Cost of Debt: Transitional Analysis

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CHAIRMONT
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1 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The Australian Energy Regulator (AER) seeks advice on the return on debt approach; specifically, whether transitional arrangements are appropriate in moving from an 'on-the-day' debt approach to a 'trailing average' portfolio approach.

AER is seeking a critical review of the issues from a market practitioner's perspective, rather than from a regulatory economic viewpoint. We understand and recognise an overarching objective of this exercise is to help ensure that the highest order issues are addressed taking into account the arguments of business, debt and investment advisers, academics and economic advisers and the regulations.

1.2 SCOPE OF WORK

There are six specific questions that AER seeks advice on and these are contained in the Terms of Reference (ToR). Based on the answers to questions 1-6 and any other considerations that Chairmont considers relevant, the ultimate question is whether it is reasonable to apply AER's debt transition path in the rate of return guideline to the NSW network service providers' (NSPs) 2014-2019 regulatory determinations.

1.3 OUR CRITICAL REVIEW – ASSUMPTIONS AND PRINCIPLES

There are a number of important principles and assumptions underlying this report. Specifically the analysis:

- has been undertaken within the overarching framework of the National Electricity Objective (NEO) and any recommendations take this into account;
- is an examination of what a Benchmark Efficient Entity (BEE) would have done from an efficient financing perspective based on historical market conditions;
- distinguishes between the transitional period that is 10 years and the regulatory period that is five years;
- is not an actual versus benchmark comparison, i.e. it is not an examination of the actual debt and interest rate risk management practices of Ausgrid, Transgrid, etc; and
- includes three types of BEEs because some of the industry submissions argue that transaction size is important and does impact on the ability of a provider to transact. Consequently, throughout this paper there is reference to a BEE, a Large BEE and Super BEE. A Large BEE, like the NSW NSPs, has all the same characteristics of a BEE, except that debt and hedging requirements are significantly greater than an average NSP and that there is similar timing of the regulatory determinations. Our analysis centres on a Super BEE, which takes the 'worst case' of a group of Large BEEs having to be active in the market at similar times, as if it were one very large entity.

The use of BEE, Large BEE and Super BEE is not to suggest or recommend there are three benchmarks.

There are a number of submissions outlining different Efficient Financing Practices (EFP), e.g. fixed rate staggered debt financing. The critical review considers these approaches.

1.4 OUR APPROACH

1.4.1 Portfolio Analysis

Our approach involved the following steps:

1. Established a broader characterisation of a BEE;
2. Determined what a BEE's portfolio would look like at the start of the regulatory period in 2009;
3. Determined the types of transaction a BEE would have undertaken in 2009-2014;
4. Established what a BEE's portfolio would look like at the end of the 2009-2014 regulatory period; and
5. Determined the types of transaction a BEE would undertake in transitioning to the new 'trailing average' regime from 2014 to 2024.

1.4.2 Questions

Table 1 below contains the questions that were considered in our analysis.

	Description	Terms of Reference
Q1	What is AER's justification for a transitional allowance?	
Reasonableness for a BEE		
Q2	How can a BEE be broadly characterised to understand the required EFP?	Question 1
Q3	What would a BEE's portfolio look like at the end of the previous regulatory period?	Question 2
Q4	How would a BEE transition its portfolio from 'on-the-day' to 'trailing average'?	Question 2
Q5	Are AER's transitional arrangements reasonable for a BEE?	Question 2
Reasonableness for a Super BEE		
Q6	What are the key differences between a Super BEE and a BEE?	Question 3
Q7	What would a Super BEE's portfolio look like at the end of the previous regulatory period?	Question 3
Q8	How would a Super BEE transition its portfolio from 'on-the-day' to 'trailing average'?	Question 3
Q9	Are AER's transitional arrangements reasonable for a Super BEE?	Question 3
Estimation of Over or Under-compensation		
Q10	Was there a difference between the allowed rate and actual cost of debt for a Super BEE for 2009-2014?	Questions 4&5
Q11	Should the transitional arrangements be adjusted to account for any difference in rates for the previous regulatory period?	Questions 4&5
Q12	Is there a difference between the allowed rate and actual cost of debt for a Super BEE for 2014 onwards?	Questions 4&5
Q13	Should the transitional arrangements be adjusted to account for any difference in rates that may arise in the new regulatory period?	Questions 4&5
Reasonableness for NSW NSPs		
Q14	Is efficient financing different for a government owned network and should it be treated differently?	Question 6
Q15	Should NSW NSPs be treated differently to the BEE or Super BEE?	Question 7

Table 1: Questions

1.4.3 Identification of Factors with Greatest Impact

Our approach involved consideration of the arguments in the submissions to determine those with the greatest impact. Factors examined included, in alphabetical order, are:

- Behaviour outcomes from market opportunities
- Behaviour outcomes from regulation
- Credit ratings
- Government versus private ownership
- Identification and management of interest rate risk
- Impact of the Global Financial Crisis (GFC)

- Rate-setting methodologies
- Rate-set window in 2008-09
- Rate-set window from 2014
- Size of entity
- Size of transaction
- Trade-offs (interest rate risk/refinancing risk/cost)
- Transition from the old to new portfolios.

1.5 FINDINGS

1.5.1 Greatest Impact Factors

Based on our analysis we have determined the following inter-related factors that have the greatest impact. These factors in alphabetical order are:

- Identification and management of interest rate risk
- Rate-set window from 2014
- Trade-offs (interest rate risk/refinancing risk/cost)
- Transition from the old to new portfolios.

The above factors determine the types of transactions required, therefore what the old portfolio looks like and how to get to the new portfolio.

The other factors, e.g. GFC, size of transaction and size of entity, are about the market, regulatory or business environment. Although important to cost and timing around the rate set window in 2008-09, they did not fundamentally change the financing practice of an efficient entity and therefore do not impact on the portfolio to be transitioned in 2014.

1.5.2 BEE Portfolio Needs to be Transitioned

A BEE needs to transition its debt portfolio because at the start of the 2014 regulatory period it does not look like a 'trailing average' portfolio. The portfolio immediately prior to the 2014 new regulatory regime would consist of staggered floating rate debt with fixed rate swaps either maturing or about to mature; whereas, a 'trailing average' portfolio would consist of only staggered fixed rate debt.[1]

1.5.3 Large BEE and Super BEE Portfolios are Not Different to a BEE's

A Large BEE or Super BEE would have a similar portfolio to a BEE. In 2009 and at the height of the GFC, a Large and Super BEE would have encountered difficulty in transacting enough swaps in the rate setting window. Nonetheless, the lowest risk approach would have been to transact the swaps as soon as possible, even if it meant going outside the window. Immediately prior to the 2014 new regulatory regime these swaps would be either maturing or about to mature, as is the case for a BEE.

1.5.4 Structural Problem with Transition Path

AER's transitional arrangements do not reflect the required transactions for the BEE to transition its portfolio to the 'trailing average'. This is a structural problem with both the base rate and DRP, as follows:

[1] Or for those entities with very secure ongoing funding sources, e.g. some state government funded entities, the portfolio would consist of fixed rate debt about to mature.

- While a transition path for the base rate is required, the current measurement does not reflect the required transactions. It is currently measured using a 10 year term whereas NSPs can transition their portfolio using a series of 1-10 year swaps with maturities to coincide with the annual partial allowance resets. The average interest rate for a portfolio of 1 to 10 year swaps is usually a lower rate, including in 2014; and
- The DRP does not need to be transitioned because the NSP already has a staggered floating rate debt portfolio. In treating DRP differently from the base rate it needs to be measured in relation to the swap curve, not the Commonwealth Government Securities (CGS) curve.

1.5.5 Over-Compensation Transitional Regime

As a result of finding the structural problem in the proposed transition method, our analysis included the quantification of four scenarios for the cost of debt allowance in the transition. These scenarios are:

- **Scenario 1: Required Portfolio Transactions**
  Transition of the base rate and change its calculation to use the average of 1to10 year swap rates instead of only using a 10 year term. No transition of the DRP and change the measurement reference to the swap curve, not the CGS curve. This appears consistent with future revenue matched to future efficient costs over the regulatory period.
- **Scenario 2: AER's Proposed Transition Method**
  Transition of both the base rate and DRP. The calculation remains as published in AER's guidelines.
- **Scenario 3: Hybrid Approach**
  Transition of the base rate without changing the calculation and no transition of the DRP. The difficulty with this solution is that it would compound the base rate structural error as it is estimated that the historical DRP is higher than what it was in the 2014 rate set window.
- **Scenario 4: NSW NSP Approach**
  No transition of either the base rate or DRP.

Table 2 below shows the estimated financial impact of each scenario by using the quantitative method described in section 9.4 and is applicable for a rate-setting window in March to June 2014.[2] The amount of over-compensation, or potentially under-compensation, will depend on market rates at the time of the rate-setting window.

Scenario	Over-compensation in Year 1 in bps	% Error Over-compensation
1	0	0
2	60	10%
3	70	12%
4	190	33%

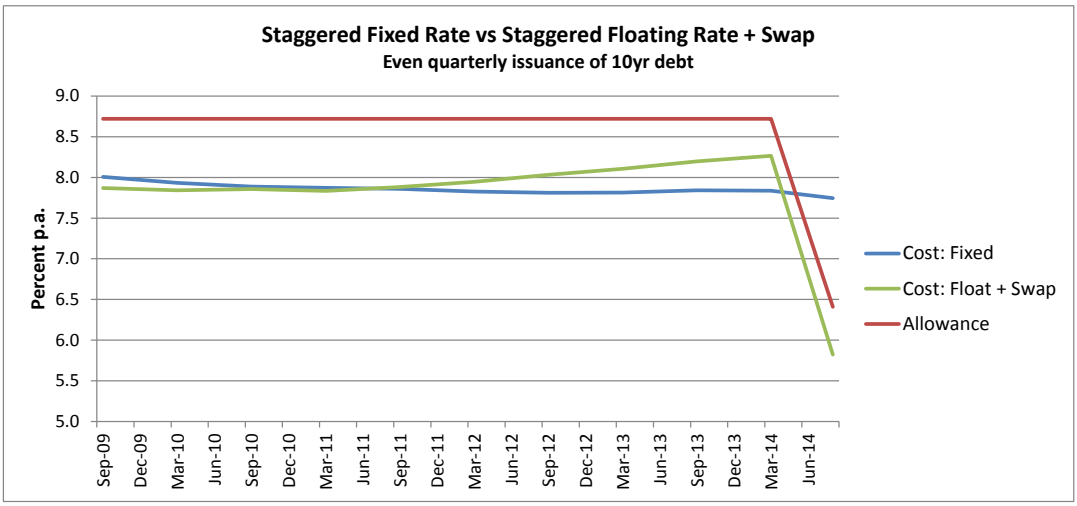
Table 2: Estimated Financial Impact

The discrepancies will reduce across the 10 year transition as the weighting of the initial 2014 rate set in the total cost of debt proportionately reduces each year.

[2]Rounding to one decimal place has been used throughout the document to acknowledge the imprecision we observe in any numerical results in the debate. The key reason for any imprecision is the difficulties in obtaining accurate historical data, and this challenge has been acknowledged by most, if not all parties.

1.5.6 Financial Outcome

Our exercise did not specifically examine the situation of NSW NSPs, however it did consider a Large or Super BEE utilising a staggered fixed rate debt strategy like the NSW NSPs. Graph 1 below is taken from section 9.4. The blue line is the cost using the NSW NSPs' approach, while the green line is the cost showing the approach of a Super BEE, i.e. staggered floating rate debt with fixed rate swaps aligned to the regulatory period. The gap between each of these and the red revenue line represents the cost of debt discrepancy, i.e. windfall gain or loss.



Graph 1: Staggered Fixed Debt v Staggered Floating Rate with Fixed Swap

Graph 1 highlights that these strategies have very different risk profiles. The actual result using fixed rate issues gave a lower cost of debt during most of the previous regulatory cycle. However, the fixed rate staggered debt strategy failed to respond to the drop in base rates at the rate set in 2014.

If AER's transitional arrangements, i.e. Scenario 2, or Scenario 1 is implemented, the NSW NSPs will incur losses or severely reduced profits because their actual cost of debt may be significantly higher than the allowance. This is a real cost.

1.6 Conclusions

The key conclusions are:

1. AER should provide a transition path in the cost of debt allowance, as it needs to mimic the required debt management transactions. A BEE needs to transition its debt portfolio because at the start of the 2014 regulatory period it does not look like a trailing average portfolio.
2. These transactions (in the previous point) require a different calculation of the transitional allowance.
3. A Large BEE or Super BEE would have a similar portfolio to a BEE; hence does not require separate transitional arrangements to a BEE.
4. A Large BEE or Super BEE that adopted efficient financing practices including interest rate risk hedging in 2009 should have no objection to transition. It would have obtained the benefit of a windfall gain during the previous regulatory period and would also now be in a position to manage their actual cost of debt to the regulatory allowance. See graph 1.

1.7 RECOMMENDATIONS

Based on the above it is Chairmont's view that it is reasonable to apply the AER's debt transition path (Scenario 2) to the rate of return guideline in its current form to the NSW network service providers' (NSPs) 2014-2019 regulator determination.

The ToR centred around AER's reason for applying a transition, i.e. to minimise the potential mismatch between the allowed rate on debt and the actual return on debt. This would lead us to recommend Scenario 1 if the rate setting window was in the future, despite AER having other reasons for a DRP transition.[3] However, Scenario 1, although providing the best outcome, is not recommended due to it being a retrospective change that the industry has not had the opportunity to comment on and therefore it could be disruptive, as they would have already made decisions based on the published transitional arrangements.

It is our understanding that there will be a severe impact on the profitability of NSW NSPs if either Scenario 1 or 2 is applied. This poses the question: Would the imposition of a significant loss on a large NSP be against the long term interests of consumers and should the AER take a different approach?

Scenario 2 puts the loss fairly back into the hands of the equity holder that coincidentally represents the taxpayer of NSW. The NSW Government is considering the partial sale/lease of these businesses and any loss may reduce the value of these businesses. It also means that the new owner of these assets will be subject to the transitional arrangements and a lower allowance for the cost of debt, so there should be no increase in consumer prices.

Scenario 4 would mean that the avoidable losses would now be compensated by consumers, i.e. through higher prices. There are a range of implications associated with such a choice, including legitimate questions over why there is such a high allowance for the cost of debt when interest rates are falling and there are global concerns of deflation, a negative impact on consumer sentiment from the higher prices that could flow through into slower economic growth and the setting of a poor precedent for dealing with these situations.

In considering the impact of the loss in the context of the NEO, then Scenario 2 should be adopted.

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

2 BACKGROUND

In 2014, a new regulatory period commenced and this has ushered in a new approach for calculating the cost of debt. Previously, the 'on-the-day' approach was used for calculating the allowance for the cost of debt; however after significant industry consultation and submissions AER determined that the 'trailing average' approach should be adopted in the future.

Having agreed to change the approach, the next step in the process was to determine whether there should be a transition mechanism, and if so; what should the formula be? Stakeholder submissions on this topic generally reflected the interest rate risk management positions previously taken by those organisations.

A range of arguments for and against transitional arrangements has been submitted to AER. Consequently, AER seeks advice on the return on debt approach; specifically, whether transitional arrangements are appropriate in moving from an 'on-the-day' to a 'trailing average' approach.

3 TERMS OF REFERENCE

3.1 IN SCOPE

There are six specific questions that AER seeks advice on and these are contained in the ToR. Based on the answers to questions 1-6 and any other considerations that Chairmont considers relevant, the ultimate question is whether it is reasonable to apply AER's debt transition path to the rate of return guideline to the NSW network service providers' 2014-2019 regulator determinations?

The complete ToR is contained in appendix A.

3.2 DEFINITIONAL CLARIFICATION

AER is seeking advice on a "benchmark efficient entity with a similar degree of risk as each of the NSW service providers" as distinct from a BEE which is the only benchmark defined in the regulatory framework. There is no definition of what "a similar degree of risk" is, while AER has provided the characteristics of this type of entity which are similar to entities like the NSW NSPs.

The following general characteristics have been provided by AER:

- the debt portfolio size similar to each of the NSW service providers;
- the cost and availability of hedging instruments similar to each of the NSW service providers;
- similar timing of its regulatory determination to the timing of the regulatory determinations of other service providers;
- the timing of its 2009–14 regulatory determination in the context of the GFC; and
- these are privately-owned and operate as an independent network.

3.3 OUT OF SCOPE

The scope of work does not include:

- any consideration as to the merits of the 'on-the-day' versus 'trailing average' approaches;
- actual NSP versus BEE analysis;
- examination of the costs of raising debt;
- examination of extrapolation methods or calculations used in determining the allowed cost of debt;
- consideration of future capital expenditure within a regulatory period;
- defining or creating separate benchmarks;
- accounting and mark-to-market or valuation practices for debt and hedges;
- cost of equity; and
- credit risk rating practices used by rating agencies when rating debt issuances of corporations.

4 NATIONAL ELECTRICITY LAW AND RULES

One of the key reasons that the provision of energy network services remains regulated is to force outcomes from this 'natural monopoly' to more closely resemble competitive market outcomes. The **national electricity objective** is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:

- price, quality, safety, reliability and security of supply of electricity, and
- the reliability, safety and security of the national electricity system.

