



# **Cost of debt transition for NSW distribution networks**

REPORT PREPARED FOR ASHURST

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January 2015



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## Executive Summary

### 1.1 Context

- 1 Frontier Economics (**Frontier**) has been retained by Ashurst Australia 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.
- 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 Ausgrid Draft Decision: *Draft Decision: Ausgrid distribution determination 2015-16 to 2018-19, Attachment 3: Rate of Return*;
  - b. The AER’s Endeavour Energy Draft Decision: *Draft Decision: Endeavour Energy distribution determination 2015-16 to 2018-19, Attachment 3: Rate of Return*;
  - c. The AER’s Essential Energy Draft Decision: *Draft Decision: Essential Energy distribution determination 2015-16 to 2018-19, Attachment 3: Rate of Return*; and
  - d. The Lally report commissioned by the AER: Lally, M. (2014), *Transitional arrangements for the cost of debt*, 24 November.
- 3 In the remainder of this report Ausgrid, Endeavour Energy and Essential Energy are referred to collectively as the ‘NSW distributors’.

### 1.2 Preparation of this report

- 4 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 previously served as board risk management advisor to a company in the energy sector and I was the principal advisor to the Australian Energy Markets Commission (AEMC) on cost of capital issues (including the allowed return on debt) during its 2012 rule change process.

5 My opinions set out in this report are based on the specialist knowledge acquired from my training and experience set out above.

6 I have read, understood and complied with the Federal Court of Australia Practice Note CM7 *Expert Witnesses in Proceedings in the Federal Court of Australia*.

7 A copy of my curriculum vitae and my instructions are attached as appendices to this report.

### 1.3 Summary of conclusions

8 My main conclusions are set out below.

#### ***Debt management strategies under the previous Rules***

9 Under the previous Rules:

- a. Smaller service providers adopted what has become known as the *CKI* debt management practice.<sup>1</sup> This involves issuing long-term floating rate debt and then using interest rate swaps to fix the rate at the beginning of each regulatory control period; and
- b. Larger service providers adopted the *fixed-rate staggered maturity strategy*. This involves issuing fixed rate debt on a staggered maturity cycle.<sup>2</sup>

10 The larger service providers, and their financiers, have submitted that the *CKI* strategy was not available to them due to the limited size of the interest rate swaps market relative to their debt requirements.

11 Similarly, in its Final Determination, the AEMC concluded that there is no single efficient debt management strategy, but rather that “efficient benchmarking service providers may have different efficient debt management strategies.”<sup>3</sup> The AEMC went on to provide some guidance about how the characteristics of the service provider might be relevant to the efficient debt management practice that

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<sup>1</sup> As I explain in the body of this report, this approach was adopted by service providers that are partially owned by the *CKI* group.

<sup>2</sup> As I explain in the body of the report, some large service providers issued staggered 10-year debt very much consistent with the proposed trailing average approach whereas others issued debt with shorter maturities. None of the larger service providers made material use of interest rate swaps.

<sup>3</sup> AEMC Final Determination, p. 84.



it employed. In this regard, the AEMC stated that “Currently service providers have varying abilities to match their debt servicing costs to the regulatory allowance for the return on debt. Some of the smaller privately-owned service providers appear able to hedge their interest rate very well, but larger state-owned service providers such as those in NSW and Queensland appear unable to enter into these hedges because the relevant financial markets are not sufficiently deep to meet their requirements.”<sup>4</sup>

12 By contrast, the AER has concluded that the CKI strategy was the only efficient debt management strategy under the previous Rules – for all service providers irrespective of their particular characteristics.

13 In my view, the primary evidence about what constitutes the efficient debt management practice for a particular service provider is to observe the actual practice of that service provider, since they have strong incentives to employ an efficient debt management strategy. In this regard, I note that the NSW distributors (namely, Ausgrid, Endeavour Energy and Essential Energy) and all of the larger service providers rejected the CKI strategy under the previous Rules.

14 There is also evidence from the service providers’ financiers (including Westpac, UBS, and the Queensland Treasury Corporation) that the CKI strategy could not have been implemented by the larger service providers (such as the NSW distributors) and that the benefits of executing interest rate swaps are lower for larger service providers and the costs are higher.<sup>5</sup>

15 The AER proposes that the larger service providers did not adopt the CKI strategy because they were unaware of the benefits of using interest rate swaps. No evidence is provided to support this conjecture, other than the observation that the larger service providers did not employ the CKI strategy.

16 In my view, the weight of evidence supports the conclusion that the NSW distributors (and all of the large service providers) were employing the most efficient debt management strategy that was open to them under the previous Rules, and not that they were uniformly and persistently acting inefficiently.

### ***Debt management strategies under the new Rules***

17 The AER has concluded that the benchmark efficient firm will adopt the fixed-rate staggered maturity approach under the current Rules. Since this debt management strategy is easily implementable by all service providers, and because it creates an effective match between the regulatory allowance and the actual debt service cost without the additional costs of transacting in interest rate swaps, in

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<sup>4</sup> AEMC Final Determination, p. 75.

<sup>5</sup> See section 4.2.5 of this report.

my view it is likely that we will indeed observe service providers adopting a similar strategy under the current Rules.<sup>6</sup>

### **Windfall gains and losses**

- 18 Lally (2014) and the AER define a “windfall gain” or loss to occur whenever there is a 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).
- 19 Under the previous Rules, there was no implementable debt management strategy that could be employed to replicate the rate on the day regulatory allowance. Consequently, there was inevitably a mis-match between the regulatory allowance and the cost of debt from whatever was considered to be the efficient strategy.
- 20 Under the new Rules, there is an effective match between the (implementable) fixed-rate staggered maturity strategy and the trailing average regulatory allowance. Thus, the regulatory allowance will match the efficient cost of debt under the new Rules for a firm employing the fixed-rate staggered maturity approach.

### **No windfall gain for the NSW distributors**

- 21 The NSW distributors have consistently employed the fixed-rate staggered maturity debt management approach (which the AER now considers to be the efficient approach) for many years. Consequently, it follows that the NSW distributors would, in fact, receive no windfall gain or loss if the AER was to set the allowed return on debt using the trailing average approach immediately, with no transition period.

### **The relevance of past mis-matches**

- 22 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.
- 23 Lally (2014) and the AER propose that the NSW distributors received a windfall gain in relation to the cost of debt in the most recent regulatory period and should therefore be made to incur a windfall loss in the regulatory period that is

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<sup>6</sup> I would not expect all service providers to seek to *exactly* replicate the regulatory trailing average strategy by issuing exactly 10% of their debt requirements every year, but rather to approximate this regulatory benchmark.

about to commence – before moving to the new regime where there will be no further windfall gains or losses.

24 By contrast, it is my view that it is not 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. The reasons for this conclusion are:

- a. The new Rules state that for each determination the allowed rate of return must be commensurate with the efficient financing costs of a benchmark efficient entity. The Rules do 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 the regulator’s assessment of any windfall gains or losses from prior regulatory periods.
- b. Ex post “claw backs” or “square ups” of the type that is proposed in this case create a level of regulatory risk and are counter to incentive-based regulation. That is, ex post adjustments that are applied to actions that were taken by regulated firms years before the ex post adjustment was even contemplated are a form of regulatory risk.<sup>7</sup> Also, it is counter to incentive-based regulation to *introduce* an ex post adjustment mechanism *after* a regulated firm has benefitted from operating in a way that the regulator itself considers to be efficient.<sup>8</sup>
- c. There is no transparent means of determining the quantum of prior mis-matches that are to be clawed back. How is the purported prior windfall gain or loss to be quantified? Over how many past regulatory periods should the tally be kept? Should the square up be limited to mis-matches relating to the cost of debt, or should all possible sources of mis-match between the regulatory allowance and the efficient costs of the benchmark firm be considered? How does the regulator know that their proposed actions will “square up” the correct amount, and not more or less, than the running tally of prior mis-matches?
- d. The clawing back (or squaring up or balancing out) of perceived windfall gains in the prior regulatory determination in relation to

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<sup>7</sup> Regulated firms generally locked in the debt risk premium over the last ten years.

<sup>8</sup> The AER concludes that it was efficient for regulated firms to have locked in the debt risk premium over the last ten years and that regulated firms benefitted from that efficient practice over the last regulatory period. The AER now proposes to introduce an ex post adjustment mechanism to recover some of those benefits.

the return on debt assumes that any such windfall gains have not already been balanced out by other features of the determination.

- e. 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. For those service providers that have no financial arrangements to unwind (i.e., those that are already using the fixed-rate staggered maturity approach that the AER now considers to be efficient), there would seem to be no need, and no basis, for any transition arrangements.

## 2 Debt management practices

### 2.1 Overview

- 25 In practice, infrastructure assets such as electricity transmission 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 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.
- 26 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 NSW distributors proposed 60% gearing and the AER's Draft Decision adopted 60% gearing. Consequently, I have adopted 60% gearing throughout this report.
- 27 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, in the context of the regulatory regime, to manage interest rate risk;
  - d. Whether to issue nominal or inflation-indexed debt, or a mixture of the two;
  - e. Whether to issue debt denominated in Australian dollars or foreign currencies, or a mixture of the two; and
  - f. Whether to stagger debt maturities, as a method of managing refinancing and/or interest rate risk, or whether to align debt maturities.
- 28 In the remainder of this section of the report I explain each of these issues and consider how an efficient entity with particular characteristics may evaluate each of them in light of the circumstances that may prevail when making decisions about the structuring of a debt portfolio.

## 2.2 Issues to be considered when constructing a debt portfolio

### 2.2.1 Background and terminology

- 29 In a debt or loan agreement the borrower is known as the issuer of the debt – a firm borrows by *issuing* debt.
- 30 Under a standard loan agreement, the issuer agrees to make a series of regular *coupon payments* to the holder of the debt and to make a *face value* payment when the debt matures. It is common for the coupon payments to be made semi-annually. For example, a firm might issue a bond with a \$100 face value, 10-year maturity, and a fixed coupon rate of 7% with coupons paid semi-annually. For this bond, the firm would be required to pay a coupon of \$3.50 every six months<sup>9</sup> during the life of the bond plus a \$100 face value payment when the bond matures at the end of its 10-year life.
- 31 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 the risk that a particular borrower might default. Other things being equal, the more likely the lender is to default, the higher the DRP that would be required by lenders.

### 2.2.2 Term of debt

- 32 The first issue the firm has to consider is whether it will issue short-term debt (e.g., 1-year maturity) or long-term debt (e.g., 10-year maturity).
- 33 In deciding upon this issue, the firm will trade off interest costs on the one hand against *issuance costs* and *interest rate risk* and *refinancing risk* on the other. On average, long-term debt requires the firm to pay a higher interest rate than shorter term debt. Offsetting this additional interest cost are debt issuance costs, which are largely fixed for each issuance. If the firm issues 10-year debt every ten years, rather than one-year debt every year, it will incur less issuance costs.
- 34 When selecting the term of debt, a very important consideration is interest rate and refinancing risk. When a firm's debt matures it needs to be refinanced – replaced with new debt. From time to time, debt markets are such that refinancing is difficult or impossible. For example, there were periods during the global financial crisis and European debt crisis where debt markets were effectively closed for weeks at a time. During these periods, lenders were so

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<sup>9</sup> The annual coupon would be  $\$7 = 7\% \times \$100$ , paid in two equal instalments.

concerned about the state of financial markets that they were simply unwilling to lend. During other periods, lenders are willing to lend, but only at high rates of interest. Refinancing risk refers to the risk that the firm's debt matures during a period when debt markets are effectively closed and interest rate risk refers to the risk that the firm will have to pay a higher than expected interest rate on its borrowings.

