FINAL DECISION
Directlink Transmission determination
2015−16 to 2019−20

Attachment 3 – Rate of return

April 2015

Note

This attachment forms part of the AER's final decision on Directlink's revenue proposal 2015–20. It should be read with other parts of the final decision.

The final decision includes the following documents:

Overview

Attachment 1 – maximum allowed revenue

Attachment 2 – regulatory asset base

Attachment 3 – rate of return

Attachment 4 – value of imputation credits

Attachment 5 – regulatory depreciation

Attachment 6 – capital expenditure

Attachment 7 – operating expenditure

Attachment 8 – corporate income tax

Attachment 9 – efficiency benefit sharing scheme

Attachment 10 – capital expenditure sharing scheme

Attachment 11 – service target performance incentive scheme

Attachment 12 – pricing methodology

Attachment 13 – pass through events

Attachment 14 – negotiated services

Contents

Shortened forms

Shortened form	Extended form
AARR	aggregate annual revenue requirement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ASRR	aggregate service revenue requirement
augex	augmentation expenditure
capex	capital expenditure
CCP	Consumer Challenge Panel
CESS	capital expenditure sharing scheme
CPI	consumer price index
CPI-X	consumer price index minus X
DGM	dividend growth model
distributor	distribution network service provider
DMIA	demand management innovation allowance
DMIS	demand management incentive scheme
DRP	debt risk premium
DUoS	distribution use of system
EBSS	efficiency benefit sharing scheme
ERP	equity risk premium
Expenditure Assessment Guideline	expenditure forecast assessment Guideline for electricity distribution
F&A	framework and approach
MRP	market risk premium
NEL	national electricity law
NEM	national electricity market
NEO	national electricity objective
NER	national electricity rules
NSP	network service provider
opex	operating expenditure
PPI	partial performance indicators

Shortened form	Extended form
PTRM	post-tax revenue model
RAB	regulatory asset base
RBA	Reserve Bank of Australia
repex	replacement expenditure
RFM	roll forward model
RIN	regulatory information notice
RPP	revenue pricing principles
SAIDI	system average interruption duration index
SAIFI	system average interruption frequency index
SLCAPM	Sharpe-Lintner capital asset pricing model
STPIS	service target performance incentive scheme
WACC	weighted average cost of capital

3 Rate of return

The allowed rate of return provides a network service provider (NSP) a return on capital to service the interest on its loans and give a return on equity to investors. The return on capital building block is calculated as a product of the rate of return and the value of the regulatory asset base (RAB). The rate of return is discussed in this attachment.

3.1 Final decision

We are satisfied that the allowed rate of return of 5.45 per cent (nominal vanilla) we determined achieves the allowed rate of return objective.[1] That is, we are satisfied that this allowed rate of return is commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to Directlink in providing prescribed transmission services.[2]

This rate of return will apply to Directlink for the 2015–16 regulatory year. A different rate of return will apply to Directlink for the remaining regulatory years of the 2016–20 period. This is because we will update the return on debt component of the rate of return each year to partially reflect prevailing debt market conditions in each year. We discuss this annual update further below.

We are satisfied that this allowed rate of return reflects the overall efficient financing costs of a benchmark efficient entity with a similar degree of risk as Directlink for the reasons discussed in this attachment.

We are not satisfied that Directlink's proposed (indicative) 6.17 per cent rate of return for the 2015–16 regulatory year has been determined such that it achieves the allowed rate of return objective.[3] This is because we do not agree with Directlink's approach to calculating the return on debt. Directlink agrees with our approach to determining the return on equity.[4]

Our allowed rate of return is a weighted average of our return on equity and return on debt estimates (WACC) determined on a nominal vanilla basis that is consistent with the estimate of the imputation credits.[5] Also, in arriving at our decision we have taken into account the revenue and pricing principles and are also satisfied that our decision will or is likely to contribute to the achievement of the National Electricity Objective (NEO).[6]

Our return on equity estimate is 7.1 per cent. This rate will apply to Directlink in each regulatory year. Our return on debt estimate for the 2015–16 regulatory year is 4.35 per cent. This estimate will change each year as we partially update the return on debt each

---

[1]   NER, cl. 6A.6.2(b).

[2]   NER, cl. 6A.6.2(c).

[3]   Directlink, *Revised Revenue Proposal*, January 2015, pp.11–14. .

[4]   Directlink, *Revised Revenue Proposal*, January 2015, p.11.

[5]   NER, cl. 6A.6.2(d)(1) and (2).

[6]   NEL, s.16.

year for prevailing debt market conditions. Our return on debt estimate for future regulatory years will be determined in accordance with the methodology and formulae we have specified in this decision. As a result of updating the return on debt each year, the overall rate of return will also be updated.

We agree with the following aspects of Directlink's rate of return proposal:

- approach adopted to estimate the return on equity

- adopting a weighted average of the return on equity and return on debt (WACC) determined on a nominal vanilla basis (as required by the rules)

    adopting a 60 per cent gearing ratio

- adopting a 10 year term for the return on debt

- estimating the return on debt by reference to a third party data series, and specifically by adopting a simple average of the broad BBB rated Reserve Bank of Australia (RBA) and Bloomberg Valuation Service (BVAL) data series

- forecast inflation based on an average of the RBA's short term inflation forecasts and the mid-point of the RBA's inflation targeting band.[7]

However, we disagree with Directlink some important components of the return on debt.

Our return on equity estimate is 7.1 per cent.[8] We derived this estimate by applying the Rate of Return guideline (the Guideline) approach referred to as the foundation model approach.[9] This is the same approach we applied for the draft decision. This is an iterative six step process which has regard to a considerable amount of relevant information, including various equity models. At different stages of our approach we have used this material to inform the return on equity estimate. Concurrent with this decision for Directlink, we are making a number of regulatory determinations.[10] We received a number of submissions which commented on Directlink's revised revenue proposal and our draft decision.[11] Consideration of these submissions along with the underlying expert reports is included in

---

[7]   Directlink, *Revised Revenue Proposal*, January 2015, p. 13.

[8]   NER, cll. 6A.6.2(c), (f) and (g).

[9]   AER, *Better regulation: Rate of Return Guideline,* December 2013.

[10] Current regulatory determinations are for the following eleven NSPs: final decisions for ActewAGL, Ausgrid, Directlink (accepted our draft decision on return on equity), Endeavour Energy, Essential Energy, Jemena Gas Networks, TasNetworks (accepted our draft decision on return on equity), TransGrid; and preliminary decisions for Ergon Energy, Energex and SA Power Networks.

[11] Australian Gas Networks, *Submission on NSW and ACT draft decisions*, 12 February 2015, pp. 3–8;.
     Energy Networks Association, *Submission on NSW and ACT draft decisions*, 13 February 2015, pp. 14–15;
     Origin, *Submission on NSW draft decisions*, 15 February 2015, pp. 13–19. The following service providers commented on Directlink's regulatory proposal:• Citipower and Powercor, *Submission on NSW, ACT and TAS draft decisions*, 6 February 2015, pp. 3–11; Ergon Energy, *Submission on NSW and ACT draft decisions*, 13 February 2015, pp. 4–8; Jemena, *Submission on NSW, ACT and TAS draft decisions*, 6 February 2015, pp. 1–11; Networks NSW (Ausgrid, Endeavour Energy and Essential Energy), *Submission on NSW draft decisions*, 13 February 2015, pp. 1–6; SA Power Networks, *Submission on NSW, ACT and TAS draft decisions*, 6 February 2015, pp. 1–12;• TasNetworks, *Submission on NSW and ACT draft decisions*, 12 February 2015, pp. 2–3; United Energy, *Submission on NSW, ACT and TAS draft decisions*, 6 February 2015, pp. 3–15.

each of the final decisions for those network service providers that did not accept our return on equity draft decisions. Our reasons as set out in those final decisions also form part of this decision for Directlink. Our return on equity point estimate and the parameter inputs are set out in Table 3-1.

We consider that the Sharpe–Lintner capital asset pricing model (SLCAPM) is the superior financial model in terms of estimating expected equity returns. We have therefore adopted this model as our foundation model. The expert evidence before us also indicates that employing our foundation model approach and using the SLCAPM as the foundation model is expected to lead to a rate of return that achieves the allowed rate of return objective.[12]

We also evaluated our point estimate from the SLCAPM against other information. The critical allowance for an equity investor in a benchmark efficient entity is the allowed equity risk premium (ERP) over and above the estimated risk free rate at any given time.[13] Our estimate of the ERP for the benchmark efficient entity is 4.55 per cent, which is within the range of other information available to inform the return on equity (see Figure 3.1).

---

[12]   McKenzie & Partington, *Part A: Return on equity, Report to the AER*, October 2014, p. 13;and *Return on equity, Report to the AER*, (Updated) April 2015, John Handley, *Advice on return on equity, Report prepared for the AER*, October 2014, p. 3.

[13]   Our task is to determine the efficient financing costs commensurate with the risk of providing regulated network service by an efficient benchmark entity (allowed rate of return objective). Risks in this context are those which are compensated via the return on equity (systematic risks).

Figure 3.1 Comparison of AER allowed equity risk premium to other information
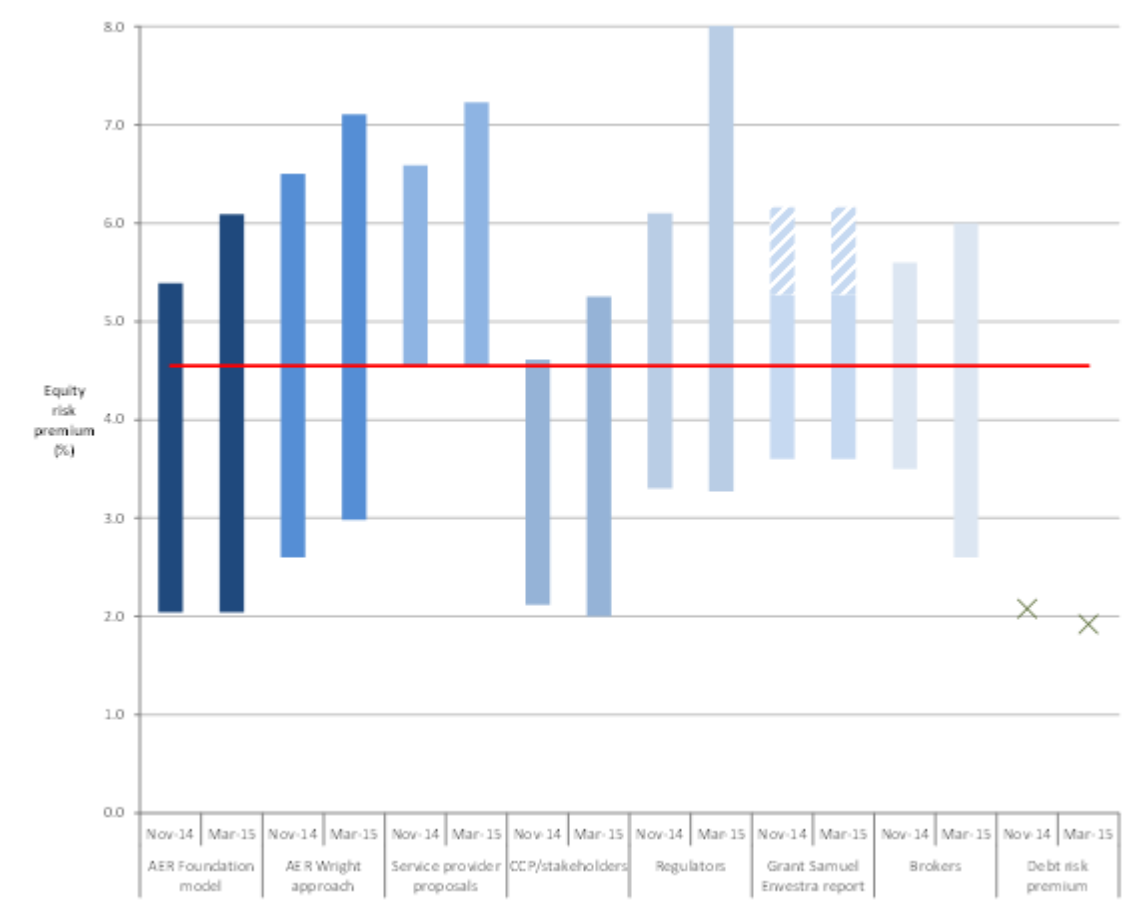
Source: AER analysis and various submissions and reports.

