceive additional risk and require higher returns as compensation.

68 Moreover, even if it was decided that the previous approach should be maintained in some form to claw back (or "square up" or "balance out") past gains, there are a number of problems with the application of that approach, as follows:

a. In its recent draft decisions, the AER has simply asserted that a windfall has occurred and that its proposed transition arrangements will properly redress it. There has been no proper quantification of the past windfall and no demonstration that the proposed transition will properly redress it.

   Lally (2014) provides some generic calculations based on some broad assumptions and concludes that service providers generally benefitted from a windfall gain over the last regulatory period. However, the recent draft decisions contain no specific quantification of past windfalls for the firms that are the subject of those determinations and no calculations to show that the proposed transition arrangements will square up any past windfall.

   Indeed, the key point is that it is impossible to know what effect the proposed transition arrangement will have because that

[38] This is particularly the case where the regulator has not quantified the amount of the "windfall" to be squared up or specified the period over which past windfalls should be assessed or the period over which any squaring up should be conducted.

depends on future debt yields that cannot be known in advance. Even if there was a windfall in the past regulatory period, and even if the regulator had quantified it, the regulator could not know whether the proposed transition arrangement would offset it.

b. Another point to consider is what happens if debt risk premiums rise sharply prior to the next regulatory period. The Lally (2014) argument is that a spike in debt risk premiums prior to the previous regulatory period resulted in what Lally defines to be a windfall gain over that period. If that occurred again prior to the next regulatory period it would presumably result in another windfall gain. In that case, maintaining the previous regulatory approach (in full or in part) would exacerbate the gains that the Lally approach is seeking to claw back. This would presumably mean that the introduction of the new efficient approach would need to be further delayed – until we had a sufficient number of regulatory periods occurring in conditions appropriate for facilitating the appropriate amount of claw back.

c. It is not clear for how long the regulator should maintain its mental accounting of prior windfall gains and losses. Should the introduction of the new efficient approach be deferred so as to offset the regulator's assessment of windfall gains or losses over the past regulatory period only, or over the past two regulatory periods, or over a longer horizon? In this regard, Lally (2014) contends that a regulatory period in which the regulated firm receives a windfall benefit is likely to be preceded by one in which the firm has suffered a windfall loss:

> …the DRP spike will first induce a DRP shortfall, then an excess.[39]

Thus, the amount of any gain to be clawed back depends on how many prior regulatory periods are included in the regulator's mental accounting. That is, any windfall gain that may have accrued in the prior regulatory period may have already been squared up by shortfalls in prior regulatory periods. Keeping a running balance of yet to be squared up excesses or shortfalls is a complex task that would vary materially depending on the starting point that was adopted.

Moreover, under the AER's proposed transition arrangements, service providers are likely to incur losses over the next two regulatory periods. Presumably these losses, plus shortfalls in the

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[39] Lally (2014), p. 17.

second to last regulatory period would all have to be balanced against any assessment of a windfall gain that might have occurred in the regulatory period that has just completed.

d. The clawing back (or squaring up or balancing out) of perceived windfall gains in the prior regulatory determination in relation to the return on debt assumes that any such windfall gains have not already been balanced out by other features of the determination.[40] In this regard, the SFG (2012) report to the AEMC noted that the AER's implementation under the previous Rules may have provided somewhat of a natural hedge.

   In periods where investors are requiring higher risk premiums on debt investments in the benchmark firm, they will also be requiring higher equity risk premiums in the same benchmark firm. However, the AER's approach has been to use an essentially fixed MRP in its allowed return on equity.[41] Thus, in "crisis" periods where risk premiums are at elevated levels, the AER would allow a high DRP (that may exceed the DRP that was locked in when the firm issued the debt), but on the equity side the MRP is likely to have been set below the premiums that are required by investors. The converse would be likely to occur in bull market periods. Thus, the AER's implementation under the previous Rules may have already provided somewhat of a natural hedge.[42]

69 In summary, even if one accepts that a service provider obtained a windfall gain in relation to the DRP component of the allowed return on debt in its prior regulatory period and that it is appropriate to claw back (or square up) that gain with a windfall loss over the current regulatory period, it is not at all clear that adopting the AER's proposed transition period would serve to claw back (or square up) the appropriate amount of prior gains.

3.6 The purpose of transition arrangements

70 Lally (2014) is quite clear about the fact that, in his view, the role of the transition arrangements is to impose a windfall loss on the service provider in the forthcoming regulatory period in order to square up his perception of a windfall gain over the previous regulatory period:

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[40] This is in addition to the possibility in the previous paragraph that any windfall may have already been offset to some degree in prior regulatory periods.

[41] The MRP adopted by the AER has never varied outside of a 0.5% range – through bull market periods of rapid economic expansion and through periods of severe financial crisis.

[42] See SFG (2012), paragraphs 177-178.