- 35 One method of mitigating refinancing risk is to issue longer-term debt. For example, a firm might issue 10-year debt and begin the process of refinancing after nine years. If the debt can be refinanced at a reasonable rate, the firm would proceed. If debt markets are effectively closed the firm can wait until the market reopens. In this example, the firm has a full year to refinance its debt and debt markets have never been effectively closed for that long.
- 36 Issuing long-term debt also serves to mitigate interest rate risk. In the example above, debt markets may not be closed when the firm begins to consider refinancing its debt, but interest rates may be very high. Again, the firm has some time to wait for markets to recover before it must refinance. Such discretion is not open to a firm that has issued one-year debt, for example.
- 37 It is common for infrastructure service providers to issue long-term debt to mitigate refinancing risk. This is because infrastructure businesses tend to be highly geared and to have fixed assets with long lives. In the event that such a firm has difficulties refinancing, it does not have the option of selling a portion of its assets or of materially reducing costs (a large proportion of which are fixed). Since the consequences of refinancing difficulties are likely to be relatively severe for such a firm, the tendency is to take steps to mitigate refinancing risk – by issuing long-term debt. These businesses also tend to be highly geared, and consequently relatively more exposed to the risk that interest rates will be higher than expected. Again, issuing long-term debt can help to mitigate this risk.
- 38 The empirical evidence suggests that infrastructure service providers do indeed tend to issue long-term debt with maturities of ten years or more.

### 2.2.3 Fixed or floating rate debt

- 39 Debt can be issued to have a fixed coupon rate or a floating rate that resets periodically.
- 40 For fixed-rate debt, the coupon rate is fixed for the life of the debt, as set out in the example in Paragraph 30 above.
- 41 By contrast, for floating rate debt the coupon resets periodically based on some objective reference rate. For example, a firm might issue a bond with \$100 face value, 10-year maturity, and a floating coupon rate that resets every quarter to the bank bill swap rate plus 2%. In this case, the reference rate is the bank bill swap rate which is a market-determined rate that is published daily. It is an accepted and objectively verifiable rate that is commonly used as a reference rate for

floating rate debt in the Australian market. The 2% premium is a margin for risk – recognising that the risk of the borrower warrants a premium that is not reflected in the base bank bill swap rate. Suppose, for example, that the bank bill swap rate at the end of a particular quarter is 4%. The interest to be paid at the end of the subsequent quarter would be:

$$\frac{(4\% + 2\%) \times 100}{4} = 1.50.$$

42 At the end of the next quarter, the bank bill swap rate might have risen to 5%, in which case the interest to be paid at the end of the end of the subsequent quarter would be:

$$\frac{(5\% + 2\%) \times 100}{4} = 1.75.$$

43 That is, at the end of each quarter the interest rate is set for the following quarter. At the beginning of each quarter, the floating interest rate resets and the borrower knows what the end-of-quarter interest payment will be.<sup>10</sup>

44 A firm might issue fixed-rate debt or floating rate debt or some combination of the two. The factors that the firm would consider include the relative demand in the market for fixed-rate and floating rate debt and, for the case of regulated service providers, whether the firm intends to employ a debt management strategy that combines floating rate debt with interest rate swaps under the particular regulatory regime (as explained below). In cases where a firm prefers to issue floating rate debt but where there is more market demand for fixed rate debt, the firm can issue fixed rate debt and “convert” it into floating rate debt using interest rate swap contracts, as explained below.

45 The empirical evidence suggests that, under the previous Rules, large service providers tended to issue fixed-rate debt and smaller service providers tended to issue floating rate debt (or fixed rate debt this is converted to floating rates using interest rate swaps). There appears to be broad agreement that the efficient debt financing strategy under the trailing average regulatory regime would be to issue fixed-rate debt. I consider these points in detail in the subsequent sections of this report.

## 2.2.4 Fixing floating rate debt with swap contracts

46 If a firm issues floating rate debt, it runs the risk that the reference rate (e.g., the bank bill swap rate) might increase materially during the life of the loan. This risk

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<sup>10</sup> In practice, different loan agreements have different technical terms (such as “day count conventions”) that may result in the interest calculation being slightly different from those shown in this example. However, nothing turns on this. My point here is simply that, for a floating rate loan, the interest rate will re-set periodically during the life of the loan.

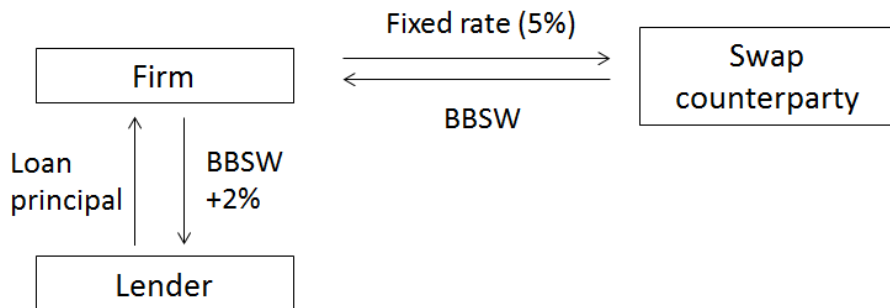


can be hedged using a financial instrument known as an *interest rate swap*. An interest rate swap is a contract between the borrower and a third party (usually a financial institution) whereby the borrower “swaps” the floating rate payments they are required to make on the floating rate debt they have issued for fixed payments over the life of the debt. The swap contract effectively converts floating rate debt into fixed rate debt.

47 An example of a swap arrangement is illustrated in Figure 1 below. This figure shows the firm borrowing at a floating rate, committing to make payments of the bank bill swap rate (**BBSW**) plus a premium for risk of say 2%. The firm then contracts with a swap counterparty to pay a fixed rate (say 5%) and receive the bank bill swap rate. The net position is that the firm pays the fixed swap rate of 5% plus the debt risk premium of 2%. That is, the base rate component of the total cost of debt (5%) is locked in at the time the firm enters the swap contract and the debt risk premium (2%) is locked in at the time when the firm first issues the floating rate debt. This is known as a fixed-for-floating interest rate swap because the firm makes fixed payments and receives floating payments.

48 In Section 2.3.3 of this report I discuss how interest rates swaps can be used by regulated infrastructure firms, and how they were used by some regulated firms under the previous Rules.

Figure 1: Example of floating rate debt and interest rate swaps

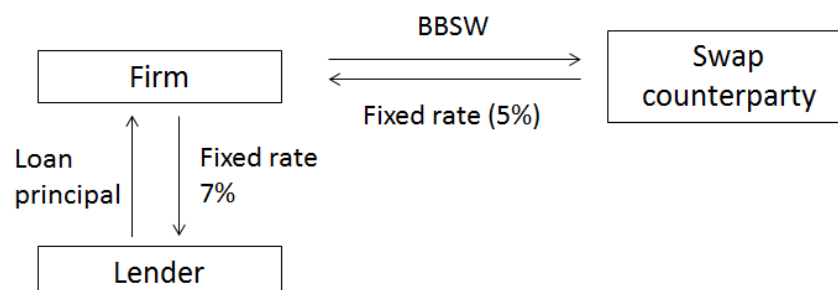


Source: Frontier Economics

49 A firm can also use interest rate swaps in the reverse direction. In some cases, a firm will want to issue floating rate debt when the market demand is for fixed rate debt. In this case, the firm can issue fixed rate debt and take the opposite side of the swap contract relative to the illustration above. This combination is illustrated in Figure 2 below, which shows the firm issuing fixed rate debt at 7% (which incorporates a margin for the risk that the firm might default) and then entering a swap that involves the firm paying the floating bank bill rate each quarter and receiving the risk-free fixed rate. The net position is that the firm pays the floating bank bill rate plus a risk margin of 2%. This is known as a

floating-for-fixed interest rate swap because the firm makes floating payments and receives fixed payments.

Figure 2: Conversion of fixed-rate debt into floating rate debt using interest rate swaps



Source: Frontier Economics

- 50 I explain in Section 2.3.3 below how some regulated firms have used interest rate swaps in this way as part of their debt management strategies.

## 2.2.5 Nominal or inflation-indexed debt

- 51 Debt can be issued to have coupon payments set in nominal or real terms. The vast majority of debt is set in nominal terms so that coupon payments are simply made according to the stated coupon rate. However, debt can also be issued with a real rate of interest. In this case, the coupon paid each period is effectively based on the sum of the stated real interest rate and observed inflation over the relevant period.<sup>11</sup> Consequently, this sort of debt is known as *inflation-protected* or *CPI-linked* debt – the lender is protected against unexpectedly high inflation diluting the real value of the coupon payments.
- 52 The vast majority of debt is issued in nominal terms. However in recent times the demand for CPI-linked debt has grown. In particular, superannuation funds (especially those that offer annuities that are linked to observed inflation) have found CPI-linked debt to be attractive.
- 53 When firms are considering whether to issue nominal or inflation-indexed debt, the primary consideration is the relative demand, and consequently the relative pricing, of each type of debt at the time.

<sup>1111</sup> The sum of the real rate and expected inflation provides a close approximation of the coupon rate for usual interest and inflation rates. The exact figure is the outcome of a slightly more complicated multiplicative calculation, the details of which are not important to the point being made here.

## 2.2.6 Australian dollar or foreign currency debt, hedged or not

- 54 If debt is issued in Australian dollars (usually where the lender is also an Australian entity) all coupon payments and the face value payment at the end of the loan are set in Australian dollars. It is also possible for an Australian firm to issue debt in a foreign currency, in which case the coupon and face value payments will be denominated in that foreign currency.
- 55 Issuing debt in a foreign currency exposes the firm to foreign exchange risk – if the Australian dollar depreciates during the life of the loan, the Australian dollar cost of servicing the debt will increase. Consider, for example, an Australian firm that issues debt in US dollars (USD) where that debt requires coupon payments of \$4 USD every six months. That debt might have been issued at a time when the exchange rate was such that each USD cost one Australian dollar (AUD). Thus, the coupons would each require a payment of \$4 AUD. Now suppose that the Australian dollar depreciates such that each US dollar costs \$1.20 AUD. Each coupon now costs \$4.80 AUD. In this case, the Australian borrower bears the risk of the Australian dollar depreciating during the life of the loan – in which case the loan will become more expensive in Australian dollar terms.
- 56 The foreign exchange risk that is embedded into debt that is issued in a foreign currency can be hedged using foreign exchange swaps. Foreign exchange swaps operate in a similar manner to interest rate swaps – the borrower would effectively swap their obligation to make foreign currency coupon payments into an obligation to pay set Australian dollar coupon payments. Most foreign currency debt raised by Australian firms is swapped back into Australian dollars. UBS (2015) explain how this is done and document the costs that are involved.<sup>12</sup>
- 57 Australian firms issue foreign currency debt when they perceive international markets as being deeper and more able to accommodate their borrowing needs at an attractive price.<sup>13</sup>

## 2.2.7 Staggering or aligning debt maturities

- 58 The final choice that must be made by a firm that issues debt is whether to stagger or align the maturities of its various loan agreements. It is much more common for firms to stagger their debt maturities to mitigate refinancing risk and interest rate risk. As set out above, 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

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<sup>12</sup> UBS (2015), pp. 11-13.

<sup>13</sup> See UBS (2015) for a discussion of this point.

is, 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.

59 The combination of issuing long-term debt with staggered maturities 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.

## 2.3 Efficient debt management practice

### 2.3.1 Definition of efficient practice

60 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.<sup>14</sup>

61 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 over the life of its assets. In this endeavour, the service provider would weigh up considerations such as the rate of 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).

### 2.3.2 The efficient practice of an unregulated infrastructure service provider

62 One potential benchmark to consider is the efficient debt management practice of an unregulated infrastructure service provider. The reason for considering this efficient benchmark is the AEMC's statement that:

...the Commission considered that the long-term interests of consumers would be best served by ensuring that the methodology used to estimate the return on debt reflects, to the extent possible, the efficient financing and risk management practices that might be expected in the absence of regulation.<sup>15</sup>

63 Unregulated infrastructure service providers tend to issue long-term fixed-rate debt on a staggered maturity cycle. This strategy is designed to provide

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<sup>14</sup> AER Rate of Return Guideline, Explanatory Statement, p. 103.

<sup>15</sup> AEMC Final Determination, p. 76.

predictability and to mitigate interest rate and refinancing risk. In particular, issuing fixed-rate debt locks in the debt service costs so that the firm knows what its financing costs will be right from the time the debt is issued and long-term debt mitigates refinancing risk. This strategy reflects a relatively low appetite for bearing interest rate and refinancing risk and the effectiveness of the fixed-rate staggered maturity approach in managing that risk.