Of relevance to the rate of return are the following **revenue and pricing principles**:

- A regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs the operator incurs in:
  - providing regulated network services, and
  - complying with a regulatory obligation or requirement or making a regulatory payment.
- A regulated network service provider should be provided with effective incentives in order to promote economic efficiency with respect to regulated network services the operator provides. The economic efficiency that should be promoted includes:
  - efficient investment in a distribution system or transmission system with which the operator provides regulated network services;
  - the efficient provision of electricity network services; and
  - the efficient use of the distribution system or transmission system with which the operator provides regulated network services.
- A price or charge for the provision of a regulated network service should allow for a return commensurate with the regulatory and commercial risks involved in providing the regulated control network service to which that price or charge relates.
- Regard should be had to the economic costs and risks of the potential for under and over investment by a regulated network service provider in, as the case requires, a distribution system or transmission system with which the operator provides regulated network services.
- Regard should be had to the economic costs and risks of the potential for under and over utilisation of a distribution system or transmission system with which a regulated network service provider provides regulated network services.

These principles are important in the current considerations because they highlight the need for regulations to allow flexibility of behaviour by individual NSPs, and for the impact of those individual decisions to be borne by the NSP. If their flexibility leads them to profit beyond the benchmark they should not be penalised and if it leads to loss they should not be compensated.

The **allowed rate of return objective** is that the rate of return for a service provider is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the service provider in respect of the provision of regulated network services. For more detail see the ToR in appendix A.

5 STAKEHOLDERS

5.1 STAKEHOLDER DRIVERS

Understanding stakeholder drivers is important as it provides an insight into the debate. It is also helpful to consider the experiences in other industries.

5.1.1 Business

The primary driver of businesses, including that of a BEE is to maximise shareholder return, i.e. Return on Risk Adjusted Capital (RORAC) in a sustainable manner. In the regulated infrastructure industries, e.g. electricity and telecommunications, because of the allowance provided by the regulator for the cost of debt, these businesses have a unique opportunity to consider this when examining their business drivers. This opportunity is not available in most other industries as there is no benchmark to manage their debt position within. It provides businesses with an understanding of the potential gains/(losses) from opportunistic behaviour (see section 6.1.2) through regulatory arbitrage, if and when the circumstances arise.

AER by setting an allowance for the Weighted Average Cost of Capital (WACC) and specifically, the cost of debt, ceteris paribis is ensuring the ongoing sustainability of the business, i.e. a risk factor has been mitigated or removed from the profitability equation. It then follows that it places a higher standard on businesses in these sectors to thoroughly research and understand the impacts of their financing and interest rate risk management decisions on their business.

5.1.2 Regulators

Australian Consumer Competition Commission (ACCC) objectives include promoting efficient investment in, and use of, infrastructure in the long term interests of users of that infrastructure; whereas, Australian Prudential Regulation Authority's (APRA) mission is the sustainability and integrity of Authorised Deposit-taking Institutions (ADIs) and systemic risk to the banking system. The Reserve Bank of Australia (RBA) is concerned with monetary policy and its impact on the economy. So together, each regulator either directly or indirectly plays an important role in the sustainability of the industry and impacts on business drivers.

Different industries' regulators have different overall drivers; although they are normally consistent in their objective, their approach can be vastly different across industries. For example, APRA categorises risks for ADIs into credit, liquidity, market and operational because it is concerned about their risk management approach to these four major risks.

It is generally well understood that ADIs have a special role in an economy as mobilisers of capital; whereas energy operators undertake an equally important role in providing energy supplies to households and businesses; however the risks facing these industries are different except that both must manage debt and interest rate risk. For an ADI this is a core competence, whereas for an energy operator it is important, but not a business driver, i.e. not a strategy for making money.

5.1.3 Consumers

Consumers generally want reliable service at a fair price. Unlike in the retail, entertainment and manufacturing industries branding is not a major consumer driver with regard to electricity network operators; however the average consumer does understand the importance of sustainability and sound financial management even though they may not understand the mechanics.

5.2 Intersection of Business, Regulation and Markets

Diagram 1 below illustrates the overlapping of the key areas explored in this report. The reader will see that each circle is cross-referenced to a section in this report. In order to understand EFP of regulated entities each area is examined.

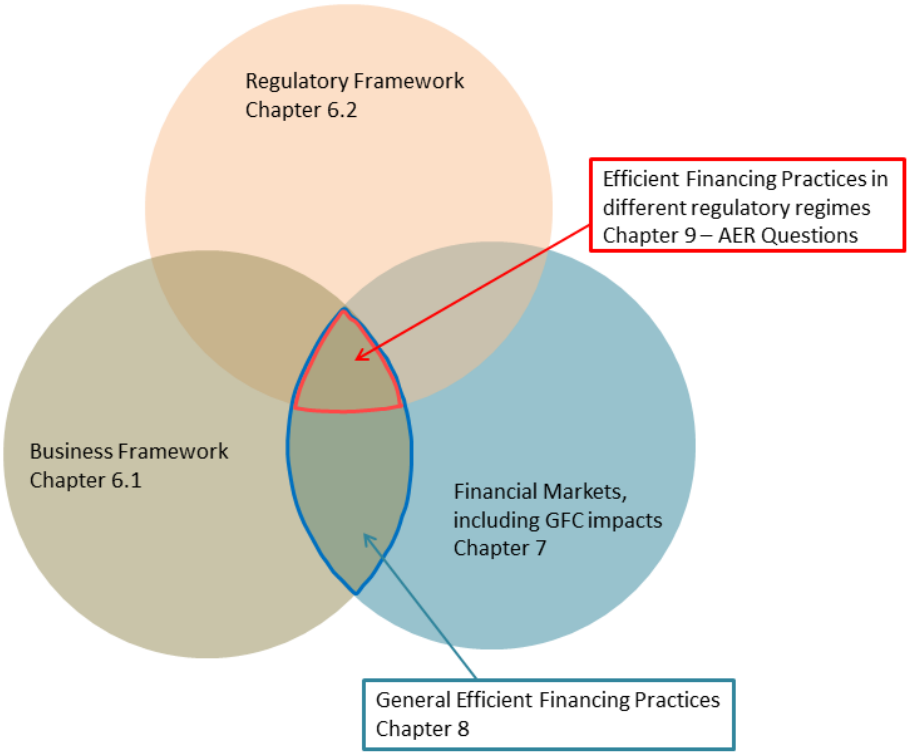


Diagram 1: Intersection of Business, Regulation and Markets

The above shows the intersection of business, regulation and markets and the crossovers for EFP. The relationships can be even more complex than depicted, e.g. the regulatory period is five years; whereas the transition period is 10 years.

6 BUSINESS & REGULATORY FRAMEWORKS

6.1 BUSINESS FRAMEWORK

In addressing the questions in the ToR it is first necessary to provide a brief overview of the business and regulatory frameworks, as these impact debt financing and interest rate risk management decisions, i.e. we have adopted a top down approach to determining the reasonableness of the transitional arrangements.

6.1.1 Business Capital Structure, Revenue and Cost Models

Private and listed companies, whether in heavily regulated industries or not, eventually end up with efficient capital structures, business models and operating costs, or they are driven out or taken over by those that have the correct set-up or bring new innovative solutions that either lower their marginal cost or bring value added aspects that can justify the higher price, e.g. Apple and the iPhone.

While the provision of electricity network services in any one region does not have direct competition, there is competition for the ownership of those assets across the country and the return on capital for the owners. Accordingly, the private firms in the industry have to structure and conduct their businesses in a capital-efficient manner.

Observable operating and financing methods, debt ratios and ratings of private and listed companies in the industry provide inputs from which a benchmark can be determined when establishing or reviewing regulatory criteria.

6.1.2 Opportunistic Behaviour and Arbitrage

A major tenet of business behaviour is to fit into the environment which exists at a point in time and adapt as that environment changes. Behaviour can be aimed at either a positive situation, where benefits can be gained, or a negative situation, where damage can be avoided.

When an opportunity to profit arises, the efficient business will seek to capture it. In all aspects of the business, it should be expected that the corporate acts opportunistically, reacting to new developments in an effort to keep ahead of the competition and maximise potential new profitable areas. In financial operations this opportunism includes taking advantage of any risk free profit, or arbitrage, which may eventuate from market restrictions or regulation. Arbitrage is where an opportunity to profit exists, without having to take on any, or relatively little risk. For example, an arbitrage exists if a firm can borrow money at 5% for 1 year and invest it in a risk free asset such as Australian Treasury Notes at 6% for 1 year.

An example of opportunistic behaviour was Yahoo's decision to sell some of its investment in Alibaba which produced a profit approximately equivalent to Yahoo's capital base.

Alternatively, a negative environment requires opportunistic behaviour to avoid or minimise damage. Problems or threats need to be identified and acted against as quickly as possible. Strategies should be expected to change and behaviour be modified for any surprise developments. A financial example here is where a borrower needs to go to alternative sources of finance when the market they traditionally use is illiquid.

6.1.3 No Speculating or Undue Risk Taking

An efficient company will remain focused on its business(es) rather than taking on risks or costs in areas not necessary for the business strategy. For industrial companies this includes avoiding

speculation in financial markets or taking risks which are not necessary. Any risk which is required to be taken must have the expectation of being adequately rewarded.

It can be critical to business survival to follow this principle. When a company speculates on financial events or business areas in which it does not specialise, it typically is not set up to manage the risks appropriately. There is a history of failed organisations, e.g. Pasminco and Sons of Gwalia that either did not understand that the corporate treasury function was to manage interest rate or foreign exchange exposures, or took speculative positions that brought the company down. It is recognised that there were other contributing factors to the demise of the companies quoted above, however the primary reason for their failures is as outlined.

It is not enough for a company to have policies or broad principles in place which avoid speculation or undue risk taking, they need to be followed and monitored.

6.1.4 Corporate Behaviour in a Regulated Environment

In any industry, corporate behaviour is likely to be altered by the regulatory regime. It is by nature the purpose of regulation to change behaviour of free agents, however some changes in corporate behaviour are intended by the regulation and others are not intended. Companies will not necessarily change their behaviour in the way the regulator wished or foresaw. Rather the company will change to maximise their benefit or minimise their restriction from the regulation.

As an example from the banking world, changes to capital requirements and definitions provided the incentive for banks to issue large amounts of hybrid debt. If banks acted as though they were not subject to this regulation, they would construct a capital structure without using the hybrid debt. To meet Tier 1 equity requirements, they would issue more expensive ordinary equity, instead of taking advantage of the new regulations which allow them to issue the cheaper hybrid debt to retail investors.

AER's regulation will force an efficient regulated corporate to behave differently to an efficient free-market corporate. From the corporate's point of view, it would be ***in***efficient for the regulated corporate to behave as if it were an ***un***regulated corporate, because the business conditions they face are altered. The regulations create different constraints and opportunities, which require adaptation on the part of the corporate in order to optimise behaviour to the altered situation.

6.2 REGULATORY FRAMEWORK

6.2.1 ACCC Definition: Effective Competition & Regulation

The "effective competition" definition adopted by the ACCC is competition:

- "is more than the mere threat of competition – it requires that competitors be active in the market, holding a reasonably sustainable market position;
- requires that, over the long run, prices are determined by underlying costs rather than the existence of market power (a party may hold a degree of market power from time to time);
- requires that barriers to entry are sufficiently low and that the use of market power will be competed away in the long run, so that any degree of market power is only transitory;
- requires that there be 'independent rivalry in all dimensions of the price/product/service [package]'; and
- does not preclude one party holding a degree of market power from time to time, but that power should 'pose no significant risk to present and future competition".

6.2.2 AER Definition: Benchmark Efficient Entity

The definition of a BEE is a 'pure play, regulated energy network business operating within Australia' with gearing of 60 per cent and a credit rating of BBB+.[4]

The consultation and decision process over the past years has resulted in no differentiation between providers based on differences in size, ownership, credit rating or other factors. This report maintains the integrity of the result of that process by allowing for only one benchmark; however our approach does allow for the inclusion of the four additional characteristics specified in the ToR, so as to provide flexibility around the BEE definition. If more benchmarks were to be introduced in the future, we recommend that they should take into account all of the interrelated and potentially offsetting impacts on differing NSP types. These would include:

- Ownership
- Size
- Differing operating environments such as geographic spread
- Stand-alone nature or part of group.

6.2.3 AER Definition: Efficient Financing Practices

EFP in the three regulatory regimes are described by AER as follows.

a) EFP 'on-the-day'[5] are:
   i. borrow long term (10 years) and stagger the borrowing so that only a small proportion (around 10 per cent) of the debt matures each year;
   ii. borrow using floating rate debt (or to borrow fixed rate debt and convert this to floating rate debt using fixed-to-floating interest rate swaps at the time of issuing the debt and which extended for the term of the debt, being 10 years);
   iii. enter into floating-to-fixed interest rate swaps at, or around, the time of the service provider's averaging period and which extended for the term of the regulatory control period (being typically 5 years); and
   iv. the averaging period flexibility[6] is 5 to 40 business days ending no later than 20 March 2009. The exact dates were nominated by the service provider.

b) EFP for the 'trailing average'[7] is to have a staggered portfolio of 10 year fixed rate debt.
   i. The averaging period flexibility[8] is to be 10 business days to 12 months. The exact dates are to be nominated by the service provider.

c) EFP for the transition[9] is, in respect of:
   i. new debt, to borrow long term (10 year) and stagger the borrowing so that only a small proportion (around 10 per cent) of the debt matured each year; and
   ii. existing debt, to engage in hedging its exposure to interest rate (mismatch) risk by swapping each of its prevailing floating rate debts into fixed rate debt for the remaining term to maturity. For example, existing debt with two year to maturity would be swapped into two year fixed rate debt; existing debt with three year to maturity would be swapped into three year fixed rate; and so on.

[4] As defined in the ToR. It is noted that AER's return on debt approach assumes 10 year debt.
[5] Appendix A – ToR p.55-66
[6] Appendix A – ToR p.65 Attachment 2 Table 2
[7] Appendix A – ToR p.55-66
[8] Appendix A – ToR Implied from Attachment 2 Table 2
[9] Appendix A – ToR p.55-66

d) The averaging period flexibility[10] is for:
   i. year 1 (2014–15) of the 2014–19 regulatory period, 10 business days to six months ending no later than 30 June 2014; and
   ii. years 2 to 4 of the 2014–19 regulatory period, 10 business days to 12 months.

The exact dates are to be nominated by the service provider for both (i) and (ii).

6.2.4 Artificial Constraints: Regulatory Period

Any regulatory environment, by its nature, imposes artificial constraints on the activities of companies in the relevant sector. For energy regulation, an over-arching and ongoing constraint is the use of a fixed regulatory period of five years. The services to be provided work continuously and service providers need to make business decisions continually for much longer periods of time than the five year pricing cycle.

There are a number of ways in which this can positively or negatively influence provider behaviour:

- Defining and measuring building blocks such as the cost of debt in only five year intervals creates an artificial cut-off point, forcing otherwise efficient firms to manage their financing in a different way to a free-market company;
- Changes to methodology or measurement techniques create uncertainty for providers. They must decide whether they should behave strictly to the methodology of the current five year cycle, or in a way more consistent with a longer term debt and interest rate strategy. This decision will be influenced by whether they believe that the implemented methodology will change by the next cycle; and
- Having a five year regulatory definition gives them certainty in capturing any arbitrage opportunities they find, without having to cope with the surprise changes in free markets which impact on other companies.

6.2.5 Implications of AER's Choice of Bond Rate Data

When considering the regulatory framework and its impact on behaviour and outcomes, it is essential to take into account the practical implementation as well as the conceptual descriptions. In measuring the cost of debt, it is ultimately the calculation technique and data used by AER which impact on NSPs. If the measurement does not fully reflect the conceptual description, it is the measurement which has precedence in terms of impact.

For the new regulatory period and new cost of debt approaches (transition and 'trailing average') AER has chosen a mixed method for determining the cost of debt, using both RBA and Bloomberg BVAL time series. Both series are calculated by those organisations by using secondary market bond trading prices. Both series measure bonds with an average remaining term of less than 10 years, leading AER to make some changes to the published rates in order to estimate a true 10 year yield.

Appendix B reports our investigation into the reasonableness of the AER estimate in relation to other data from primary bond issuance markets, because the conceptual intention for the cost of debt allowance is to reflect the cost of raising new debt for the BEE. In summarising Appendix B, within the 2014 rate-set window for the new regulatory period, AER's estimate appears to be a

[10] Appendix A – ToR Attachment 2 Table 2 p.65-66

reasonable reflection of the new issuance costs for 10 year debt for a BEE.[11] Accordingly, we consider that the measurement technique does not introduce significant new biases.

[11] The combined RBA-BVAL method is more accurate than relying on the RBA time series alone, as some commentators have proposed.

7 FINANCIAL MARKETS AND THE GLOBAL FINANCIAL CRISIS

7.1 DIFFERENCES BETWEEN DEBT AND HEDGE MARKETS

There are three main areas of the financial markets relevant to a corporate managing its debt funding. These are:

- Primary debt raising
- Secondary debt trading
- Derivative hedging.

Primary debt raising can be achieved by a number of instruments, including:

- issuing fixed rate bonds, floating rate notes or hybrid debt in either the domestic or foreign markets;
- taking out bilateral loans with one bank or syndicated loans with a number of banks, which is typically arranged in the domestic market; and
- short term debt funding facilities, such as overdrafts and working capital bank facilities.

The secondary debt trading market is where market participants can sell or buy the fixed, floating or hybrid securities issued previously in a primary debt raising. There is less trading of loans, as opposed to securities, although it does occur at times. Both fixed and floating rate instruments may be sold at a discount or a premium to the original face value, depending on prevailing market interest rates and comparative pricing of credit and other risks for the corporate. The discount or premium may represent a different margin over the swap rate than that which originally applied in the primary issuance. Many bonds may never or rarely be traded on the secondary market, as the original investor may keep them until maturity or sell them in a private transaction to a new investor.

While the secondary market margin will not change the borrowing costs for the already issued debt of the corporate, it may be an indicator of changes to the margin which the corporate would face in a new issue of debt. However, that is not necessarily the case because there are a range of factors that determine the margin on a new issuance. These factors include underlying economic conditions, different investor or lender motivations, the type of instrument and amounts of debt involved. Because of these factors the margin for a corporate raising new debt may be higher or lower than that on its debt trading in the secondary market.