Notes: The AER foundation model equity risk premium (ERP) range uses the range and point estimate for MRP and equity beta as set out in step three. The calculation of the Wright approach, debt premium, brokers, and other regulators ranges is outlined in more detail in our final decision on TransGrid's transmission determination 2015-18, which was released at the same time as this decision.[14]

Grant Samuel's final WACC range included an uplift above an initial SLCAPM range. The lower bound of the Grant Samuel range shown above excludes the uplift while the upper bound includes the uplift and is on the basis that it is an uplift to return on equity. Grant Samuel made no explicit allowance for the impact of Australia's dividend imputation system. We are uncertain as to the extent of any dividend imputation adjustment that should be applied to estimates from other market practitioners. Accordingly, the upper bound of the range shown above includes an adjustment for dividend imputation, while the lower bound does not. The upper shaded portion of the range includes the entirety of the uplift on return on equity and a full dividend imputation adjustment.[15]

---

14   AER Final decision, TransGrid transmission determination 2015-18, April 2015 - see Attachment 3, Appendices E.1, E.2, E.4, and E.5 respectively. (http://www.aer.gov.au/node/23137)

15   Grant Samuel, *Envestra: Financial services guide and independent expert's report*, March 2014, Appendix 3.

The service provider proposals range is based on the proposals from businesses for which we are making final or preliminary decisions in April–May 2015.[16] Equity risk premiums were calculated as the proposed return on equity less the risk free rate utilised in the service provider's proposed estimation approach.

The CCP/stakeholder range is based on submissions made (not including service providers) in relation to our final or preliminary decisions in April–May 2015. The lower bound is based on the Energy Users Association of Australia submission on NSW distributors' revised proposals. The upper bound is based on Origin's submission on ActewAGL's proposal.[17]

Our final decision on the return on debt approach is to:

- estimate an on-the-day rate (that is, based on prevailing market conditions) in the first regulatory year (2015-16) of the 2015–20 period, and

- gradually transition this rate into a trailing average approach (that is, a moving historical average) over 10 years.

This gradual transition will occur through updating 10 per cent of the return on debt each year to reflect prevailing market conditions in that year. This approach is consistent with the approached we proposed in the Guideline and adopted in the draft decision. We do not accept Directlink's proposal for a backwards looking trailing average with no transition.

Our final decision is to estimate the return on debt in each regulatory year by reference to:

- a benchmark credit rating of BBB+

- a benchmark term of debt of 10 years

- independent third party data series—specifically, a simple average of the broad BBB rated debt data series published by the RBA and Bloomberg, adjusted to reflect a 10 year estimate and other adjustments[18]

- an averaging period for each regulatory year of between 10 business days and 12 months (nominated by the service provider), with that period being as close as practical to the start of each regulatory year and also consistent with other conditions that we proposed in the rate of return guideline.[19]

In the Guideline, we proposed to use one or more third party data series to estimate the return on debt.[20] At that time, however, we had not formed a view on which data series to

---

[16] ActewAGL, Ausgrid, Directlink, Endeavour Energy, Energex, Ergon Energy, Essential Energy, Jemena Gas Networks, SA Power Networks, TasNetworks, and TransGrid.

[17] Energy Users Association of Australia, *Submission to NSW DNSP Revised Revenue Proposal to AER Draft Determination (2014 to 2019)*, February 2015, pp. 15–16; Origin Energy, *Submission to ActewAGL's regulatory proposal for 2014–19*, August 2014, p. 4.

[18] For the RBA curve, our final decision is to interpolate the monthly data points to produce daily estimates, to extrapolate the curve to an effective term of 10 years, and to convert it to an effective annual rate. For the Bloomberg curve, our final decision is to extrapolate it to 10 years using the spread between the extrapolated RBA seven and 10 year curves, and to convert it to an effective annual rate.

[19] AER, *Rate of return guideline*, December 2013, pp. 21–2; AER, *Explanatory statement—Rate of return guideline*, December 2013, p. 126.

[20] AER, *Explanatory statement—Rate of return guideline*, December 2013, pp. 23–4.

use. Our April 2014 issues paper outlined how we would make this choice and sought submissions from service providers. In the draft decision, we formed a view on this issue and adopted a simple average of the RBA and Bloomberg data series. We maintain our draft decision position in this final decision.

In their initial proposals, all service providers with current reset determinations proposed only the RBA be used to estimate the return on debt. In the revised proposals, ActewAGL, Directlink, TasNetworks and TransGrid largely accepted our approach of adopting a simple average of the RBA and Bloomberg curves. Ausgrid, Endeavour Energy and Essential energy maintained their initial proposal to adopt the RBA only. And the CCP maintained its position that no third party data series should be used. Instead, the CCP submitted that we should estimate the return on debt by reference to service providers' actual cost of debt.

Our formula for automatically updating the trailing average portfolio return on debt annually is set out in the Return on Debt Appendix.[21]

Our final decision individual WACC parameters are set out in Table 3-1.

Table 3-1   AER's final decision on Directlink's rate of return (nominal)

	AER decision 2006–15	Directlink's revised proposal 2015–20	AER final decision 2015–16	AER final decision 2016–20
Nominal risk free rate (return on equity)[(a)]	5.32%	2.90%	2.55%	2.55%
Equity risk premium	6.00%	4.55%	4.55%	4.55%
MRP	6.00%	6.50%	6.50%	6.50%
Equity beta	1.0	0.7	0.7	0.7
Nominal post–tax return on equity	11.32%	7.45%	7.1%	7.1%
Nominal pre–tax return on debt	6.32%	5.28%	4.35%	Updated annually[(b)]
Gearing	60%	60%	60%	60%
Nominal vanilla WACC	8.32%	6.17%	5.45%	Updated annually[(b)]
Forecast inflation	2.97%	2.55%	2.55%	2.55%

Source: AER analysis; Directlink, *Revised regulatory proposal*, January 2015; AER, *Decision: Directlink Joint Venture's application for conversion and revenue cap*, March 2006.

---

[21]   NER, cl. 6A.6.2(l).

(a)   Directlink's revised proposal risk free rate estimate was based on an averaging period of the last 10 business days of December 2014. AER final decision risk free rate estimate is based on a 20 business day averaging period from 9 February to 6 March 2015.

(b)   The allowed return on debt is to be updated annually and the nominal vanilla WACC will be updated annually to reflect the allowed return on debt. The allowed return on debt for 2015–16 has already been estimated. Return on debt allowances for subsequent years will be estimated based on the formula set out in appendix I.

3.2 Directlink's revised proposal

Return on debt

In its revised revenue proposal, Directlink proposed a return on debt estimate of 5.28 per cent. It based this on a backwards looking 10 year trailing average approach. That is, it did not propose a transition in moving from the on-the-day approach to the trailing average approach.[22] To implement this approach, Directlink proposed only using the RBA data series for estimating the return on debt for previous regulatory years. However, consistent with our draft decision, it proposed to estimate the return on debt using a simple average of the RBA and BVAL data series for future regulatory years.[23]

Directlink did not submit consultant reports to support its revised revenue proposal.

3.3 AER's assessment approach

Our approach to determining the rate of return is set out in this section. This approach is based on the rate of return framework in the National Electricity Rules (NER). Under this framework, our key task is to determine an overall rate of return that we are satisfied achieves the allowed rate of return objective.[24] Prior to the submission of this revenue proposal, as required by the rate of return framework, we published the Guideline.

An important feature of the rate of return framework is the recognition that there may be several plausible answers that may achieve the allowed rate of return objective. The Australian Energy Market Commission (AEMC) in its final rule determination considered that the estimation of the required rate of return could be improved by permitting us to take account of a broad range of information.[25] The AEMC specifically did not include in the new rules any preferred methods for determining the rate of return.[26] Instead it provided for us to exercise judgement as to what we are satisfied is the best approach.[27]

---

[22]   Directlink Joint Venture, *Revised revenue proposal*, January 2015, pp. 12–13.

[23]   There is no need to estimate the return on debt for previous regulatory years under the transition to the trailing average approach that we set out in this final decision.

[24]   NER, cl. 6A.6.2(b).

[25]   AEMC, Rule determination: National electricity amendment (Economic regulation of network service providers) Rule 2012: National gas amendment (Price and revenue regulation of gas services) Rule 2012, 29 November 2012, p. 67 (AEMC, *Final rule change determination*, November 2012).

[26]   See, for example, AEMC, *Final rule change determination*, 29 November 2012, p. iv.

[27]   AEMC, *Final rule determination*, 29 November 2012, p. 38; The High Court of NZ stated: "In determining WACC, precision is therefore an elusive and perhaps non-existent quality. Setting WACC is, we suggest, more of an art than a science. The

During the AEMC's rule development, the Energy Networks Association (ENA) submitted that the Guideline should provide a high level of certainty that enables stakeholders to calculate proxy estimates of the rate of return.[28] During the development of the Guideline, a group of investors and ENA again raised the importance of certainty.[29] In particular, the ENA submitted that certainty and stability of outcomes in rate of return issues could materially benefit the long term interest of consumers.[30] We have provided this certainty and predictability in the Guideline in a manner that it is consistent with achieving the allowed rate of return objective.

We are cognisant that our task is not to determine a rate of return that merely applies the Guideline. That is, we do not consider the Guideline to be the determinative instrument for calculating the rate of return. Rather, the allowed rate of return objective has primacy in our estimation of the rate of return. Nevertheless, the Guideline has a significant role at the time of each regulatory determination because any decision to depart from the Guideline must be a reasoned decision.[31] In practice, we have considered submissions on the rate of return made during this determination process anew so that we are satisfied that our estimate of the rate of return achieves the allowed rate of return objective. Where no new material was submitted we maintain our view as expressed in the Guideline for reasons stated therein. Whilst the legislative framework allows us to depart from the Guideline, we would not do so lightly. Departing from it may undermine the certainty and predictability that stakeholders have said they value. We would depart from the Guideline if we are satisfied that doing so would result in an outcome that better achieves the allowed rate of return objective. Our approach is consistent with the AEMC's view that "… the regulator would, in practice, be expected to follow the guidelines unless there had been some genuine change in the evidence."[32] In its Rule determination, in relation to the Guideline the AEMC stated, "…the Commission would expect service providers, consumers, the AER, the ERA, and the appeal body to have significant regard to them as a starting point for each regulatory determination or access arrangement."[33]

The rate of return framework provides for us to take into account a wide range of relevant estimation methods, financial models, market data and other evidence as well as considering inter-relationships between parameter values.[34] This enables us to determine the estimate of the required rate of return at the time of each regulatory determination commensurate with prevailing conditions in the market for funds at that time.[35] The rate of

---

use of WACC, in conjunction with RAB values, to set prices and revenue in price-quality regulation gives significance to WACC estimates that may not exist outside this context." *Wellington International Airport Ltd & Others v Commerce Commission [2013] NZHC 3289, para. 1189*.

[28] AEMC, *Final rule determination*, 29 November 2012, p. 50.

[29] Financial Investors Group*, Submission on AER's equity beta issues paper*, 29 October 2013.

[30] ENA, *Response to the Draft Rate of Return Guideline of the AER*, 11 October 2013, p. 1.

[31] NER, cl. 6A.2.3(e).

[32] AEMC, *Final Position Paper, National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012; National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012*,15 November 2012, p. 28.

[33] AEMC, *Final rule determination*, 29 November 2012, p. 71.

[34] NER, cll. 6A.6.2(e) & (k).

[35] NER, cl. 6A.6.2(g).

return framework incorporates a greater degree of regulatory judgement than did the previous framework.[36] This framework does not include any preferred methods for estimating components of the rate of return. Instead, the AEMC in formulating the framework provided high-level principles to guide the estimation of the rate of return consistent with achieving the overall allowed rate of return objective.[37]

The Guideline was designed through extensive consultation. This process provided transparency and the Guideline provides predictability for service providers, users and investors as to how we consider changes in market circumstances and make decisions. At the same time, it allows sufficient flexibility for us to account for changing market conditions at the time of making regulatory determinations. The process included effective and inclusive consumer participation which we consider an important feature of our approach.