64 In this regard, I note that the debt capital markets division of UBS, which has expertise in developing and implementing debt management strategies for corporations, has recently stated that:

The trailing average approach used by TransGrid and Networks NSW was consistent with debt management strategies adopted by non-regulated entities in the infrastructure sector – ports, airports, roads and railways.<sup>16</sup>

65 To stagger the maturities of its debt, a firm might issue approximately 10% of its debt financing requirements each year in the form of 10-year debt. In this case, only 10% of the firm's debt will mature in any given year. Infrastructure service providers do this because they tend to be highly geared and to have fixed assets with long lives. In the event that such a firm has difficulties refinancing, it does not have the option of quickly selling a portion of its assets or of materially reducing costs (a large proportion of which are fixed). Since the consequences of refinancing difficulties are likely to be relatively severe for such a firm, the tendency is to take steps to mitigate refinancing risk – by issuing long-term debt and by staggering debt maturities.

66 The empirical evidence suggests that infrastructure service providers do indeed tend to issue long-term debt with maturities of ten years or more and with staggered maturities. This strategy is known as the *fixed-rate staggered maturity approach*.

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

67 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.

68 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

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<sup>16</sup> UBS (2015), p.5.

maturity. The regulator would then estimate the yield on 10-year BBB+ debt at the beginning of each regulatory determination.<sup>17</sup> Suppose the regulator determined that the 10-year BBB+ yield was 8%. The regulatory allowance for the return on debt would then be  $\$600 \times 8\% = \$48$  per year.

69 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.<sup>18</sup>

70 As a result, a range of different financing strategies were adopted by different service providers. The most common strategies were:

- a. **Fixed-rate staggered maturity approach:** A number of service providers adopted the approach of issuing fixed-rate debt on a staggered maturity cycle. This is the approach that is generally adopted by unregulated infrastructure service providers, as set out above. 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. **CKI approach:** A number of service providers adopted the strategy of issuing floating rate debt on a staggered maturity cycle and using interest rate swaps to fix the rate at the beginning of each regulatory period. This approach became 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.<sup>19</sup>

71 Under the fixed-rate staggered maturity approach there is a mis-match between the regulatory allowance for the cost of debt (which is set at the rate on the day at the beginning of the regulatory period) and the firm's actual cost of debt (which is set 10% per year over the last ten years).

72 Under the CKI approach, the service provider would issue approximately 10% of its total debt requirements each year in the form of 10-year floating rate debt. 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

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<sup>17</sup> 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.

<sup>18</sup> See, for example, the Ausgrid Draft Decision, Attachment 3, p. 114.

<sup>19</sup> SA Power Networks, CitiPower and Powercor.

swap rate) plus a fixed debt risk premium (of say 2%) that is determined when the debt is first issued and which is fixed for the life of the loan.

73 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). Thus, the firm has effectively converted its floating rate commitments to the five-year fixed rate at the beginning of the regulatory period.

74 Note that 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.

75 Under the CKI method:

- a. There is an effective match between the regulatory allowance for the base risk-free rate and the firm's actual cost – both are set to fixed rate at the beginning of the regulatory period;<sup>20</sup> and
- b. There is a mis-match between the regulatory allowance for the DRP (which is set at the beginning of the regulatory period) and the firm's actual cost (which is set 10% per year over the last ten years).

76 At the end of the five-year regulatory period, the five-year swaps will expire and the firm is again left with (unhedged) floating rate debt. At this point, the firm will enter into another round of five-year swaps at the beginning of the next regulatory period, and the cycle continues.

77 As an alternative to issuing 10-year floating rate debt, the firm could issue 10-year fixed-rate debt and enter into 10-year floating-for-fixed interest rate swaps, as described in Paragraph 49 above. That is, the firm issues 10-year fixed-rate debt and at the same time enters into 10-year floating-for-fixed swaps. At the beginning of the regulatory period the firm enters 5-year fixed-for-floating interest rate swaps to fix the rate for the duration of the regulatory period. At the end of the regulatory period the 5-year swaps will expire, but the 10-year swaps will remain in effect.

78 One of the key issues for the current determination is the question of whether there is a single efficient debt management strategy that is the optimal strategy

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<sup>20</sup> The match here is close, but not perfect. This is because there may be a difference between the 10-year government bond yield (which the AER used as the base rate in its regulatory allowance) and the 5-year swap rate (which the firm is able to lock in via swap contracts).

for all service providers at all times regardless of their particular characteristics and the prevailing conditions in the market – or whether different service providers with different characteristics and circumstances might have reasonably employed different debt management strategies that are efficient for them, having regard to the prevailing conditions in the market. I consider that question in detail in Section 4 of this report. At this stage, I note that in its Final Determination, the AEMC concluded that there is no single efficient debt management strategy, but rather that:

...efficient benchmarking service providers may have different efficient debt management strategies<sup>21</sup>

79 In this regard, the AEMC made note of the fact that the new Rules require the regulator to have regard to the particular characteristics of the benchmark efficient entity and the different efficient financing practices that might be implemented by different service providers. The AEMC noted that the new Rule:

...requires the regulator to have regard to the characteristics of a benchmark service provider and how this influences assumptions about its efficient debt management strategy. As highlighted by SFG in its report, debt management practices tend to differ according to the size of the business, the asset base of the business, and the ownership structure of the business.<sup>22</sup>

80 In this regard, the AEMC's new Rules require that the allowed return must be commensurate with the degree of risk that applies to the service provider in question:

...the rate of return for a *Transmission 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 *Transmission Network Service Provider*.<sup>23</sup>

81 If the allowed return was to be set with reference to a single benchmark entity with characteristics and circumstances that differed from the particular service provider being regulated, there would appear to be no need for the words “with a similar degree of risk as that which applies to the Transmission Network Service Provider.” Moreover, setting the allowed return on the basis of a benchmark with a *different* degree of risk to the particular service provider being regulated would appear to be contrary to the words set out above. Consequently, the issue of whether there is a single debt management strategy that is efficient for all service providers regardless of their characteristics and circumstances is an important one that I consider in detail in Section 4 of this report.

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<sup>21</sup> AEMC Final Determination, p. 84.

<sup>22</sup> AEMC Final Determination, pp. 84-85.

<sup>23</sup> NER 6A.6.2(c).



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

- 82 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 appears to have broad support from service providers and energy users.
- 83 If the regulator adopts the trailing average approach and the service provider adopts the fixed-rate staggered maturity debt management strategy, there will be an effective match between the allowed return on debt and the firm's actual debt service cost.
- 84 The AER has concluded that the benchmark efficient firm will adopt the fixed-rate staggered maturity approach under the current Rules. Since this debt management strategy is easily implementable by all service providers, and because it creates an effective match between the regulatory allowance and the actual debt service cost without the additional costs of transacting in interest rate swaps, it is likely that we will observe most service providers adopting similar strategies under the current Rules.



## 3 Windfall gains and losses

### 3.1 Risk-free rate and DRP components of the cost of debt

#### 3.1.1 Cost of debt components under different debt management strategies

85 As set out in Paragraph 31 above, the return on debt consists of two components – a base risk-free rate and a debt risk premium. Under the fixed-rate staggered maturity approach, the regulated firm issues 10-year fixed-rate debt over a 10-year cycle. Consequently, the base risk-free rate and the DRP are each set when the debt is issued. Under the CKI approach, the regulated firm issues 10-year floating rate debt<sup>24</sup> over a 10-year cycle, and then uses interest rate swaps to fix the base risk-free rate at the beginning of each regulatory period. Consequently, the DRP is set when the debt is issued and the base risk-free rate is set to the prevailing rate at the beginning of each regulatory period. This is summarised in Table 1 below.

Table 1: Cost of debt components under different debt management strategies

	Risk-free rate	DRP
CKI approach	Set at the spot rate at the beginning of each regulatory period.	Fixed at the average level over the last 10 years when the debt was issued.
Fixed-rate staggered maturity approach	Fixed at the average level over the last 10 years when the debt was issued.	Fixed at the average level over the last 10 years when the debt was issued.

86 In summary, whether a service provider has employed the CKI or the fixed-rate staggered maturity approach, the DRP will have been locked in over the previous ten years when the debt was issued. The two approaches differ only in terms of the risk-free rate component.

<sup>24</sup> Or 10-year fixed-rate debt, converted into floating rate debt by 10-year fixed-for-floating interest rate swaps.

### 3.1.2 Cost of debt components and regulatory allowance under the previous Rules

87 As set out above, under the previous Rules the regulatory allowance for the return on debt was set according to the rate-on-the-day at the beginning of each regulatory period. As summarised in Table 2 below, under this regulatory approach:

- a. For the risk-free rate component, there is a match between the regulatory allowance and the actual cost for the CKI approach (both are based on the spot rate) but not for the fixed-rate staggered maturity approach (which is based on a 10-year average);
- b. For the DRP component, the regulatory allowance (which is based on the spot rate) does not match either debt management strategy (both of which are based on a 10-year average).

Table 2: Cost of debt components under different debt management strategies vs. rate-on-the-day regulatory allowance

	<b>Risk-free rate</b>	<b>DRP</b>
CKI approach	Set at the spot rate at the beginning of each regulatory period.	Fixed at the average level over the last 10 years when the debt was issued.
Fixed-rate staggered maturity approach	Fixed at the average level over the last 10 years when the debt was issued.	Fixed at the average level over the last 10 years when the debt was issued.
Regulatory allowance under the rate-on-the-day approach	Set at the spot rate at the beginning of each regulatory period.	Set at the spot rate at the beginning of each regulatory period.

### 3.1.3 Cost of debt components if there is no transition

88 The AER's trailing average approach assumes that the benchmark efficient service provider will adopt the fixed-rate staggered maturity approach. It sets the risk-free rate and DRP components to the 10-year historical average, as shown in Table 3 below.

Table 3: Cost of debt components under different debt management strategies vs. trailing average regulatory allowance

	<b>Risk-free rate</b>	<b>DRP</b>
CKI approach	Set at the spot rate at the beginning of each regulatory period.	Fixed at the average level over the last 10 years when the debt was issued.
Fixed-rate staggered maturity approach	Fixed at the average level over the last 10 years when the debt was issued.	Fixed at the average level over the last 10 years when the debt was issued.
Regulatory allowance under the trailing average approach	Fixed at the average level over the last 10 years when the debt was issued.	Fixed at the average level over the last 10 years when the debt was issued.

89 In summary, if the AER were to implement the trailing average approach immediately, with no transition arrangements:

- a. The regulatory allowance for the risk-free rate:
  - i. Would match the actual costs if the service provider has been using the fixed-rate staggered maturity approach; but
  - ii. Would not match the actual costs if the service provider has been using the CKI approach.
- b. The regulatory allowance for the DRP would match the service provider's actual cost regardless of whether the service provider has been using the CKI or the fixed-rate staggered maturity approach; and

90 As I explain in more detail below, the AER's position is that:

- a. The trailing average should not be immediately applied to the risk-free rate component of the cost of debt because the only efficient debt management practice under the previous Rules was the CKI approach. If the AER moved directly to a trailing average on this component then, for the forthcoming regulatory period, there would be a mis-match between the regulatory allowance (average over the last ten years) and the actual cost of the efficient service provider (spot rate at the beginning of the regulatory period); and
- b. 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. However, 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, 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 perceived over-recovery in the prior regulatory period.

### 3.2 The concept of a windfall gain or loss

91 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.<sup>25</sup>

92 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 service provider 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.

93 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 CKI 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.<sup>26</sup> 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 CKI approach, which he considers to be the efficient approach for all service providers irrespective of their particular characteristics.

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<sup>25</sup> For instance, Ausgrid Draft Decision, Attachment 3, p. 114.

<sup>26</sup> The assumption that the efficient firm would have adopted the CKI approach is made on the basis that the efficient firm would have regard to the incentives created by the regulatory regime when designing its debt management strategy, that the CKI approach is the preferred strategy under the incentives created by the previous Rules, and that the efficient firm would have been able to implement the CKI strategy. I consider all of these assumptions further below.