Derivative hedging can be conducted separately to debt issuance. Using derivatives allows virtually any period (typically within than 10 years) and timing of fixed or variable base rates to be created for the debt portfolio, regardless of the term of debt raised or whether it is fixed or floating rate. This means that decisions about timing of debt issuance and the maturity of that debt can be independent of decisions about timing, amount and term of fixing or re-floating the base rate.

7.2 DYNAMIC FINANCIAL MARKETS AND PRODUCTS

Financial markets continually go through cycles of innovation and consolidation, so that the product range available to users continually changes. Relative pricing between markets also changes from day to day. The opportunity set facing corporates is thereby varied and changing, requiring them to use a variety of tools and change that mix over time.

Depth of debt markets has generally grown over the past several decades, although the forms and sources of debt have changed. For example, in the past few years there has been a shift from

European banks being significant lenders into the AUD syndicated loan market to the situation now where Asian banks are more prominent. Monetary easing by central banks around the world has also allowed the bank loan market to grow strongly as banks look to take a greater amount of assets directly onto their balance sheets rather than just taking borrowers to bond market investors.

Derivative markets have also continued to grow overall in recent years, but a number of factors have provided headwinds in some areas. More complex derivatives, common in the mid-2000's, are now more expensive and less available, as banks and clients have become more risk-aware after losses in 2007-08. Even simple derivative markets like that for interest rate swaps are experiencing higher costs and reduced appetite from some participants. This has been caused by regulatory changes in Basle III capital costs, greater internal credit-exposure awareness by banks and the reduction of proprietary trading by many banks following the Dodd-Frank Act.

Even in those financial markets where depth and availability may have a reasonably stable long term trend, shorter term factors continually provide opportunities or problems in a particular market, producing changes in relative pricing and attractiveness.

7.3 BACKGROUND TO THE GFC

In many of the submissions made, there is reference to the GFC and its impacts on their business, but in particular the impacts on credit spreads and liquidity of the swap market. It is therefore important to consider the GFC and its impacts as it coincided with the commencement of the previous regulatory period.

Many economists and commentators consider the GFC to be the worst financial crisis in modern history and second only to the Great Depression of the 1930s that followed the 1929 stock market crash. It is not the intention to provide a detailed explanation of the causes of the GFC, but rather to examine its impacts, aftermath and any legacies that live on. So, for the purposes of this document the GFC arguably commenced in 2007 and the crisis reached its zenith in 2008, although the world even today is dealing with its consequences.

7.4 FINANCIAL MARKET IMPACTS

In 2008/09 there was nearly a complete breakdown of the global financial system as there was a complete loss of trust. This can be seen in the reaction of financial markets which was characterised by:

- Cost of credit increased, i.e. before the GFC banks lent money to each other at no more than 10 bps, as measured by the spread between overnight index swaps and the London Inter- Bank Offer Rate (LIBOR). At the peak of the GFC it rose as high as 365 bps for the equivalent organisation[12]; and
- Closure of some markets completely, e.g. Residential Mortgage Backed Securities (RMBS). Prior to the GFC the market was over $50 billion yet in 2008 there were lengthy times of no new issuances, with less than $10 billion across the year.[13]

[12] Paul Langley; Liquidity Lost: the Governance of the GFC; Oxford University Press, 2015.
[13] Guy Debelle, RBA; Speech to the Economic Society of Australia; April, 2014.

7.5 GLOBAL AND BUSINESS FALLOUT

The extent of the fallout both immediate and in the medium term included:

- The collapse of Iceland's financial system
- The near collapse of Portugal, Ireland, Greece and Spain (PIGS)
- The European debt crisis
- Collapse of banks across the globe or governments taking them over, e.g. Royal Bank of Scotland or bailing out, e.g. US Federal Reserve TARPS program.

The medium term economic response by central banks and governments was to undertake stimulus packages using both fiscal and monetary policy, e.g. zero or negative interest rates. When these programs failed governments commenced Quantitative Easing (QE) programs aimed at stimulating their economies. For the first time in USA economic history it embarked on a massive QE program. Although designed to stimulate household and business expenditure, the banks rather than lend the money used it as a means of re-capitalising their balance sheets.

The above is mentioned because it supports the view that the world was on the brink of financial collapse.

7.6 AUSTRALIAN FEDERAL GOVERNMENT RESPONSE

The Australian Federal Government working with the RBA, APRA and Federal Treasury took a number of important steps to shore up the Australian financial system. There was a valid concern that some ADIs would fail. In response the Federal Government:

- At the height of the crisis introduced the wholesale deposit guarantee whereby ADIs could raise money supported by the Australian Government's AAA rated status;
- At the height of the crisis introduced the retail depositor guarantee to provide assurance to the "person in the street" that their funds were safe, if deposited with an ADI. A consequence of this being that some non-bank financial institutions had to suspend some of their products, e.g. mortgage trusts, if they were to survive the run on withdrawals;
- In time the Australian Government through the Australian Office of Financial Management (AOFM) supported the securitisation market; and
- Seeing that AOFM intervention was not revitalising the securitisation markets that effectively remained closed Federal Government changed the rules that allowed banks to issue Covered Bonds, a product previously deemed unacceptable by APRA.

At the same time, to prevent the economy from falling into recession the Australian Government introduced its fiscal stimulus programs.

Prior to the Australian Government explicitly introducing the above guarantees there was only ever an implicit guarantee that the Australian Government would support or prevent an ADI from failing. This was a major step and the retail depositors guarantee remains in place, although the threshold amount has been reduced.

As with the previous section this is mentioned as it provides some historical context to the impact on debt financing and the interest rate risk management environment at the start of the previous regulatory period. In summary, the global financial system nearly failed and the Australian Government took unprecedented steps to help shore it up.

7.7 BUSINESS RESPONSE

Businesses reacted differently during this period. Responses included:

- Downsizing and increased offshoring;
- Raising equity capital to shore up their balance sheet and take advantage of the cheaper cost of equity capital compared to debt, e.g. all the major banks, Wesfarmers, Goodman and Real Estate Investment Trust Securities (REITS);
- Mortgage Trusts and some other managed investment schemes suspended redemptions meaning that investors' money was locked up and in some cases eventually lost; and
- Requesting assistance from the Australian government. It is our understanding that some organisations asked Federal Treasury for similar type assistance that was provided to the ADIs, i.e. they were concerned that their debt would be called in by foreign lenders and that they would be unable to meet their commitments and by accessing the Australian Government guarantee they would stave off this possible outcome.

Section 7.6 outlined that the Australian Federal Government's response to the GFC was to protect the financial system and prevent a recession; whereas businesses had to continue to operate in these difficult times regardless and without direct assistance.

Financial markets reflect both current and expected business and economic conditions, and when there is uncertainty as to future direction of the economic conditions there is generally a greater level of volatility. Increased volatility means there are opportunities for corporates to 'profit' by adjusting their debt and equity capital management strategies, and risks that they may be unable to refinance or only at significantly higher costs. Despite the difficult environment it was still efficient for companies to fund themselves at higher than historical cost. If this was not possible, then they had to change the way they managed their funding and risk management to a way which would not be efficient in a calm and liquid financial environment, e.g. funding through short term bank debt rather than historical longer term debt issuances.

8 EFFICIENT FINANCING & INTEREST RATE RISK MANAGEMENT FOR CORPORATES

A number of general principles of corporate treasury behaviour underlie the idea of efficiency.

8.1 CREDIT RATING OPTIMISATION

Part of efficient financing is structuring the business in such a way that an optimal credit rating is achieved. It needs to have the appropriate rating to attract the right type of investors at a fair cost. Maintaining a credit rating which is higher than required or significantly higher than competitors is too expensive, in terms of either cost or capital usage. Whereas, maintaining a rating which is too low may block access to adequate funding or increase the cost too much. Most large Australian corporates operate in the BBB to single A range. If they find that their rating is in danger of falling below the targeted level, an efficient response will be to consider a number of strategies, including raising equity, reducing debt by selling assets and reducing operating costs.

8.2 OPPORTUNISTIC DECISION MAKING

Subject to its policies, generally a corporate treasury will behave flexibly and will adopt any means possible to lower costs, minimise risks or maximise returns. In addition to AER's description of EFP requiring smoothly staggering debt issuance and maturities using 10 year bonds, EFP will give consideration to:

- International bond markets;
- Domestic and international bank loan markets;
- The possibility to borrow for shorter or longer terms than the AER benchmark of 10 years;
- Hybrid debt-equity instruments and non-standard debt instruments; and
- An uneven staggered debt profile, responding to unusually strong or weak investor demand at particular times or unusually high or low credit margins available at particular times.

The decision as to which market and product to use will depend on availability and the relative pricing as it changes over time.

Corporate treasuries keep abreast of changes to relative prices in various debt markets and are continually approached by domestic and foreign banks vying to take them to market or lend to them. Accordingly, it is possible for a typical corporate treasury to be aware of a wide range of current opportunities without having to devote an inordinate amount of resources to that market scanning.

AER's assumption of efficient debt raisings being limited to borrowing using 10 year bonds in a smoothly staggered manner does not reflect these broader possibilities and opens the door for some discrepancies between allowed and actual cost of debt. However, the myriad of other possible debt profiles means that it would be complicated and difficult to find agreement on what benchmark profile could be used. AER's current assumption may be the most appropriate neutral benchmark which leaves room for NSPs to seek further efficiencies in their financing programs.

8.3 MINIMISING FINANCING COSTS

The all-in cost of debt financing may be categorised under the following headings:

- Interest cost;
- Transaction costs;
- Operational and monitoring cost; and
- Any associated fees such as guarantee fees.

EFP is to minimise these items whenever practical, not whenever possible, as cost-minimisation cannot take place in isolation, i.e. 'you get what you pay for'. The distinction between practical and possible is important, as demonstrated in the below example.

A company's debt financing strategy initially is to minimise its costs by borrowing a continually low interest rate currency, such as Japanese Yen without hedging foreign exchange risk, where base interest rates have been less than 2% for many years. If however, the company's revenues are in AUD, borrowing in Yen would expose them to significant foreign exchange risk. Taking on foreign exchange risk resulting from the borrowing policy outlined above would be inappropriate.

Accordingly, cost-minimisation needs to be balanced with the other aims of the company, and not lead to undue risk taking. Two key financial risks which need to be balanced with cost-minimisation are refinancing risk and interest rate risk, which are considered in the following three sections.

8.4 MANAGING REFINANCING RISK

An efficient corporate will consider and may undertake a range of strategies to manage refinancing risk, including:

- staggering maturity dates of debt;
- issuing securities on a reasonably regular basis to allow investors to:
  - rely on investment possibilities from that corporate
  - establish permanent limits for new investments to that corporate
  - become comfortable with the credit and business integrity of that corporate;
- establishing direct banking loans, potentially both bilateral and syndicated. This expands potential debt financing to a wide range of international banks, who again become comfortable with the credit through familiarity;
- issuing into various foreign markets which typically have different investors not focused on the (relatively small and distant) Australian market; and
- issuing debt at times when investor demand is particularly strong. This is not only likely to achieve a lower margin at that time, but also leaves a positive impression of the corporate with the investor.

8.5 MANAGING INTEREST RATE RISK

At the conceptual level, interest rate risk is minimised when the minimum change in value of the company is achieved for a given change in interest rates. At a more detailed level this may be described as matching, as closely as possible, the long term revenue impact of an interest rate change to the long term expense impact of that same change in interest rates.

Where a mismatch exists between the revenue and expense impact of the rate change, future changes in interest rates will produce a net gain or loss to the company, i.e. it has uncertainty or risk from a future change in interest rates. The risk is usually two-sided, i.e. it is an uncertainty that could lead to a gain or a loss in the future, depending on which direction interest rates move.

The size of the risk becomes larger when any or all of three key factors increase:

- The size of the mismatch between the revenue and expense impacts from a given change in interest rates;
- The volatility of interest rates, i.e. the rate can move further in a short space of time; and
- The length of time involved, i.e. the rate can move further even if it moves slowly.

There are a number of reasons why an efficient corporate will not be able, or would not be acting efficiently, to remove all interest rate risk. Some of the reasons are:

- In many industries there is no reliable link between the size of the interest rate change and the impact it will have on revenues and expenses, i.e. they cannot measure it with reasonable accuracy;
- It may not be possible to hedge the risk because the required hedge product is not available, e.g. the hedge requires a 30 year rate;
- The cost of hedging all risk may significantly outweigh the expected benefit; and
- Relative changes in different interest rates may impact differently, e.g. the impact of a large rise in the cash rate with no corresponding rise in the 10 year bond rate will probably be different from the reverse scenario.

There are two important implications of the above descriptions:

- it is inefficient to minimise the interest rate impact on only one side of the business's financial variables, i.e. liabilities or expenses only, without having regard to the other side of the equation, i.e. asset values or revenues respectively; and
- interest rate risk management is not a cost-reduction exercise. It is intended to reduce future possible losses caused by a mismatched impact on revenue and expenses.

8.6 TRADE-OFF BETWEEN MANAGING INTEREST RATE AND REFINANCING RISK

The cost of:

- Refinancing risk in the worst case scenario for a company is if it cannot refinance its debt when required, making it insolvent; and
- Interest rate risk is that profit may decline or a loss be incurred. Again, in the worst case scenario, it could cause a company to fail.

Accordingly, the efficient company must manage both risks simultaneously by considering their relative importance and usually striking a compromise between the two. Balancing the two risks is a constant exercise because of the dynamic markets and business environment.

Some examples of this include:

- it may be advisable to issue debt for a shorter term than that required for interest rate risk purposes, because the shorter debt establishes a new investor base for funding which can be relied upon in the future to secure more financing, i.e. reduce refinancing risk while increasing interest rate risk; and
- concentrating the maturity profile of debt more than proportionally to achieve a closer match to the term of the interest rate impact on revenues, i.e. increase refinancing risk while reducing interest rate risk.

9 TERMS OF REFERENCE - QUESTIONS

The above sets out the economic and business environment, financial markets operations and regulatory framework that all NSPs operate within. This section provides answers to the questions raised by AER in the ToR.

9.1 CRITICAL REVIEW: EFFICIENT FINANCING PRACTICES

AER considered the EFP of a BEE would be to minimise its financing costs over the life of its assets while managing refinancing risk and interest rate risk.[14]

This is a good high level definition because it captures the required balancing of cost and risk. It also foreshadows the contentious areas in the transitional arrangements debate.[15] Sections 8.3 to 8.6 addressed the situation in general for corporates, and apply equally to regulated NSPs.

Inherent Trade-Offs

As explained in section 8.6 an inherent conflict or set of trade-offs is apparent. There are three different matters that need to be balanced, these are:

- Minimising long term financing costs;
- Managing refinancing risk; and
- Managing interest rate risk.

There is no clear and consistent priority between the three competing aims, as any one of them could at times threaten the viability of a company. The tension arises from changing relativities over time and changing strategic priorities of the business. Successfully achieving that balance will have a significant impact on profitability, particularly for a corporate operating in a capital intensive industry.

The balancing of the three activities will also be affected by the special situation of the BEE operating under the regulatory requirements for energy network businesses.[16]

An example of balancing cost and risk is in periods of drought farmers have the choice between buying extra feed at a higher cost and calculating (risking) that this cost will be recovered when the drought is broken and livestock prices recover. The alternative is to sell the livestock (unfattened) at a lower cost and accept the loss. Another solution may be where the farmer hedges his bets and only sells 25% of the stock and uses the funds to buy some extra feed, so as to minimise his downside as this solution is cash flow neutral. There are other scenarios that can be adopted in balancing risk and cost.

[14] Appendix A – ToR p.55

[15] The AER definition is broader as it incorporates costs of insolvency, however for the purposes of this report it is limited to practical financing from 2009 to 2024.

[16] Houston Kemp in their paper 'Response to Draft Decision on the Return on Debt Allowance' on pages 11-12 argues that it could be efficient not to manage all three factors at once. In practice, a company will consider all the factors in their decision making, even if they can only partially satisfy each one.

Definitional Clarification

The AER defined refinancing risk as:

> 'The risk that the benchmark efficient entity would not be able to efficiently finance its debt at a given point in time. This may be because the debt instruments that it seeks are not available to it; or because they are expensive'.[17]

In our opinion this definition crosses over into interest rate risk because an argument put forward by industry is that if debt becomes more expensive, then they cannot refinance. This is not the case, as the deal can always be done, it's at what price. More expensive debt is a normal element of interest rate risk.

In section 8.4 where refinancing risk was defined, the worst case scenario was explained as where financing is simply not available. This recognises that there are times when financial markets and economic conditions are difficult, yet free-market private companies still need to find the best possible funding solution in that environment. Making the best, most efficient, decision in difficult and unusual situations is often the essence of competitive outcomes between companies.

Hence the definition in section 8.4 broadens the onus on the company to use any debt instruments, not just those it normally seeks, and to accept more expensive outcomes, if no other solution is available at that time.

In conclusion, efficiency is not strictly a measure against a benchmark, but also what can be achieved in a difficult situation even if that would not be considered the efficient solution under normal market conditions.

9.2 CRITICAL REVIEW: EFP FOR A BEE UNDER DIFFERENT REGULATORY APPROACHES

Section 6.2.3 described the efficient debt financing practices the AER considered a BEE would undertake in the three regulatory approaches. In this section those descriptions are critically reviewed in the context of our section 8 description of EFP for corporates and other specific factors associated with NSPs.

9.2.1 BEE: The Specific Case of Interest Rate-Linked Revenue

Regulated electricity networks face a special situation compared to typical free-market corporates. Specifically, the regulations make the NSP's revenues reasonably certain, including a fixed interest cost allowance. The predictability of interest rate changes on revenues means that the BEE should be able to remove or minimise interest rate risk to a greater degree than a free-market company. Its interest rate risk-neutral position is to match the liability side as closely as possible to the fixed revenue side.