Network service providers submitted a large volume of material in support of its rate of return proposals and revised proposals. We have turned our mind to all of this material to consider its implications for addressing the allowed rate of return objective and whether we should depart from the Guideline. We have also referred this material to our consultants for their consideration prior to making our draft and final decisions. Much of the material submitted is not new to us. Much of it was considered directly during the development of the Guideline and readdresses issues that were before us at the time. Nevertheless, we reviewed the material in making our draft decision and again for this final decision. Our considerations are throughout this rate of return attachment and relevant appendices.

Although this decision relates to only Directlink, we are simultaneously considering a number of rate of return proposals and revised proposals from different service providers.[38] TasNetworks' original proposal did not propose any departures from the Guideline and applied it to determine its rate of return. TasNetworks and Directlink have accepted our return on equity draft decision. The other service providers proposed varying reasons, material and propositions to justify their proposed departures from the Guideline and not adopting our draft decision. We have had regard to the material in all of the different proposals and revised proposals in determining the return that meets the allowed rate of return objective. Our considerations are throughout this rate of return attachment and appendices.

We note that Directlink adopted our Guideline approach (and methods) to estimating the return on equity and accepted our draft decision. However, it did not adopt our return on debt draft decision. We have engaged with the material submitted since our draft decision, considered the reasons for the proposed departures from the Guideline and taken into account stakeholder submissions on our draft decision. In doing so, we have undertaken two interdependent tasks as required by the rules:

---

[36] NER, cll. 6A.6.2(b) & (c).

[37] NER, cll. 6A.6.2(b) & (c).

[38] Revised proposals from Ausgrid, Endeavour Energy, Essential Energy, TasNetworks (accepted the Guideline), TransGrid, Directlink and Jemena Gas Networks (NSW) and original proposals from Energex, Ergon Energy and SA Power Networks.

- consider whether the proposed departures would better achieve the allowed rate of return objective such that we should depart from the Guideline

- determine a rate of return that we are satisfied achieves the allowed rate of return objective.

The remainder of our assessment approach is separated into the following subsections:

- Requirements of the law and rules.

- Rate of return guideline.

- Interrelationships within the rate of return.

- Expert advice and stakeholder submission.

3.3.1 Requirements of the law and rules

This section summarises the key aspects of the law and rules that underpin the rate of return framework.

Overall rate of return (weighted average cost of capital)

The allowed rate of return for a regulatory year must be a weighted average of the return on equity for the regulatory control period in which that regulatory year occurs and the return on debt for that regulatory year and must be determined on a nominal vanilla basis that is consistent with the estimate of the value of imputation credits (WACC). [39] The WACC formulae is:

1. $WACC_{vanilla} = E(k_e)\frac{E}{V} + E(k_d)\frac{D}{V}$

where:

- $E(k_e)$ is the expected required return on equity

- $E(k_d)$ is the expected required return on debt

- $\frac{E}{V}$ is the proportion of equity in total financing (comprising equity and debt).

- $\frac{D}{V}$ is the proportion of debt in total financing, and is equal to the benchmark efficient entity gearing ratio of 0.6.

In determining the allowed rate of return, we must have regard to:[40]

- relevant estimation methods, financial models, market data and other evidence;

---

[39]   NER, cl. 6A.6.2(d).
[40]   NER, cl. 6A.6.2(e).

- the desirability of using an approach that leads to the consistent application of any estimates of financial parameters that are relevant to the estimates of, and that are common to, the return on equity and the return on debt; and

- any interrelationships between estimates of financial parameters that are relevant to the estimates of the return on equity and the return on debt.

Allowed rate of return objective

The allowed rate of return that we determine is to be determined such that achieves the allowed rate of return objective. The objective is[41]

> …that the rate of return for a [regulated network] 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].

National electricity objective and the revenue and pricing principles

In performing or exercising an economic regulatory function or power, we must do so in a manner that will or is likely to contribute to the national electricity objective.[42] A transmission determination, of which the rate of return is a constituent decision, is an AER economic regulatory function or power. The national electricity objective states:

> The objective of this Law 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 —
>
> (a) price, quality, safety, reliability and security of supply of electricity;
>
> (b) and the reliability, safety and security of the national electricity system.

In addition, we take into account the revenue and pricing principles when exercising discretion in making our decision relating to direct control network services.[43] In the context of the rate of return decision, we take particular account of the following revenue and pricing principles:

- A service provider should have a reasonable opportunity to recover at least the efficient costs that the operator (benchmark efficient entity) incurs in providing direct control network services.[44]

- A service provider should have effective incentives to promote economic efficiency in the direct control network services that it provides. That economic efficiency should include

---

[41]   NER, cl. 6A.6.2(c).
[42]   NEL, s. 16(1)(a).
[43]   NEL, s. 16(2).
[44]   NEL, s. 7A(2).

efficient investment in the electricity system, efficient provision of electricity network services, and the efficient use of the electricity system.[45]

- A price or charge should allow for a return that matches the regulatory and commercial risks from providing the regulated service that charge relates.[46]

- The economic costs and risks of the potential for under or over investment by a service provider in a distribution or transmission system that the service provider uses to provide regulated network services.[47]

- The economic costs and risks of the potential for under or over utilisation of a distribution or transmission system that the service provider uses to provide regulated network services.[48]

Return on equity

Our return on equity for a regulatory control period must be estimated such that it contributes to the achievement of the allowed rate of return objective. In estimating the return on equity, we have regard to the prevailing conditions in the market for equity funds.[49]

Return on debt

Our return on debt for a regulatory year must be estimated such that that it contributes to the achievement of the allowed rate of return objective.[50]

We estimate the return on debt using a methodology which results in the return on debt (and consequently the allowed rate of return) being or potentially being, different for different regulatory years in the regulatory control period.[51]

In estimating the return on debt we have regard to the following factors:

- the desirability of minimising any difference between the return on debt and the return on debt of a benchmark efficient entity referred to in the allowed rate of return objective

- the interrelationship between the return on equity and the return on debt

- the incentive that the return on debt may provide in relation to capital expenditure over the regulatory control period, including as to the timing of capital expenditure

- any impacts (including in relation to the costs of servicing debt across regulatory control periods) on a benchmark efficient entity referred to in the allowed rate of return objective

---

[45]   NEL, s. 7A(3).
[46]   NEL, s. 7A(5).
[47]   NEL, s. 7A(6).
[48]   NEL, s. 7A(7).
[49]   NER, cll 6A.6.2(f) and (g).
[50]   NER, cl. 6A.6.2 (h).
[51]   NER, cl. 6A.6.2 (i).

that could arise as a result of changing the methodology that is used to estimate the return on debt from one regulatory control period to the next.[52]

Make and publish the rate of return guideline

On 17 December 2013,[53] as required under the rules, we published the Guideline which is available on our website.[54] Within it we specified:[55]

- The methodologies we propose to use to estimate the allowed rate of return (derived from the expected return on equity and the return on debt) for electricity and gas network businesses.

- The method we propose to use to estimate the value of imputation tax credits used to establish a benchmark corporate income tax allowance (see attachment on the value of imputation credits).

- How these methods will result in an allowed return on equity and return on debt which we are satisfied achieves the allowed rate of return objective.

In the Guideline we also set out the estimation methods, financial models, market data and other evidence that we propose to take into account in estimating the expected return on equity, return on debt and the value of imputation tax credits.[56] Network businesses must provide reasons in their revenue proposals for any proposed departures from the Guideline.[57] Should we decide to depart from the Guideline in a transmission determination then we must provide reasons for any such departures.[58]

3.3.2 Rate of return guideline

This section sets out the key elements of the Guideline. The explanatory statement (and appendices) to the Guideline explain our proposed approach in detail which we adopt for this section.[59] Where we have received proposals/submission to depart and/or departed from the Guideline, any such proposals/submissions and/or departures are explained and reasons for doing so are set out in section 3.4 and the appendices.

Consultative approach to designing the guideline

In developing the Guideline we undertook an extensive consultation process to provide stakeholders with opportunities to raise and discuss matters. We are satisfied that this

---

[52] NER, cl. 6A.6.2 (k).
[53] http://www.aer.gov.au/node/18859
[54] NER, cl. 6A.6.2(m).
[55] NER, cl. 6A.6.2 (n).
[56] NER, cl. 6A.6.2 (n) (2).
[57] NER, cl. S6A.1.3(4)(i),(4A),(4B) (C).
[58] NER, cl. 6A.2.3(e).
[59] The full suite of documents associated with the guideline including the explanatory statements, relevant appendices and expert reports are available at http://www.aer.gov.au/node/18859 .

comprehensive consultation process resulted in the Guideline addressing the relevant issues. One of the key benefits of this extensive consultative and inclusive process is that it provided stakeholders with greater certainty and predictability as to how we will assess proposals and determine the rate of return at each determination.

All the material including submissions received are available on our website, at the *Better Regulation Reform* page. A summary of submissions is set out in appendix I of the rate of return Guideline, explanatory statement.

An outline of the consultative process is set out below:[60]

- On 18 December 2012, we released an issues paper. This paper raised and sought comment on a broad range of issues at a high level with no firm positions taken by us. We received 20 submissions on the issues paper.

- On 5 February 2013, we hosted a forum on the development of the guideline. A range of stakeholders including representatives of regulated energy businesses, energy users, state regulatory authorities, government statutory authorities and investors in regulated utilities participated in this forum. At the forum we sought high level views from participants on key matters. Forum participants discussed issues set out in our issues paper. Stakeholders sought clarification on how we would apply the principles set out in the issues paper and explain how these principles related to the objectives and the revenue and pricing principles.

- On 25 and 26 February 2013 we held two sub-group workshops on: i) the overall rate of return and cost of equity ii) the cost of debt. Again a range of stakeholders attended these workshops and discussed the key issues relating to development of guideline including the role of the principles, the nature of the benchmark efficient entity, the use of financial models and approaches for estimating the cost of equity and cost of debt.

- In May 2013 we released a consultation paper. This paper sought comments on our preliminary positions on some elements of the rate of return. We received 41 submissions on the consultation paper.

- On 3 and 4 June 2013 we held two sub-group workshops on: i) approach to return on debt benchmark and ii) return on equity—models assessment. A large number of stakeholders attended these workshops. The debt workshop discussed the key issues relating to approach to return on debt- benchmark ('on-the day' and portfolio), trailing average, annual updating of a trailing average, weighting, and transitional arrangements. The equity workshop discussed various models used for assessing the return on equity.

- On 18 June 2013 we held another workshop on relationship between risk and the rate of return, and implications for the definition of the benchmark efficient entity. Again a large number of stakeholders and the consultants attended this workshop. Frontier Economics made presentations on: i) characteristics and exposures of energy networks in general and ii) differences in risk exposures of different types of energy networks. Associate

---

[60] See AER, *Better regulation: Explanatory statement rate of return guideline,* December 2013, pp. 19–20.

Professor Graham Partington made a presentation on accounting for risk within the regulatory framework. The consultants also responded to the stakeholders questions.

- On 30 August 2013 we published our draft guideline and explanatory statement. In response to the draft guideline and accompanying explanatory statement we received 46 submissions. A key theme in submissions was requests for additional specification to be included in the guideline. This request came from a range of stakeholders, but most prominently from investors. Investors told us that it was important for them to be able to forecast our decision outcomes with a fair degree of precision to avoid surprises. These responses led us to include more details in the final guideline included the parameter estimates we proposed to use when applying our foundation model.[61]

- On 30 August 2013, following the release of the draft rate of return guideline we held an information session presented by the previous AER Chairman, Andrew Reeves outlining the details of our draft guideline. We published a copy of the presentation and answers to all questions raised during the session.

- On 1 October 2013 we held a stakeholder forum to discuss our draft rate of return guideline. The forum provided interested stakeholders with an opportunity to clarify aspects of the draft guideline and to present their views on the draft guideline.

- On 11 October 2013, we released an issues paper on equity beta as part of our consultation for developing the rate of return guideline. This issues paper set out our proposed approach to estimating the equity beta. We received 14 submissions on this issues paper.

- We held a number of bilateral meetings during the process with the QTC, TCorp, ERA, IPART, APIA, EUAA, ENA, PIAC, Merrill Lynch, Moody's, Standard and Poor's, Goldman Sachs, Westpac.