94 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 CKI approach.<sup>27</sup>

95 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.<sup>28</sup>

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.

96 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 windfall gain or loss under the current Rules if the regulated firm adopts a staggered maturity debt management strategy

97 In its Rate of Return Guideline, the AER determined that the benchmark efficient entity would adopt a specific debt management practice and that the allowed return on debt should be set to mimic that debt management practice in order to match the allowed return on debt with the efficient cost of debt.

98 In particular, the AER has determined that it will set the allowed return on debt based on the trailing average approach where the AER will take an equally weighted average over the rate at the beginning of the regulatory period and each of the previous nine years.<sup>29</sup> The AER notes that a regulated firm would be able to match the regulatory allowance for the return on debt to its actual debt service costs by issuing 10% of its debt requirements each year in the form of 10-year debt. Thus, the AER concludes that the efficient debt management practice of

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<sup>27</sup> 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.”

<sup>28</sup> NEL 7A(2).

<sup>29</sup> AER Rate of Return Guideline Explanatory Statement, Chapter 8.

the benchmark efficient entity would be to issue 10% of its debt requirements each year in the form of 10-year debt. In this regard, the AER states:

...we consider that holding a (fixed rate) debt portfolio with staggered maturity dates to align its return on debt with the regulatory return on debt allowance is likely to be an efficient debt financing practice of the benchmark efficient entity under the trailing average portfolio approach.<sup>30</sup>

99 The AER notes that its trailing average approach for determining the allowed return on debt precisely matches the fixed-rate staggered maturity debt management approach that it considers would be adopted by the benchmark efficient entity. In this case, there would be a match between the regulatory allowed return on debt and the actual cost of debt incurred by the benchmark efficient entity. Consequently, there would be no “windfall gain” or loss.<sup>31</sup>

100 In summary, there appears to be no dispute about the proposition that in future determinations there will be no windfall gain or loss if the regulator uses the trailing average approach to set the allowed return on debt and the regulated firm adopts the fixed-rate staggered maturity debt management approach.

### 3.4 The NSW distributors have consistently adopted the fixed-rate staggered maturity debt management strategy

101 The NSW distributors have consistently employed the fixed-rate staggered maturity debt management approach for many years. In this regard, the Group Chief Finance Officer of the Networks New South Wales Group that includes Ausgrid, Endeavour Energy and Essential Energy states that:

For so long as I am aware, the Networks NSW Businesses have primarily adopted a “staggered portfolio” or “portfolio” approach which is consistent with the “trailing average” approach to structuring their debt portfolios. This approach, which involves refinancing and funding new debt requirements incrementally each year, is the manner in which the Networks NSW Businesses seek to manage both refinancing risk and interest rate risk.<sup>32</sup>

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<sup>30</sup> AER Rate of Return Guideline Explanatory Statement, p. 109.

<sup>31</sup> Of course, under incentive-based regulation it is possible that a particular firm may be able to raise debt finance on better terms than the regulatory benchmark (including at a lower interest rate). In addition, a regulated firm is free to deviate from the regulatory benchmark if it chooses. For example, a firm may elect to issue more than 10% of its debt finance requirements in a year when it considers interest rates to be low (or at the bottom of a cycle). Under incentive-based regulation the firm then bears the benefits or costs that this strategy brings. This would not be considered to be a windfall gain. A windfall gain occurs only where the regulatory allowance exceeds the benchmark efficient cost – where a firm that is precisely following the efficient strategy is over-compensated for the cost of that strategy.

<sup>32</sup> Statement of Justin De Lorenzo, Paragraph 9.

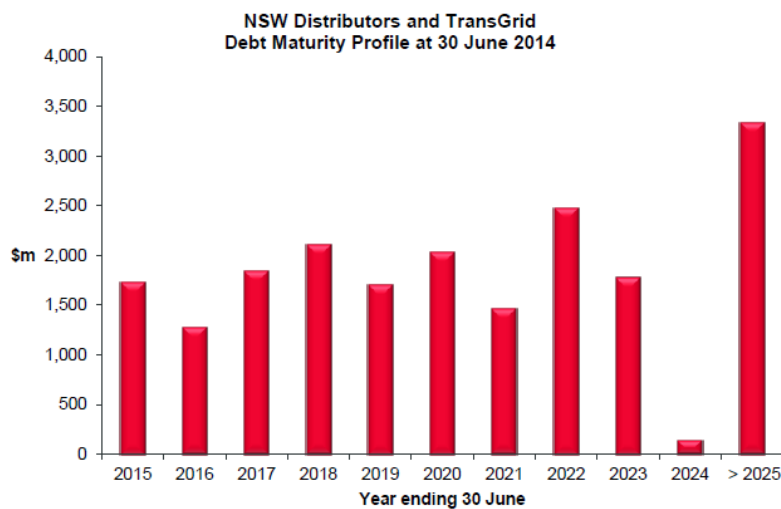


and that:

The Networks NSW Businesses do not enter into, and historically have not entered into, to any significant extent interest rate swap hedging arrangements for the purpose of seeking to align the underlying interest rate component of debt (the base rate or risk free rate) instruments with the regulatory allowance for the interest rate component of the cost of debt.<sup>33</sup>

102 These comments are consistent with combined debt maturity profile for the NSW electricity network businesses, which is shown in Figure 3 below. This figure shows that the network businesses have approximately 10% of their debt finance maturing each year over the next ten years – consistent with the fixed-rate staggered maturity approach. I note that there are some exceptions to a perfect replication of the fixed-rate staggered maturity benchmark. For example, the quantity of debt maturing is not perfectly evenly distributed over time. There is also some debt that matures more than ten years into the future. Due to changes over time in the market demand for different types of debt and the relative pricing of different types of debt, no firm will ever perfectly replicate the regulatory benchmark of exactly 10% of the debt maturing every year for exactly ten years. However, Figure 3 shows that the NSW networks have very substantially matched the regulatory fixed-rate staggered maturity benchmark.

Figure 3: NSW networks debt maturity profile



Source: NSW Auditor-General's Report to Parliament, Volume Five 2014, Electricity Financial Controls, p. 27.

103 I also note that the CFO of Networks NSW states that:

The approach taken by some regulated utility firms of issuing floating rate debt with varying maturities and then to take out interest rate swaps over that debt for a duration equal to the regulatory period, usually five years, in order to fix

<sup>33</sup> Statement of Justin De Lorenzo, Paragraph 11.

the base interest rate of the debt over that regulatory period is familiar to me. This approach is not used by the Networks NSW Businesses,<sup>34</sup>

and that interest rate swaps are not used to fix rates at the beginning of each regulatory period as per the CKI approach. That is, the decision to not use the CKI approach is a conscious and informed choice.

104 In summary, there appears to be no dispute about the proposition that the NSW distributors have employed the fixed-rate staggered maturity debt management approach for many years. In particular, there is no dispute in Lally (2014) or the Draft Decisions for the NSW distributors about the fact the NSW distributors' practice has been to employ the fixed-rate staggered maturity debt management strategy that the AER considers to be the efficient regulatory benchmark under the current Rules.

### 3.5 No windfall gain for the NSW distributors

105 As set out above, there appears to be no dispute about the following two propositions:

- a. There will be no windfall gain or loss if the regulator uses the trailing average approach to set the allowed return on debt and the service provider adopts the fixed-rate staggered maturity debt management approach; and
- b. The NSW distributors have employed the fixed-rate staggered maturity debt management approach for many years.

106 Consequently, it follows that the NSW distributors would, in fact, receive no windfall gain or loss if the AER were to set the allowed return on debt using the trailing average approach immediately, with no transition period. Indeed, whenever (a) a service provider has employed the fixed-rate staggered maturity debt management approach and (b) the regulator sets the allowed return on debt using the trailing average approach, there will be a match between the allowed return on debt and the firm's actual debt service cost, such that there is no windfall gain or loss.

107 In the case at hand, the AER has now determined that the efficient debt management strategy of the benchmark efficient entity is the fixed-rate staggered maturity approach, and the AER proposes to set the allowed return on debt using the trailing average method which mirrors the fixed-rate staggered maturity debt management approach. For many years, the NSW distributors have been employing the very debt management strategy that the AER now considers to be the efficient debt management strategy that would be employed by the benchmark efficient entity. Consequently, if the AER were to set the allowed

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<sup>34</sup> Statement of Justin De Lorenzo, Paragraph 11.

return on debt using the trailing average approach, with no transition period, that would represent fair compensation for the actual debt service costs of what the AER now considers to be the efficient debt management strategy – the same debt management strategy that the NSW distributors have been employing for many years.

108 In my view, the analysis could stop at this point. Setting the allowed return on debt using the trailing average approach, with no transition period, would represent fair compensation for the actual debt service costs of the efficient debt management strategy, as employed by the NSW distributors. Thus, in actual fact, the NSW distributors (or any firm that is employing what the AER now considers to be the most efficient debt management strategy) will receive fair compensation from the immediate application of the trailing average approach for determining the allowed return on debt.

109 As discussed in some detail below, there is no dispute in Lally (2014) or the Draft Decisions for the NSW distributors over the proposition that the NSW distributors would receive no windfall gain 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 NSW distributors’ actual practice. Rather, Lally (2014)<sup>35</sup> and the NSW distributors’ Draft Decision<sup>36</sup> 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 CKI debt management strategy) from past regulatory periods.

### 3.6 The relevance of past windfall gains and losses

110 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 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.<sup>37</sup> 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

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<sup>35</sup> Lally (2014), p. 25.

<sup>36</sup> See, for example, Ausgrid Draft Decision, Attachment 3, p. 301.

<sup>37</sup> 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).

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.<sup>38</sup>

111 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.

112 Under the new regulatory approach the allowed return on debt will be set to match the actual cost of debt under what is considered to be the efficient debt management strategy.<sup>39</sup>

113 In summary, there appears to be no dispute about the following propositions:

- a. Under the previous regulatory approach, the allowed return on debt was greater than the cost of debt under the CKI approach in some regulatory periods and the reverse occurred in others; and
- b. Under the new regulatory approach, the allowed return on debt (the regulatory allowance) will be commensurate with the efficient cost of debt (the regulatory benchmark).

114 Lally (2014) proposes that the NSW distributors received a “windfall gain” in relation to the cost of debt in the most recent regulatory period and should therefore be made to incur a windfall loss in the regulatory period that is about to commence<sup>40</sup> – before moving to the new regime where there will be no further windfall gains or losses:

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<sup>38</sup> 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.

<sup>39</sup> Again, to be clear, I do not suggest that the service provider's actual cost of debt is simply passed through to customers. Rather, there is no windfall gain because there is a match between the regulatory allowance and the regulatory efficient benchmark. Service providers are free to depart from the regulatory benchmark.

<sup>40</sup> In fact, there appears to be doubt over Lally's assertion that the NSW distributors enjoyed a windfall gain in the last regulatory period. Analysis by CEG (2015) shows that after taking account of the cost of debt allowance that the NSW distributors actually received (following a successful appeal to the Australian Competition Tribunal), 8.82%, and the prevailing 5-year swap rate, 6.79%, the DRP component received by the NSW distributors was just 2.03%. This is approximately half of the level of compensation that Lally assumed in his calculations, 4.1%. Contrary to the conclusions in Lally (2014), which suggested that the NSW distributors had been over-compensated by 9.53%, it would appear from CEG's analysis that the NSW distributors were under-compensated by 0.82%. In my

...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.<sup>41</sup>

115 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 NSW distributors 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.

116 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. 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).<sup>42</sup>

117 By contrast, 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, commensurate with the prevailing conditions in the market at the time of the 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

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view, this is a moot point because the regulatory allowance for the forthcoming regulatory period should be set to be commensurate with the efficient financing costs of the benchmark efficient entity over the forthcoming regulatory period – not adjusted to square up any perceived outcomes from one or more past regulatory periods. I explain the reasons for this view in some detail below.

<sup>41</sup> Lally (2014), p. 17.