There are some parallels to the wool, wheat, milk and sugar cane industries where industry bodies through their monopolistic position controlled prices, thus changing grower behaviour.

9.2.2 BEE: The Specific Case of Minimum Credit Rating

AER has surveyed the state of the energy industry over the past few years and determined that an appropriate rating for their BEE is BBB+, although some market participants argue that the more appropriate level post-GFC is BBB. While it is outside the scope of the ToR to examine this

[17] Appendix A – ToR p.55

question in detail, it is worthwhile to note that network providers acting efficiently will structure their business so that the credit rating is somewhere in the range of BBB- to A-.

A network business would not be able to raise funds effectively if it was faced with the situation where it could suffer a rating down grade to a sub-investment grade rating. Conversely, it would be too expensive for it to maintain a rating in the AA range. Therefore, a goal of EFP is to manage the credit rating, particularly in the capital intensive energy sector.

9.2.3 BEE: The Specific Case of Swap Costs

The scope of this report includes consideration of hedging costs, but not debt raising costs. It should be noted that in the past couple of years costs have been increasing for using swaps, both to swap foreign issuance proceeds and to hedge domestic interest rates. These cost increases are mainly caused by regulatory changes and banks being more conscious of the credit and capital impact of holding swaps with clients.

Swaps are required for some debt raising, and relevant to all three regulatory regimes. Increased costs are particularly being seen in cross currency swaps which are required by companies raising foreign currency debt and swapping it back to AUD. The level of cost which may apply is proprietary and competitive between banks. It varies considerably depending on the client-bank relationship, the nature of the deal related to the cross-currency swap and the risk appetite of the bank at the time. There is also anecdotally some difference in cost calculation depending on the home country of the bank quoting, as different national banking regulators may interpret the capital charge requirements differently.

In 2014-15, the cross-currency swap standard cost for a BBB+ corporate in a 7 to 10 year term appears to be in the range of 10-20 bps, although some competitive issue-related swaps have reportedly been transacted as low as 4-5 bps. Future consideration of debt raising costs by AER should include the role of cross-currency swap costs, whether it is necessary to include them in debt raising costs, and if so in what manner.

Hedging swaps are included in AER's definition of EFP for both the 'on-the-day' and transitional arrangements. These swaps are AUD interest rate swaps from floating to fixed rate. The increase in cost for these swaps is relatively minor for the counterparty and it is estimated to be in the order of 3 to 10 bps at most for a BBB corporate.

So far the costs of either type of swap do not usually preclude a corporate from following the normal EFP, but it makes the trade-off between taking risk and paying for risk reduction more significant. In particular, foreign currency funding is becoming increasingly costly for AUD-based corporates which should provide some fillip to broadening the domestic corporate bond market.

9.2.4 BEE: Under the 'on-the-day' Approach

Points (ii) and (iii) of AER's assumed EFP under the old approach (in section 6.2.3) are in line with the practical EFP a corporate would employ. Point (ii) refers to raising debt on an effectively floating rate basis and point (iii) refers to paying fixed in 5 year swaps during the rate-set window near the start of a regulatory period.[18]

[18] See Appendix C for a rebuttal of the suggestion from some sections of the industry that hedge swaps are counter-productive because there is a negative correlation between the DRP and swap rates. Similarly suggestions that the cost of swaps outweighs the benefits are not borne out by risk evidence displayed in section 9.4.

Point (i) is broadly correct, subject to the need for more flexible debt management described in sections 8.2 and 8.4, but underestimates the impact of the regulation itself on the behaviour of the company.

A BEE in the 'on-the-day' approach faces a trade-off between interest rate risk management and refinancing risk management, as explained in section 8.6, because the regulatory framework does not guarantee funding even though it guarantees interest compensation.

There is a different break-even analysis for deciding between interest rate risk and refinancing risk compared to an unregulated company. The 'on-the-day' approach creates a greater incentive to refinance a larger proportion of its debt during or close to the regulatory rate-set window.

To schedule debt refinancing away from that window introduces interest rate mismatch, especially on the DRP. An efficient regulated company weighs up the size of that risk versus the risk of refinancing problems which could occur within the short window. The most efficient financing solution would be unlikely to be a completely smooth refinancing profile as given by AER's EFP assumption. That outcome is at one end of the spectrum, being relevant only if the entity considers the degree of refinancing risk completely overwhelms the degree of DRP risk.

At the other end of the spectrum are those entities which have no or minimal refinancing risk and will refinance all of their debt in the rate-set window. For example, the Queensland and Tasmanian government owned electricity networks refinanced all of their outstanding debt for the previous regulatory cycle at the one time to exactly match the rate-set window. They had the luxury to do this due to their state treasury funding channel having superior access to funding markets compared to private companies. Private companies which may be a relatively small part of a larger corporate group may enjoy similar advantages.

The most likely result for the debt profile of a BEE will lie somewhere between the two ends of the spectrum. The efficient refinancing profile will be positioned to some extent closer to the rate-set window, i.e. reducing DRP risk, yet diversified enough for that entity to feel secure about its refinancing ability. The trade-off between refinancing risk and DRP risk would also vary depending on market conditions from time to time.

The 2009 Rate-set

It may be reasonably argued that the previous rate-set period ending in March 2009 was a special case. The illiquidity, risk aversion and volatility caused by the GFC that was at its peak leading up to March 2009 reduced the possibility for a BEE to fund very much of its debt close to the rate-set window. This was especially the case for long term funding such as 10 years. As noted in section 7.7, many companies took short term funding because this was the only available means of rolling over maturing debt facilities. Accordingly, efficient funding at that time meant regulated companies had to behave very opportunistically, issuing shorter term and less debt than they would have otherwise.

As debt markets slowly unfroze in late 2009 and 2010, it once again became efficient to issue for longer terms and larger amounts. The net result may have been that a BEE would still not have a smooth debt issuance/maturity profile, but rather spikes of issuance when available and maturities shorter than 10 years.

It would have also been more difficult for a BEE to hedge the full amount required in 5 year swaps in the short window of their rate-set, due to at times extreme illiquidity of all markets. The rate at

which they hedged was also more likely to be away from AER's measured rate due to intra-day volatility causing swings of up to 50 bps in the swap rate on some days.

UBS estimates that in 2009 the daily swap volume tradeable without moving the market would have been $200m.[19] Our observation of the time suggests to us that on many days in late 2008 and early 2009 this estimate is overly optimistic. Nonetheless, a BEE, hedging efficiently, would have 'done whatever it takes' to swap as much volume as possible at rates reasonably close to the level and timing of their reset window. As noted in section 8.5, the interest rate risk of not hedging increases the longer the mismatch is left open.

Depending on which month their rate-set window occurred, they may or may not have been able to do all required swaps in that time. For example, using the UBS estimate of $200m per day within a rate-set window of up to 40 days allows $8bn of swaps to be transacted. For a shorter window which fell in October 2008 or during some of the particularly volatile weeks of February or March 2009, the BEE may have taken a number of weeks longer than the window.

Arbitrage Opportunity in the 'on-the-day' Regime

The term of the measured interest rate for revenues was 10 years; whereas the actual base rate required to be fixed for expenses (the swap hedge) was a 5 year term. In most years there is a positively sloped yield curve, i.e. the 10 year rate is above the 5 year rate, meaning that the discrepancy could have provided an arbitrage gain for providers. Alternatively, in times of a negatively sloped yield curve, the discrepancy could provide a windfall loss to the BEE.

The extent of the windfall gain or loss would have differed for providers depending on when their rate-set period occurred. Those who happened to have a rate-set window when the yield curve was steeply positive would have received more arbitrage profit than those providers who happened to have a rate-set when the yield curve was flatter.

In the critical time for the 2009 measurement there was great volatility in the yield curve slope, as for most financial variables. In late August and through September 2008 the yields of 10 year swaps were actually below those of 5 year swaps, by up to 19 bps. A BEE window here would have provided a windfall loss; however by March 2009 the market conditions had changed so much that a windfall gain of up to approximately 80 bps was possible, i.e. the 10year swap rate was 80bps above the 5 year swap rate.[20]

9.2.5 BEE: Under the 'trailing average' Approach

AER's assumed EFP under this scenario is much closer to how a regulated company would actually behave. There is now an incentive for the BEE to have a smooth refinancing profile for both interest rate risk management and refinancing risk management. The only discrepancy between the assumed and actual practices is the broader use of markets and maturities which free-market companies are observed to use and explained in section 8.

There should be no arbitrage opportunities left open to providers once the full 'trailing average' rate-set and debt issuance is aligned.

[19] UBS Response To The Networks NSW Request For Financeability Analysis Following The AER Draft Decision Of November 2014 p.2
[20] Bloomberg

9.2.6 BEE: Under the Transitional arrangements

AER's definition of EFP for this regulatory approach assumes that the BEE already has a staggered portfolio of debt maturing evenly across the next 10 years. As discussed in section 9.2.4, that debt portfolio is too theoretical and unlikely to be the starting position for an entity financing efficiently in the previous 'on-the-day' regulatory regime. It is concluded that the BEE would likely have a somewhat uneven refinancing profile with some concentration around the end of the previous regulatory period.

For that more general case, EFP would require two modifications. The first is to borrow for a term to fit in with the future annual 'trailing average' rate resets, subject to other refinancing risk management benefits. For example, table 3 shows an assumed maturity profile at the start of the new regulatory cycle.

	Year									
	1	2	3	4	5	6	7	8	9	10
Debt Proportion	30%	10%	0	15%	5%	0	20%	0	10%	10%

Table 3: Maturity Profile

To smooth the debt profile the BEE might raise the required 30% of debt in Year 1 with a range of maturities, such as 10% for 1 year, 10% for 3 years, and 10% for 6 years, i.e. the change in regime provides an incentive for the BEE to adjust its refinancing profile to be more even across time than was relevant in the old regime.

Our earlier description of a BEE hedging under the 'on-the-day' regime agrees with the second part of AER's starting assumptions, i.e. it should have entered into swaps maturing at the end of the regulatory period. However, AER's description of the required new hedge transactions does not reconcile with the BEE portfolio as a BEE is more likely to have an uneven and concentrated debt profile.

A more appropriate description is that, at the start of the transition the BEE will enter into fixed rate swaps in equal amounts with maturities of 1 to 10 years, regardless of the remaining term of its actual outstanding debt.[21] A BEE behaves this way to match the regulation.

Arbitrage Opportunity in the Transitional regime

As under the 'on-the-day' regulatory regime, a BEE would look to arbitrage the difference between the term of the allowed base rate applicable to revenues, i.e. the 10 year rate, and the term of the required expense base rate, i.e. an average of 1 to 10 years.

For a BEE to make a windfall arbitrage gain, the yield curve would need to be positive meaning that the average of 1 to 10 year swap rates is less than the actual 10 year swap rate. This was the market situation in the first half of 2014, as it is most of the time.

[21] If the BEE intends to have long or continuous rate-set windows each year in the future, it should transact swaps with a range of partial maturities throughout each year.

9.3 CRITICAL REVIEW: EFP FOR A SUPER BEE UNDER DIFFERENT REGULATORY APPROACHES

As noted in section 3, AER has defined certain special characteristics not shared by the average NSP. This arises because some of the industry submissions argue that transaction size is important and does impact on the ability of a provider to transact. To recap, our analysis uses the terminology of a Large BEE, like each of the NSW NSPs, which has all the same characteristics of a BEE, except that debt and hedging requirements are significantly greater than an average NSP and that there is similar timing of the regulatory determinations. Our analysis centres on a Super BEE, which takes the 'worst case' of a group of Large BEEs having to be active in the market at similar times, as if it were one very large entity.

The use of BEE, Large BEE and Super BEE is not to suggest or recommend there are three benchmarks.

9.3.1 Super BEE: Characteristics Similar to the NSW Providers

The ToR specified four characteristics of a provider which are of particular relevance. It is important to clarify why these characteristics may be different for the NSW providers compared to the BEE.

- A debt portfolio size similar to each of the NSW service providers.
  In 2014 Ausgrid had a debt portfolio of approximately $9 billion, making it more than double the size of the Queensland NSPs and 3 to 5 times larger than many other providers. The other NSW entities, while approximately half the size of Ausgrid, were also significantly larger than most NSPs in Australia. For comparison, when taken together the four NSW NSPs have a debt portfolio approximately 25% larger than Telstra and 40% smaller than BHP Billiton.
- The cost and availability of hedging instruments similar to each of the NSW service providers.
  The NSW NSPs would have access to hedging instruments at similar cost and to a similar extent as the BEE, except for two possible reasons. Firstly, the cost of efficient hedging for a portfolio of this size may be higher than for a BEE, depending on the flexibility of its timing. The second possible difference in its cost or availability is due to the state ownership and practice of transacting through NSW T-Corp. T-Corp has better access and lower costs associated with hedging than a BEE, due to its government guarantee, size of operations and experience in financial markets. To what extent the relationship between T-Corp and the NSW NSPs creates a better or worse result for the NSPs compared to a stand-alone corporate of the size of the NSW NSPs is outside the scope of this report.
- Similar timing of the regulatory determination to the timing of the regulatory determinations of other service providers.
  This is the case for all of the NSW NSPs which increases the impact of the size consideration, as outlined previously. It was noted that under the 'on-the-day' regime hedge swaps were required for a BEE in the short rate-set window. The combined hedging need of approximately $17 b in 2009 is an unusually large amount in the Australian market if required to be transacted in a short period.[22] The occurrence of coincident rate-sets for Transend (TasNetworks) and ACTew AGL exacerbates the situation slightly, although their combined size is relatively small.
- The timing of the 2009–14 regulatory determination in the context of the GFC.

[22] UBS p.2. Hedge requirement excluding the smaller Transend and ACTew AGL.

Four elements combined to make the 2009 rate-setting period unusual and significant for the NSPs. Firstly, both debt and hedge markets were the thinnest and most erratic in developed markets for decades. Secondly, the combined size of the entities intensified the impact of liquidity problems at that time. Thirdly, the regulatory measurement method at that time concentrated timing problems even further, whether 15 or 40 business days applied. Finally, the uncertainty brought about by disagreements over the regulatory measurement technique and rate-set period timing led to the final determination being made 15 months after the specified period.

- These are privately-owned and operate as an independent network.
  While this is not the case for the NSW NSPs, AER's instruction is that no consideration be given to the funding advantage of being backed by T-Corp's state government guarantee and significant financial operations.

In summary, the size of these entities' combined funding and hedging needs is far greater than that implied for a BEE. The coincidence of the previous rate-set window and the GFC further intensified the potential for liquidity problems when trying to fund and hedge under the 'on-the-day' approach.

9.3.2 Super BEE: Under the 'on-the-day' Approach

Debt Issuance Profiles

The debt market at any point in time can only absorb a certain amount of debt. This means that a Super BEE can only issue a smaller percentage of its debt at any point in time than a BEE can. It then follows, that a Super BEE will issue more often and have a smoother debt profile than a BEE. Therefore, a Super BEE debt profile will be closer to AER's assumed smooth debt maturity profile than that of a BEE.

Inability to Hedge within the Short Window

The difficulties a BEE had in funding and hedging in late 2008 and early 2009, as mentioned in section 9.2.4 are exacerbated by the size and concentration of timing for the Super BEE.

A Super's BEE overall approach to EFP should have been structurally similar to that of a BEE. It would:

- raise debt as required considering the trade-off between cost, re-financing risk and interest risk; and
- fix 5 year swaps as closely as possible to the rate-set window so that market rates have less time to increase from the fixing rate. UBS submitted on behalf of Ausgrid, that Ausgrid or a Super BEE would not have been able to do all the swaps within the window.[23]

UBS estimates that 91 days would have been required to transact all the volume without moving the market. UBS's advice is not unreasonable; however it cannot be proven or disproven.

A theme of this paper is the cost to risk trade-off. Some submissions have implied that it is essential to avoid moving the swap spread market, i.e. the difference between the swap rate and CGS, in any situation. This is a cost-based argument. Although no swap market participant wants to move the market against itself by transacting too large an amount, this situation occurs every day as market

[23] UBS Response To The Networks NSW Request For Financeability Analysis Following The AER Draft Decision Of November 2014 p.4

participants trade-off risk over cost, i.e. they accept the higher price to off-load the risk that there may be adverse market movements in the coming days, weeks and months.

If it is accepted that 91 days is the minimum time period required to complete the volume of swaps, then this is at the maximum of the trade-off equation and appears to over-weight the cost benefit compared to the potential loss from carrying the risk.

Least Risk Course of Action: Super BEE v NSW NSPs

UBS argues that because the swaps could not be done within the rate–set window, they should not be done at all. Chairmont disagrees with UBS, because a Super BEE would adopt EFP so as to minimise interest rate risk even if it took 91 days to complete all swaps.[24]

Chairmont has approached the question of what should a Super BEE have done in the situation differently to how Ausgrid and UBS suggest in their submissions. The starting point is to examine the factors and environment which a Super BEE faced in 2008-09. The matters in agreement with Ausgrid and UBS are:

- The AER cost of debt methodology was known and was not under review to change;
- Markets were extremely volatile; and
- It was most likely not possible to hedge fully with swaps within the allocated rate-set window for the revenue side.[25]

It would not be efficient to issue fixed rate debt all at once, except through state treasury special arrangements which apparently were not available to NSW NSPs, although they were to the QTC-related entities.