> Without a transitional regime, there would be no mis-match after the regime change but there would be a windfall gain to businesses up to the time of the regime change. By contrast, the proposed transitional process mitigates the windfall gains but necessarily leads to a mis-match between the allowed and incurred costs after the regime change.[43]

71 By contrast, the AEMC did not allow for possible transitional arrangements as a means of clawing back (or squaring up) past gains or losses. Rather, the AEMC stated that the purpose of transitional arrangements is to allow service providers to unwind any financial arrangements that might have been put in place under the previous Rules. That is, the purpose of the transitional arrangements are to allow a service provider who had adopted one debt management strategy under the previous Rules to transition to a new debt management strategy under the new Rules:

> Service providers are likely to have entered into financial arrangements to mitigate their risk given the current approach to estimating the return on debt. Therefore, any change in approach could lead to some service providers gaining extra revenue or losing revenue as a result of unwinding those financial arrangements. Gains or losses of revenue of this type from changes in regulatory arrangements could be perceived by investors as increasing regulatory risk, and thereby lead investors to seek a higher rate of return. SFG therefore recommend that consideration be given to transitional arrangements when changing the approach to estimating the return on debt.[44]

72 The AEMC's guidance makes no mention at all of using transition arrangements to claw back (or square up) the regulator's perception of gains or losses relating to prior regulatory periods. By contrast, the Rules require that, when estimating the return on debt, regard must be had to, among other things:

> …the desirability of minimising any difference between the return on debt and the return on debt of a benchmark efficient entity referred to in the allowed rate of return objective.[45]

3.7 Chairmont (2015)

73 For its recent final decisions, the AER commissioned a report by Chairmont (2015). In relation to the DRP, Chairmont states its view that the regulatory allowance should be immediately based on a 10-year trailing average – that the DRP should not be the subject of transition arrangements:

> The DRP does not need to be transitioned because the NSP already has a staggered floating rate debt portfolio.[46]

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[43] Lally (2014), p. 25.

[44] AEMC Final Determination, p. 76.

[45] NGR 87 (11)(a); NER 6.5.2(k)(1); NER 6A.6.2(k)(1).

[46] Chairmont (2015), p. 9.

74 Chairmont (2015) goes on to note that applying no transition to the DRP would result in a match between the allowed return (which would be immediately based on a 10-year trailing average) and the efficient costs (which would also be based on a 10-year trailing average):

> No transition of the DRP…appears consistent with future revenue matched to future efficient costs over the regulatory period.[47]

75 However, in its final recommendation, Chairmont (2015) supports the AER's proposed transition arrangements on the basis of the:

> AER having other reasons for a DRP transition.[48]

76 Chairmont (2015) go on to spell out what the AER's "other" reasons for a DRP transition are:

> AER's reasons include avoiding windfall gains or losses over the life of the assets from a regime change, as a review of these matters is outside the scope of the ToR.[49]

77 That is, a transition for the DRP component was not independently recommended by Chairmont (2015), it appears to have been exogenously imposed by the AER and excluded from further consideration by the ToR. By contrast, Chairmont are very clear about the fact that applying a transition to the DRP would have the effect of deliberately ensuring that the allowed return on debt would be insufficient to meet the efficient cost of debt over the forthcoming regulatory period.

3.8 Lally (2015)

78 The AER has also commissioned a report by Lally (2015), who also agrees that the application of a transition to the DRP will would have the effect of deliberately ensuring that the allowed return on debt would be insufficient to meet the efficient cost of debt over the forthcoming regulatory period – that, in fact, this is the whole point of applying a transition to the DRP. Lally argues that forcing an under-recovery in the forthcoming regulatory period will square up what he perceives to be a relatively generous regulatory allowance from the application of the then prevailing Rules to the previous regulatory period.

79 Lally (2015) considers that this approach should not be characterised as a "clawback." He also notes that our earlier report (SFG, 2015) questions what a regulatory clawback could possibly look like if his proposed squaring up approach is not considered to be a clawback.[50] In response, he presents two

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[47] Chairmont (2015), p. 9.

[48] Chairmont (2015), p. 11.

[49] Chairmont (2015), Footnote 3, p. 11.

[50] Lally (2015), pp. 41-42.

examples, one relating to weather anomalies and one relating to a default by a government-owned insurance business. In our view, the following examples are more relevant:

a. If a regulator decides that its proper application of the rules produced (what it considered to be) a generous allowance for operating expenses in the previous regulatory period, and the regulator sets out to "even this up" by setting the allowed return below the efficient cost for the forthcoming regulatory period, that would be a clawback;

b. If a regulator decides that its proper application of the rules produced (what it considered to be) a generous allowance for taxes in the previous regulatory period, and the regulator sets out to "even this up" by setting the allowed return below the efficient cost for the forthcoming regulatory period, that would be a clawback; and

c. If a regulator decides that its proper application of the rules produced (what it considered to be) a generous allowance for the return on debt in the previous regulatory period, and the regulator sets out to "even this up" by setting the allowed return below the efficient cost for the forthcoming regulatory period, that would be a clawback.