- Throughout the process we held a series of meetings with the Consumer Reference Group to receive feedback from on key issues from a consumer perspective. Our past experience was that consumers struggled to participate in our regulatory processes. They find it difficult to engage with the complexity of the regulatory framework and then to provide written material that fits within the framework that governs our decision. Our objective in running the consumer reference group was to educate consumers, identify the key issues and gather their comments without the need for comprehensive written submissions. At the conclusion of the Better Regulation program we undertook an evaluation of the consumer reference group. A copy of this evaluation is on our website.[62]

---

[61]   See AER, *Better regulation: Explanatory statement rate of return guideline, Appendices,* December 2013, Table I.4, pp. 185–186.
[62]   Available at: http://www.aer.gov.au/node/19166 .

Application of criteria for assessing information

We developed a number of criteria and applied these to inform our regulatory judgement when evaluating material put before us. The criteria are subordinate to the law, the rules and especially the allowed rate of return objective. We developed them to provide stakeholders greater certainty, and a framework, as to how we intend to exercise our regulatory judgement whilst keeping sufficient flexibility to make decisions consistent with changing market conditions.[63]

We proposed to apply assessment criteria to guide our selection and use of estimation methods, models, market data and other evidence which inform our assessment of the overall rate of return. Not all the various estimation methods, financial models, market data and other evidence (information) will be of equal value in determining the rate of return by reference to a benchmark efficient entity. For example, some information may be more relevant, more feasible to construct, or more reliable than others. We considered that our decisions on the rate of return are more likely to achieve the allowed rate of return objective because we use estimation methods, financial models, market data and other evidence that are:

(1) where applicable, reflective of economic and finance principles and market information

   (a) estimation methods and financial models are consistent with well accepted economic and finance principles and informed by sound empirical analysis and robust data

(2) fit for purpose

   (a) the use of estimation methods, financial models, market data and other evidence should be consistent with the original purpose for which it was compiled and have regard to the limitations of that purpose

   (b) promote simple over complex approaches where appropriate

(3) implemented in accordance with good practice

   (a) supported by robust, transparent and replicable analysis that is derived from available credible datasets

(4) where models of the return on equity and debt are used these are

   (a) based on quantitative modelling that is sufficiently robust as to not be unduly sensitive to errors in inputs estimation

   (b) based on quantitative modelling which avoids arbitrary filtering or adjustment of data, which does not have a sound rationale

---

[63] See AER, *Better regulation: Explanatory statement rate of return guideline,* December 2013, ch.2.

(5) where market data and other information is used, this information is

   (a) credible and verifiable

   (b) comparable and timely

   (c) clearly sourced

(6) sufficiently flexible as to allow changing market conditions and new information to be reflected in regulatory outcomes, as appropriate.

These criteria are applied in this decision to guide us in deciding on the merits of the material before us and the best place to employ the material (if at all).

Benchmark efficient entity

Our proposed definition of a benchmark efficient entity is to:

- adopt a single benchmark across gas, electricity, transmission and distribution
- adopt a conceptual definition of a benchmark efficient entity that is 'a pure play, regulated energy network business operating within Australia'.

Our benchmark efficient entity is defined to give effect to the allowed rate of return objective which requires it to have a similar degree of risk as that which applies to the distribution or transmission network service provider in respect of the provision of regulated services.[64] Our benchmark efficient entity includes the following sub components as defined below:[65]

Pure play

A pure play business is one which offers services focused in one industry or product area. In this context, it means that the benchmark efficient entity provides only regulated energy network services.

Regulated

A regulated entity for the purposes of our benchmark is one which is subject to economic regulation (that is, revenue price cap regulation) under the National Electricity Rules and/or the National Gas Rules.

Energy network business

Energy network refers to a gas distribution, gas transmission, electricity distribution or electricity transmission business.

---

[64] NER, cl. 6A.6.2(c).

[65] See AER, *Better regulation: Explanatory statement rate of return guideline,* December 2013,ch.3; AER, *Better regulation: Rate of Return Guideline,* December 2013, section 3.

Operating within Australia

A benchmark efficient entity should be operating within Australia as the location of a business determines the conditions under which the business operates. This includes the regulatory regime, tax laws, industry structure and broader economic environment.

Gearing

The weight we proposed give to the point estimates of the return on equity and the return on debt to derive the overall rate of return using the above WACC formula is based on our gearing ratio point estimate of 60 per cent. We give 60 per cent weight to debt and 40 per cent to equity.[66]

Return on equity

We proposed to estimate the expected return on equity using the six steps set out in the flow chart in Figure 3.2. The reasons for adopting a process that consists of these six steps are discussed in detail in the documents and submissions that make up the material considered during the different stages of developing the Guideline. These include our issues and consultation papers and draft and final explanatory statements.[67]

---

[66]   See AER, *Better regulation: Explanatory statement rate of return guideline,* December 2013, Appendix F.
[67]   Available at, http://www.aer.gov.au/node/18859

Figure 3.2   Flowchart of the AER's proposed approach to estimating the expected return on equity

1. Identify relevant material
Identify relevant methods, models, data and evidence.

2. Determine role
Assess relevant material against criteria, and use this assessment to determine how to best employ relevant material.

Use as foundation model? — YES

NO

Use to inform foundation model? — YES

NO

Use to inform overall ROE? — YES

NO

This method, model, data or evidence is not used to estimate the ROE.

3. Implement foundation model
Determine a range and point estimate for the foundation model, based on the information from step two.

4. Other information
Estimate ranges and/or directional information for material used to inform the overall ROE.

5. Evaluate information set
Evaluate outputs from steps three and four, identifying patterns and investigating conflicting information.

6. Distil ROE point estimate
Use the foundation model point estimate informatively to determine starting point. Based on the information from steps four and five, select final ROE value as the foundation model point estimate, or a multiple of 25 basis points (from within the foundation model range).

Return on debt

Our final decision on the return on debt approach is to:

- estimate an on-the-day rate (that is, based on prevailing market conditions) in the first regulatory year (2015-16) of the 2015–20 period, and

- gradually transition this rate into a trailing average approach (that is, a moving historical average) over 10 years.

This gradual transition will occur through updating 10 per cent of the return on debt each year to reflect prevailing market conditions in that year. This approach is consistent with the approached we proposed in the Guideline and adopted in the draft decision.

Our final decision is to estimate the return on debt in each regulatory year by reference to:

- a benchmark credit rating of BBB+

- a benchmark term of debt of 10 years

- independent third party data series—specifically, a simple average of the broad BBB rated debt data series published by the RBA and Bloomberg, adjusted to reflect a 10 year estimate and other adjustments

- an averaging period for each regulatory year of between 10 business days and 12 months (nominated by the service provider), with that period being as close as practical to the start of each regulatory year and also consistent with other conditions that we proposed in the rate of return guideline.[68]

Mid period WACC adjustment

We proposed that our overall rate of return estimate will be updated annually because the return on debt is updated annually.[69] Hence, while the return on equity we determine at the start of the regulatory control is fixed for the relevant regulatory period, the return on debt is updated annually to apply our trailing average approach over the regulatory control period.[70] We recently published amendments to the transmission and distribution post tax revenue model (PTRM) to enable the application of the guideline changes.[71]

3.3.3 Interrelationships

This section notes the key interrelationships in the rate of return decision in the context of the rule requirements to apply a rate of return. Where we have had regard to these in developing our approach, they are more fully described in the Guideline. The manner in

---

[68] AER, *Rate of return guideline*, December 2013, pp. 21–2; AER, *Explanatory statement—Rate of return guideline*, December 2013, p. 126.

[69] NER, cl. 6A.6.2(i).

[70] See AER, *Better regulation: Explanatory statement rate of return guideline,* December 2013,ch.4.3.2.

[71] Available at http://www.aer.gov.au/node/27616 .

which these are taken into account in making this decision is set out as part of our reasoning and analysis in this attachment and appendices.[72]

We estimate a rate of return for a benchmark efficient entity which is then applied to a specific service provider rather than determining the returns of a specific service provider based on its specific circumstances.[73] This is the same whether estimating the return on equity or return on debt as separate components. We set a rate of return that is commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as the service provider in respect of the provision of prescribed transmission services. This provides a reasonable opportunity to recover at least the efficient costs.[74] The NSP's actual returns could be higher or lower compared to the benchmark depending on how efficiently it operates its business. This is consistent with incentive regulation. That is, our rate of return approach drives efficient outcomes by creating the correct incentive by allowing NSPs to retain (fund) any additional income (costs) by outperforming (underperforming) the efficient benchmark.[75]

We are mindful that we apply a benchmark approach and an incentive regulatory framework. Any one component or relevant parameter adopted for estimating the rate of return should not be solely viewed in isolation. In developing our approach and implementing it to derive the overall rate of return we are cognisant of a number of interrelationships relating to the estimation of the return on equity and debt and underlying input parameters.

Single benchmark

We adopt a single benchmark efficient entity across all service providers. In deciding on a single benchmark we considered different types of risks and different risk drivers that may have the potential to lead to different risk exposures. We also noted that the rate of return compensates investors only for non–diversifiable risks (systematic risks) and other types of risks are compensated via cash flows and some may not be compensated at all.[76] These interrelationships between the types of risk and the required compensation via the rate of return are an important factor.[77] Our view is that the benchmark efficient entity would face a similar degree of risk irrespective of the:

- energy type (gas or electricity)

- network type (distribution or transmission)

- ownership type (government or private)

- size of the service provider (big or small).

---

[72] As noted in section 3.1 above, given that Directlink accepted our return on equity draft decision the reasons as set out in final decisions for those network service providers that did not accept our return on equity draft decisions are also relevant to Directlink.

[73] See AER, *Better regulation: Explanatory statement rate of return guideline,* December 2013, ch.3.

[74] NEL, s. 7A(2).

[75] NEL, s. 7A(3).

[76] See AER, *Better regulation: Explanatory statement rate of return guideline,* December 2013, p.33.

[77] See AER, *Better regulation: Explanatory statement rate of return guideline,* December 2013, ch.3.3

Domestic market

We adopt the Australian market as the market within which the benchmark efficient entity operates. This recognises that the location of a business determines the conditions under which the business operates and these include the regulatory regime, tax laws, industry structure and broader economic environment. As most of these conditions will be different from those prevailing for overseas entities, the risk profile of overseas entities is likely to differ from those within Australia. Consequently, the returns required are also likely to differ. This is an important factor in estimating the rate of return and we therefore adopt a domestic approach. Hence, when estimating input parameters for the Sharpe–Lintner capital asset pricing model (SLCAPM) we place most reliance to Australian market data whilst, using overseas data informatively.

Benchmark gearing

We apply a benchmark efficient level of gearing of 60 per cent. This benchmark gearing level is used:

- to weight the expected required return on debt and equity to derive the overall rate of return using the WACC formula

- to re-lever asset betas for the purposes of comparing the levels of systematic risk across businesses which is relevant for the equity beta estimate.

We adopt a benchmark credit rating which is BBB+ or its equivalent for the purposes of estimating the return on debt. To derive this benchmark rating and the gearing ratio, we reviewed a sample of regulated networks. Amongst a number of other factors, a regulated service provider's actual gearing levels have a direct relationship to its credit ratings. Hence, our findings on the benchmark gearing ratio of 60 per cent and the benchmark credit rating are interrelated given that the underlying evidence is derived from a sample of regulated network service providers.[78]

Term of the rate of return

We adopt a 10 year term for our overall rate of return.[79] This results in the following economic interdependencies that impact on the implementation of our return on equity and debt estimation methods:

- The risk free rate used for estimating the return on equity is a 10 year forward looking rate

- The market risk premium (MRP) estimate is for a 10 year forward looking period

- We adopt a 10 year debt term for estimating the return on debt.

---

[78]   See AER, *Better Regulation, Draft Rate of Return Guideline, Explanatory statement*, August 2013, ch.8.34 and appendix C.

[79]   See AER, *Better regulation: Explanatory statement rate of return guideline,* December 2013, ch.4.3.4.

3.3.4 Expert reports and stakeholder submissions

Expert reports

We commissioned expert advice from the following finance experts to assist us in making our draft and final decisions:

- Professor Michael McKenzie, University of Liverpool.[80]

- Associate professor Graham Partington, University of Sydney.[81]

- Associate professor John Handley, University of Melbourne.[82]

- Dr Martin Lally, Capital Financial Consultants.[83]

- Chairmont, a financial market practitioner[84]

We received advice from Professor Olan Henry, University of Liverpool, on estimating beta. This was commissioned during the Guideline development process and the final report was published in April 2014.[85] We also received advice on return on debt estimation from the ACCC Regulatory Economic Unit (REU).[86] Additionally, we sought and received a substantial amount of expert advice during the Guideline development process including from the REU. These reports have also assisted us in making our draft and final decisions.[87]

Stakeholder submissions

We received a large number of submissions on the original proposals, draft decision and revised rate of return proposal in the current regulatory determinations[88] including Directlink.[89] Most of these submissions had commentary relating to the rate of return.