The primary interest rate risk that the Super BEE or the NSW NSPs faced in regard to the swap hedge was that the 5 year swap rate rose above where it was from the time they knew that more transactions would be needed to fully hedge the revenue side. As noted in section 8.5, and displayed in the graph of interest rate risk by UBS, there is more chance for interest rates to move further from today's value, the longer the elapsed time.[26] Accordingly, the way to minimise the potential for adverse movement is to act as quickly as possible to hedge. UBS estimated that a 76 day period beyond the length of the rate-set window was required to close all of the swaps, whereby the amount open to risk would progressively reduce each day by the amount fixed that day. Had this policy of closing swaps as quickly as possible been adopted the average duration of the risk would have been 38 days, i.e. half of 76.

The NSW NSPs chose to not fix any swaps outside of the window and instead continued with an annual 10 year fixed rate bond issuance strategy.[27] This strategy meant that the open risk on fixed rates was only gradually closed across the following 5 years, or the average duration of the risk was 2.5 years, assuming an even staggered debt issuance strategy was adopted. Accordingly, the amount

[24] "[Commercial-in-confidence text redacted]"
[25] It may have been possible to hedge if the NSW entities had used separate rate-set windows of 40 days and those windows not coinciding with the worst turbulent periods of the GFC.
[26] UBS as above, p.3. See also their footnote 6 of that paper.
[27] Presumably they were carrying 10 years' worth of fixed rate bonds maturing evenly across the following 10 years, so they already had a fixed rate portfolio with an average duration of 5 years. However their '5-year fixed rate' would have been made up of an average of the 10yr bond rate over the previous 10 years and would not reflect the prevailing 5 year bond rate in late 2008 or early 2009

of fixed rate risk taken on by this staggered fixed debt approach was significantly more than the average 38 day open risk taken, if an immediate hedge strategy was used.

The decision to adopt a strategy of gradual staggered issuance of fixed rate debt is consistent with behaviour where the regulatory cost of debt framework does not apply. UBS confirms this by stating that, "The 'trailing average' approach used by Networks NSW was consistent with debt management strategies adopted by non-regulated entities in the infrastructure sector – ports, airports, roads and railways."[28]

The reason that non-regulated infrastructure companies manage their interest rates in this way is because there is no direct linkage between interest rates and their revenues; whereas regulated NSPs in Australia have a revenue stream linked explicitly to interest rates via the cost of debt allowance.

Practical Outcome NSW NSPs

At the time of the Tribunal's final decision in November 2009, as at any time, the direction of future interest rates was uncertain, so there was a risk that interest rates would rise to the detriment of the NSW NSPs.[29] Examination of swap rate data show that there was an opportunity to lock in rates slightly lower than if they had been able to transact all swaps within 15 days. The delayed and retrospective finalisation of the rate-set window also worked in their favour, as the 5-year swap rate was approximately 6.7% during the 15 day window specified by the Tribunal; whereas in November 2009, at the time of the Tribunal decision, the rate averaged approximately 5.9%. It then continued to decline over the following 76 business days to average approximately 5.8%.[30]

The decision of the NSW NSPs to not hedge, but instead take the greater risk of continuing to fix 10 year debt over the following 5 years fortuitously worked in their favour during the 2009-14 period, thus providing a benefit to them as rates trended down, especially from the second half of 2011. The 5 year rate never again reached the high of the rate-set window in 2008. A similar pattern occurred in the 10 year rate.

9.3.3 Super BEE: Under the 'trailing average' Approach

The switch to the 'trailing average' approach addresses the concentration problems identified by the previous cost of debt methodology, so now there should be no significant difference between the EFP of a Super BEE and a BEE. Specifically, the introduction of annual rate-sets that only impact on 10% of the debt and the lengthened rate-set window, that evens allows for a continuous average observation, should arguably eliminate any risks associated with refinancing and hedging.

9.3.4 Super BEE: Under the Transitional Arrangements

Debt Issuance

The starting point of the transitional arrangements is an 'on-the-day' measurement window. This means the size and concentration difficulty for a Super BEE which occurred under the 'on-the-day' regime is also relevant here. As explained in section 9.3.2, the Super BEE will have a smoother debt

[28] UBS, p.6

[29] For example, UBS (p.3) estimated the risk for the NSW NSPs at that time as being $819m. However that number tells us that the possible variation from zero has a 95% chance, i.e. 2 standard deviations, of being less than $819m, and the expected loss is zero. There was an equal likelihood that rates could move in favour of the NSW NSPs during the remaining time required to hedge, which is in fact what happened.

[30] The rate at which they could have transacted at those times would have been somewhat less than the 5 year swap rate, as by that time the regulatory period only had less than 4 years to run.

maturity profile than a BEE and there will be an ongoing significant mismatch between an 'on-the-day' rate-set and actual efficient issuance timing.

For the future 'trailing average' partial rate-sets within the transitional arrangements, the difference in EFP between a BEE and a Super BEE will be minimal, as under the 'trailing average' approach itself.

Swap Hedge

Three developments greatly improved the ability for the Super BEE to fully hedge the base fixed rate for its initial 'on-the-day' rate-set of the transitional arrangements. These are:

- The window for setting the rate was extended to a possible six months. The NSW NSPs took reasonable advantage of that change choosing windows of four to five months;
- The required risk-neutral hedge was to transact 10 swaps of maturities 1 to 10 years, rather than needing to transact the full amount in one maturity; and
- The market was more liquid and less volatile than in 2009. Westpac estimates that $300m per day could be transacted without impacting the market, although UBS considered this to be "an aggressive assumption" without suggesting a figure.[31] Chairmont held informal discussions with three major market-making banks in July 2013 regarding swap market liquidity, when the market was 'normal' and similarly liquid to 2014. At least two of the banks indicated that it would be possible to do $1 billion within a day or two, 'if managed well', and $3-5 billion over a week for a major customer. It is considered such statements do include some allowance for moving the market by perhaps a few basis points. However, the information received at that time, combined with the reports by Westpac and UBS from 2014 show that very large volumes can be transacted within the new rate-set window.

Accordingly, large size and concentrated timing of an NSP was not detrimental when compared to a BEE in 2014.

9.3.5 Super BEE: Efficient Size

Especially in times of market illiquidity as in 2009, size and concentrated timing can be detrimental for an NSP. However, typically there are other benefits for an organisation of being very large. For example, efficiencies of scale in operation and supply sourcing boost profitability and firm value. Equally, on the financing side being large has some disadvantages, e.g. takes longer to transact large volumes; whereas the advantages include better pricing, as banks seek business and become more competitive about winning large transactions. Being seen to be a major market player is important to a bank for ongoing business and new corporate business, as annual league tables are closely watched.

In the private market, companies need to weigh up the various benefits and problems of being a particular size. Very large companies, which find their profits and market value negatively impacted by their size, are forced by the market to divest, spin-off divisions or otherwise 'right-size' the company.

In the special case of the regulated NSPs, it would have increased efficiency for their financing and hedging to time their regulatory period, in particular their rate-setting window, away from each other to avoid concentration of transactions in the market.

[31] Westpac letter to Transgrid "Liquidity of the Interest rate swap market", May 2014 p.2 and UBS Response To The Networks NSW Request For Financeability Analysis Following The AER Draft Decision Of November 2014 p.14.

9.4 QUANTITATIVE ANALYSIS: SUPER BEE UNDER DIFFERENT REGULATORY APPROACHES

A word of caution to the reader is required when reviewing the quantification. First and foremost this report has examined the arguments submitted by all parties based on principles of sound debt and interest rate risk management. These principles are supported by the results of the quantification and it is important to follow the broad direction of the numbers, rather than being concerned with the absolute precision of any particular number. Rounding to one decimal place has been used throughout the document to acknowledge the imprecision. The key reason for any imprecision is the difficulties in obtaining accurate historical data, and this challenge has been acknowledged by most, if not all parties.

9.4.1 Super BEE: 'Looking Back'- Windfall Gain/(Loss)

In reviewing the materials it is apparent that there is inconsistency in the debate, as to whether there should be a 'look back' and then a 'true-up' from the previous regulatory period. It is our understanding that there is no agreed 'true-up' methodology. Therefore, the various arguments supporting or not supporting a 'true-up' are 'muddying the waters' as to the whether there needs to be a transition to the 'trailing average'.

9.4.2 Super BEE: Rate Measurement Components

The DRP used throughout this document is the interest rate premium for the corporate borrower over the swap rate, because practical financial management requires companies to use swaps. The AER measurement of DRP is the premium above the CGS rate(s); however CGS(s) are not a relevant instrument for corporates.

In section 9.3 it was explained that the Super BEE would have undertaken somewhat different financing and hedging transactions than the BEE, although broadly similar. To summarise, at the beginning of the last regulatory cycle the Super BEE would have:

- its debt issuance and maturities in a more even profile than the BEE, thereby approaching AER's definition of a smooth staggered debt portfolio;
- raised floating rate debt or swapped fixed rate issuance back to floating at the time of the debt raising; and
- a portfolio of swaps that are all maturing at or close to the beginning of the regulatory period.

To calculate the cost of debt for the 2009-2014 regulatory period requires measuring three components:

- average DRP of issuance gradually over 1999-2009, i.e. to the start of the 2009-2014 regulatory period; and
- DRP of new gradual issuance during the regulatory period, i.e. 2009-2014; and
- average 5 year swap fixing cost for the 2009 regulatory period, in a window suitable for the volume.

9.4.3 Super BEE: Uncertainty of Historical DRP

To calculate a full staggered debt DRP relevant to the 2009-2014 cycle, data beginning in 1999 is required. The debate among the AER, industry and various expert submissions reveals there is a variety of data sources for yields on corporate bonds, but especially in the earlier years no agreed data source. Accordingly, a blend of the benchmarks is used to estimate historical DRPs in this

section. Analysis of the data series in comparison to one another, swap rates, spreads of swaps to CGS and new issue data led to the combination of the benchmarks as shown in table 4

Date (from)	Date (to)	Data Source
July 1999	November 2001	Swap Rate + (swap-to-CGS spread) x 4
December 2001	December 2004	Bloomberg Fair Value (BFV)
January 2005	November 2007	Average BFV + RBA
December 2007	March 2010	RBA
April 2010	June 2014	Average RBA + Bloomberg BVAL

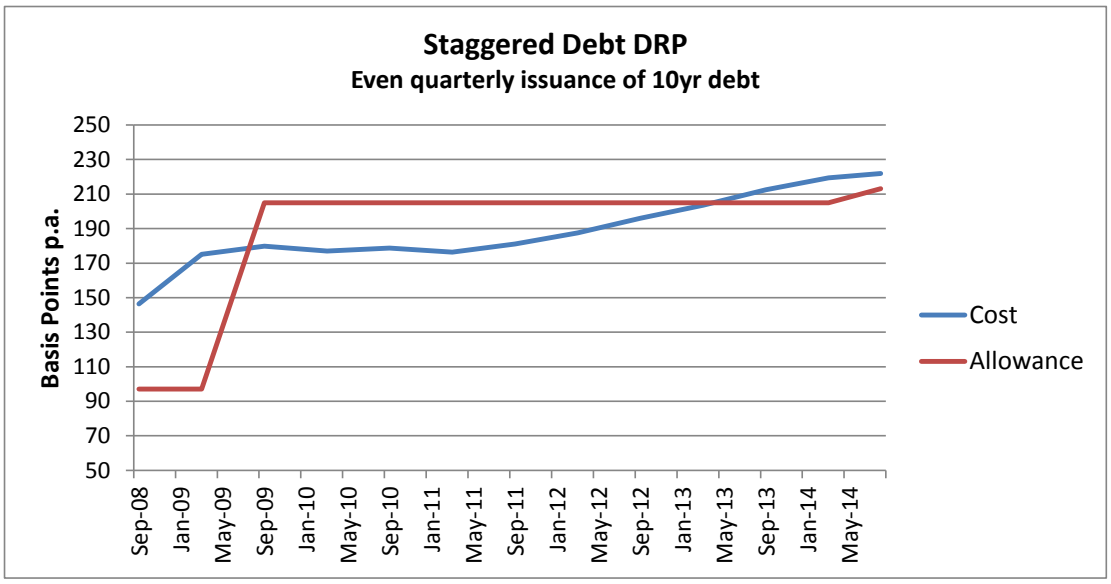
Table 4: Data Sources

This data mix is a reasonable estimate of which data source was most appropriate for the time, as none were continually and clearly superior. Exact quantification of DRP is outside the scope of this report and precision in that analysis would require much greater data requirements and filtering, given the significant differences between alternatives.

The best indicator of the margin at which companies can raise debt at any time is actual new issuance data. Unfortunately, such data is only partially publicly available and is not continuous for a particular rating category or business type. Nonetheless, Appendix B details the investigation made into the different bond benchmarks compared to new issue data where available in the years 2009, 2013 and 2014. The past two years were examined to determine how well the benchmarks reflect issuance margins around the most recent rate-set period. 2009 was chosen as the critical year for the rate-set of the last cycle, and to see the impact of the GFC and its immediate aftermath. Results of this data informed the timing of the data series choice described above.

9.4.4 Super BEE: Estimated Historical DRP

Our practical implementation of a smooth staggered debt profile is that of equal semi-annual issues of 5% of the Super BEE's debt with a maturity of 10 years occurring in March and September of each year. Graph 2 shows the actual DRP compared to the allowed DRP for the regulatory decisions of 2004, 2009 and 2014.[32]



Graph 2: Staggered Debt DRP

[32] Allowed DRP = Allowed total cost of debt less hedge swap rate.

The smooth issuance and maturity profile leads to the relative stability of the actual DRP as evidenced by avoiding a spike in costs during the 2008-09 GFC crisis period. Despite the slow change in actual DRP, it has continually risen leading up to the 2014 rate-set due to spreads post-GFC remaining at elevated levels compared to the period prior to the GFC.

The crossing of the lines in mid-2013 shows that the 'on-the-day' rate-set for the 2014 period, as part of the AER's transitional arrangements, results in a DRP allowance which is slightly less than that carried by the Super BEE.

From 2014 onwards there is the opportunity for perfect alignment of DRP cost and allowance for each of the 10% measurement increments, i.e. the 10% weighting to apply to rate observations for changing the allowance can be matched by new issuance of the Super BEE. At the end of the 10 year transition period the two DRPs should match because the 'trailing average' approach is used.

9.4.5 Super BEE: Estimated Historical Base Cost

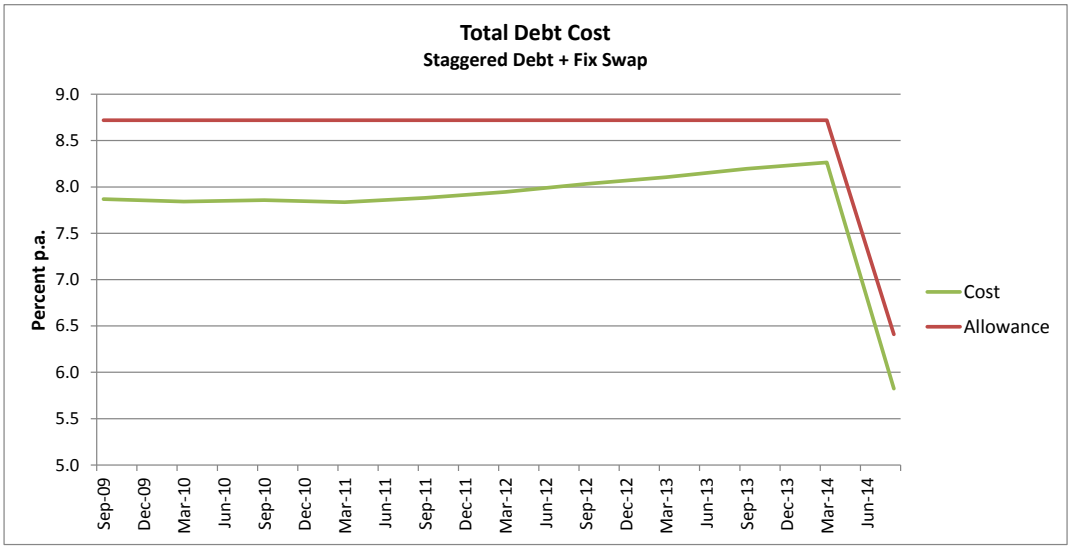
As section 9.3.2 described, the Super BEE minimising interest rate risk would have swapped their entire debt amount via 5-year swaps as quickly as was possible around the 2009 fixing window. Due to the extreme volatility of markets around that time, the result may have been significantly different depending on exactly when its rate-set window occurred and when it started hedging.

It appears that there was disagreement as to when the rate-set window for the NSW NSPs was to be in 2009. Although the Tribunal eventually determined the rate set to occur in the 15 to 20 days before 5 September 2008, it did not finalise this until November 2009. A risk-minimising NSP would have had to hedge before that decision, so instead it is assumed that the hedge was undertaken around the determined window dates of August–September 2008. The length of time taken to complete the hedge should have been no more than the 91 business days estimated by UBS. Knowing that a complete hedge within the window would not be possible, it would have been pragmatic for the Super BEE to begin doing some transactions before the window itself. It is assumed that it would have begun hedging on 1 August 2008 and continued for 91 days, finishing on 5 December 2008. The resulting average 5-year swap rate would have been approximately 6.1%.[33]

9.4.6 Super BEE: Total Cost of Debt 2009-2014

Total cost for the Super BEE is made up of the gradually changing DRP and the average fixed rate achieved in the swap hedging program. Graph 3 displays how the total cost remained below the allowance for the entire period, starting at approximately 90 bps but gradually climbed to only leave a difference of approximately 50 bps by the end of the regulatory period.[34]

[33] The alternative of the originally proposed window of February 2009 is also noted for comparison. Hedging from 15 January to 21 May 2009 would have yielded an average swap rate of 4.4%.
[34] Based on the allowed rate for NSW DNSPs as determined by the Tribunal in 2009.