<sup>42</sup> QCA MRP Discussion Paper, pp. 16-17.

of the view that neither of these outcomes is efficient nor in the long term interest of energy consumers.<sup>43</sup>

118 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 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.

119 In this regard I note that the allowed rate of return objective requires 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 service* ....<sup>44</sup>

120 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.

121 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 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.

### 3.7 Clawbacks or squaring up?

122 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:

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<sup>43</sup> AEMC Rule Change Final Determination, p.44.

<sup>44</sup> NER 6A.6.2(c).

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 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.<sup>45</sup>

- 123 However, in my view, the Lally approach represents the textbook example of a clawback from prior regulatory periods. Lally (2014) proposes that the NSW distributors 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.
- 124 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.”
- 125 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.
- 126 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

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<sup>45</sup> Lally (2014), pp. 21-22.

previous regime. 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 application of a regulatory approach that is widely regarded as being substandard and in need of change.

127 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. The first 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.
- b. 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.<sup>46</sup>

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

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<sup>46</sup> Lally (2014), p. 17.



complex task that would vary materially depending on the starting point that was adopted.

Moreover, under the AER's proposed transition arrangements, the NSW distributors would incur losses over the next two regulatory periods. Presumably these losses, plus shortfalls in the 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.

- c. 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. 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.<sup>47</sup> 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.<sup>48</sup>

128 In summary, even if one accepts that the NSW distributors obtained a windfall gain in relation to 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.

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<sup>47</sup> 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.

<sup>48</sup> See SFG (2012), paragraphs 177-178.

### 3.8 The purpose of transition arrangements

129 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 order to square up his perception of a windfall gain over the previous regulatory period:

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.<sup>49</sup>

130 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.<sup>50</sup>

131 Two important points can be drawn from the AEMC's guidance on this point:

- a. 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; and
- b. The AEMC's guidance states that transition arrangements would provide for the service provider to transition from one debt management strategy under the previous Rules to a new debt management strategy under the current Rules. Since the NSW distributors have adopted the same fixed-rate staggered maturity strategy throughout, no transition arrangements are required.

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<sup>49</sup> Lally (2014), p. 25.

<sup>50</sup> AEMC Final Determination, p. 76.

132 On this last point, I note that there appears to be no dispute about the proposition that the NSW distributors have employed the fixed-rate staggered maturity debt management strategy under the previous Rules and thus it will (efficiently) continue to employ the same strategy under the current Rules. Thus, there will, in fact, be no transition for the NSW distributors. However, a secondary issue is whether the NSW distributors *should* have been adopting the fixed-rate staggered maturity debt management strategy under the previous Rules. Lally (2014) and the Draft Decisions for the NSW distributors argue that the NSW distributors were acting inefficiently in adopting that strategy under the previous Rules. I address that point in detail in Section 4 of this report.

### 3.9 Summary and conclusions

133 In my view, the decision-maker is required to address the following questions:

**Should the regulator be seeking to adopt an approach whereby the benchmark efficient entity is fairly compensated for its efficient debt service costs?**

134 In my view, at every determination the regulator should strive to set the allowed return on debt to fairly compensate the firm for the efficient debt service costs over that regulatory period. By contrast, Lally (2014) and the AER propose that it is appropriate for a regulator to deliberately under-compensate the regulated firm for its efficient debt service costs in order to redress perceived over-compensation that it deems to have occurred in prior regulatory determinations.<sup>51</sup>

135 For the reasons set out in Section 3.6, my view is that in every determination the regulator should seek to fairly compensate the regulated firm for the efficient costs incurred over that regulatory period – without regard to what may or may not have occurred in prior regulatory periods. 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 windfall gains or losses from prior regulatory periods

**In the absence of any transition arrangements, would the NSW distributors obtain a windfall gain?**

136 There appears to be no dispute about the proposition that NSW distributors have been employing the fixed-rate staggered debt approach. That is, the NSW distributors are already managing its debt portfolio in a manner that is consistent with the trailing average approach. Consequently, if the regulator

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<sup>51</sup> In particular, in the regulatory period that is just concluding.

implements the trailing average approach immediately, with no transition period, there will be an immediate match between the allowed return on debt and the NSW distributors' actual costs of debt.

137 In the absence of any transition arrangements, the NSW distributors will receive a regulatory allowance that matches their actual debt service costs. There would be no windfall gain for the NSW distributors, given that they are already employing what the AER now considers to be the efficient debt management strategy.

## 4 The efficient debt management practice of the benchmark efficient entity

### 4.1 The efficient debt management practice under the current Rules

138 When the AER has moved to the trailing average approach for determining the allowed return on debt, it will be possible for service providers to effectively replicate the regulatory benchmark. A service provider that actually issues 10% of its debt requirements each year in fixed-rate 10-year debt will be replicating the assumed efficient financing strategy that underlies the trailing average approach. 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.<sup>52</sup>

139 I agree that there is an effective match between the regulatory allowance for the cost of debt using the trailing average approach and the service provider's actual cost of debt under the fixed-rate staggered maturity debt management strategy.

### 4.2 The efficient debt management practice under the previous Rules

#### 4.2.1 Debt management strategies employed by service providers under the previous Rules

140 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. As a result, a range of different financing strategies were adopted by different service providers. As set out above, the most common strategies were:

- a. The fixed-rate staggered maturity approach; and
- b. The CKI approach.<sup>53</sup>

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<sup>52</sup> AER Rate of Return Guideline, Explanatory Statement, p. 102.

## 4.2.2 No “one size fits all” approach

141 In its Final Determination, the AEMC concluded that there is no single efficient debt management strategy, but rather that:

...efficient benchmarking service providers may have different efficient debt management strategies<sup>54</sup>

142 In this regard, the AEMC made note of the fact that the new Rules require the regulator to have regard to the particular characteristics of the benchmark efficient entity and the different efficient financing practices that might be implemented by service providers. The AEMC noted that the new Rule:

...requires the regulator to have regard to the characteristics of a benchmark service provider and how this influences assumptions about its efficient debt management strategy. As highlighted by SFG in its report, debt management practices tend to differ according to the size of the business, the asset base of the business, and the ownership structure of the business.<sup>55</sup>

143 The AEMC was critical of the “one-size-fits-all” approach that assumes that there was one single efficient debt financing strategy that would be employed by every service provider regardless of its particular characteristics and circumstances:

The current prevailing market conditions “one-size-fits-all” approach required under the NER, and applied under the NGR, may lead to various mis-matches between the regulatory estimate allowed by the regulator and the actual interest rate exposures of those service providers that employ debt management practices that are not closely aligned with the benchmark assumptions.<sup>56</sup>

144 The AEMC went on to provide some guidance about how the characteristics of the service provider might be relevant to the efficient debt management practice that it employed. In this regard, the AEMC stated that:

Currently service providers have varying abilities to match their debt servicing costs to the regulatory allowance for the return on debt. Some of the smaller privately-owned service providers appear able to hedge their interest rate very well, but larger state-owned service providers such as those in NSW and Queensland appear unable to enter into these hedges because the relevant financial markets are not sufficiently deep to meet their requirements.<sup>57</sup>

145 There appears to be no dispute about the fact that, under the previous Rules:

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<sup>53</sup> SA Power Networks, CitiPower and Powercor.

<sup>54</sup> AEMC Final Determination, p. 84.

<sup>55</sup> AEMC Final Determination, pp. 84-85.

<sup>56</sup> AEMC Final Determination, pp. 84-85.

<sup>57</sup> AEMC Final Determination, p. 75.

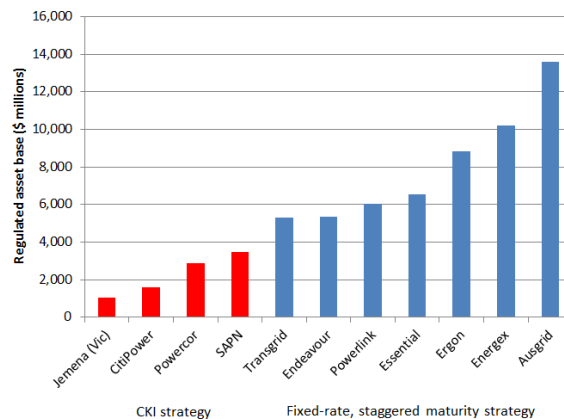
- a. The CKI debt management strategy was employed by the CKI businesses, SP AusNet and Jemena; and
- b. The fixed-rate staggered maturity strategy was employed by TransGrid, Powerlink, Ausgrid, Endeavour, Essential, Energex and Ergon.

146 Whereas none of the larger businesses materially employed interest rate swaps (which is the hallmark of the CKI approach) there were differences in terms of the degree to which they staggered the maturity of their debt. The NSW distributors adopted a strategy that is very similar to the trailing average benchmark that the AER now proposes to adopt – with debt maturities being staggered relatively evenly over a 10-year cycle. The Queensland network businesses had debt maturities that were more concentrated around the end of the next regulatory period. That is, whereas the NSW distributors had maturities evenly spread from 1-10 years, the maturities of the Queensland businesses were more concentrated between 4-7 years. Again, none of these businesses employed interest rate swaps.

147 The Queensland Treasury Corporation (QTC) was able to implement this more concentrated maturity profile for the Queensland businesses because the debt requirements of the network businesses amounted to a relatively smaller proportion of total state borrowings (i.e., the Queensland network businesses are smaller and the rest of state borrowing is relatively larger than for NSW). Thus, QTC was able to somewhat concentrate maturities for the network businesses and to issue debt with different maturities for the balance of state borrowings. The QTC approach of concentrating maturities would not have been available to a stand-alone benchmark service provider.

148 A comparison of the size of these service providers and the debt management strategies employed under the previous rules is set out in Figure 4 below. Consistent with the observations of the AEMC above, the smaller businesses employed the CKI debt management strategy and the larger businesses did not.

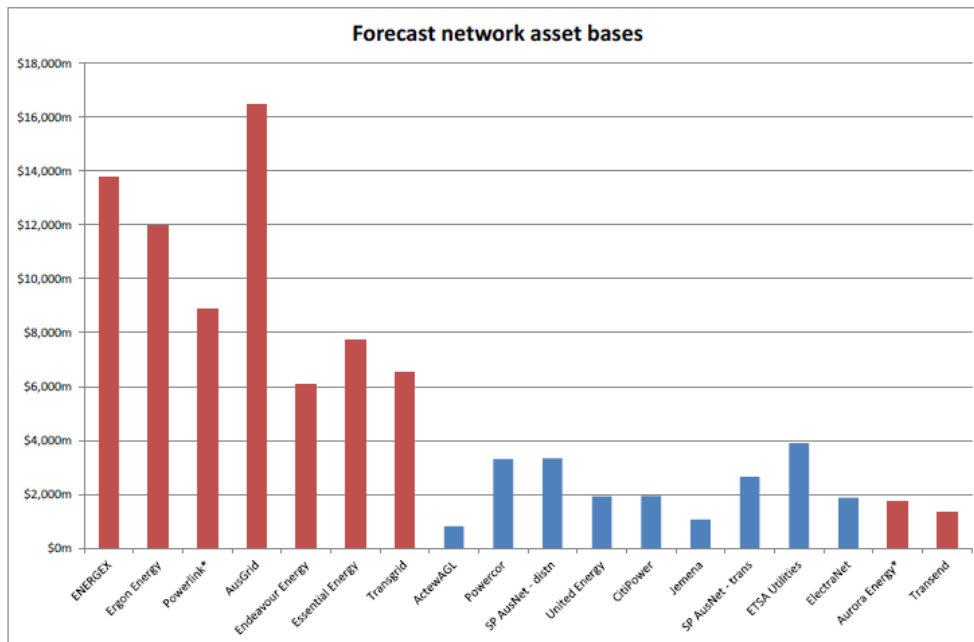
Figure 4: Service provider debt management strategies under the previous Rules



Source: AER State of the Energy Market Report, 2014.