---

[80] Michael McKenzie and Graham Partington on behalf of the Securities Industry Research Centre of Asia Pacific (SIRCA) Limited, *Report to the AER Part A: Return on Equity*, October 2014 and Graham Partington, *Report to the AER: Return on equity (Updated) April 2015*.

[81] Michael McKenzie and Graham Partington on behalf of the Securities Industry Research Centre of Asia Pacific (SIRCA) Limited, *Report to the AER Part A: Return on Equity*, October 2014 and Graham Partington, *Report to the AER: Return on equity (Updated) April 2015*.

[82] John Handley, *Advice on return on equity, Report prepared for the AER*, 16 October 2014; John Handley, *Report prepared for the Australian Energy Regulator: Advice on the value of imputation credits*, 29 September 2014; John Handley, Further a*dvice on return on equity, April* 2015

[83] Martin Lally, *Transitional arrangements for the cost of debt*, November 2014; Martin Lally, *Implementation issues with the cost of debt*, November 2014.;Martin Lally, Review of submissions on the cost of debt, April 2015

[84] Chairmont, Cost of debt: Transitional analysis, April 2015

[85] Olan Henry, *Estimating β: An update*, April 2014.

[86] REU, *Return on debt estimation: a review of the alternative third party data series*, August 2014.

[87] The full list of expert reports are listed and available at http://www.aer.gov.au/node/18859

[88] Current regulatory determinations are for the following eleven NSPs: final decisions for ActewAGL, Ausgrid, Directlink (accepted our draft decision on return on equity), Endeavour Energy, Essential Energy, Jemena Gas Networks, TasNetworks (accepted our draft decision on return on equity), TransGrid; and draft decisions for Ergon Energy, Energex and SA Power Networks.

[89] Submissions received on the original rate of return proposal are listed in the draft decision overview attachment appendix.

3.4 Reasons for Final decision

Our allowed rate of return is a weighted average of the return on equity and debt determined on a nominal vanilla basis (i.e. a vanilla WACC). It has been estimated consistently with the estimation of the value of imputation credits.[90] In deriving the WACC, and the estimated efficient debt and equity financing costs, we have applied the benchmark efficient entity gearing ratio of 0.6 (debt):0.4 (equity) that we proposed in the Guideline. We have no reason to depart from this gearing ratio.[91]

We discuss our reasons for the return on debt in subsection 3.4.1. Subsection 3.4.2 and 3.4.3 sets out the gearing ratio and our expected inflation rate for the 2015–20 period.

3.4.1 Return on debt

Our estimate of the return on debt provides a service provider with an allowance to cover its borrowing costs associated with funding investments in its network. Consistent with other components of the rate of return, we determine the return by reference to a 'benchmark efficient entity' rather than the actual service provider.

Our final decision is to adopt a return on debt of 4.35 per cent, rather than the 5.28 per cent proposed by Directlink. This return on debt will apply to Directlink for 2015–16. We will update 10 per cent of this return on debt each year over the 2015–20 period, based on the prevailing return on debt over Directlink's particular debt averaging period for each year. This final decision sets out how we arrived at the rate for 2015–16, and how we plan to update the return on debt in future years.

Our final decision is to maintain the return on debt methodology that we proposed in the rate of return guideline (the Guideline) and adopted in our draft decision.[92] Our considerations are grouped into broad approach issues and more specific implementation issues. We summarise our positions on these issues below.

Approach to estimating the return on debt

The return on debt consists of two components—a risk free rate (or base rate) component and a risk premium over the base rate. The risk premium is called the debt risk premium (DRP).

---

[90]   NER, cl. 6A.6.2(d).

[91]   All the NSPs whose original and revised proposals we are currently assessing have proposed a gearing ratio consistent with the Guideline.

[92]   AER, *Better regulation—Explanatory statement to the rate of return guideline*, December 2013, chapters 3, 7 and 8; AER, *Better regulation—Explanatory statement to the rate of return guideline (appendices)*, December 2013, appendix G; AER, *Better regulation—Rate of return guideline*, December 2013, chapters 3,6 and appendix B.

We have considered four broad options for determining the return on debt. These options combine various forms of the 'on-the-day' and 'trailing average' approaches to estimating the return on debt.[93] They are:

- Option 1—Continue the on-the-day approach

- Option 2—Start with an on-the-day rate for the first regulatory year and gradually transition into a trailing average approach over 10 years

- Option 3—Hybrid transition. Start with an on-the-day rate for the base rate component and gradually transition into a trailing average approach over 10 years. This would be combined with a backwards looking trailing average DRP (that is, a base rate transition only).

- Option 4—Adopt a backwards looking trailing average approach (that is, no transition on either the base rate or DRP components of the return on debt).

Our final decision is to adopt Option 2. Applied to Directlink's transmission determination, this means our return on debt approach is to:

- estimate the return on debt using an on-the-day rate (that is, based on prevailing interest rates) in the first regulatory year (2015-16) of the 2015–20 period, and

- gradually transition this rate into a trailing average approach (that is, a moving historical average) over 10 years using a forward looking approach.[94]

This means for the 2015–16 regulatory year, the return on debt is based on prevailing interest rates in 2015 (during Directlink's debt averaging period) before the start of the 2015–20 period. For subsequent regulatory years, the gradual transition will occur through updating 10 per cent of the return on debt each year to reflect prevailing interest rates (during Directlink's debt averaging period) in each year.

In practical terms, our return on debt approach means that an on-the-day rate shortly before the start of the 2015–20 period is applied to:

- 100 per cent of the debt portfolio in the calculation of the allowed return on debt for the 2015–16 regulatory year

- 90 per cent of the debt portfolio in the calculation of the allowed return on debt for the 2016–17 regulatory year, with the remaining 10 per cent updated to reflect prevailing interest rates during Directlink's averaging period for 2016–17

---

[93] The 'on-the-day' approach estimates the allowed return on debt based on prevailing interest rates at the start of the regulatory period. At the next regulatory determination, the allowed return on debt is reset based on prevailing interest rates at the start of the new regulatory period. The 'trailing average' approach estimates the allowed return on debt based on interest rates averaged over a moving historical period. Each year, prevailing interest rates from each new year are added to the trailing average, and interest rates from the last year of the trailing average 'fall out' of the trailing average.

[94] This final decision determines the return on debt methodology for the 2015–20 period. This period covers the first five years of the 10 year transition period. This decision also sets out our intended return on debt methodology for the remaining five years. However, we do not have the power to determine in this decision the return on debt methodology for those years. Under the NER, the return on debt methodology for that period must be determined in future decisions that relate to that period.

- 80 per cent of the debt portfolio in the calculation of the allowed return on debt for the 2017–18 regulatory year, with 10 per cent based on prevailing interest rates during Directlink's averaging period for 2016–17, and 10 per cent updated to reflect prevailing interest rates during Directlink's averaging period for 2017–18, and

- so on for the subsequent regulatory years.

After the 10 year transition period is complete, the return on debt is a simple average of prevailing interest rates during Directlink's averaging periods over the previous 10 years.

Consistent with the National Electricity Rules (NER) requirement, this annual update will be effected through the automatic application of the return on debt methodology we set out in this decision.[95]

This debt approach is consistent with the approach we proposed in the Guideline and adopted in the draft decision. In the Guideline, we based our transition on the approach recommended by the Queensland Treasury Corporation (QTC).[96] We refer to this as 'the QTC approach'.

Summary of stakeholders' views

In our current determination processes, the issue of how to move from the previous on-the-day approach to the new trailing average approach is contentious and material.

Service providers have a mixed position on how to make this change:

- TasNetworks, Queensland service providers (Energex and Ergon Energy), and AusNet Services Group service providers agreed with the QTC approach we adopted in the Guideline (Option 2).[97]

- CKI Group service providers (Citipower, Powercor and SAPN), Jemena Group service providers (JEN and JGN) and United Energy/Multinet also agreed on applying a transition. Initially, CKI and Jemena Group service providers agreed with the QTC approach we adopted in the Guideline.[98] Now, they and United Energy/Multinet have proposed a different form of transition (Option 3).[99]

---

[95] NER, cl. 6.5.2(l) and cl. 6A.6.2(l). The return on debt methodology for the purposes of the annual update is set out in appendix B.

[96] QTC, *Moving average approach–Detailed design issues*, 8 June 2012.

[97] TasNetworks, *Revised proposal*, January 2015, p.5; Energex, *Initial proposal*, October 2014, p.167; Ergon Energy, *Initial proposal*, October 2014, p.123; and AusNet Services, *Submission on draft rate of return guideline*, October 2013, p.3.

[98] SAPN, *Initial proposal*, October 2014, pp.338–339; JGN, *Initial proposal–Access arrangement information–Appendix 9.10*, June 2014, p.14;

[99] Citipower and Powercor, *Submission on first round of regulatory determinations under the new rules*, February 2015, section 4; SAPN, *Submission on SAPN issues paper*, January 2015, pp.8–10; JGN, *Revised proposal–Access arrangement information*, February 2015, p.21; and United Energy/Multinet, *Submission on first round of regulatory determinations under the new rules*, February 2015, pp.11–14.

- NSW service providers (TransGrid, Ausgrid, Endeavour Energy, Essential Energy), ActewAGL and Directlink disagreed with the QTC approach and proposed we use a backwards looking trailing average approach with no transition (Option 4).[100]

Generally, energy retailers, major energy users, small consumer representatives and the Consumer Challenge Panel (CCP) supported our approach of moving from the on-the-day approach to the trailing average approach (Option 2).[101]

Directlink's revised proposal

Directlink proposed we move away from our previous on-the-day approach to setting the return on debt. It proposed that we determine the return on debt using a backwards looking trailing average without any transition to account for the impacts of changing methodologies (Option 4). Directlink's proposal is based on its submission that a gradual transition to a trailing average introduces needless complexity to the regulatory regime and may not satisfy the NER and the NEL.[102]

We are satisfied that a gradual transition from the on-the-day approach to the trailing averaging approach (Option 2) is consistent with the requirements of the NER and NEL. We set out our reasons for this position in this decision.

We disagree with Directlink's view that our approach involves 'needless complexity'. On the contrary, we consider Directlink's proposed approach is the more complex approach. This is because Directlink's approach introduces practical problems with the use of historical data as estimating the return on debt during the global financial crisis is a difficult and contentious exercise.

Further, Directlink's revised proposal did not respond to most of our reasons for a gradual transition that we set out in the draft decision. We maintain our approach for the reasons set out in the draft decision and this final decision.

We are not satisfied that Directlink's proposed approach contributes to the achievement of the NEO, the allowed rate of return objective or is consistent with the revenue and pricing principles. We detail the evidence and reasons for our position in this attachment.

Our final decision

How we move from the on-the-day approach to the trailing average approach affects the revenue that service providers may recover from consumers, and the network prices consumers pay.

---

[100] TransGrid, *Revised proposal*, January 2015, pp.118–125; Ausgrid, *Revised proposal*, February 2015, pp.179–187; ActewAGL, *Revised proposal*, February 2015, p.427,473; and Directlink, *Revised proposal*, January 2015, pp.12–13.

[101] CCP, Advice to AER–Networks NSW distributors" cost of debt proposals, October 2015; Origin Energy, *Submission on draft decisions for NSW electricity distributors*, February 2015, pp.13–19. The views of other consumer representatives are discussed in the explanatory statement to the final rate of return guideline.

[102] Directlink, Revised revenue proposal 2015–20, January 2015, p.12.

For Directlink, using a backward looking return on debt as it has proposed would result in regulated revenues being approximately $10 million higher over 5 years than commencing the transition with an on-the-day rate as we proposed in the Guideline and have adopted in this decision.

This reflects the fact that prevailing interest rates are currently lower than the historical average of interest rates over the past 10 years. However, this is just a consequence of the particular timing of our decision. Equally, prevailing interest rates could have been higher than the historical average.

Our consideration of how to determine the return on debt is based on well-established economic, financial and regulatory principles. It would reflect our position regardless of whether prevailing interest rates were higher or lower than the 10 year historical average.