Graph 3: Total Debt Cost of a Super BEE

There are three elements to this over-compensation and the quantum of each is explained below:

- Base rate. There is a difference between the base rate component of the allowed rate and the actual base rate achieved at the start of the period of approximately positive 60 bps. This is comprised of two elements that partially offset each other, as follows:
  - The different windows for rate-sets and transacting swaps. The impact of this was calculated as approximately positive 70 bps. The rate-set window was 15 days; whereas based on the UBS advice it is assumed that the swaps were transacted over 91 days. There are two important observations:
    - While this approach worked in favour of the Super BEE this time, it took on significant interest rate risk which could have moved against it resulting in the actual base rate being higher than allowed base rate.
    - A BEE would not have enjoyed such an outcome nor faced the risk as they could have completed the swaps in the window.
  - Different terms of base rates being 10 years for the rate-set and 5 years for the hedge. The calculated financial impact is approximately negative 10 bps. Usually a 5 year rate is less than a 10 year rate, but in this rate-set window the 5 year was approximately 10 bps higher than 10 year rate. The mismatch between terms of the allowed and actual base rates also applied to a BEE, although the size of the impact would have varied depending on when a specific NSP's rate-set window occurred.
- DRP. There was a difference of approximately 30 bps between the rate-set at approximately 210 bps and the trailing average of approximately 180 bps for the Super BEE's staggered debt portfolio at that time. The rise in the actual rate across the period is due to the average DRP of the portfolio gradually increasing. There are three important points to be observed:
  - This outcome reflects the inherent conflict between the 'on-the-day' approach and the sound risk management technique of issuing staggered debt.
  - At the start of this period the difference just happened to be positive for the Super BEE, whereas on other rate-set dates the reverse could have occurred.
  - This situation would have been similar for a BEE.

Graph 3 clearly displays the benefits of hedging the revenue to cost side. If there is a significant shift on one side, i.e. the new 'on-the-day' rate set at the beginning of AER's transitional regime, the other side moves reasonably well with it.

9.4.7 Super BEE: Total Cost of Debt From 2014

Graph 3 also reveals that after the introduction of the new transitional arrangements, there will be an over-compensation of approximately 60 bps i.e. slightly more than at the end of the previous regulatory cycle. This is comprised of:

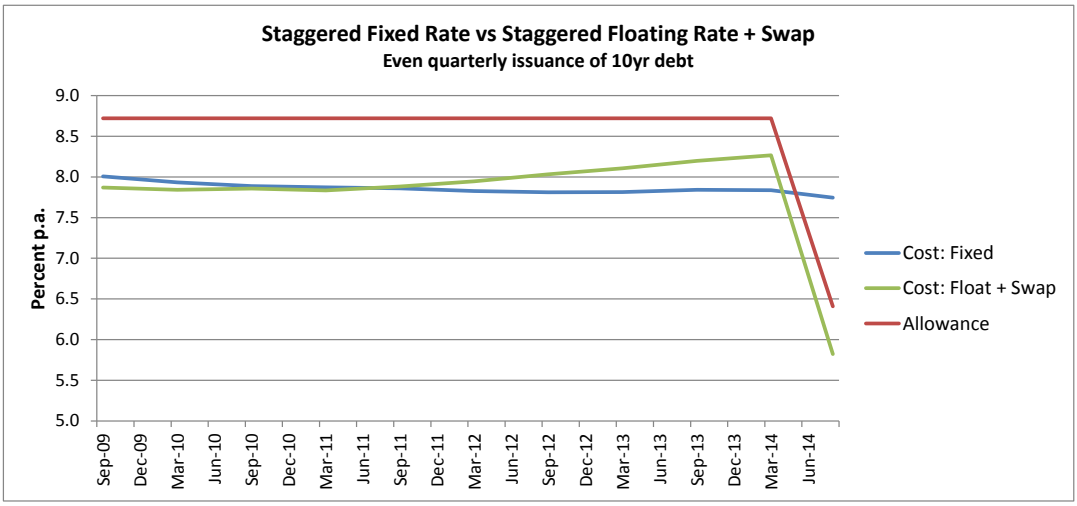
- Base rate. The difference between the base rate component of the allowed rate and the actual base rate achieved at the start of the period is positive approximately 70 bps. The reason being the allowed rate uses the 10 year term; whereas the Super BEE takes out 10 swaps in equal proportions from 1 to 10 year terms. As the yield curve was positively sloped during the rate-set window, the 10 year rate was higher than the average of the 1-10 year rates. The result is the same for a BEE.
- DRP. There was a small difference between the DRP component of the allowed rate and the actual DRP of the outstanding debt portfolio. This difference was a negative approximately 10 bps. The result is similar for a BEE.

From 2014 onwards, there is the opportunity for perfect alignment of the base rate cost and allowance increments, as noted for the DRP in section 9.4.4. The 10% weighting to apply to rate observations for changing the allowance can be matched by new issuance of the Super BEE, which it will do as fixed rates. At the end of the 10 year transition period the actual cost and allowance should match.

9.4.8 Super BEE: Staggered Fixed Rate Comparison

While it was not the lowest risk alternative for a Super BEE subject to the 'on-the-day' allowance mechanism in 2009, it is instructive to compare the cost which would have been incurred if the NSP did not hedge to the regulatory period and instead issued fixed rate staggered debt.

Graph 4 displays this comparison by adding a staggered fixed rate debt portfolio to Graph 3.



Graph 4: Staggered Fixed Debt vs Staggered Floating Rate With Fixed Swap

Graph 4 starkly displays the divergence of the staggered fixed debt strategy versus the floating debt with fixed swap strategy. It highlights that these strategies have very different risk profiles. The actual

result by using fixed rate issues gave a lower cost of debt during most of the previous regulatory cycle, thus providing lower cost compared to the floating debt and swap strategy.

The relativity will differ over time, where one method may be superior in a particular cycle and vice versa. The 2009-2014 period was a falling base rate environment leading to the fixed issuance strategy producing lower costs, whereas a rising base rate environment will see the fixed issuance strategy cause higher costs than fixing with a swap at the beginning of the term.

Comparing graphs 3 and 4 shows that simply looking at the expense side without looking at the revenue side, i.e. allowance for the cost of debt, will give a misleading impression of 'cost minimisation' or 'lowest risk'. The revenue-side, under the 'on-the-day' approach, including the transitional arrangements, shows 'jumps' due to the sudden rate reset. The dramatic divergence in the two rates post-June 2014 displays the degree of risk left open by this strategy. The revenue-side reduction from 8.82% to 6.51% starting in July 2014 is not offset by a corresponding drop in the cost side.

9.5 Quantitative Analysis: Super BEE Comparison Actual v Allowed

This question is addressed under section 9.4.

9.6 Critical Review: Government v Private Ownership

There has been commentary around the efficiency or otherwise of the NSW government owned entities. It is our view that these organisations are professional, well-staffed and they appear to have a sound and robust decision making process; however there is one area that appears to impact on these organisations financing decisions and that is the role and relationship of T-Corp. It is important to understand that state funding corporations act on behalf of the state government and its related family entities and that its objectives may be different to that of a government NSP, and it may treat the government NSP debt and hedging requirements in a portfolio sense rather than looking at it through the 'eyes' of the NSP.

It may be the case that there are efficient financing practices at a combined level of state government or its funding body level; however these may differ to the practices of a private entity of an equivalent type and size to each of the NSW NSPs. So that there is no misunderstanding, the government ownership alone will not change the efficient financing practices for an NSP, as defined in the BEE and Super BEE questions above. If there are efficient financing practices at a state government funding body level they are not relevant to the cost of debt allowance mechanism.

Based on submissions it is apparent that the different state government funding entities, e.g. QTC, T-Corp behave differently in funding NSPs.[35]

In conclusion, it is not necessary to determine whether a NSW provider was efficient or not to answer the question whether a transition is reasonable or not. It is our understanding of the energy regulation environment that the cost of debt allowance is not specific to the behaviour of one entity, or one class of entity. Instead decisions are based around the one benchmark to provide competitive neutrality for different current and future industry participants.

[35] Statement of Justin De Lorenzo p7.

10 SUMMARY QUESTIONS TO DETERMINE REASONABLENESS

10.1 JUSTIFICATION FOR TRANSITIONAL ARRANGEMENTS

Question 1: What is AER's justification for a transitional allowance?

AER has stated that the need for transitional arrangements is to allow NSPs to align their existing debt portfolio to the new 'trailing average' arrangements. The challenge is to determine the existing debt portfolio and how it needs to be practically adjusted to create a full 'trailing average' portfolio.

All arguments in the debate should be judged from this starting point.

10.2 REASONABLENESS FOR A BEE

Question 2: How can a BEE be broadly characterised to understand the required EFP?

Definition

A BEE is defined as a 'pure play, regulated energy network business operating within Australia' with gearing of 60 per cent and a credit rating of BBB+.[36]

Characteristics

A BEE will have the following characteristics in respect to EFPs. A BEE will:

- issue debt in a staggered manner so as to minimise refinancing risk[37]; and
- minimise interest rate risk because a BEE's primary business is energy network services, not financial risk taking.

Behavioural Assumptions

It is assumed that a BEE will:

- consider its capital structure, assets and liabilities, revenue and expenses in its decision making;
- be opportunistic in debt raising;
- undertake cost benefit analysis as part of its decision making in financing and interest rate risk management;
- take into account the regulatory regime as part of its financing behaviour and adapt where it considers there to be advantages; and
- manage its credit rating.

Financial Markets

A BEE must operate within the constraints and opportunities presented by financial markets over time, including product choice. Even during the depths of the GFC companies still needed to organise their finances and risk exposures in the most efficient manner available.

Question 3: What would a BEE's portfolio look like at the end of the previous regulatory period?

Based on the assumptions above:

- a BEE's debt portfolio would be staggered, however not evenly distributed with some concentration reflecting opportunistic behaviour and the regulatory environment.

[36] Note that the chosen measurement technique may not meet this theoretical definition. See Appendix B
[37] It is noted that AER's return on debt approach assumes 10 year debt

Particularly, the previous 'on-the-day' arrangements will have resulted in concentration near reset dates; whereas market conditions opened the door for opportunistic behaviour that also resulted in concentration. This opportunistic concentration may not necessarily be near reset dates; and

- a BEE's fixed rate swaps would have now matured.

Question 4: How would a BEE transition its portfolio from 'on-the-day' to 'trailing average'?

A BEE will:

- At the start of the new regulatory window pay fixed swaps for 1-10 years in proportions of 10%; and
- Change its behaviour over the course of the transition period in three ways. It will attempt to smooth out its new issuances to remove concentration around the rate set window. It will issue fixed rate debt instead of floating rate debt annually. Thirdly, a BEE will no longer undertake to pay fixed rate swaps at future rate set dates.

Based on the above actions at the end of the transitional period a BEE will have achieved the profile of the 'trailing average', subject to opportunistic behaviour.

Question 5: Are AER's transitional arrangements reasonable for a BEE?

Based on the above in our opinion AER's transitional arrangements for a BEE do not correctly respond to a BEE's transitional requirements for the following reasons:

- A BEE will already have a staggered DRP in its portfolio, but not evenly distributed, i.e. not smooth. Therefore, to match this situation the AER should not transition the DRP, but instead move immediately to a 'trailing average' for this element. As there is no standard methodology to account for the non-smooth portfolio, AER should adopt a smooth 'trailing average' for the DRP. It is acknowledged that the measurement of historical DRP is difficult, because it is accurate only at the time of debt issuance; however it is likely that a reasonable estimate could be determined; and
- While there should be a transition in the base rate, it should be measured by the average of the 1 to 10 year swap rates during the rate set window instead of by the 10 year term only. These two rates will usually differ and often do significantly.

10.3 REASONABLENESS FOR A SUPER BEE

Question 6: What are the key differences between a Super BEE and a BEE??

A Large BEE, like each of the NSW NSPs, has all the same characteristics of a BEE, except that debt and hedging requirements are significantly greater than an average NSP and that there is similar timing of the regulatory determinations. Our analysis centres on a Super BEE, which takes the 'worst case' of a group of Large BEEs having to be active in the market at similar times, as if it were one very large entity.

The execution is important because a lot of the debate is about the transaction sizes.

Question 7: What would a Super BEE's portfolio look like at the end of the previous regulatory period?

A Super BEE:

- Will have a more evenly distributed staggered debt profile than a BEE, because refinancing risk will be a major factor in determining the timing of debt issuances; and
- Will have fixed rate swaps maturing around the end of the regulatory period, and similar to a BEE.

Question 8: How would a Super BEE transition its portfolio from 'on-the-day' to 'trailing average'?

A Super BEE in the same way as a BEE will:

- At the start of the new regulatory window pay fixed swaps for 1-10 years in proportions of 10%. Now that the window is 4-5 months a Super BEE should not have any difficulty completing the swaps in the window;
- Issue fixed rate instead of floating rate debt annually; and
- No longer undertake to pay fixed rate swaps at the annual partial rate-sets.

Unlike a BEE, a Super BEE does not need to change its behaviour in respect to issuance profile, as it is already smoothly staggered.

Based on the above actions a Super BEE at the end of the transitional period will have achieved the profile of the 'trailing average', subject to opportunistic behaviour.

Question 9: Are AER's transitional arrangements reasonable for a Super BEE?

Based on the above in our opinion there should be no difference in the treatment for a BEE and Super BEE in regard to transitional arrangements. There may be even less reason to provide a transition for DRP to a Super BEE because it will already have a smoothly staggered DRP in its portfolio.

10.4 Estimation of Over or Under-Compensation

Question 10: Was there a difference between the allowed rate and actual cost of debt for a Super BEE for 2009-2014?

The calculation revealed there was an over-compensation from the start of the period through to the end of the period of approximately 90 bps at the start and approximately 50 bps at the end.[38] The initial difference comprised of:

- Base rate - approximately 60 bps. This was caused by different windows for rate-sets and transacting swaps and different terms of base rates in the allowance (10 years) and the hedge (5 years); and
- DRP - approximately 30 bps. This simply reflects the difference between a trailing average DRP cost built into the actual staggered debt portfolio and the DRP at the time of the rate-set window.

[38] Based on the allowed rate for NSW DNSPs as determined by the Tribunal in 2009.

Question 11: Should the transitional arrangements be adjusted to account for any difference in rates for the previous regulatory period?

In reviewing the materials it is apparent that there is inconsistency in the debate, as to whether there should be a 'look back' and then a 'true-up' from the previous regulatory period. It is our understanding that there is no agreed 'true-up' methodology, therefore the various arguments supporting or not supporting a 'true-up' are 'muddying the waters' as to the whether there needs to be a transition to the 'trailing average'.

There does not appear to be any reason for adjustment especially as it appears there was no gaming of the allowance guidelines. As outlined above the reasons for the surplus were because the Super BEE was forced to carry the risk on the:

- Base rate due to the longer time required to fix swaps given market illiquidity at that time; and
- DRP because of the nature of the 'on-the-day' regime as this method measures DRP in a short window; whereas the actual cost is determined by staggered debt issuances across the period.

Both of the above risks fortuitously in hindsight "played out" in favour of the Super BEE on this occasion; however at the start of the period there was the risk that the rates could have moved in the opposite direction resulting in a significant deficit.

Question 12: Is there a difference between the allowed rate and actual cost of debt for a Super BEE for 2014 onwards?

At the start of the regulatory period, there will be an over-compensation of approximately 60 bps, i.e. slightly more than at the end of the previous regulatory cycle.[39] This is comprised of:

- Base rate - approximately positive 70 bps. The reason being the allowed rate uses the 10 year term; whereas the Super BEE takes out 10 swaps in equal proportions from 1 to 10 year terms. As the yield curve was positively sloped during the rate-set window, the 10 year rate was higher than the average of the 1-10 year rates; and
- DRP - approximately negative 10 bps. As for the previous regulatory regime, this simply reflects the difference between a trailing average DRP cost built into the actual staggered debt portfolio and the DRP at the time of the rate-set window.

Question 13: Should the transitional arrangements be adjusted to account for any difference in rates that may arise in the new regulatory period?

Questions 10 and 11 addressed the previous regulatory period and whether an adjustment was required and it concluded that there was no reasonable justification to adjust the transitional arrangements for the past. Question 12 examined the impact of the transitional arrangements in the new regulatory period and reveals a structural discrepancy that could be addressed in the following manner:

1. Remove the term difference between the base rate measurement in the allowance and the base rate hedging required. This is achieved by measuring the average of 1-10 year swap rates instead of only using a 10 year term; and
2. Not apply a transition to the DRP where the DRP is measured in relation to the swap curve, not the CGS curve.

[39] Using AER's draft determination for Ausgrid.

Both these points apply to the Super BEE and BEE.

10.5 REASONABLENESS FOR NSW NSPS

Question 14: Is efficient financing different for a government owned network and should it be treated differently?

The government ownership alone will not change the efficient financing practices for an NSP, as defined in the BEE and Super BEE questions above. If there are efficient financing practices at a state government funding body level they are not relevant to the cost of debt allowance mechanism.

Based on submissions it is apparent that government owned entities, e.g. QTC, T-Corp behave differently in funding NSPs.[40]

In conclusion, it is not necessary to determine whether a NSW provider was efficient or not to answer the question whether a transition is reasonable or not. It is our understanding of the energy regulation environment that the cost of debt allowance is not specific to the behaviour of one entity, or one class of entity. Instead decisions are based around the one benchmark to provide competitive neutrality for different current and future industry participants.

Question 15: Should NSW NSPs be treated differently to the BEE or Super BEE?

The examination of debt management possibilities in the previous and new regulatory cycles show that the NSW NSPs could have behaved in the same manner as a Super BEE, so there is no reason why they should be treated differently to a Super BEE or BEE for determining the transitional allowance.

[40] Statement of Justin De Lorenzo p7.