80 Lally (2015) goes on to deny that these sorts of retrospective regulatory adjustments might create regulatory risk and discourage efficient investment.[51] I disagree for the following reasons:

a. **The regulatory adjustment is retrospective.** The AER proposes to deliberately under-compensate for the return on debt over the forthcoming regulatory period in relation to its perception of over-compensation in the previous regulatory period. There is no way for any investor to know whether the AER might apply such an "evening up" adjustment in the future or what the quantum of any such adjustment might be.

b. **The regulatory adjustment is, in effect, a rule change.** The AER does not consider that it misapplied the Rules in its previous determination. Rather, the AER's view is that its proper application of the Rules to its previous determination has produced an outcome that it disagrees with, and it now seeks to redress that by setting the forthcoming regulatory allowance below its own assessment of the efficient cost. In effect, this

[51] Lally (2015), p. 42.

amounts to the AER retrospectively changing the rules that applied to the previous regulatory period. There is no way for a new investor in a regulated service provider to know whether the AER might, at some point in the future, decide that the proper application of the Rules have produced other past outcomes that it considers to be overly generous and in need of squaring up.

c. **The quantum of the regulatory adjustment is unspecified.** The AER has not quantified the extent to which it disagrees with the outcome of its application of the rules to the previous regulatory period, nor has it quantified the extent of its proposed under-compensation in the forthcoming regulatory period, nor has it suggested that there is any reason to think that the two would be of equal magnitude.

3.9 The AER's recent final decisions

81 In its recent final decisions, the AER provides some further explanation of its reasons for applying a transition to the DRP component of the allowed return on debt. This explanation largely involves a legal interpretation of the Rules. In the remainder of this subsection, I provide what I consider to be the relevant economic interpretation, building on the analysis set out above.

82 Some of the relevant provisions of the Rules are as follows:

> **Calculation of return on capital**
>
> (a) The return on capital for each regulatory year must be calculated by applying a rate of return for the relevant Distribution Network Service Provider for that regulatory year that is determined in accordance with this clause 6.5.2 (the allowed rate of return) to the value of the regulatory asset base for the relevant distribution system as at the beginning of that regulatory year (as established in accordance with clause 6.5.1 and schedule 6.2).
>
> **Allowed rate of return**
>
> (b) The allowed rate of return is to be determined such that it achieves the allowed rate of return objective.
>
> (c) The allowed rate of return objective is that the rate of return for a Distribution Network Service Provider is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the Distribution Network Service Provider in respect of the provision of standard control services (the allowed rate of return objective).[52]

83 In light of these provisions, I have considered approaches under which the return on capital *for each regulatory year* is determined so that it is *commensurate with the efficient financing costs of a benchmark efficient entity*.

[52] For example, NER 6.5.2(a)–(c).

84 As set out above, there seems to be no debate about the fact that, in relation to the DRP, the efficient financing cost in each year of the regulatory period is the 10-year trailing average. Thus, logically, if the allowed DRP were set to the 10-year trailing average, for each regulatory year, it would be commensurate with the efficient financing costs.

85 Moreover, one of the factors that the regulator must have regard to when determining the allowed return on debt is:

> …the desirability of minimising any difference between the return on debt and the return on debt of a benchmark efficient entity referred to in the allowed rate of return objective.[53]

This would also seem to support the use of a 10-year trailing average for the DRP for each regulatory year – such an approach would eliminate any difference between the allowed return and the efficient cost insofar as the DRP is concerned.

86 In its recent final decisions, the AER notes that another of the factors that it must have regard to when determining the allowed return on debt is:

> …any impacts (including in relation to the costs of servicing debt across *regulatory control periods*) on a benchmark efficient entity referred to in the *allowed rate of return objective* that could arise as a result of changing the methodology that is used to estimate the return on debt from one *regulatory control period* to the next.[54]

87 The AER interprets the requirement to have regard to this consideration as follows:

> In this determination, we have changed the methodology from the on-the-day to the trailing average. So, we must consider the impacts of doing so. The NGR explicitly anticipate one form of impact extending across access arrangement periods–the cost of servicing debt. Therefore, 'any impacts' seem to include any other impact that stretches across access arrangement periods. This would seem to include any over or under recovery that would result from changing the approach to estimate the return on debt.

88 On this basis, the AER then sets the allowed DRP below what it considers to be the efficient DRP, for the forthcoming regulatory period. This would appear to be inconsistent with:

a. The requirement that the return on capital *for each regulatory year* must be determined so that it is *commensurate with the efficient financing costs of a benchmark efficient entity*;[55] and with

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[53] For example, NER 6.5.2(k)(1).

[54] For example, NER 6.5.2(k)(4).

[55] For example, NER 6.5.2(a)–(c).

b. The desirability of minimising any difference between the return on debt and the return on debt of a benchmark efficient entity referred to in the allowed rate of return objective.[56]

89 However, from an economic perspective, the "any impact" provision can be interpreted as being consistent with the ARORO and the other factors that the regulator must have regard to, while still having a meaningful effect. For example, suppose the change in methodology would result in the benchmark efficient entity incurring some costs involved in exiting hedge contracts as it changed from one efficient practice (under the previous Rules) to a different efficient practice (under the new Rules). This would be an impact that the regulator would have to have regard to.