We are satisfied our return on debt approach contributes to the achievement of the NEO, the allowed rate of return objective and is consistent with the revenue and pricing principles. This is because it:

- Has regard to the impact on a benchmark efficient entity of changing the method for estimating the return on debt

- Promotes efficient financing practices consistent with the principles of incentive based regulation

- Provides a benchmark efficient entity with a reasonable opportunity to recover at least the efficient financing costs it incurs in financing its assets. And as a result it:

  o Promotes efficient investment, and

  o Promotes consumers not paying more than necessary for a safe and reliable network

- Avoids a potential bias in regulatory decision making that can arise from choosing an approach that uses historical data after the results of that historical data are already known

- Avoids practical problems with the use of historical data as estimating the return on debt during the global financial crisis is a difficult and contentious exercise.

Implementing the return on debt approach

Our final decision is to estimate the return on debt in each regulatory year by reference to:

- a benchmark credit rating of BBB+

- a benchmark term of debt of 10 years

- independent third party data series—specifically, a simple average of the broad BBB rated debt data series published by the RBA and Bloomberg, adjusted to reflect a 10 year estimate and other adjustments[103]

- an averaging period for each regulatory year of between 10 business days and 12 months (nominated by the service provider), with that period being as close as practical to the start of each regulatory year and also consistent with other conditions that we proposed in the rate of return guideline.[104]

In the Guideline, we proposed to use one or more third party data series to estimate the return on debt.[105] At that time, however, we had not formed a view on which data series to use. Our April 2014 issues paper outlined how we would make this choice and sought submissions from service providers. In the draft decision, we formed a view on this issue and adopted a simple average of the RBA and Bloomberg data series. We maintain our draft decision position in this final decision.

In their initial proposals, most service providers with current determination processes proposed only the RBA data series be used to estimate the return on debt. In the revised proposals, ActewAGL, Directlink, TasNetworks and TransGrid largely accepted our approach of adopting a simple average of the RBA and Bloomberg curves. Ausgrid, Endeavour Energy and Essential energy maintained their initial proposal to adopt the RBA only. The CCP maintained its position that no third party data series should be used. Instead, the CCP submitted that we should estimate the return on debt by reference to service providers' actual cost of debt.

In the following sections, we explain our key reasons for adopting the above positions.[106] We also respond to return on debt issues raised by Directlink, other service providers with current proposals, and consumer representatives. In appendix B, we set out our methodology to annually update the return on debt. In confidential appendix D we set out Directlink's averaging periods for the return on debt.

For the reasons set out in this attachment, and the appendices noted above, we are satisfied our final decision on the return on debt:

- is commensurate with the efficient debt financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to Directlink in providing regulated

---

[103] For the RBA curve, our final decision is to interpolate the monthly data points to produce daily estimates, to extrapolate the curve to an effective term of 10 years, and to convert it to an effective annual rate. For the Bloomberg curve, our final decision is to extrapolate it to 10 years using the spread between the extrapolated RBA seven and 10 year curves, and to convert it to an effective annual rate. This extrapolation of the Bloomberg curve applies to the return on debt in 2015–16. However, for subsequent years this extrapolation will not be necessary. This is because Bloomberg started publishing a 10 year estimate in April 2015,

[104] AER, *Rate of return guideline*, December 2013, pp. 21–2; AER, *Explanatory statement—Rate of return guideline*, December 2013, p. 126.

[105] AER, *Explanatory statement—Rate of return guideline*, December 2013, pp. 23–4.

[106] We set out further supporting analysis for our reasons in appendices G and H of attachment 3 from other decisions we published in April 2015. See for example, AER, *TransGrid–Final decision–Transmission determination*, April 2015, attachment 3.

services. Accordingly, we are satisfied this return on debt contributes to the achievement of the allowed rate of return objective.

- is consistent with the National Electricity Objective and the revenue and pricing principles, including providing Directlink with a reasonable opportunity to recover at least its efficient costs and providing effective incentives in order to promote economic efficiency.

- enables the revenue change resulting from the annual debt update to be automatically effected through a formula specified in the determination.[107]

Legislative framework for return on debt estimation

In section 3.3 of this attachment, we set out all of the legislative requirements relating to determining the rate of return. Those most relevant to the approach to determining return on debt are below.

The NER require that we must have regard to the following factors in estimating the return on debt:[108]

- The desirability of minimising any difference between the return on debt and the return on debt of a benchmark efficient entity (as referred to in the allowed rate of return objective).[109] We understand this factor to mean the difference between the return on debt allowance the AER sets (the *allowed return on debt*) and the cost of debt a benchmark efficient entity would actually incur (the *actual return on debt*). For clarity, we do not consider this factor relates to minimising the difference between the return on debt allowance and the actual cost of debt incurred by an actual service provider. The actual cost of debt of an actual service provider is relevant only to the extent it reflects the cost of debt incurred by a benchmark efficient entity.

- The interrelationship between the return on equity and the return on debt.[110]

- The incentives that the return on debt may provide in relation to capital expenditure over the regulatory control period, including as to the timing of any capital expenditure.[111]

- Any impacts (including in relation to the costs of servicing debt across the regulatory control periods) on a benchmark efficient entity referred to in the allowed rate of return objective that could arise as a result of changing the methodology that is used to estimate the return on debt from one regulatory control period to the next.[112]

---

[107] NER, cl. 6.5.2(l) and cl. 6A.6.2(l).
[108] NER, cl.6.5.2(k) and cl.6A.6.2(k).
[109] NER, cl.6.5.2(k)(1) and cl.6A.6.2(k)(1).
[110] NER, cl.6.5.2(k)(2) and cl.6A.6.2(k)(2).
[111] NER, cl.6.5.2(k)(3) and cl.6A.6.2(k)(3).
[112] NER, cl.6.5.2(k)(4) and cl.6A.6.2(k)(4).

The last factor is particularly relevant to the current decisions because both our final decision method and the method proposed by Directlink are a change from the method used to estimate the return on debt in the previous regulatory control period.[113]

Below we discuss impacts on a benchmark efficient entity that arise from changing the method for estimating the return on debt. We discuss impacts that occur across regulatory control periods, such as over the life of a benchmark efficient entity's regulated assets. We consider the NER require us to do so. The NER refer to 'any' impacts on a benchmark efficient entity as a result of changing the return on debt methodology. The NER then give an example of one impact—the cost of servicing debt across regulatory periods. Accordingly, the NER indicates that it is appropriate to take a perspective across more than one regulatory period.

The Australian Energy Market Commission (AEMC) has also made comments which support this perspective. It stated:

> The purpose [of this factor] … is for the regulator to have regard to the impacts of changes in the methodology for estimating the return on debt from one regulatory control period to another. Consideration should be given to the potential for consumers and service providers to face significant and unexpected change in costs or prices that may have negative effects on confidence in the predictability of the regulatory arrangements.[114]

The AEMC further stated:

> Its purpose is to allow consideration of transitional strategies so that any significant costs and practical difficulties in moving from one approach to another is taken into account.[115]

As a result, we consider that we should have regard to any impacts on a benchmark efficient entity that arise from changing the methodology for estimating the return on debt. This includes those impacts that:

- occur across regulatory control periods
- involve significant changes in cost or prices that arise from any change in the method
- involve practical difficulties.

This is important because the assets which provide regulated services tend to have long lives, well beyond a single regulatory period. It is also consistent with the NPV principle, which we discuss further later in this attachment.

---

[113] Our previous decisions covered the 2009–14 regulatory control period for Ausgrid, Essential Energy, Endeavour Energy, ActewAGL, TasNetworks and TransGrid, the 2006–15 regulatory control period for Directlink, and the 2010–15 regulatory control period for Energex, Ergon Energy and SAPN.

[114] AEMC, *Final rule change determination*, 29 November 2012, p. 85.

[115] AEMC, *Final rule change determination*, 29 November 2012, p. 85.

Finally, if the return on debt method results in an estimate that is, or could be, different for different regulatory years, then the NER require that the resulting change to the service provider's regulated revenue must be effected through the automatic application of a formula that is specified in the determination.[116]

Approach to estimating the return on debt

Our final decision is to estimate an on-the-day rate in the first regulatory year of the 2015–20 period, and to gradually transition this rate into a forward looking trailing average approach over 10 years. This gradual transition will occur through updating 10 per cent of the return on debt each year to reflect prevailing interest rates during Directlink's debt averaging period in each year. We are satisfied that this approach contributes to the achievement of the allowed rate of return objective.

Summary of our assessment of Directlink's proposed approach

Directlink proposed we adopt a backwards looking trailing average approach (option 4) to estimate its allowed return on debt. We are not satisfied that Directlink's proposed approach contributes to the achievement of the allowed rate of return objective.

One of the key bases for Directlink's proposal in favour of a backwards looking trailing average is that it avoids additional complexity to the regulatory regime. Directlink considered that the historical data series published by the RBA is reliable and could be used to implement a backwards looking trailing average approach. Directlink made the same submissions in its May 2014 revenue proposal. We disagreed with Directlink's submissions in the draft decision. Directlink did not substantively respond to our analysis from the draft decision in its revised proposal. Accordingly, we remain unpersuaded by Directlink's submissions on this issue.

In the draft decision, we considered that there would be additional complexity in either adopting a backwards looking trailing average (Option 4) or a gradual transition into a trailing average (Option 2), compared to maintaining the on-the-day approach (Option 1). Applying a backwards looking trailing average approach requires the collection, assessment and potential adjustment of 10 years of historical data. This also applies to the RBA data series that Directlink proposed. The draft decision set out the complexity involved in this process. Directlink's revised proposal did not engage with our reasoning. Also, we note that Directlink did not respond to most of the reasons we stated in the draft decision for adopting a gradual transition, which we broadly maintain in this final decision.

Therefore, we are not satisfied that Directlink's proposed backwards looking trailing average (Option 4) would contribute to the achievement of the allowed rate of return objective.

---

[116]   NER, cl.6.5.2(l) and cl. 6A.6.2(l).

Summary of our assessment of other approaches

In previous decisions, we applied the on-the-day approach. This was the approach required by the NER at the time.[117] However, the current provisions of the NER permit either maintaining the on-the-day approach or changing to a different approach.[118] We have decided to change to a different approach, as we proposed in the Guideline and adopted in the draft decision.

We considered four broad options to estimate the return on debt. These options were:[119]

- Option 1—Continue the on-the-day approach

- Option 2—Start with an on-the-day rate for the first regulatory year and gradually transition into a trailing average approach over 10 years

- Option 3—Hybrid transition. Start with an on-the-day rate for the base rate component and gradually transition into a trailing average approach over 10 years. This would be combined with a backwards looking trailing average DRP (that is, a base rate transition only).

- Option 4—Adopt a backwards looking trailing average approach (that is, no transition on either the base rate or DRP components of the return on debt).

We are not satisfied that Directlink's proposed approach (Option 4) would contribute to the achievement of the allowed rate of return objective. We outlined our assessment of Directlink's proposed approach above. In this section, we summarise our considerations on the remaining three options.

We are satisfied that continuing with the on-the-day approach (Option 1) or gradually transitioning to the trailing average approach (Option 2) would contribute to the achievement of the allowed rate of return objective. Whereas we consider the hybrid transition (Option 3) may contribute to the achievement of the allowed rate of return objective. Our preferred option is to gradually transition from the on-the-day approach to the trailing average approach (Option 2). We consider Option 2 would better satisfy the allowed rate of return objective than Option 1 or Option 3.

We then set out further details in support of our assessment of these three options and Directlink's proposed option in the sections that follow.

---

[117] AEMC*, Directions paper–National electricity amendment (Economic regulation of network service providers) rule 2012 and national gas amendment (price and revenue regulation of gas services) rule 2012*, March 2012, pp. 112–13.

[118] NER, cl. 6.5.2(i)(1) and (j)(1) and 6A.6.2(i)(1) and (j)(1)

[119] There are also variations to some of these options that are possible, particularly to option 3. We consider some of these variations in appendix G of attachment 3 of several other decisions we published in April 2015. See for example, AER, *TransGrid–Final decision–Transmission determination*, April 2015, attachment 3. Further, in the Guideline and draft decision we also considered another option which was to continue to the set the base rate component of the return on debt based on prevailing market conditions at the time of each future regulatory determination and combine with a trailing average DRP. However, as no stakeholder currently advocates that position, nor is it the current approach, we do not consider that option in this decision. For our considerations on this option, see for example, AER*, Draft decision– TransGrid–Transmission determination–Attachment 3*, November 2014, pp.107–111.