11 DISCLAIMER

Chairmont relied on the materials provided by AER and those that are publicly available. Any financial calculations are not projections or a forecast and should not be construed as such and should not be relied on for investing or any other financing related decision. We have conducted this exercise on a best endeavours basis and acting in good faith. At the time of preparing this report neither Chairmont nor any of its personnel have any actual or perceived conflicts of interest.

APPENDIX A: TERMS OF REFERENCE

ADVICE ON DEBT TRANSITIONAL ARRANGEMENTS FOR NSW ELECTRICITY NETWORKS

Terms of reference: Questions and background documents

The AER seeks advice on the return on debt approach—whether transitional arrangements are appropriate in moving from an 'on the day' debt approach to a 'trailing average portfolio' approach.

Background

In the draft decisions released on 27 November 2014, the AER determined the following positions:[41]

- on the benchmark efficient entity:
    - to adopt a single benchmark across electricity transmission, electricity distribution, gas transmission and gas distribution, and
    - to adopt a conceptual definition of the benchmark efficient entity that is 'a pure play, regulated energy network business operating within Australia', and
    - to apply this single benchmark efficient entity definition in estimating the return on equity and the return on debt.[42]
- On the return on debt approach:
    - to use a 'trailing average portfolio approach'—that is, to estimate the average return that would have been required by debt investors in a benchmark efficient entity if it raised debt over an historical period prior to the commencement of a regulatory year in the regulatory control period
    - to update the return on debt estimate annually (that is, for each regulatory year)
    - to apply equal weights to all the elements of the trailing average, and
    - to implement transitional arrangements—in moving from the 'on the day' approach to the new 'trailing averaging portfolio' approach—consistent with the 'QTC method' (an annual re-pricing of a portion of the notional debt portfolio) and a benchmark term of 10 years.[43]
    - on implementation of the return on debt approach to use:
        - a benchmark credit rating of BBB+ or its equivalent

[42] AER, *Draft decision, TransGrid transmission determination, Attachment 3: Rate of return*, November 2014, pp.20–21; AER, *Rate of return guideline*, December 2013, p.7; AER, *Explanatory statement—Rate of return guideline*, December 2013, p.32.

[43] AER, *Draft decision, TransGrid transmission determination, Attachment 3: Rate of return*, November 2014, pp.102–103; AER, *Rate of return guideline*, December 2013, pp.18-20; AER, *Explanatory statement—Rate of return guideline*, December 2013, p.98.

- a benchmark term of debt of 10 years
- an independent third party data service provider to estimate the return on debt– specifically, to use a simple average of the RBA broad-BBB rated 10 year curve (the RBA curve) and where available, the Bloomberg broad-BBB rated 7 year BVAL curve (the BVAL curve); otherwise the Bloomberg broad-BBB rated 5 year BVAL curve.
- an averaging period for each regulatory year of 10 or more consecutive business days up to a maximum of 12 months (nominated by the service provider), where the averaging period should be as close as practical to the commencement of each regulatory year.[44]

In each of the regulatory proposals for which the AER released a draft decision, service providers proposed a trailing average portfolio approach with annual updates, consistent with the AER's guideline. However, in these proposals:

- some service providers adopted transitional arrangements consistent with the AER's guideline, specifically TasNetworks and Jemena[45]
- whereas other service providers proposed an immediate transition to the trailing averaging portfolio approach (i.e. no transition), which is a departure from the guideline. The reasons given for an immediate transition differ somewhat between service providers.
  - The large NSW government owned service providers (TransGrid, Ausgrid, Essential and Endeavour) referred to the alleged difficulty in accessing hedging markets due to the size of their debt portfolio. They suggested that the interest rate swap market is not sufficiently liquid to absorb large volume of interest rate swap contracts over an averaging period of up to 20 business days.[46] Therefore, any attempt by them to hedge would not have been efficient and would incur a significant cost. They also refer to their current debt financing practices as a reason for no transition.[47]
  - Directlink refers to the complexity of the AER's proposed transition and availability of high quality historical data as reasons for no transition.
  - ActewAGL refers its 100 per cent equity financing strategy as a reason for no transition.

In the draft decisions, the AER determined to adopt the same transitional arrangements for both the risk free rate and debt risk premium components of the return on debt; and to apply these uniformly across network service providers. However, the AER's reasons for adopting transitional arrangements differ for these two components:[48]

[44] AER, *Draft decision, TransGrid transmission determination, Attachment 3: Rate of return*, November 2014, pp.102–103; AER, *Rate of return guideline*, December 2013, pp.21-22; AER, *Explanatory statement—Rate of return guideline*, December 2013, p.126.

[45] TasNetworks, Jemena, Energex, Ergon Energy and SA Power networks support the AER's proposed transitional arrangements.

[46] In making this argument, TransGrid used a 20 day period while Ausgrid, Endeavour and Essential used 10 days.

[47] These businesses submitted that they have already structured their debt portfolio in a manner consistent with the trailing average approach (i.e. with staggered maturity dates); therefore, there is no need to apply a transition to them.

[48] AER, *Draft decision, TransGrid transmission determination, Attachment 3: Rate of return*, November 2014, pp.114–115. Please note that the content referred to is identical to that of the draft decision for all the other network service providers.

Risk free rate

The AER determined to apply a transition on the risk free rate because a transition would minimise 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. Given the benchmark term of debt is 10 years; the AER considered it would take 10 years for all the existing debt of the benchmark efficient entity to mature and its financing practices to fully transition. Accordingly, this reason for a transition on the risk free rate component also informed the AER's draft decision on the length of the transition period, which is 10 years.

A transition on the risk free rate is premised on the view that under the on-the-day approach, an efficient financing practice of a benchmark efficient entity would have been to:

- borrow long term (10 year) and stagger the borrowing so that only a small proportion (around 10 per cent) of the debt matures each year
- borrow using floating rate debt (or to borrow fixed rate debt and convert this to floating rate debt using fixed-to-floating interest rate swaps at the time of issuing the debt and which extended for the term of the debt, being 10 years), and
- enter into floating-to-fixed interest rate swaps at, or around, the time of the service provider's averaging period and which extended for the term of the regulatory control period (being typically 5 years).

Under the new trailing average portfolio approach, the AER considered an efficient financing practice would be to have a staggered portfolio of 10 year fixed rate debt.

In the draft decision, the AER determined to:

- build up the trailing average portfolio approach over time; that is, to apply the trailing average approach to all new debt; and
- apply transitional arrangements to the existing debt portfolio of the benchmark efficient entity until this debt portfolio fully matures (over 10 years). Under these arrangements, the allowed return on debt that existed at the start of 2014–19 period will be set in a manner similar to the on-the-day approach. The AER considered that at the start of 2014–19 period the benchmark efficient entity would have existing financial arrangements in respect of the risk free rate, which it undertook in expectation that the on-the-day approach would continue to apply in future regulatory periods.

The AER considered that under the trailing average approach with a transition, an efficient financing practice for the benchmark efficient entity would be:

- in respect of new debt, to borrow long term (10 year) and stagger the borrowing so that only a small proportion (around 10 per cent) of the debt matured each year; and
- in respect of existing debt, to engage in hedging its exposure to interest rate (mismatch) risk by swapping each of its prevailing floating rate debts into fixed rate debt for the remaining term to maturity. For example, existing debt with two year to maturity would be swapped

into two year fixed rate debt; existing debt with three year to maturity would be swapped into three year fixed rate; and so on.[49]

Debt risk premium

The AER determined to apply transition on the debt risk premium because a transition:

- Avoids potential windfall gains or losses to service providers or consumers from changing the regulatory regime
- Avoids practical problems with the use of historical data

Both the risk free rate and debt risk premium

The AER determined to adopt a transition on the total return on debt (i.e. both the risk free rate and debt risk premium components) because a transition:

- Maintains the same average price level while decreasing price volatility over time
- Reduces the potential for opportunistic behaviour from stakeholders.

Advice sought

Your advice should refer to the relevant sections of the key documents, as well as any other relevant material. In the context of the AER's rate of return framework, advice is sought on the matters set out below.

Generally, the questions seek the consultants' critical review of the AER's position in its November 2014 draft decisions, in light of the criticisms of these positions from the NSW service providers in their initial and revised regulatory proposals.

1. The AER considered the efficient financing practices of a benchmark efficient entity would be to minimise its financing costs over the life of its assets while managing refinancing risk and interest rate risk[50]. The AER seeks a critical review of this view on efficient financing practices.
2. The AER seeks a critical review of the efficient debt financing practices the AER considered a benchmark efficient entity would undertake under the following regulatory approaches:

    - The on-the-day approach
    - The trailing average approach; and
    - A transition between the on-the-day approach and the trailing average approach (based on the transition path the AER proposed in the rate of return guideline)[51].

    The averaging periods for these regulatory approaches are set out in table 2 of attachment 2.

[49] Lally, M., *Transitional arrangement for the cost of debt*. November 2014, p.10.

[50] The AER defined refinancing risk as 'The risk that the benchmark efficient entity would not be able to efficiently finance its debt at a given point in time. This may be because the debt instruments that it seeks are not available to it; or because they are expensive'. The AER defined interest rate risk as 'The risk resulting from a potential mismatch between the allowed return on debt and the actual return on debt of a benchmark efficient entity'. AER, *TransGrid draft decision*, November 2014, p.3-106.

[51] AER, *Better regulation–Rate of return guideline*, November 2014, pp.19-20.

Question (2) should be answered from the perspective of a benchmark efficient entity. The AER defines a benchmark efficient entity as a pure play, regulated energy network business operating within Australia.

3. Advise on whether the consultant's advice on the efficient financing practices under the three listed regulatory approaches in question (2) differs for a benchmark efficient entity with a similar degree of risk as each of the NSW service providers. The consultant's advice should engage with the following matters, in particular, and any other matters the consultant considers relevant:

    a. The debt portfolio size of a benchmark efficient entity with a similar degree of risk as each of the NSW service providers (see table 1 in attachment 2)
    b. The cost and availability of hedging instruments to a benchmark efficient entity with a similar degree of risk as each of the NSW service providers
    c. The similar timing of the service provider's regulatory determination with the timing of the regulatory determinations of other service providers
    d. The timing of the service provider's 2009–14 regulatory determination in the context of the global financial crisis (GFC).

    In answering question (3), the consultant should assume that the benchmark efficient entity is privately-owned and operates as an independent network.

4. Quantify (and display visually using charts) the actual return on debt over time of a benchmark efficient entity with the same reset determination timing and similar degree of risk as each of the NSW service providers. The analysis should display the total return on debt (including hedging costs, but excluding issuance costs)[52] of a benchmark efficient entity under the on-the-day approach and as it transitions to the trailing average approach.
5. Compare the return on debt over time from question (4) to the allowed return on debt over time for a benchmark efficient entity with the same reset determination timing and similar degree of risk as the NSW service providers. Advise on the extent of either under or over compensation during:
    a. The 2009–14 period (1 July 2009 to 30 June 2014)
    b. The 2014–19 period (1 July 2014 to 30 June 2019)
    c. The total period of analysis

To the extent that the analysis in questions (4) and (5) includes assumptions about future interest rates, the consultant could present sensitivity analysis showing the results under different interest rate outcomes.

6. Critically review the AER's position in the November 2014 draft decisions on why the efficient financing practices of a privately-owned energy network may differ from the efficient financing practices of a government-owned network.[53]
7. Based on the answers to questions (1) to (6), and any other considerations the consultant finds relevant, advise on whether, in the consultant's opinion, it is reasonable to apply the AER's debt

[52] This analysis should exclude debt raising costs. These are transaction costs incurred each time debt is raised or refinanced. The AER determine to include debt raising costs in opex allowance.
[53] AER, *TransGrid draft decision*, November 2014, attachment 3, pp.290-292.

transition path in the rate of return guideline to the NSW service provider's 2014–19 regulatory determinations.

The consultant's advice on question (7) should engage with:

a. The rate of return objective in the National Electricity Rules—The rate of return for a service provider is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the service provider in respect of the provision of regulated services.
b. The following factors in the National Electricity Rules that the AER must have regard to:
    i. The desirability of minimising any difference between the allowed return on debt and the actual return on debt of a benchmark efficient entity with a similar degree of risk as the NSW service providers
    ii. Any impacts (including in relation to the costs of servicing debt across regulatory control periods) on a benchmark efficient entity with a similar degree of risk as the NSW service providers that could arise as a result of changing the AER changing the methodology that is used to estimate the return on debt from the 2009–14 period to the 2014–19 period
c. The following revenue and pricing principle in the National Electricity Law—a service provider should be provided with a reasonable opportunity to recover at least the efficient costs it incurs in the provision of regulated services.

Attachment 1: Background documents

Key draft decision documents

Document	Notes
AER, Draft decision, TransGrid transmission determination, Attachment 3: Rate of return, November 2014, pp.102–129; and Appendix G (G1–G7)	The TranGrid draft decision is representative of the draft decision for Ausgrid, Endeavour Energy and Essential Energy. Accordingly, the consultant need only review the TransGrid draft decision. The AER's analysis and reasons on the debt transition issue is identical across the four decisions. However, the AER adopted a 6.67 per cent return on debt for TransGrid and a 6.51 per cent return on debt for Ausgrid, Endeavour and Essential. This is because TransGrid proposed a slightly different debt averaging period than the other NSW networks for the 2014-15 regulatory year, which was accepted by the AER.
Lally, M., Transitional arrangements for the cost of debt, November 2014	Consultant report on debt transition issue commissioned by the AER and published with the draft decisions.

Key rate of return guideline documents

Document	Notes
AER, Explanatory statement—Rate of return guideline, December 2013	Chapters 3 and 7
AER, Explanatory statement—Rate of return guideline—Appendices, December 2013	Appendix G
AER, Rate of return guideline, December 2013	Chapters 3 and 6, and appendix B

Other documents associated with the development of the rate of return guideline are available on the AER's website. This includes:

- consultant reports commissioned by the AER
- the draft guideline
- the explanatory statement to the draft guideline
- an issues paper and consultation paper published by the AER
- submissions from stakeholders on the issues paper, consultation paper and draft guideline (including consultant reports commissioned by stakeholders)

Key initial regulatory proposal documents

Document	**Notes**
TransGrid, Revenue proposal, May 2014, pp.178–185.	
Ausgrid, Regulatory proposal, May 2014, pp. 70-78.	Ausgrid's proposal is representative of the proposals from Endeavour and Essential. Accordingly, the consultant need only review the Ausgrid and TransGrid initial regulatory proposals.

Relevant consultant reports submitted by the network service providers with their initial regulatory proposals are included in the tables below.

Key documents relevant to return on debt approach—Transitional arrangements

Document	**Notes**
NERA, Return on capital of a regulated electricity network, May 2014, pp.18-34	NERA report submitted with TransGrid's initial regulatory proposal
CEG, Debt transition consistent with the NER and NEL, May 2014	CEG report on transition submitted with initial regulatory proposals from Ausgrid, Endeavour and Essential
CEG, Transition to a trailing average approach, October	CEG report on transition submitted in

2013	response to AER draft rate of return guideline
CEG, Efficiency of staggered debt issuance, February 2013	CEG report on transition submitted in response to AER rate of return guideline consultation paper
CEG, WACC estimates, May 2014, pp.39-49	CEG report submitted with initial regulatory proposals from Ausgrid, Endeavour and Essential
UBS, *UBS response to the Networks NSW scoping request on debt restructuring costs*, October 2013 (**Confidential**)	Confidential report submitted with initial regulatory proposals from Ausgrid, Endeavour and Essential.
Westpac, Liquidity of the interest rate swap market, 26 May 2014	Expert report submitted by TransGrid with it initial regulatory proposal
Queensland Treasury Corporation, Moving average approach—detailed design issues, 8 June 2012	QTC submission to the AEMC's rule change process. QTC's debt approach was the basis of the AER's approach in the guideline. However, the AER departed from QTC's approach with respect to debt balance weighting and data sampling.
Lally, The trailing average cost of debt, 19 March 2014, pp.31-41	Lally report to the QCA. Includes analysis on transitional issues.
Chairmont, Comparative hedging analysis, June 2013	Chairmont report to ERA. Includes analysis on hedging. The report is found at appendix 3 to the linked ERA document.
SFG, Rule change proposals relating to the debt component of the regulated rate of return, August 2012, pp.21-28	SFG report to AEMC. Includes analysis on the current debt financing practices of different regulated energy utilities.

Key 2009 WACC review documents – Statements from corporate treasurers

The table below include the Joint Industry Association (JIA)'s submissionto the 2009 WACC review process which sets out the statements of treasurers of network service providers on their financing practices.