149 In its submission to the AEMC rule change process, QTC made the same point, as set out in Figure 5 below. That figure shows the government-owned service providers in red and the privately owned ones in blue. The CKI approach was only used by smaller businesses.<sup>58</sup>

Figure 5: QTC submission to AEMC rule change process



Source: QTC submission to AEMC, 16 April 2012, p.28.

150 In summary:

- a. The AER notes that there was no debt management strategy that could replicate the regulatory benchmark under the previous Rules;
- b. The AEMC has determined that there is no single “one-size-fits-all” efficient debt management strategy and that different service providers may employ different efficient debt management strategies depending on their characteristics and circumstances;

<sup>58</sup> The risk-free rate could be matched to the rate on the day allowed return using interest rate swaps under the CKI approach or by issuing all debt requirements during the rate-setting period shortly before each rate-setting period. The latter strategy leaves the service provider open to substantial refinancing risk and is only possible for very small networks that have debt requirements that are small enough to be immediately accommodated by debt capital markets. From my work for the AEMC, I am aware that the state-owned Tasmanian Networks Transend and Aurora had employed this strategy.



- c. The AEMC requires the regulator to have regard to the characteristics of the service provider, including its size, when making determinations about efficient debt management strategies;
- d. Service providers that are materially smaller than the NSW distributors tended to employ the CKI debt management strategy under the previous rules, whereas size of the NSW distributors and larger did not employ the CKI approach.

### 4.2.3 The AER's conclusion about a single efficient debt management strategy under the previous Rules

151 The AER now considers that the *only* efficient debt management strategy under the previous Rules was the CKI approach. The AER is now of the view that, under the previous Rules, any service provider that was not using the CKI debt management strategy was operating inefficiently.

152 In its Guideline materials, the AER notes that, under the previous rules, its approach was to set the allowed return on debt according to its estimate of the yield on 10-year BBB+ bonds just prior to the relevant regulatory period. The AER proposes that under such a rate on the day approach for determining the allowed return on debt, the efficient debt strategy of the benchmark efficient entity would have been the CKI approach, whereby the regulated firm issues floating rate 10-year debt with staggered maturities and then uses swaps to lock in the base risk-free rate at the beginning of each regulatory determination:

Given the observed practices of regulated network businesses and the definition of the benchmark efficient entity, we consider that the following practice is likely to constitute an efficient debt financing practice of the benchmark efficient entity [the] under current 'on the day' approach:

- holding a debt portfolio with staggered maturity dates and using swap transactions to hedge interest rate exposure for the duration of a regulatory control period.<sup>59</sup>

### 4.2.4 Should efficiency be determined with reference to unregulated infrastructure service providers?

153 NERA (2014) examines the question of what would have constituted an efficient debt management strategy under the previous rules at some length. NERA begins by considering the debt management strategy that would have been employed by an efficient unregulated infrastructure service provider. This efficient benchmark is based on the AEMC's statement that:

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<sup>59</sup> AER Rate of Return Guideline, Explanatory Statement, p. 107.

...the Commission considered that the long-term interests of consumers would be best served by ensuring that the methodology used to estimate the return on debt reflects, to the extent possible, the efficient financing and risk management practices that might be expected in the absence of regulation.<sup>60</sup>

154 On this issue, UBS has recently stated that:

The trailing average approach used by TransGrid and Networks NSW was consistent with debt management strategies adopted by non-regulated entities in the infrastructure sector – ports, airports, roads and railways.<sup>61</sup>

155 There appears to be no dispute about the proposition that no unregulated business would ever adopt the CKI debt management strategy. The only reason to issue floating rate debt and lock it all in to a fixed rate in five-yearly increments is to attempt to approximately match a specific regulatory allowance. Outside of the regulatory setting, the CKI approach would not be used. By contrast, the fixed-rate staggered maturity approach is generally adopted by unregulated infrastructure service providers.

156 Consequently, if the appropriate benchmark is the efficient practice of an efficient unregulated infrastructure service provider, the fixed-rate staggered maturity approach would be considered to be the efficient debt management strategy under the previous Rules.

## 4.2.5 Efficiency under the rate on the day regulatory approach

### *Definition of efficiency*

157 The alternative to considering efficiency in relation to unregulated infrastructure service providers is to consider the efficient debt management strategy within the context of the rate on the day approach that was adopted under the previous Rules. In this regard, the AER states that:

...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.<sup>62</sup>

158 In this context, it is reasonable to consider that efficient service providers would be seeking to minimise the expected present value of its financing costs over the life of its assets. In this endeavour, the service provider would weigh up considerations such as the rate of 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

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<sup>60</sup> AEMC Final Determination, p. 76.

<sup>61</sup> UBS (2015), p. 5.

<sup>62</sup> AER Rate of Return Guideline, Explanatory Statement, p. 103.

terms during a financial crisis), and transaction costs (for example, there are fixed costs associated with every debt issuance and with hedging activities).

### **Primary evidence is the actual practice of service providers**

159 In my view, the starting point in considering how an efficient service provider would balance the trade-off between these various considerations is to observe what the service providers actually did. In this regard, I note that *none* of the service providers that were the size of the NSW distributors or larger adopted the CKI approach. In my view, this should be considered to be strong primary evidence that (under the previous Rules) the efficient debt management strategy for a service provider with the characteristics of the NSW distributors would be a fixed-rate staggered maturity strategy rather than the CKI approach.

160 I also note that service providers that are materially smaller than the NSW distributors tended to adopt the CKI debt management strategy. In my view this should be considered to be strong primary evidence that (under the previous Rules) the efficient debt management strategy of these smaller service providers would be the CKI strategy.

161 This primary evidence suggests that different service providers with different characteristics may adopt different efficient financing strategies. What is an efficient financing strategy for one service provider might not be efficient for a different service provider with different characteristics. I note that this view appears to be entirely consistent with that expressed by the AEMC, as set out above.

### **The costs and benefits of executing interest rate swaps**

162 The difference between the two financing strategies that have been observed for different service providers under the previous Rules relates to hedging – the use of interest rate swaps to lock in a fixed rate at the beginning of each regulatory determination. The primary evidence suggests that:

- a. For smaller service providers, the benefits of hedging exceed the costs; and
- b. For larger service providers, the costs of hedging exceed the benefits.

163 In relation to this point, NERA (2014, pp. 26-30) present evidence that:

- a. The benefits of hedging are lower for larger service providers; and
- b. The costs of hedging are higher for larger service providers.

164 In relation to the relative benefits of hedging, NERA (2014, pp. 28-29) note that the depth of the hedge market is such that it would have been impossible for the larger service providers to have executed all of the required swaps during the

relevant rate-setting period. NERA notes that for the NSW businesses, \$22 billion swaps would be required, whereas the market could only accommodate trades of \$300 million per day. This implies that it would have taken at least 74 days to execute the volume of swaps that would be required – even if there was zero demand for interest rate swaps from any other party.<sup>63</sup> To the extent that there was some non-regulatory demand, the number of days required to transact the required number of swap contracts would be even greater.

165 Lally (2014, pp. 26-28, 31) accepts that the required number of swaps could not have been executed during the rate-setting period.<sup>64</sup> However, he suggests that the service providers could either have hedged whatever they could have during the rate-setting period or executed swap contracts outside of the rate-setting period. In either case, the resulting hedge is less than perfect – in which case the benefits of hedging are lower for larger service providers.

166 In relation to the relative costs of hedging, I note that there is evidence from Westpac (2013) that the interest rates swaps market is likely to be able to absorb demand of \$300 million in one day without distorting the market and impacting pricing. If, however, the market was required to absorb that maximum volume day after day for more than three months, it seems likely that counterparties would seek to shade pricing accordingly. Indeed, it is common for financial market traders to go to some lengths to disguise their trading intentions precisely to present the market shading prices against them. In many financial markets, there is an entirely separate market for large transactions (or block trades) for the very reason that a large trade would be likely to move the price if broken up into a series of smaller trades to be executed one after the other. Once the NSW distributors had revealed their intention to execute \$22 billion of swaps over three months, it seems highly likely that market counterparties would shade prices accordingly. That is, the costs of hedging are likely to be relatively higher for larger service providers.

167 Hedging costs will also be higher for larger service providers if there is a limited market demand for floating rate bonds. If larger service providers are unable to issue all of their debt in the form of floating rate bonds, but sought to adopt the CKI approach, they would need to issue fixed-rate debt and execute fixed-to-floating interest rate swaps to “convert” their borrowing into floating rate debt. This would involve an additional round of hedging costs that would not be borne

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<sup>63</sup> Lally observed that the NSW service providers could have hedged over a 73 day period. In this regard, see, for instance, the Ausgrid Draft Decision, Attachment 3, pp. 293-294.

<sup>64</sup> In Draft Decisions for the NSW distributors (e.g. Ausgrid Draft Decision, Attachment 3, p. 293), the AER notes that it now potentially allows a longer rate-setting period than it allowed under the previous Rules. This is, of course, irrelevant to a consideration of what might have been the efficient practice under the previous Rules.

by a smaller service provider that was able to issue all of their debt requirements in floating rate debt.<sup>65</sup>

168 In summary, I agree with the conclusion of NERA (2014):

It follows that a benchmark efficient NSP with a similar degree of risk as that which applies to TransGrid [or the NSW distributors] would:

- need to use a longer period to hedge its debt, diminishing the benefits of hedging; or
- enter into swap contracts at significantly higher costs than small and medium sized regulated energy networks.<sup>66</sup>

169 That is, it is my view that there are sound and logical reasons to explain why, under the previous Rules, smaller service providers considered that the benefits of hedging outweighed the costs and why larger service providers reached the opposite conclusion.

### **The AER view**

170 By contrast, the AER takes the view that, under the previous Rules, the only efficient debt management strategy for *all* service providers was the CKI strategy. Logically, this implies that all of the service providers of the same size as the NSW distributors or larger, were either:

- a. Not seeking to operate efficiently (i.e., not seeking to minimise the expected present value of their financing costs); or
- b. Incompetent (i.e., seeking to minimise the expected present value of their financing costs, but mistakenly and consistently employing a debt management strategy that was inappropriate for that purpose).

171 In relation to whether larger service providers were seeking to operate efficiently, the Draft Decisions in relation to the NSW distributors suggests that government ownership may be relevant. In particular, the AER notes that the larger service providers borrow via a government treasury corporation (QTC or NSW T-Corp) rather than a corporate treasury and that the relevant governments own a portfolio of service providers.<sup>67</sup> However, the AER provides no explanation of why this would lead to a policy of not seeking to minimise the expected present value of financing costs. I can see no reason why government ownership would lead to a conscious policy of paying more than the efficient level of financing

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<sup>65</sup> The Ausgrid Draft Decision, for instance, refers to this approach, and the QTC submission in relation to it, in Attachment 3, p. 307.

<sup>66</sup> NERA (2014), p. 29.

<sup>67</sup> See, for instance, the Ausgrid Draft Decision, Attachment 3, pp. 290-291.

costs.<sup>68</sup> Governments benefit just as much as any other owner from keeping financing costs to the minimum possible level.

172 In relation to the competence of government-owned service providers, the Draft Decisions in relation to the NSW distributors suggests that these service providers might simply not understand the benefits of hedging via the swaps market. The AER states that:

...government owned service providers...might have historically been less aware of the full potential of the swaps market.<sup>69</sup>

173 I find this allegation to be quite extraordinary. To my knowledge and in my experience, both QTC and T-Corp are very highly regarded treasury corporations with highly-qualified and experienced staff being remunerated at commercial rates. I consider the suggestion that they simply did not properly understand how interest rate swaps might be used as part of a service provider's debt management strategy to be implausible. In this regard, I also note the statement of Networks NSW CFO Justin De Lorenzo, which describes how the Networks NSW businesses had considered a range of debt management strategies, including the use of interest rate swaps, and had determined that the most appropriate debt management strategy for them, given their characteristics and circumstances, was the fixed-rate staggered maturity approach.<sup>70</sup>

### **The UBS view**

174 UBS is a large global banking, wealth management, and financial advisory group. UBS has a significant debt capital markets practice that involves advising on the development of debt management strategies and the execution of those strategies. UBS issues debt and executes interest rate swaps for corporate clients.