90 Moreover, in relation to the DRP the change of rules has no impact on the efficient practice of the benchmark efficient entity – there is uniform agreement that the benchmark efficient entity would be doing exactly the same thing under the new Rules as the old and that the efficient cost would be the same under the new Rules as the old.

91 Also, whereas the AER suggests that its change in methodology has the effect of creating a "windfall gain" for the firm, it does not. If there was any sort of gain over the previous regulatory period it was not the result of changing the methodology, but rather the result of properly applying the Rules that covered the previous period. The only result of changing the methodology (in relation to DRP) is to eliminate henceforth any difference between the allowed "return on debt and the return on debt of a benchmark efficient entity" in the future.

[56] For example, NER 6.5.2(k)(1).

4 Specific points raised in the recent draft decisions

4.1 Transition, mis-match and windfall gains

92 In its recent draft decisions, the AER claims that:

> Commencing the trailing average with a period of transition contributes towards the achievement of the rate of return objective because it minimises the potential mismatch between the allowed and actual return on debt of the benchmark efficient entity, while also avoiding windfall gains or losses to service providers or consumers from changing the regulatory approach to the return on debt. For these reasons, it also provides service providers with a reasonable opportunity to recover at least their efficient debt financing costs.[57]

93 In my view, this statement is erroneous in at least two respects.

94 First, the proposed transition does *not* "minimise the potential mismatch between the allowed return and actual return on debt of the benchmark efficient entity" at all. The proposed transition minimises the potential mismatch between the allowed return on debt and what the AER considers to be the efficient cost of debt only for the risk-free rate component of the cost of debt. By contrast, the proposed transition embeds a clear mismatch in relation to the DRP component of the cost of debt. Applying the transition to the DRP component is entirely inconsistent with the AER's own assumption that the benchmark efficient entity would have issued debt in equal proportions over each of the previous 10 years, locking in the debt risk premiums that were present in the market at the time that debt was issued.

95 The AER itself is clear about this point later in its draft decisions. For instance, the AER states that:

> We adopt the same transitional arrangements for both the risk free rate and debt risk premium components of the return on debt. However, our reasons for adopting transitional arrangements differ for these two components. [58]

96 The AER goes on to note that the proposed transition minimises the potential mismatch in relation to the risk-free rate component only:

> We have adopted a transition on the risk free rate component because a transition minimises the potential mismatch between the allowed return on debt and the actual return on debt of the benchmark efficient entity. [59]

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[57] JGN Draft Decision, Attachment 3, p. 112.

[58] JGN Draft Decision, Attachment 3, p. 112.

[59] JGN Draft Decision, Attachment 3, p. 112.

97 The AER then goes on to list entirely different reasons for applying a transition to the DRP component, which I address below.[60] Moreover, the section in the draft decisions that is titled *Minimises the potential mismatch between the allowed return on debt and the actual return on debt of the benchmark efficient entity as it transitions its financing practices* refers exclusively to the risk-free rate component of the return on debt.

98 In summary, it is erroneous for the AER to claim that its proposed transition "minimises the potential mismatch between the allowed and actual return on debt of the benchmark efficient entity." Rather, the proposed transition deliberately embeds a mismatch in relation to the DRP, where that mismatch will persist for the duration of the 10-year transition period.

99 The second problem with the AER's claim above is that the proposed transition clearly does not have the effect of "avoiding windfall gains or losses to service providers or consumers." Rather, the primary purpose of the proposed transition is to deliberately *impose* a windfall loss on the regulated business to claw back (or "balance out") what the AER considers to have been a windfall gain in the prior regulatory period.

100 That is, when the AER states that it is "avoiding windfall gains or losses" what it means is that it is deliberately imposing a windfall loss on the business in the current regulatory determination to "square up" what the AER considers to have been a windfall gain in the prior regulatory period.

101 Lally (2014), in his advice to the AER is very clear about this point:

> Without a transitional regime, there would be no mis-match after the regime change but there would be a windfall gain to businesses up to the time of the regime change. By contrast, the proposed transitional process mitigates the windfall gains but necessarily leads to a mis-match between the allowed and incurred costs after the regime change.[61]

102 As set out in the previous section of this report, even if it was appropriate for the AER to impose a windfall loss in the forthcoming regulatory period to square up a perceived windfall gain in the previous period:

a. The AER has performed no calculations to ensure that the imposed windfall loss and the perceived windfall gain will, in fact, offset; and

b. The AER has not considered whether there may be windfall gains or losses from previous regulatory periods that should also be considered in any squaring up calculations.

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[60] JGN Draft Decision, Attachment 3, pp. 112-113.

[61] Lally (2014), p. 25.

103 That is, even if it is open to the AER to seek to square up its perception of windfall gains and losses from past regulatory periods, there is no evidence to suggest that the AER's proposed transition arrangements will in fact achieve that objective.

4.2 Other reasons proposed for transition arrangements

Primary reason is the claw back of perceived past windfall gains

104 As set out above, Lally (2014) is clear about the fact that the primary reason for imposing transition arrangements is to claw back (or square up) perceived windfall gains from the previous regulatory period. The AER's recent draft decisions set out some additional reasons, each of which is addressed below.