Document	Notes
The Joint Industry Associations (JIA), Submission on the explanatory statement: WACC review, February 2009, Appendices set out below:	Key Appendices are E, F, G, H and I.
JIA Appendix E - Statement of Sim Buck Khim	Jemena
JIA Appendix F - Statement of Gregory Meredith	Envestra
JIA Appendix G - Statement of Andrew Noble	CitiPower and Powercor
JIA Appendix H - Statement of Alistair Watson	SP AusNet
JIA Appendix I - Queensland Treasury Corporation-Expert Statement	QTC

Key revised proposal documents – TransGrid

	Author	Title	Confidentiality status
	TransGrid	Revised revenue proposal, pp.116-125	Public
P	Frontier	TransGrid cost of debt transition, January 2015	Public
Q	HoustonKemp	Response to the draft decision on the return on debt allowance, January 2015	Public
R	UBS	Response to the TransGrid request for interest rate risk analysis following the AER draft decision of November 2014	Public
S	Australian Office or Financial Management	Letter to NSW Treasury Corporation, 5 January 2015	Public
T	TransGrid	Statement of Boon Thiow, 12 January 2015	Public

	Annexure BT-1 TransGrid	Curriculum Vitae, Boon Thiow	Public
	Annexure BT-2 TransGrid	Debt and investment risk management policy, 4 June 2012	Public
	Annexure BT-3 NSW Treasury	Commercial policy framework: Treasury management policy (TPP 07-7), July 2007	Public
U	TransGrid	Statement of Anthony Keith Meehan, 13 January 2015	**Contains some confidential annexures**
	Annexure AKM-1 TransGrid	Curriculum Vitae, Anthony Keith Meehan	Public
	Annexure AKM-2 TransGrid	TransGrid revenue proposal nominal risk free rate calculation period—Letter from Peter McIntyre to the AER, 31 May 2008	Public
	Annexure AKM-3 AER	Deliverability of capital expenditure program—Letter from the AER to Bruce Foy, 27 January 2009	Public
	Annexure AKM-4 Barrington Treasury Services	Interest rate risk management review	**Confidential**
	Annexure AKM-5 TransGrid	Debt management review board paper, 2 December 2008	**Confidential**
	Attachment 1 TransGrid	Survey of debt management strategies	**Confidential**
	Attachment 2 TCorp	TransGrid—Debt benchmark issues, November 2008	**Confidential**

Key revised proposal documents – Ausgrid

	Author	Title	Confidentiality status
	Ausgrid	Ausgrid Revised Regulatory Proposal_20 Jan 2015, pp177–187.	Public
1.07	David Newbery	David Newbery expert report, Jan 2015	Public
1.12	UBS	Financeability - Debt issuance and capital structure, pp.2–18	**Contains confidential sections**
	Annexure – UBS	2013 Annual report, pp.19–37	Public
	Annexure – Networks NSW	Request for quote – terms of reference; pp.38–47	Public
	Annexure –	Multiple CV of UBS staff, pp.48–51	Public
	Annexure – Risk.net	House of the Year, Australia – UBS; pp.52–56	Public
7.01	CEG[54]	Efficient debt financing costs, January 2015	Public
7.02	Frontier Economics	Cost of debt transition for NSW distribution networks, January 2015	Public
7.08	Australian Office of Financial Management	Letter from Michael Bath of the Australian Office of Financial Management to Steve Knight regarding domestic interest rate swaps, 5 January 2015.	Public
7.09	Networks NSW	Statement from Justin De Lorenz, Group Chief Financial Officer, Networks NSW, January 2015	**Confidential**
	Annexure – Networks NSW	Justin De Lorenz Curriculum Vitae, pp.11–18	**Confidential**
	Annexure – Endeavour Energy	Board policy, pp.780–812	**Confidential**
	Annexure – NSW Government Treasury	Government guaranty fee policy for government businesses – policy and guidelines paper, pp.813–	Public

[54] Ausgrid stated that this report reference an extensive number of relevant documents and expert reports, many of which were provided as attachments to our initial proposal submitted on 29 May 2014 (initial proposal).

Attachment 2: Key assumptions and background information

This attachment provides the following information:

- characteristics of the benchmark efficient entity
- debt portfolio size of the NSW service providers; and
- allowed averaging periods.

Characteristics of benchmark efficient entity

The AER defines the benchmark efficient entity as 'a pure play, regulated energy network business operating within Australia' with the following characteristics:

- private sector entity
- BBB+ credit rating
- gearing of 60 per cent
- 10 year debt term.

Debt portfolio size

The table 1 below set out the opening regulatory asset base (RAB) and forecast capex for the regulatory period 2009-14. The gearing is 60 per cent for each of the service providers.

Advice is sought only in relation to the NSW service providers. However, the other service providers have regulatory determinations that occur concurrently with the NSW service providers, and this might be relevant to the consultants' advice in relation to the depth and capacity of financial markets.

Table 1—Opening asset base and forecast capex in the 2009–14 determinations

Service provider	Opening RAB as at 1 July 2009 ($m, nominal)[55] [56] [57] [58]	Part of opening RAB financed through debt ($m, nominal)[(a)]	Forecast capex ($m, real)	Part of forecast capex financed through debt ($m, real)[(f)]
Ausgrid (distribution)	7297.2	4378.3	6637.7[(b)]	3982.6

[55] AER, *final decision, NSW distribution determination 2009–10 to 2013–14*, April 2009, pp.77–80.
[56] AER, *final decision, TransGrid transmission determination 2009–10 to 2013–14*, April 2009, p.10.
[57] AER, *final decision, Transend transmission determination 2009–10 to 2013–14*, April 2009, p.19.
[58] AER, *final decision, Australian Capital Territory distribution determination 2009–10 to 2013–14*, April 2009, p.25.

Ausgrid (transmission)	1028.5	617.1	1200.5[(b)]	720.3
Endeavour Energy	3690	2214.0	2721.4[(b)]	1632.8
Essential Energy	4319.4	2591.6	3826.0[(b)]	2295.6
TransGrid	4217.5	2530.5	2405.1[(c)]	1443.1
TasNetworks	951.4	570.8	606.4[(d)]	363.8
ActewAGL	598.7	359.2	275.2[(e)]	163.3

Source: AER analysis (multiple decisions)

(a) Calculated as 0.6 x opening RAB as at 1 July 2009

(b) ($m, 2008-09) sourced from AER, *final decision, NSW distribution determination 2009–10 to 2013–14*, April 2009, pp.143–145.

(c) ($m, 2007-08) sourced from AER, *final decision, TransGrid transmission determination 2009–10 to 2013*–14, April 2009, p.43.

(d) ($m, 2008-09) sourced from AER, *final decision, Transend transmission determination 2009–10 to 2013*–14, April 2009, p.65.

(e) ($m, 2008-09) sourced from AER, *final decision, Australian Capital Territory distribution determination 2009–10 to 2013–14*, April 2009, p.49.

(f) Calculated as 0.6 x forecast capex.

Allowed averaging periods

Table 2 sets out averaging period timing for the 2009–14 and 2014–19 regulatory periods. This timing applies to all the network service providers set out in table 1

Table 2—Averaging period flexibility provided by the AER

Regulatory approach	**Averaging period timing**	**Averaging period flexibility provided by AER**
On-the-day approach	Averaging period for 2009–14 regulatory period	5 to 40 business days ending no later than 20 March 2009. Exact dates nominated by the service provider.
Transition into the trailing average portfolio approach	Averaging period for year 1 (2014–15) of the 2014–19 regulatory period	10 business days to six months ending no later than 30 June 2014. Exact dates nominated by the service provider.
	Averaging period for years 2 to 4 of the 2014–19 regulatory period	10 business days to 12 months. Exact dates nominated by the service provider.

Other conditions for averaging periods are set out in on pages 21-22 of the AER's rate of return guideline, December 2013.

APPENDIX B: CORPORATE BOND ISSUANCE V AER BENCHMARKS

All of the data series used by AER for the new and previous cost of debt rate-setting processes are calculated by reference to bond issues trading in the secondary market. The differences in reported rates between CBA Spectrum, BFV, BVAL and RBA have varied over the years. This was still the case during the reset determination in the first half of 2014 between the two relevant series, i.e. RBA and BVAL.

As the intention of the cost of debt allowance is to measure the cost of new debt raising, it is desirable to make a comparison where possible between evidence from the new issues market and the benchmark secondary market data series. However, there is only limited public pricing information available for corporate debt raising and only a small part of the information relates to BBB Australian entities raising 10 year debt.

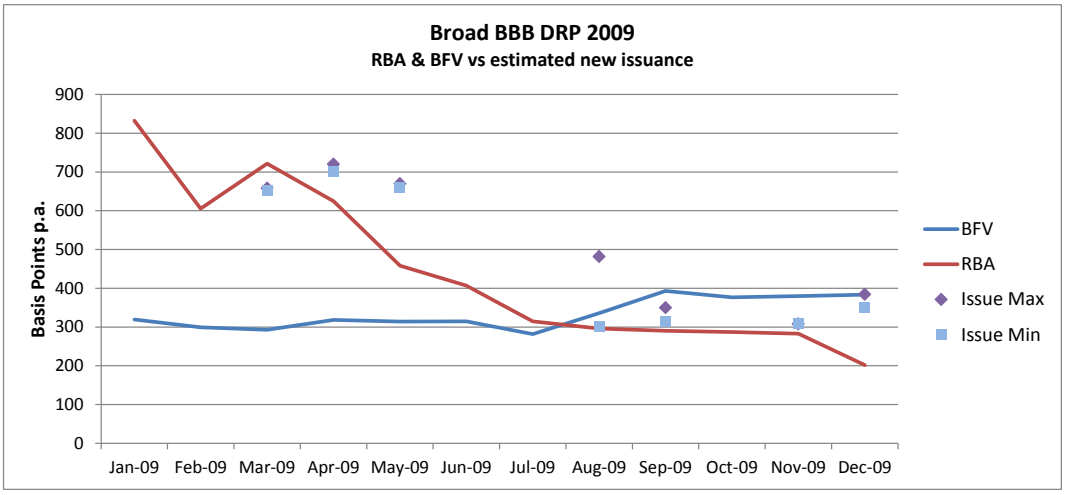
This analysis is intended to estimate reasonableness of the data series used for rate-setting, rather than to establish an alternative measure. It is not intended to be used for actual pricing but rather be a good estimate of the overall fit of benchmarks vs sample new issuance. Specifically, the spreads above swaps (i.e. DRP) for new issuances were examined around the two rate-setting windows in question, i.e. 2009 and early 2014. New issuance information was gathered for broad BBB rated Australian corporates issuing bonds of 7 years and more in AUD or foreign currency in public markets or in the US Private Placement (USPP) market. The latter has been a major source of long term funding for Australian corporates in recent years and provided more data points than the public markets in the years investigated.

At any particular point in time, broad BBB entities will face different DRPs depending on at least four factors:

- Their current official credit rating, e.g. BBB+ or BBB-;
- Their credit perception among investors, e.g. "high BBB" or "low BBB", which is driven by their industry and most recent financial changes;
- Their familiarity with the investors in that market, i.e. a first time issuer will usually need to pay a higher margin than an issuer who is known and has a good reputation and established investment limits in that country; and
- The market/currency in which the issue occurs and the relative level of cross currency basis swaps at the time, e.g. in early 2014 the USPP market required higher spreads than the public Euro market.

Issuance v Benchmarks in 2009

Very few longer term bonds were issued in 2009, with none of those few issued in the domestic market or in AUD. From March of 2009 issuance returned, primarily in the USPP market. Nevertheless, there were very few issues comparable to the rate-setting data series, as seen in Graph 5.



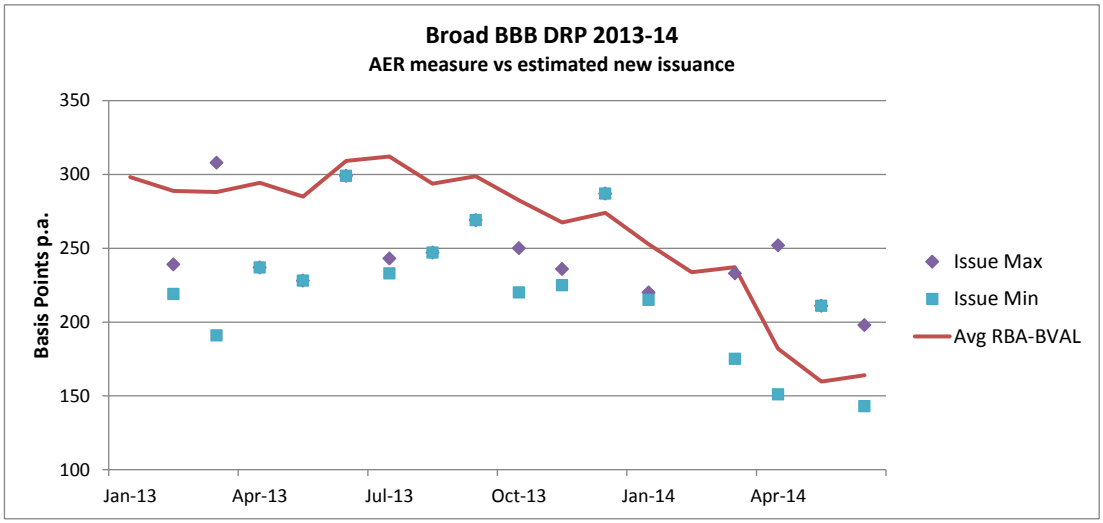
Graph 5: New Issue DRP vs Benchmarks in 2009

The difference in spreads across issuers and markets within one month is depicted in graph 5 by the maximum and minimum issuance spread points, Issue Max and Issue Min, respectively. Where the two points are equal, see March 2009, there was only one issue and the Issue Min sits on top of the Issue Max in the graph, i.e. it is difficult to see the Issue Max.

It can be seen from graph 5 that especially in the first half of 2009, prior to the beginning of the last regulatory period, the RBA time series was significantly closer to new issuance margins than the BFV time series. Accordingly, for the quantitative work reported in section 9.4, the RBA time series is used for the time of the GFC.

Issuance v Benchmarks 2013-2014

Markets were much more normal and liquid in 2013 and 2014. Many companies were raising longer term debt, including out to 12 to 15 years on a regular basis in the USPP market. Graph 6 reflects this liquidity by the significantly larger number of new issue data points compared to 2009.



Graph 6: New Issue DRP vs Benchmark in 2013-2014

Graph 6 reveals a changing 'goodness of fit' for AER's measurement tool across the period, i.e. the average of extrapolated 10 year RBA and BVAL series. While it moved in a similar way to the new

issuance spreads over this time, it tended to the top of the range, especially during 2013. The two benchmarks themselves also diverged significantly. During the first half of 2013 BVAL was higher than the RBA rate, yet in June 2013 the RBA spread suddenly jumped up and remained higher than BVAL for the rest of the time. From June 2013, the RBA rate was always at the high end or above the issuance range, while BVAL was more often at the low end or occasionally below it.

For the rate set period of 2014, February to June, the AER's combined RBA-BVAL approach was towards the lower end of the issuance pricing range seen. That low end of the range equates to the BBB+ issuers or those officially rated BBB but where the market considers them better risks, e.g. airports.

However, when AER's benchmark was near or above the top of the range, as in early 2013, it approximately reflected BBB- or the weakest BBB names. Therefore, while the 2014 rate-set appears to be reasonable for the AER BEE definition of a BBB+ rating, it can also at other times vary more towards BBB-. Presumably this arises from differing compositions within the BVAL and RBA bond samples.

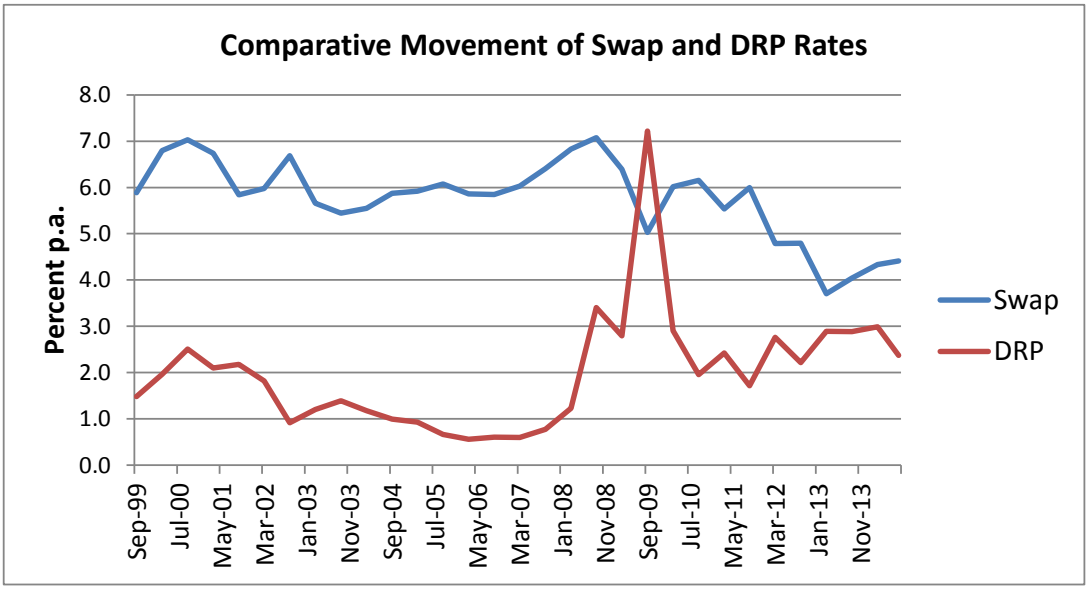
Resulting from the above analysis the quantitative work in section 9.4 uses the AER method of combining the RBA and BVAL data from the time that both became available, i.e. April 2010.

APPENDIX C: IS A NEGATIVE CORRELATION BETWEEN DRP AND SWAP RATES RELEVANT?

Some submissions raise the idea of swap hedges not being necessary (even if available) for an NSP because there may be a negative correlation between the DRP and the swap rate.[59] While there is some evidence of a negative correlation at times, the correlation is neither stable nor perfect. A company attempting to minimise interest rate risk in a manageable time-frame such as an accounting year or a regulatory cycle cannot carry the uncertainty whether a historical relationship may hold in the long term when it does not hold in the short term. Similarly, it cannot wait for the long term, as it must report and fund losses from it not working in the short to medium term.

The suggestion that interest rate risk is minimised by a negative correlation between the two components also implies that the total interest rate is kept reasonably stable by the two components moving in opposite directions. If the two components truly moved in opposite directions in similar amounts, the total interest rate would barely change. That suggestion is not borne out by observation of financial markets throughout the world and over time.

As one brief illustration of the evidence against the negative correlation concept, graph 7 shows the DRP and swap rates using the data from section 9.4. The two components clearly have years when they are negatively correlated and years when they are not. The relationship does not provide a reasonable hedge.



Graph 7: Correlation Analysis

[59] Houston Kemp – Response to the Draft Decision on the Return on Debt Allowance pages 17-19.