In the Guideline and the draft decision, we considered the merits of the on-the-day approach versus the trailing average approach. We also considered transitional arrangements in moving to the trailing average approach. However, these considerations were not independent.[120] Our position to move to the trailing average approach was tied to our position to adopt a gradual, forward looking transition. The joint nature of our considerations does not appear to have been well understood by some stakeholders.[121] In this final decision we have structured our analysis around the above four options that better reflect these joint considerations. The structure is different to the draft decision. However, the substance of our analysis is consistent with the draft decision.

Option 1—Continue the on-the-day approach

The on-the-day approach is the longstanding return on debt approach adopted by us and other regulators in Australia. While the NER no longer mandate we adopt this approach, it remains an approach available to us under the NER. As the on-the-day approach is the current approach, it is natural to consider the merits of continuing with the current approach relative to the merits of changing to a new approach. That is, if we change to a new approach it should be because we consider the new approach better satisfies the allowed rate of return objective than continuing with the current approach.

We are satisfied that the on-the-day approach (Option 1) is a reasonable approach and would contribute to the achievement of the allowed rate of return objective. This is because it:

- provides a benchmark efficient entity with a reasonable opportunity to recover its efficient financing costs over the life of its assets—it therefore mitigates any impact on a benchmark efficient entity that could arise as a result of changing the methodology to estimate the return on debt.

- is unbiased—at the time averaging periods are nominated they are in the future and so avoids a bias in regulatory decision making that can arise from choosing an approach that uses historical data after the results of that historical data is already known

- the on-the-day approach was the approach we and our predecessor energy regulators applied in the past when service providers issued their existing debt—continuing to apply that approach maintains the outcomes of service provider's past financing decisions, consistent with the principles of incentive regulation

---

[120] In the draft decision, we stated "the trailing average and hybrid approaches would largely satisfy [the NPV principle] (*so long as moving to those approaches includes transitional arrangements*) [emphasis added]". See for example, AER*, Draft decision–TransGrid–Transmission determination–Attachment 3*, November 2014, p.108.

[121] For example, CEG refer to the efficient financing strategy under the trailing average approach as the "agreed long term benchmark efficient debt management strategy". CEG, *Efficient debt financing costs*, January 2015, p.51. This mischaracterises our view. There is no agreed "long term" efficient or inevitable financing strategy. Our position is that efficient financing practices depend on, and change with, the regulatory regime adopted.

- avoids practical problems with the use of historical data as estimating the return on debt during the global financial crisis is a difficult and contentious exercise.[122]

- remains the standard approach adopted by several other Australian regulators[123] and is supported by advice from an academic perspective (Dr Martin Lally).[124]

Option 2—Gradual transition to the trailing average approach

We are also satisfied that gradually transitioning from the on-the-day approach to the trailing average approach (Option 2) is a reasonable approach and would contribute to the achievement of the allowed rate of return objective. This is because it shares some of the positive attributes of the on-the-day approach. Specifically the on-the-day approach (Option 1) and therefore also Option 2:

- provides a service provider with a reasonable opportunity to recover its efficient financing costs over the life of its assets— it therefore mitigates any impact on a benchmark efficient entity that could arise as a result of changing the methodology to estimate the return on debt.

- is unbiased—at the time averaging periods are nominated they are in the future and so avoids a bias in regulatory decision making that can arise from choosing an approach that uses historical data after the results of that historical data is already known

- the on-the-day approach was the approach applied by us and our predecessor energy regulators in the past when service providers issued their existing debt—continuing to apply that approach to existing debt maintains the outcomes of service provider's past financing decisions, consistent with the principles of incentive regulation

- avoids practical problems with the use of historical data as estimating the return on debt during the global financial crisis is a difficult and contentious exercise.

At the same time, it approximately matches the allowed return on debt with a benchmark efficient entity's financing costs over the next regulatory control period as its transitions its financing practices to the trailing average approach.[125]

---

[122] AEMC, *Directions paper–National electricity amendment (Economic regulation of network service providers) rule 2012 and national gas amendment (price and revenue regulation of gas services) rule 2012*, March 2012, pp. 105–106

[123] For example, QCA proposed to maintain the on-the-day approach with five year term for the risk free rate component and 10 year term for DRP. For more details, see: QCA, *Trailing average cost of debt: draft decision*, 24 August 2014, p.24. On the other hand, the ERA retained a form of the 'on-the-day' approach but with annual updates to the debt risk premium component of the total cost of debt. It also applies five year debt term. Economic Regulation Authority (ERA) Western Australia, *On the benchmark cost of debt: efficiency considerations*, June 2013.

[124] Lally, *The trailing average cost of debt*, 19 March 2014, p.51. Also, SFG advised that the on-the-day approach satisfies the NPV principle and matches the regulated rate of return to the 'true cost of capital', whereas the trailing average approach would create investment distortions and the only arguments in favour of a trailing average approach are based on practical considerations. SFG, *Preliminary analysis of rule change proposals*, February 2012, pp.46–48.

[125] Specifically, it broadly matches (though over-compensates) a benchmark efficient entity for the base component of its cost of debt. Whether it matches, over- or under compensates a benchmark efficient entity for the DRP component depends on whether the prevailing and historical average DRP is higher, lower, or the same as each other.

We consider commencing with an on-the-day rate and gradually moving towards the trailing average approach (Option 2) is preferable to maintaining the on-the-day approach (Option 1). This is because it:

- Reduces risk for service providers by providing a regulatory benchmark that they can more readily match in each regulatory control period,[126] and

- Reduces price volatility for consumers across regulatory control periods in the medium to long term.[127]

Gradually moving from the on-the-day to trailing average approach is supported by advice we have received from both a financial market practitioner (Chairmont) and a finance and regulatory economics academic (Dr Lally).[128] It is also supported by AusNet Services, Energex, Ergon Energy and TasNetworks.

Option 3—Hybrid transition

We consider the hybrid transition (Option 3) may be a reasonable approach and contribute to the achievement of the allowed rate of return objective, but it is not our preferred approach. The benefits of this approach are that it:

- maintains the outcomes of service provider's past financing decisions consistent with the principles of incentive regulation by continuing to apply the on-the-day rate to the component of the debt which service providers had most control over (the base rate component)

- provides a good match between the allowed return on debt and a benchmark efficient entity's financing costs over the period it takes a benchmark efficient entity to transition its financing practices to the trailing average approach.

The downside of the hybrid transition includes:

- Transitioning from the on-the-day approach using the hybrid transition can create a mismatch between the allowed return on debt and the efficient financing costs of a benchmark efficient entity over the life of its assets. The change in the regulatory regime can therefore create windfall gains or losses to service providers or consumers. Windfall gains or losses do not result from a service provider's efficient or inefficient decisions. In effect, they are a side effect of changing the methodology for estimating the return on debt at a particular point in time. They should be avoided, so that economic regulatory decisions deliver outcomes based on efficiency considerations, rather than timing or chance.

---

[126] AER, *Explanatory statement to the final rate of return guideline*, December 2013, pp.108–110.

[127] AER, *Explanatory statement to the final rate of return guideline*, December 2013, pp.108–110; AER, *Draft decision– TransGrid–Transmission determination–Attachment 3*, November 2014, pp. 123–124.

[128] Lally, *Transitional arrangement for the cost of debt*, November 2014, pp.3–5; Lally, *Review of submissions on the cost of debt*, April 2015, pp.3–6; Chairmont, *Cost of debt: Transitional analysis*, April 2015, pp.5–11.

- A gradual transition to the trailing average approach (option 2) was the approach we proposed in the Guideline and service providers may have already commenced changing their financing practices in expectation that approach would be applied. Accordingly, we have not had a full opportunity to consult on this proposal, and as Chairmont advised, switching now to the hybrid transition may be disruptive to the industry.[129]

- It has the potential to create a bias in regulatory decision making by choosing an approach that uses historical data after the results of that historical data is already known

- It does not avoid the practical difficulties with the use of historical data for the component of the return on debt where these difficulties arise (the DRP component).

In the next section we provide some background information on the meaning of efficient financing costs and also define some key financial concepts. In the sections that follow, we explain our considerations of the options above in more detail.

Meaning of efficient financing costs and key financial concepts

Meaning of efficient financing costs

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 services.[130]

We consider the efficient debt financing costs of a benchmark efficient entity as those which are expected to minimise its debt financing costs over the life of its assets, while managing refinancing risk and interest rate risk:

- Refinancing risk—the risk that a benchmark efficient entity would not be able to refinance its debt when it matures.[131]

- Interest rate risk—the risk associated with a mismatch between the allowed return on debt and a benchmark efficient entity's actual return on debt.

Our approach to the meaning of efficient financing costs was broadly supported by expert advice commissioned by us (Chairmont, Lally) and by advice commissioned by the NSW service providers (Frontier).[132] For example, Chairmont stated:

---

129   Chairmont, *Cost of debt: Transitional analysis*, April 2015, p.11.
130   NER, cl.6.5.2(c) and cl.6A.6.2(c).
131   Based on Chairmont's advice, we have slightly refined our description of refinancing risk from the description we used in the draft decision. Chairmont, *Cost of debt: Transitional analysis*, April 2015, p.30.
132   Chairmont, *Cost of debt: Transitional analysis*, April 2015, pp.26–30; Lally, *Review of submissions on the cost of debt*, April 2015, pp.7–8. Frontier, *TransGrid cost of debt transition*, January 2015, p.7. Lally stated the usual practice in financial economics is to assume firms seek to maximise shareholder wealth. He described the difference between this description and our description as 'subtle'. On the other hand, HoustonKemp stated firms could manage all three factors at once. However, Chairmont's response to HoustonKemp is that a company will consider all three factors in its decision making, even if they can only partially satisfy each one.

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.[133]

Similarly, Frontier stated:

> In my view it is reasonable to consider that efficient service providers would be seeking to minimise the expected present value of its financing costs over the life of its assets. In this endeavour, the service provider would weigh up considerations such as the rate of interest (long-term debt is, on average, more expensive than short-term debt), refinancing and interest rate risk (for example, the firm would bear a very large cost if it was unable to refinance on reasonable terms during a financial crisis), and transaction costs (for example, there are fixed costs associated with every debt issuance and with hedging activities).[134]

Meaning of the key financial concepts

The return on debt consists of two components—a risk free rate (or base rate) and a risk premium over the base rate. The risk premium is called the debt risk premium (DRP).

Unlike equity instruments, debt instruments typically provide investors a specified and certain return for particular period of time—for example, 5 per cent each year—or a specific and certain method of calculating that return. However, there is a risk that the issuer of the debt will default and not be able to pay the investor that return. Accordingly, the DRP principally compensates the investor for that default risk. It also provides compensation for the systematic risk of debt and liquidity risk.[135]

The base rate component can be defined in two ways:

* a government bond rate (such as the yield on 10 year Commonwealth Government Securities (CGS)), or

* a swap rate (such as the bank bill swap rate (BBSW)).[136]

Traditionally, we have measured the DRP relative to the 10 year CGS rate. This was for consistency with how we measure the risk free rate component of the return on equity. However, market convention is to measure the DRP relative to the swap rate. As Chairmont stated:[137]

> The DRP used throughout this document is the interest rate premium for the corporate borrower over the swap rate, because practical financial management

---

[133] Chairmont, *Cost of debt: Transitional analysis*, April 2015, p.29.

[134] Frontier, *TransGrid cost of debt transition*, January 2015, p.7.

[135] McKenzie and Partington, *Report to the AER: The relationship between the cost of debt and the cost of equity*, March 2014, pp.20–21.

[136] If the base rate is defined as the risk free rate, then the DRP is calculated as the return on debt minus the risk free rate. If the base rate is defined as the BBSW, then the DRP is calculated as the return on debt minus the BBSW.

[137] Chairmont, *Cost of debt: Transitional analysis*, April 2015, p.40.

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 this decision, we refer to the swap rate when we refer to the 'base rate component' of the return on debt. And we mostly refer to the DRP over the swap rate when we refer to the DRP.

The following table explains some additional financial instruments which are discussed throughout this attachment.