The availability of historical data

105 The AER expresses some concerns about the availability of the historical data that would be required in the absence of a transition in relation to the return on debt.[62] If the trailing average approach is applied with no transition, ten years of historical return on debt estimates would be required immediately. I note that bond yield data is now available from the RBA back to January 2005 and has been available from Bloomberg over the required 10 year period. I also note that over that entire 10-year period, Australian regulators (including the AER) have been estimating the required return on debt for electricity network service providers and have always been able to settle on what they considered to be an appropriate estimate to two decimal places. The data and estimates that have formed the basis of past regulatory determinations remain available for the AER's use today. In my view, the AER's concerns about the availability of historical data are overstated.

106 In any event, the availability of data should not drive the regulatory practice. In my view, the regulator should determine what must be estimated according to the Rules and then construct the best possible estimate from the data that is available. In my view, it would be an error for a regulator to determine what is to be estimated on the basis of what data is most easily available, rather than on the basis of what the Rules require.

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[62] JGN Draft Decision, Attachment 3, pp. 120-122.

Opportunistic behaviour by service providers

107 The AER states that its proposed transition "reduces the potential for opportunistic behaviour from stakeholders."[63] On this point, the AER seems to have in mind a scenario in which service providers are able to opportunistically switch back and forth between the rate on the day and trailing average approaches at each determination:

> …service providers could seek to adopt the on-the-day regulatory approach when the prevailing return on debt is high; and the trailing average approach (with no transition) when the prevailing return on debt is low.[64]

108 However, the AER has already determined that the trailing average approach will be adopted for every service provider and to my knowledge every service provider has accepted and endorsed that approach. That is, no service provider has proposed that they should be able to switch approaches opportunistically at each determination and in any event it is the AER that selects the regulatory approach, not the service provider. Thus, the AER appears to be addressing a problem that does not currently exist and that cannot ever exist. In my view, none of this discussion has any relevance at all to the questions of whether or not a transition should be applied.

109 Also, it should be remembered that the trailing average approach is the result of a rule change proposal made by the Energy Users Rule Change Committee (**EURCC**). The EURCC proposed that the rate on the day approach should be changed to a trailing average approach with no transition arrangements, and throughout the AEMC's rule change consultation period EURCC representatives maintained that no transition arrangements should be applied.[65]

Price stability and efficient prices

110 In its recent draft decisions, the AER notes that its proposed trailing average approach is likely to produce prices for consumers that have the same average level over the long run, but which are less volatile from determination to determination:

> The on-the-day approach or the trailing average portfolio approach can be expected to result in a different allowed return on debt for any particular access arrangement period. …The difference is that the on-the-day approach would lead to relatively higher price volatility for a given average price level, whereas

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[63] JGN Draft Decision, Attachment 3, p. 122.

[64] JGN Draft Decision, Attachment 3, p. 122.

[65] EURCC (2011), p. 43. Note that the EURCC proposed that the allowed return on debt should be (immediately) based on a 5-year benchmark, with a consequential 5-year trailing average.

> the trailing average portfolio approach would lead to relatively lower price volatility, for the same average price level.[66]

111 The AER also notes that the Consumer Challenge Panel is of the view that having efficient prices (i.e., prices that properly reflect the efficient financing costs of the benchmark efficient entity) is more important than having stable prices:

> …during the current determination process, the consumer challenge panel was clear that efficient price levels were more important than reducing volatility.[67]

112 I agree that having efficient prices is important (indeed it is a requirement of the Rules[68]) and that the trailing average approach will provide more stable prices with the same mean. Thus, prices should be set so that they reflect the efficient costs of a benchmark efficient entity that implements the trailing average approach as quickly as possible.

113 As set out above, the AER considers that the benchmark efficient entity adopted the hybrid debt management approach under the previous Rules and will adopt the trailing average debt management approach under the new Rules.

114 In this case, the price that reflects the efficient costs of the benchmark efficient entity[69] is one in which:

a. The base risk-free rate component is the subject of a 10-year transition; and

b. The DRP component is immediately based on a 10-year trailing average with no transition period.

115 A price set in this manner reflects the costs that the AER considers to be efficient. A price set in any other way is, by definition, inefficient.

116 This brings us to the question of whether the objective of price stability should override the objective of price efficiency. As set out above, the Consumer Challenge Panel has advised the AER that it should not. I agree that the allowed return should reflect the efficient financing costs of the benchmark efficient entity. In its recent draft decisions, the AER notes that its proposed transition arrangement "provides price stability over the medium to long term, in line with the progressive introduction of the trailing average."[70] That is, relative to the efficient price path set out in Paragraph 114 above, the AER's proposed

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[66] JGN Draft Decision, Attachment 3, p. 121.

[67] JGN Draft Decision, Attachment 3, p. 122.

[68] NGR 87(2)(3); NER 6.5.2(c); NER 6A.6.2(c).

[69] Which, according to the AER, would have been adopting the hybrid approach under the previous Rules and will move to the trailing average approach under the new Rules.