175 UBS (2015) has conducted an analysis to determine whether the NSW Networks businesses could or should have adopted the CKI approach for the 2009-2014 regulatory period. They first note that:

The Australian Competition Tribunal set the averaging period of 18 August to 5 September 2008 in November 2009. There is no derivative product available to hedge historical interest rates.<sup>71</sup>

176 That is, the averaging period was not finally determined until well after the event. This means that the network businesses would have had to risk fixing the risk-free rate to what might have turned out to be the wrong period. In that scenario,

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<sup>68</sup> For example, paying an inefficiently high level of financing costs would not create employment or lower electricity prices.

<sup>69</sup> For instance, Ausgrid Draft Decision, Attachment 3, p. 291.

<sup>70</sup> Statement of Justin De Lorenzo, Paragraphs 9-32.

<sup>71</sup> UBS (2015), p. 2.

the execution of interest rate swaps would serve to *create* risk by locking in the wrong risk-free rate.

177 Setting aside the issue that the rate-setting period was not finalised until a year after the event, UBS goes on to consider whether the length of the approved rate-setting period would have been sufficient for the business to execute the required volume of interest rate swaps. UBS conclude that:

We conclude that a decision to hedge a component of the cost of debt calculation by using interest rate swaps in 2008/2009 would not have been achievable for Networks NSW over the 15 day period set by the Australian Competition Tribunal and implemented by the AER. The maximum averaging period of 40 days – while not implemented – would still not have been sufficient to hedge the fixed rate risk component of the cost of debt determination. Interest rate swap liquidity at the time was uncertain at best. A partial hedge may have been achievable, but it would also have exposed the NSW service providers to potential risk of \$819m. No compensation was made available to cover risk outside of the averaging period. The low risk and efficient alternative was to adopt a trailing average strategy to hedge interest rate risk.<sup>72</sup>

178 That is, UBS concludes that the requisite volume of swaps could not have been executed in a 40-day period and could certainly not have been executed in the 15 day rate-setting period that was actually approved for the NSW businesses. I note that the averaging period that was approved for the NSW distributors was for 15 days ending on 5 September – the same end date as for TransGrid.

179 UBS concludes that only a portion of the required volume of interest rate hedges could have been executed during the rate-setting period. Thus, the balance of any interest rate hedges (executed outside the final approved rate-setting period) would have had the effect of locking in the wrong risk-free rate. UBS concludes that this would have had the effect of creating a mis-match risk whereby the swap obligates the service provider to make fixed-rate payments that differ from the fixed-rate receipts allowed by the regulator.

### 4.3 Reasons for the NSW distributors' debt management approach under the previous Rules

180 Under the previous rules, the NSW distributors did not employ the CKI debt management approach. Rather, they have always employed the fixed-rate staggered maturity debt management approach that the AER now deems to be the most efficient approach under the current Rules.

181 The NSW distributors have submitted that the CKI debt management approach has never been available to it due to its size and the combined size of the other businesses that are regulated on the same timetable. As set out above, the CKI

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<sup>72</sup> UBS (2015), p. 4.

approach requires the regulated firm to transact a number of interest rate swaps and the NSW distributors have submitted that the Australian interest rate swaps market is not sufficiently deep to accommodate the volume of swaps that would be required if all regulated businesses sought to implement the CKI approach.

182 In this regard, TransGrid’s Executive General Manager of Finance has made the following submission (that is equally relevant to the NSW distribution network businesses):

...given that the total NSW Government portfolio of regulated assets (including TransGrid) is in excess of \$22 billion, to the best of my knowledge the financial markets would struggle to place this level of interest rate swaps in the time required without material distortions in the market.<sup>73</sup>

183 This point was also raised in the SFG (2012) report commissioned by the AEMC as part of its rule change process:

A number of submissions have indicated that some businesses are simply too large to lock in interest rates using swap contracts – the swaps market does not have sufficient depth to accommodate the volume that would be required by businesses with large amounts of debt funding. Moreover, since each determination generally applies to a number of businesses, having multiple businesses seeking to access the swap market over the same (or very similar) short period acts to exacerbate the potential inadequacy of the swap market.<sup>74</sup>

184 The same point was also recognised by the AEMC in its Final Determination:

...the rule requires the regulator to have regard to the characteristics of a benchmark service provider and how this influences assumptions about its efficient debt management strategy. As highlighted by SFG in its report, debt management Cost of Capital for Regulated Electricity Network Return on Debt practices tend to differ according to the size of the business, the asset base of the business, and the ownership structure of the business.<sup>75</sup>

185 QTC, who arranges the debt financing for all of the Queensland network businesses, made similar submissions to the AEMC rule change process, concluding that:

Given the volumes of debt funding associated with larger regulated asset bases, QTC does not consider that transacting large swap volumes over a short period of time is a prudent way of managing interest rate risk.<sup>76</sup>

186 QTC, as an organisation whose primary role is to arrange debt financing as efficiently as possible, further explained that:

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<sup>73</sup> Affidavit of Boon Thio, Paragraph 4.3.

<sup>74</sup> SFG (2012), Paragraph 74.

<sup>75</sup> AEMC 2012, Economic Regulation of Network Service Providers, and Price and Revenue Regulation of Gas Services, Final Position Paper, 29 November 2012, Sydney, pages 84-85.

<sup>76</sup> QTC submission to AEMC, p. 28.



The hedging strategy which is assumed to be applied by the benchmark efficient NSP is not available to NSPs with large regulated asset bases. By implication, the benchmark efficient NSP is effectively defined by reference to the relatively smaller regulated asset bases of the listed NSPs, and larger NSPs are required to bear a higher level of interest rate mismatch risk because of their inability to follow the same strategy.<sup>77</sup>

187 and that:

The increased level of interest rate mismatch risk is not due to inefficiency in larger NSP businesses, but rather due to the size of the Australian debt capital market and swaps market.<sup>78</sup>

188 QTC, further explained that, in their professional view, it would not be possible for the larger service providers to transact the required volume of swaps, at least without disadvantageously moving market prices:

There is a limit to the amount of duration that can be absorbed in the debt capital markets and the swap market over a short period of time, especially given that the benchmark interest rate hedging strategy requires ultimate investors which are willing to take on exposure to five year interest rates. While the Australian swap market is generally quite liquid for reasonable volumes, this liquidity has not been tested for the large volumes of debt which are associated with large regulated NSPs. It is QTC's view that attempting to transact the required volume of swaps for large regulated NSPs over a forty day trading period would involve high transaction costs and is likely to result in opportunistic pricing by market participants. If the market becomes aware that a NSP (or central treasury body) is attempting to deal large volumes of swaps each day within a fixed period of time, the swap rate is likely to rise as market participants identify an opportunity to realise significant profits at the expense of the NSP.<sup>79</sup>

## 4.4 Summary and conclusions

189 If efficiency is defined in terms of the debt management strategy that would be employed by an efficient unregulated infrastructure service provider, the efficient strategy would be the fixed-rate staggered maturity approach.

190 If efficiency is defined in the context of the rate on the day approach under the previous Rules, the following points are relevant:

- a. There was no single debt management strategy that could match the regulatory allowance;

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<sup>77</sup> QTC submission to AEMC, p. 29.

<sup>78</sup> QTC submission to AEMC, p. 29.

<sup>79</sup> QTC submission to AEMC, pp. 28-29.

- b. No service providers of large service providers (such as the NSW distributors and TransGrid) adopted the CKI approach. That approach was only adopted by the smaller service providers; and
- c. The observed practice of service providers is consistent with the proposition that, for larger service providers, the benefits of executing swap contracts are relatively lower and the costs are relatively higher.

## 5 Separate consideration of the risk-free rate and DRP components

191 Lally (2014) and the Draft Decisions for the NSW distributors assume that under the previous rules the efficient benchmark firm would have issued floating rate 10-year debt with staggered maturities and then used swaps to lock in the base risk-free rate at the beginning of each regulatory determination. Under this assumption, at the time of the current regulatory determination the efficient benchmark firm would have a DRP that has been locked in by its debt issuances over the past ten years and it would have some floating rate bonds that mature in one year, some that mature in two years, and so on. Lally and the Draft Decisions for the NSW distributors further assume that the efficient benchmark firm would issue 10-year fixed rate debt as its floating rate debt matures. Thus, after ten years the benchmark firm would have a portfolio of 10-year fixed rate debt with staggered maturities – the debt management approach that the AER now considers to be the efficient approach.

192 Under these assumptions, the allowed return on debt could be set to precisely match the actual debt service cost of the benchmark efficient firm by setting a 10-year transition period for the risk-free rate and applying the trailing average approach to the DRP from the outset. This would compensate the benchmark firm for the trailing average DRP (which it is assumed to have incurred) while providing for the transition to fixed-rate debt (which it is assumed to pursue).

193 There appears to be general agreement about the proposition that, under the assumptions set out above, setting a 10-year transition period for the risk-free rate and applying the trailing average approach to the DRP from the outset would provide a service provider that had previously been employing the CKI approach with fair compensation for its efficient debt service costs.

194 The primary argument of Lally (2014) is that, in the current determination, the regulator should *not* adopt an approach whereby the benchmark efficient entity is fairly compensated for its efficient debt service costs. Rather, Lally (2014) proposes that the regulator should set the allowed return on debt in such a manner as to deliberately *under-compensate* the firm for its efficient debt service costs. Lally proposes that this should be done to claw back (or square up) over-compensation that may have occurred in the prior determination.<sup>80</sup>

195 That is, Lally (2014, p.17) implicitly assumes that, under the previous rules, the efficient benchmark firm would have adopted the CKI debt management practice. He notes that, in this case, the regulated firm would receive a windfall gain if:

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<sup>80</sup> Lally (2014), pp. 32, 36, 37.

- a. The regulator sets the allowed return on debt according to the rate on the day approach; and
- b. Debt risk premiums at the beginning of the regulatory period are higher than their average level over the previous ten years.

196 To see this, recall that the return on debt has two components – the base risk-free rate and the debt risk premium. Under the CKI debt management practice, the regulated firm is able to lock in the base risk-free rate at the beginning of the regulatory period.<sup>81</sup> Under the previous rules, there would be an effective match between:

- a. The base risk-free component of the *regulatory allowed return* on debt, which is determined according to the rate on the day at the beginning of the regulatory period; and
- b. The base risk-free component of the benchmark efficient entity's *actual cost* of debt, which is also set according to the rate on the day at the beginning of the regulatory period.<sup>82</sup>

197 By contrast, there is no match between the allowed DRP under the previous rules and the actual DRP incurred under the CKI approach. Under the CKI approach, the benchmark efficient entity issues 10% of its debt each year in the form of 10-year floating rate debt. Each debt issuance locks in the DRP at the time of that issuance. Thus, at the time of a regulatory determination, the DRP for 10% of its debt will have been set nine years ago, the DRP for another 10% will have been set eight years ago and so on. However, under the previous rules the DRP is entirely set at the time of the regulatory determination. Consequently, if the DRP at the time of the regulatory determination is higher than the average DRP over the previous ten years, the allowed return on debt will be higher than the actual cost of debt for the benchmark efficient firm. He describes this as a windfall gain for the regulated firm as the allowed return on debt is higher than the efficient debt service cost.

198 That is, even if the efficient benchmark firm is considered to have adopted the CKI approach under the previous Rules, the transition would apply only to the base risk-free component of the return on debt. Regardless of whether the service provider had previously adopted the CKI or fixed-rate staggered maturity approach, the DRP would have been fixed when debt was issued over the

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<sup>81</sup> Or, more accurately, over the 20- to 40-day averaging period just prior to the regulatory period.

<sup>82</sup> In fact, the match between the regulatory allowance and the efficient cost of debt is close but not perfect. This is because the base risk-free component of the regulatory allowed return on debt is set according to the yield on 10-year Commonwealth government bonds whereas the base risk-free component of the actual cost of debt under the CKI approach is set according to the 5-year swap rate. Any mismatch between the 10-year government bond rate and the 5-year swap rate is likely to be very small relative to the potential mis-match in relation to the DRP. I follow Lally (2014) in focusing on the effects of the much larger potential mis-match relating to the DRP.

previous ten years. That is, regardless of the previous strategy, the DRP component the actual debt service cost matches the DRP component of an immediate implementation of the trailing average approach. Any transition applied to the DRP component of the return on debt will inevitably result in a mis-match that must result in either a windfall gain or a windfall loss over the forthcoming regulatory period.