[70] JGN Draft Decision, Attachment 3, p. 122.

transition results in more volatility in the short term. This is because the AER's proposed transition delays the adoption of the (low volatility) trailing average approach for the DRP. Thus, the AER's proposed transition produces prices that are:

a. Inefficient, in that the allowed return will not be consistent with the efficient financing costs of a benchmark efficient entity adopting the debt management strategies that the AER itself has declared to be the efficient strategies; and

b. More volatile than the efficient price path.

Efficient prices every regulatory period, or on average?

117 As set out above, the AER's contention is that it should set an inefficient price for the forthcoming regulatory period in order to redress what it says is a windfall gain in past regulatory periods. In particular, the AER says that it should be concerned with the allowed return over the life of the regulated asset, rather than with setting an efficient price for each regulatory period.[71] In my view, there are a number of problems with an approach whereby a regulator sets inefficient prices for individual regulatory periods on the basis that they might "average out" over the life of the asset:

a. Such an approach would allow the regulator to set any price it liked for a particular regulatory period on the basis that things will all balance out over the long run;

b. There is not a single asset with a single life over which some grand average can be taken, but rather an ever changing RAB with some assets being retired and depreciated and new assets being introduced; and

c. There is not a single investor who holds the single asset for its whole life, but rather a flow of investors who provide capital to the firm for a period. Investors would not want to run the risk that their period of investment might happen to coincide with a period of under-compensation designed to square up perceived windfalls from prior periods.

118 In my view, a better approach is for the regulator to seek to set an efficient price, reflecting the efficient financing costs of the benchmark efficient entity in every regulatory period.

[71] JGN Draft Decision, Attachment 3, p. 122.

"Double counting" of past DRP

119 In its recent JGN Final Decision, the AER contends that an immediate application of its trailing average approach to the DRP would result in an element of "double counting."[72] The essence of this argument appears to be that:

a. In the previous regulatory period, service providers were allowed a return on debt that was issued just prior to that period; and

b. That debt would still be within the 10-year trailing average period now, so that an immediate application of the 10-year trailing average would amount to double counting it.

120 In my view, this proposition has no logic to it. The AER accepts that debt issued by the benchmark efficient entity would have a 10-year term. Consequently, the service provider will need to receive a return in relation to that debt over its full 10-year life. For example, debt that was issued six years ago at a time when the DRP was high still has four years before it matures – so the firm will still be paying that high DRP for the next four years. Allowing a return in relation to that debt over the next four years is not double-counting at all – it is simply a matter of allowing the firm to recover a cost that the AER considers to have been efficiently incurred.

121 Moreover, if it was "double counting" to allow a return on the same debt issuance over two consecutive regulatory periods (even though that debt has a 10-year term), the entire trailing average approach would amount to double counting. That is, this would not be an issue only for the transition period, but it would be an issue in relation to the general application of the trailing average approach.

122 In summary, the immediate application of the trailing average approach to the DRP simply enables the firm to recover, over the forthcoming regulatory period, the DRP that the AER considers to have been efficiently incurred. The AER's contention is that the allowed return on debt should be set so that, over the forthcoming regulatory period, the benchmark firm under-recovers the efficient DRP – because the AER considers that the proper application of the previous Rules resulted in an allowance that it considers to have been too generous over the previous regulatory period. The "double counting" contention is simply another name for this same proposition.

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[72] JGN Final Decision, Attachment 3, p. 174.

Specifying the averaging period in advance

123 In its recent JGN Final Decision, the AER notes that it is good (and longstanding) regulatory practice for regulated businesses to specify their averaging periods in advance,[73] and I agree with this view.

124 The AER goes on to suggest that if a trailing average was to be immediately applied to the DRP, and if regulated businesses were allowed to select specific averaging periods over each of the past 10 years, there would be an opportunity for them to select those periods with the benefit of hindsight. Similarly, the AER suggests that if it or a consumer or other stakeholder were to select particular averaging periods ex post, hindsight may also influence the choice.[74]

125 The ex post selection of an averaging period for each of the last 10 years is a relevant issue to consider. However, it is quite simple to resolve this issue without using it as a reason to abandon the application of a trailing average entirely. Rather than let one party or another select a short averaging period from within each year, the averaging period could simply be set to the entire year – so that there could be no possible allegation of ex post optimisation. As the forthcoming regulatory period evolved, each year the firm would select an averaging period in advance and the observation from that averaging period would then replace the last historical year-long averaging period, which would roll out of the 10-year average calculation at that time.

[73] JGN Final Decision, Attachment 3, p. 181-183.

[74] JGN Final Decision, Attachment 3, p. 181-183.

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6 Appendix 1: Instructions

126 Clause 6.5.2 of the National Electricity Rules (the Rules) sets out the matters that must be considered in assessing the rate of return that will be applied for each relevant year of Energex's regulatory control period, including the return on debt. The key provisions applying to the estimation of the return on debt are as follows:

> (h) The return on debt for a regulatory year must be estimated such that it contributes to the achievement of the allowed rate of return objective.
>
> (i) The return on debt may be estimated using a methodology which results in either:
>
> (1) the return on debt for each regulatory year in the regulatory control period being the same; or
>
> (2) the return on debt (and consequently the allowed rate of return) being, or potentially being, different for different regulatory years in the regulatory control period.
>
> (j) Subject to paragraph (h), the methodology adopted to estimate the return on debt may, without limitation, be designed to result in the return on debt reflecting:
>
> (1) the return that would be required by debt investors in a benchmark efficient entity if it raised debt at the time or shortly before the making of the distribution determination for the regulatory control period;
>
> (2) the average return that would have been required by debt investors in a benchmark efficient entity if it raised debt over an historical period prior to the commencement of a regulatory year in the regulatory control period; or
>
> (3) some combination of the returns referred to in subparagraphs (1) and (2).
>
> (k) In estimating the return on debt under paragraph (h), regard must be had to the following factors:
>
> (1) the desirability of minimising any difference between the return on debt and the return on debt of a benchmark efficient entity referred to in the allowed rate of return objective;
>
> (2) the interrelationship between the return on equity and the return on debt;
>
> (3) the incentives that the return on debt may provide in relation to capital expenditure over the regulatory control period, including as to the timing of any capital expenditure; and
>
> (4) any impacts (including in relation to the costs of servicing debt across regulatory control periods) on a benchmark efficient entity referred to in the allowed rate of return objective that could arise as a result of changing the methodology that is used to estimate the return on debt from one regulatory control period to the next.
>
> (l) If the return on debt is to be estimated using a methodology of the type referred to in paragraph (i)(2) then a resulting change to the Distribution Network Service Provider's annual revenue requirement must be effected

through the automatic application of a formula that is specified in the distribution determination.

127 While three different approaches are permitted under the Rules, the AER's preferred method, as set out in its Rate of Return Guideline (the Guideline), is the trailing average approach (reflected in clause 6.5.2(j)(2) above). While not required under the Rules, the AER's Guideline provides that the trailing average approach is to be implemented over a ten year transition period. A number of network service providers (NSPs) have proposed to depart from this approach, proposing an immediate transition to the trailing average for the entire return on debt, or the debt risk premium (DRP) only (also referred to as the 'hybrid' transition). The AER has rejected the proposed departures submitted to date.

128 Energex requests a report that addresses the following matters, having regard to the requirements of the Rules:

a. The requirement (if any) for a transition to the trailing average when estimating the return on debt of the benchmark efficient firm, with particular focus on the DRP.

b. Identify and address the key matters raised by the AER in relation to immediately transitioning to the trailing average, with particular focus on the DRP. This includes considering the following:

    i. Recent relevant draft and final decisions, including the recent final determination for Jemena Gas Networks.

    ii. The Lally (2014) report commissioned by the AER: Lally, M. (2014), Transitional arrangements for the cost of debt, 24 November.

    iii. The Lally (2015) report commissioned by the AER: Lally, M. (2015), Review of submissions on the cost of debt, 21 April.

    iv. The Chairmont (2015) report commissioned by the AER: Chairmont (2015), Cost of debt: Transitional analysis, April.

    v. SFG Consulting, 2015, Return on debt transition arrangements under the NGR and NER, 27 February.

129 The report is to be prepared in accordance with the Federal Court Practice Note on Expert Witnesses in Proceedings in the Federal Court of Australia (CM 7) and includes an acknowledgement that the Expert has read the guidelines.

7 Appendix 2: Curriculum Vitae of Professor Stephen Gray

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Academic Qualifications

1995 Ph.D. (Finance), Graduate School of Business, Stanford University.
Dissertation Title: Essays in Empirical Finance
Committee Chairman: Ken Singleton
1989 LL.B. (Hons), Bachelor of Laws with Honours, University of Queensland.
1986 B.Com. (Hons), Bachelor of Commerce with Honours, University of Queensland.

Employment History

2000-Present	Professor of Finance, UQ Business School, University of Queensland.
1997-2000	Associate Professor of Finance, Department of Commerce, University of Queensland and Research Associate Professor of Finance, Fuqua School of Business, Duke University.
1994-1997	Assistant Professor of Finance, Fuqua School of Business, Duke University.
1990-1993	Research Assistant, Graduate School of Business, Stanford University.
1988-1990	Assistant Professor of Finance, Department of Commerce, University of Queensland.
1987	Specialist Tutor in Finance, Queensland University of Technology.
1986	Teaching Assistant in Finance, Department of Commerce, University of Queensland.

Academic Awards

2006 Outstanding Professor Award, Global Executive MBA, Fuqua School of Business, Duke University.
2002 Journal of Financial Economics, All-Star Paper Award, for Modeling the Conditional Distribution of Interest Rates as a Regime-Switching Process, JFE, 1996, 42, 27-62.
2002 Australian University Teaching Award – Business (a national award for all university instructors in all disciplines).
2000 University of Queensland Award for Excellence in Teaching (a University-wide award).
1999 Outstanding Professor Award, Global Executive MBA, Fuqua School of Business, Duke University.
1999 KPMG Teaching Prize, Department of Commerce, University of Queensland.
1998 Faculty Teaching Prize (Business, Economics, and Law), University of Queensland.
1991 Jaedicke Fellow in Finance, Doctoral Program, Graduate School of Business, Stanford University.
1989 Touche Ross Teaching Prize, Department of Commerce, University of Queensland.
1986 University Medal in Commerce, University of Queensland.