## 6 Specific points raised in the Draft Decisions for the NSW distributors

### 6.1 Transition, mis-match and windfall gains

199 In the Draft Decisions for the NSW distributors, 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.<sup>83</sup>

200 In my view, this statement is misleading at best in at least two respects.

201 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 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.

202 The AER itself is clear about this point later in the Draft Decisions for the NSW distributors. 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.<sup>84</sup>

203 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.<sup>85</sup>

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<sup>83</sup> For instance, Ausgrid Draft Decision, Attachment 3, p. 113.

<sup>84</sup> Ausgrid Draft Decision, Attachment 3, p. 113.

<sup>85</sup> Ausgrid Draft Decision, Attachment 3, p. 113.

204 The AER then goes on to list entirely different reasons for applying a transition to the DRP component, which I address below.<sup>86</sup> Moreover, the section in the Draft Decision 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.

205 In summary, it is quite misleading 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.

206 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.

207 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.

208 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.<sup>87</sup>

## 6.2 Other reasons proposed for transition arrangements

### 6.2.1 Primary reason is the claw back of perceived past windfall gains

209 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 Draft Decisions for the

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<sup>86</sup> For example, Ausgrid Draft Decision, Attachment 3, pp. 113-114.

<sup>87</sup> Lally (2014), p. 25.

NSW distributors sets out some additional reasons, each of which is addressed below.

### 6.2.2 The availability of historical data

210 In the Draft Decisions for the NSW distributors, 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.<sup>88</sup> 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 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.

### 6.2.3 Opportunistic behaviour by service providers

211 In its Draft Decisions for the NSW distributors, the AER states that its proposed transition “reduces the potential for opportunistic behaviour from stakeholders.”<sup>89</sup> 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.<sup>90</sup>

212 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.

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<sup>88</sup> For example, Ausgrid Draft Decision, Attachment 3, pp. 121-123.

<sup>89</sup> For example, Ausgrid Draft Decision, Attachment 3, p. 123.

<sup>90</sup> For example, Ausgrid Draft Decision, Attachment 3, p. 123.



213 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.

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## **8 Appendix 1: CV of Prof. Stephen Gray**

## **Stephen F. 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., I. Harymawan and J. Nowland, (2014), “Political and government connections on corporate boards in Australia: Good for business?” *Australian Journal of Management*, forthcoming.
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## 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

2002 - Present: Director, Financial Management Association of Australia Ltd.

2003 - Present: Director, Moreton Bay Boys College Ltd. (Chairman since 2007).

2002 - 2007: External Risk Advisor to Board of Enertrade (Queensland Power Trading Corporation Ltd.)

## Consulting

Managing Director, Strategic Finance Group: [www.sfgconsulting.com.au](http://www.sfgconsulting.com.au).

Consulting interests and specialties, with recent examples, include:

- **Corporate finance**
  - ⇒ **Listed multi-business corporation:** Detailed financial modeling of each business unit, analysis of corporate strategy, estimation of effects of alternate strategies, development of capital allocation framework.
- **Capital management and optimal capital structure**
  - ⇒ **State-owned electricity generator:** Built detailed financial model to analyze effects of increased leverage on cost of capital, entity value, credit rating, and stability of dividends. Debt of \$500 million issued.
- **Cost of capital**
  - ⇒ **Cost of Capital in the Public Sector:** Provided advice to a government enterprise on how to estimate an appropriate cost of capital and benchmark return for Government-owned enterprises. Appearance as **expert witness** in legal proceedings that followed a regulatory determination.
  - ⇒ **Expert Witness:** Produced a written report and provided court testimony on issues relating to the cost of capital of a cable TV business.
  - ⇒ **Regulatory Cost of Capital:** Extensive work for regulators and regulated entities on all matters relating to estimation of weighted-average cost of capital.
- **Valuation**

- ⇒ **Expert Witness:** Produced a written report and provided court testimony. The issue was whether, during a takeover offer, the shares of the bidding firm were affected by a liquidity premium due to its incorporation in the major stock market index.
- ⇒ **Expert Witness:** Produced a written report and provided court testimony in relation to valuation issues involving an integrated mine and refinery.
- **Capital Raising**
  - ⇒ Produced comprehensive valuation models in the context of capital raisings for a range of businesses in a range of industries including manufacturing, film production, and biotechnology.
- **Asset pricing and empirical finance**
  - ⇒ **Expert Witness:** Produced a written report on whether the client's arbitrage-driven trading strategy caused undue movements in the prices of certain shares.
- **Application of econometric techniques to applied problems in finance**
  - ⇒ **Debt Structure Review:** Provided advice to a large City Council on restructuring their debt portfolio. The issues involved optimisation of a range of performance measures for each business unit in the Council while simultaneously minimizing the volatility of the Council's equity in each business unit.
  - ⇒ **Superannuation Fund Performance Benchmarking:** Conducted an analysis of the techniques used by a large superannuation fund to benchmark its performance against competing funds.
- **Valuation of derivative securities**
  - ⇒ **Stochastic Volatility Models in Interest Rate Futures Markets:** Estimated and implemented a number of models designed to predict volatility in interest rate futures markets.
- **Application of option-pricing techniques to real project evaluation**
  - ⇒ **Real Option Valuation:** Developed a framework for valuing an option on a large office building. Acted as arbitrator between the various parties involved and reached a consensus valuation.
  - ⇒ **Real Option Valuation:** Used real options framework in the valuation of a bio-tech company in the context of an M&A transaction.



## 9 Appendix 2: Instructions

Our ref: LIZC\RIRJ\02 3002 8238  
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Email: liza.carver@ashurst.com

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19 January 2015

**Professor Stephen Gray**  
Frontier Economics Pty Ltd  
South Bank House  
Cnr Ernest & Little Stanley Street  
Southbank QLD 4101



**CONFIDENTIAL & PRIVILEGED**

Dear Stephen

**Letter of engagement – Networks NSW – AER Draft Determination**

Ausgrid, Endeavour Energy and Essential Energy (referred to collectively as **Networks NSW**) are distribution network service providers in New South Wales, Australia regulated by the Australian Energy Regulator (**AER**) under the National Electricity Law (**NEL**) and National Electricity Rules (**NER**).

The AER made a draft determination of the revenue allowances for Networks NSW on 27 November 2014. This letter confirms your engagement in relation to Networks NSW's response to that draft determination (and materials supporting that draft determination) (**Response**).

**Scope of engagement**

You are engaged by us, on behalf of Networks NSW, for the purposes of the Response, to:

- (a) provide economic analysis and advice;
- (b) prepare a written expert report (or reports);
- (c) appear as an expert witness for Networks NSW (if required); and
- (d) undertake such other work as Ashurst Australia may instruct you as the Response progresses.

You are generally engaged to consider and respond to the sections of the draft determination dealing with the return on debt, and particularly the transition for the return on debt and the supporting material prepared by Dr Martin Lally. You are also engaged to consider the draft statement regarding the Networks NSW DNSP's actual approach to debt (**enclosed**).

You are engaged to respond to the list of questions set out in Attachment A. Ashurst engages you to produce your response to those questions in the form of a written report. Ashurst requires a draft version of the report by 13 January 2015, and a final report by 16 January 2015.

AUSTRALIA BELGIUM CHINA FRANCE GERMANY HONG KONG SAR INDONESIA (ASSOCIATED OFFICE) ITALY JAPAN PAPUA NEW GUINEA  
SAUDI ARABIA SINGAPORE SPAIN SWEDEN UNITED ARAB EMIRATES UNITED KINGDOM UNITED STATES OF AMERICA

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**Enclosed** is a copy of Practice Note CM7: Expert witnesses in proceedings in the Federal Court of Australia. Please ensure that your report complies with the requirements of Practice Note CM7, and also certify in your report that you have complied with Practice Note CM7.

### **Remuneration**

The payment mechanism for your engagement is to be agreed between yourself and Networks NSW.

### **Confidentiality**

Networks NSW requires you to agree to keep strictly confidential all Confidential Information disclosed to you during the course of your engagement in relation to the Response. This obligation survives the conclusion of your engagement under this letter.

You acknowledge that the Confidential Information will include information about the Response. You acknowledge that the Confidential Information is secret, confidential and of value to Networks NSW, and its unauthorised use or disclosure may significantly damage Networks NSW's business.

You agree that you must:

- (a) keep the Confidential Information secret and confidential at all times;
- (b) not disclose any Confidential Information to anyone except with Networks NSW's prior permission; and
- (c) ensure that each person to whom you disclose Confidential Information with the prior permission of Networks NSW, including each member of your staff working with you in connection with this engagement, makes the same acknowledgment, agrees to comply with, and does comply with, (a) and (b) above.

In the event that you are required by a court or otherwise by law to disclose Confidential Information, you agree that you will inform Networks NSW of this fact as soon as is possible in advance of this disclosure.

### **Intellectual Property Rights**

You agree:

- (a) that Networks NSW retains all Intellectual Property Rights in any Materials which may be disclosed to you in the course of your engagement; and
- (b) to transfer to Networks NSW all Intellectual Property Rights in any Materials created by you in the course of your engagement.

### **Return of Confidential Documents**

On request of Networks NSW, you must:

- (a) return to Networks NSW any documents or other materials containing Confidential Information, or, if they are in electronic form, erase or destroy them and provide evidence of erasure or destruction to the satisfaction of Networks NSW; and
- (b) provide to Networks NSW or destroy any materials created by you in connection with this engagement that contain Confidential Information, or, if they are in electronic form, erase or destroy them and provide evidence of erasure or destruction to the satisfaction of Networks NSW.

**Interpretation**

In this letter:

- (a) Networks NSW means the Networks NSW business and any related bodies corporate.
- (b) **Confidential Information** includes all information in any form or medium relating to Networks NSW, which is disclosed to you by Networks NSW or its officers, employees, advisers or agents, but does not include any information which you can show:
  - (i) is in the public domain, otherwise than as a result of a breach of the contents of this letter; or
  - (ii) is already known to you prior to the disclosure or which is subsequently known to you as a result of disclosure by another source which was not, to the best of your knowledge, subject to any agreement for confidentiality.
- (c) **Intellectual Property Rights** means all present and future rights conferred by statute, common law or equity in or in relation to copyright, trade marks, designs, patents, circuit layouts, plant varieties, business and domain names, inventions and confidential information, and other results of intellectual activity in the industrial, commercial, scientific, literary or artistic fields whether or not registrable, registered or patentable. These rights include:
  - (i) all rights in all applications to register these rights;
  - (ii) all renewals and extensions of these rights; and
  - (iii) all rights in the nature of these rights, such as moral rights.
- (d) **Materials** means works, ideas, concepts, designs, inventions, developments, improvements, systems or other material or information, created, made or discovered by you (either alone or with others and whether before or after the date of this document) in the course of your employment or as a result of using the resources of Networks NSW or in any way relating to any business of Networks NSW.

Please indicate your acceptance of these terms by signing the enclosed duplicate of this letter in the space provided, and then returning it to us.

Yours faithfully

*Ashurst Australia*

**Ashurst Australia**

I accept the terms contained in this letter.

  
.....  
**Professor Stephen Gray**

19/1/2015  
.....  
Date

**Attachment A**

**List of questions to be addressed**

1. How should the efficient debt management practice under the previous rules be determined for a particular service provider?
2. Is the fixed-rate staggered maturity approach under the current Rules likely to be adopted by service providers?
3. If the AER was to set the allowed return on debt using the trailing average approach immediately, with no transition period, would there be a windfall gain for any of the Networks NSW distribution network service providers?
4. Is it appropriate for the AER to consider past differences between the regulatory allowance and whatever was considered to be the efficient debt management practice (ie mismatches in previous regulatory periods) in making the current determination?

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