Large Grants (over $100, 000)

- Australian Research Council Linkage Grant, 2008—2010, Managing Asymmetry Risk ($320,000), with T. Brailsford, J.Alcock, and Tactical Global Management.
- Intelligent Grid Cluster, Distributed Energy – CSIRO Energy Transformed Flagship Collaboration Cluster Grant, 2008-2010 ($552,000)
- Australian Research Council Research Infrastructure Block Grant, 2007—2008, Australian Financial Information Database ($279,754).

- Australian Research Council Discovery Grant, 2006—2008, Capital Management in a Stochastic Earnings Environment ($270,000).
- Australian Research Council Discovery Grant, 2005—2007, Australian Cost of Equity.
- Australian Research Council Discovery Grant, 2002—2004, Quantification Issues in Corporate Valuation, the Cost of Capital, and Optimal Capital Structure.
- Australian Research Council Strategic Partnership Grant, 1997—2000, Electricity Contracts and Securities in a Deregulated Market: Valuation and Risk Management for Market Participants.

Current Research Interests

Benchmark returns and the cost of capital. Corporate Finance. Capital structure. Real and strategic options and corporate valuation. Financial and credit risk management. Empirical finance and asset pricing.

Publications

Gray, S. and J. Nowland, 2015, "The Diversity of Expertise on Corporate Boards in Australia," *Accounting and Finance*, forthcoming.

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Gray, S. (1988), "The Straddle and the Efficiency of the Australian Exchange Traded Options Market," *Accounting Research Journal*, 1(2), 15-27.

Teaching

Fuqua School of Business, Duke University, Student Evaluations (0-7 scale):

- Financial Management (MBA Core): Average 6.5 over 7 years.
- Advanced Derivatives: Average 6.6 over 4 years.
- Empirical Issues in Asset Pricing: Ph.D. Class

1999, 2006 Outstanding Professor Award, Global Executive MBA, Fuqua School of Business, Duke University.

UQ Business School, University of Queensland, Student Evaluations (0-7 scale):

- Finance (MBA Core): Average 6.6 over 10 years.
- Corporate Finance Honours: Average 6.9 over 10 years.

2002 Australian University Teaching Award – Business (a national award for all university instructors in all disciplines).
2000 University of Queensland Award for Excellence in Teaching.
1999 Department of Commerce KPMG Teaching Prize, University of Queensland.
1998 Faculty Teaching Prize, Faculty of Business Economics and Law, University of Queensland.
1998 Commendation for Excellence in Teaching, University-wide Teaching Awards, University of Queensland.
1989 Touche Ross Teaching Prize, Department of Commerce, University of Queensland.

Board Positions

2012 - Present: Director, Children's Hospital Foundation, Queensland.
2002 - Present: Director, Financial Management Association of Australia Ltd.
2003 - 2012: Director, Moreton Bay Boys College Ltd. (Chairman from 2007).
2002 - 2007: External Risk Advisor to Board of Enertrade (Queensland Power Trading Corporation Ltd.)

Consulting

SFG Consulting: 1997-2014.
Frontier Economics: 2014-Present.

Twenty years' experience in consulting to companies, government-owned corporations, government and regulatory agencies. Examples include:

- *Regulatory cost of capital*: Preparation of submissions in regulatory determinations. Clients include all Australian energy transmission and distribution businesses, FOXTEL, Telstra, BBI, ACCC, IPART, ERA.

- *Corporate cost of capital reviews*: Review of cost of capital estimates for project evaluation and impairment testing purposes. Clients include QANTAS, Stanwell Corporation, Ecowise.

- *Executive stock option valuation*: Clients include Collins Foods Group, Ground Probe, Crater Gold Mining, Beach Petroleum.

- *New Project Evaluation*: Assisting companies and GOCs to evaluate proposed new projects. Particular focus is on quantifying risk and uncertainty and presenting possible outcomes in a probabilistic framework. Clients include Queensland Treasury Corporation, Queensland Accommodation Group, Stanwell, EnerTrade.

- *Financial modelling and forecasting*: Clients include ATO (forecasting delinquent payments), ASX (forecasting trading volumes), Compass Resources (integrated mine valuation model).

Retained as a valuation expert in many litigation cases; produced many expert witness reports; appeared in Court for cross examination many times including:

- *Macquarie Generation*: Witness for AGL in competition case.
- *Telstra v. ACCC*: Witness for Telstra in rate of return regulation case.
- *C7 Case*: Witness for PBL, Newscorp, Telstra re valuation of Seven's failed cable TV network.
- *Alcan v. NT Commissioner of Revenue*: Witness for Alcan re valuation of combined bauxite mine and alumina refinery for stamp duty purposes.

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