Table 3-2   Meaning of key financial concepts

Financial concept	Explanation
Bond	A bond is a debt investment in which the issuer (typically corporate or governmental) borrows money from an investor for a defined period of time at a variable or fixed interest rate.
Fixed interest rate	An interest rate on a loan or bond that remains fixed for the entire term of the bond or for part of this term. A fixed interest rate may be attractive to a borrower who feels that the interest rate might rise over the term of the bond, which would increase its interest expense.
Variable interest rate	An interest rate on a loan or bond that fluctuates over time, because it is based on an underlying benchmark interest rate or index that changes periodically. The advantage of a variable interest rate is that if the underlying interest rate or index declines, the borrower's interest payments also fall. Conversely, if the underlying index rises, interest payments increase.
Fixed rate bond	A bond that pays the same amount of interest for its entire term. The benefit of owning a fixed-rate bond is that issuers know with certainty how much interest they will pay and for how long. As long as the bond issuer does not default, the bondholder can predict exactly what his or her return on investment will be.
Floating rate debt	A debt instrument with a variable interest rate. A floating rate bond's interest rate is tied to a benchmark such as the bank bill swap rate (BBSW) in Australia, or the London Interbank Overnight Rate (LIBOR) or Singapore equivalent (SIBOR), internationally. The interest rate is typically defined as a fixed margin (or DRP) above the floating base rate. For instance, a variable floating rate may be the prevailing BBSW plus 100 basis points.
Bank bill swap rate (BBSW)	The bank bill interest rate is the wholesale interbank rate within Australia and is published by the Australian Financial Markets Association (AFMA). It is the borrowing rate among the country's top market makers, and is widely used as the benchmark interest rate for financial instruments. Although frequently abbreviated to "bank bill rate", the actual term is the "bank bill swap interest rate", hence the abbreviation BBSW.
Interest rate swap	An agreement between parties (known as counterparties) where one stream of future interest payments is

Financial concept	Explanation
	exchanged for another based on a specified principal amount. Interest rate swaps often exchange a fixed payment for a floating payment that is linked to an interest rate (in Australia, most often the BBSW). A company will typically use interest rate swaps to limit or manage exposure to fluctuations in interest rates, or to obtain a marginally lower interest rate than it would have been able to get without the swap.
Fixed-to-floating interest rate swap	An advantageous arrangement between parties (counterparties), in which one party pays a fixed rate, while the other pays a floating rate.
	To understand how each party would benefit from this type of arrangement, consider a situation where each party has a comparative advantage to take out a loan at a certain rate and currency. For example, Company A can take out a loan with a one-year term in the U.S. for a fixed rate of 8% or a floating rate of Libor + 1% (which is comparatively cheaper, but Company A would prefer a fixed rate). On the other hand, Company B can obtain a loan on a one-year term for a fixed rate of 6%, or a floating rate of Libor +3%, but it would prefer a floating rate.
	Through an interest rate swap, each party can swap its interest rate with the other to obtain its preferred interest rate type (fixed or floating). And in this example, it results in each party paying a lower interest rate than if they borrowed at their preferred interest rate type (fixed or floating) directly.
Floating-to-fixed interest rate swap	Is the same instrument as a fixed-to-floating interest rate swap, from the perspective of the other counterparty.
	It is an arrangement where one party pays a floating rate, while the other pays a fixed rate.

Source: Pearson and Bird; Reilly and Brown.[138]

In the sections that follow, we analyse each of the four options against a range of considerations. These considerations are derived from our need to consider the impact on a benchmark efficient entity of changing our method for estimating the return on debt. They include:

- the impact on promoting efficient financing practices consistent with the principles of incentive based regulation

- the impact on a benchmark efficient entity's opportunity to recover at least its efficient financing costs over the life of its assets

- matching the allowed return on debt with efficient financing cashflows over a single regulatory control period, and the potential conflict between this consideration and

---

[138] Pearson, Brown, Easton and Howard, *Business finance*, 2002, pp.273–277, 319–340, 746–750; Reilly and Brown, *Investment analysis and portfolio management*, 2003, pp.1013–1023.

providing a benchmark efficient entity with a reasonable opportunity to recover efficient financing costs over the life of its assets

- avoiding a potential bias in regulatory decision making that can arise from choosing an approach that uses historical data after the results of that historical data is already known

- avoiding the practical difficulties in the use of historical data to calculate the allowed return on debt, particularly during the global financing crisis

Following these sections, we then set out our considerations on:

- whether we should apply annual updates to the return on debt, and

- whether the allowed return on debt should be a simple or weighted average.

Promotes efficient financing practices consistent with the principles of incentive based regulation

The NEL requires us to take into account that a regulated service provider should be provided with effective incentives to promote economic efficiency.[139] In the context of an ex ante regulatory framework, we consider the effectiveness of incentives relies on service providers understanding and accepting the financial consequences of their decisions at the time they make their decision.

Incentive based regulation uses the combination of financial rewards and penalties to promote efficient behaviour.[140] In particular, it means that where a service provider:

- matches the efficient regulatory benchmark—it recovers its efficient costs. We consider this would be the outcome for the benchmark efficient entity. As it operates efficiently, it would recover its efficient costs.

- does not match the regulatory benchmark—it keeps the financial benefits or wears the financial detriments that flow from its actions. An example of this would be where a service provider is able to source debt at rates cheaper than the allowed return on debt it is able to keep the difference.

- adopts a risk position which is either higher or lower risk than that embedded in the regulatory process—it keeps the financial benefits or wears the financial detriments that flow from its actions.

An example of the last two points would be where a service provider adopts a level of gearing higher than the benchmark gearing ratio. By adopting a higher gearing ratio, the service provider exposes itself to greater financial risk than compensated for through the regulatory process. In turn, it bears the positive or negative consequences of that chosen risk strategy. The cost of debt is generally cheaper than the cost of equity. Accordingly, by adopting a greater proportion of debt (that is, higher gearing) than the regulatory benchmark,

---

[139] NEL, ss. 7A(3) and 16(2).

[140] AEMC Chair, 'Carrots, sticks and tightropes: The regulator's balancing act in incentivising efficient behaviour', speech, May 2012, p.8.

the service provider uses more of the cheaper debt and less of the more expensive equity. Accordingly, the service provider may increase its expected profits. However, the greater proportion of debt exposes the service provider to the risk that its actual cost of debt will differ from the return on debt allowance, in dollar terms. It also exposes the service provider to the higher financial risk associated with higher gearing, such as an increased risk of bankruptcy. In such a scenario, the regulator should not penalise the service provider if it earns higher profits because of its higher gearing level. Similarly, the regulator should not 'bail out' the service provider if the service provider's decision to adopt a higher gearing level than the regulatory benchmark causes the service provider to face financial distress.

Ensuring service providers face the financial outcomes of their actions, whether positive or negative, is consistent with the revenue and pricing principle in the NEL for us to provide effective incentives for efficient investment.[141]

Directlink agrees with us that a benchmark efficient entity will issue long term debt, and that the benchmark debt term should be 10 years. This means that a benchmark efficient entity's current financing practices will reflect the various financing arrangements it has entered into over the past 10 years. It also means that a benchmark efficient entity's financing decisions involve impacts that extend beyond the length of a single regulatory control period, which is typically five years.[142]

When a benchmark efficient entity previously issued its existing debt over the past 10 years, it would have expected the on-the-day approach to be applied to that existing debt in this determination. This is also the case for the Directlink who has issued debt over the past 10 year period under the incentive framework that results from the on-the-day approach. This expectation can be demonstrated by examining the Directlink's previous regulatory determinations and the development of the current NER framework and our Guideline development process.

Applying the on-the-day approach to a benchmark efficient entity's existing debt, as we do in this determination, means that it recovers its efficient costs and maintains the outcomes of its actions in line with the incentives outlined above. To do otherwise, would compromise this incentive framework.

Directlink is either rewarded, penalised or is left in a neutral position based on the outcomes of their past financing decisions, consistent with the principles of incentive regulation.

Over the past 10 years, Directlink has been subject to a regulatory determination.[143] In this determination the regulator adopted an on-the-day approach to the return on debt. This was also the approach we adopted in other past decisions for other service providers as it was the approach required by the NER.

---

[141] NEL, s. 7A(3)(a)

[142] Lally, *Transitional arrangements for the cost of debt*, November 2014, p.38; CEG, *Efficient debt financing costs*, January 2015, p.8.

[143] In 2006, Directlink was regulated by the AER. Its regulatory proposal was submitted to the ACCC in May 2004. AER, *Directlink joint venturers' application for conversion and revenue cap—Final decision,* March 2006.

When Directlink previously issued is existing debt over the past 10 years, it would have expected us to apply the on-the-day approach to its existing debt in this determination. This is because it was only in 2011 that the trailing average approach emerged as a potential regulatory approach in Australia for future return on debt determinations. It began with a rule change proposal from consumer groups that proposed a trailing average approach be mandated by the NER.[144] The AEMC did not accept this position, but it did amend the NER in 2012 to enable the option of the trailing average approach to be adopted by us.[145] As part of our Better Regulation consultation program, we began to consult on various approaches to estimating the rate of return through the Guideline development process. In the draft and final Guideline, we proposed that in each service provider's next determination we would adopt an on-the-day estimate for the first regulatory year and gradually transition this rate into a trailing average approach over 10 years (Option 2). We published the final Guideline in December 2013.[146]

Accordingly, initially—and for a long period of time—service providers expected the on-the-day regime to apply in future determinations. Then there was a period of uncertainty as the NER framework was reviewed. Then finally, based on our Guideline, which we published in December 2013, service providers would have expected the return on debt in their next determination would start as an on-the-day rate and gradually transition into a trailing average approach.

Given this history, at the time Directlink and other service providers adopted its debt financing strategies (that is, before the rule change process) the expectation was that the on-the-day rate approach would apply at this determination. Also, after the rule change and Guideline process, the expectation was an on-the-day rate would apply in the first year of the regulatory period covered by this determination and gradually transition into a trailing average approach over 10 years. Accordingly, at all times, the expectation would have been that the on-the-day approach would have applied in this determination to the service provider's existing debt.

Effective ex ante incentive regulation relies on service providers understanding and accepting the financial consequences of their decisions at the time they make their decision. For return on debt, the principle of incentive regulation could be achieved through maintaining a consistent approach over time—that is, maintaining the on-the-day approach (Option 1). Alternatively, in the current case of a change in the regulatory regime, it could be achieved by:

- maintaining the previous regime (on-the-day) for existing debt that was issued under that regime, and

---

[144] Energy users rule change committee, *Proposal to change the NER in respect of the calculation of the return on debt*, October 2011, p.43.

[145] AEMC, *Rule determination–Economic regulation of network service providers and price and revenue regulation of gas services*, November 2012.

[146] AER, *Better regulation–Rate of return guideline*, December 2013.

- applying the new regime (trailing average approach) only to new debt issued after the announcement of the new regime.

This is the approach we have adopted in this determination (Option 2), by gradually transitioning from the on-the-day approach to the trailing average approach. One of our reasons for this approach is so service providers face the financial outcomes of their past financing decisions, whether positive or negative, consistent with the principles of incentive regulation. This is consistent with our reasons in the draft decision.[147] This principle is also consistent with the AEMC's reasons in developing the current return on debt rule framework. The AEMC stated:

> …the return on debt estimate should reflect the efficient financing costs of a benchmark efficient service provider. It should try to create an incentive for service providers to adopt efficient financing practices and minimise the risk of creating distortions in the service provider's investment decisions. If a service provider is run inefficiently then its shareholders, and not its customers, should bear the financial consequences of inefficient financing practices.[148]

Under our approach, the allowed return on debt for debt that existed at the start of Directlink's 2015–20 period is set in a manner similar to the previous on-the-day approach. Accordingly, the impact on a benchmark efficient entity is not, in principle, different to the impact on a benchmark efficient entity if we had continued to adopt the on-the-day approach. This means that there is a minimal impact on the level of financial risk faced by a benchmark efficient entity as a result of changing the return on debt methodology from one regulatory control period to the next.[149] Lally agreed with this position, and stated:

> …in respect of existing debt, the impact on the [benchmark efficient entity] of the AER's proposed transitional arrangements is very similar to that which would have occurred had the AER continued to employ the on-the-day regime. Thus I agree with the AER on this point.[150]

One financial risk that a benchmark efficient entity faces is interest rate risk which results from the potential mismatch between their allowed return on debt and their actual return on debt. Most service providers actively managed this interest rate risk under the on-the-day approach. We agree this was efficient for them to do so.

---

[147] For example, in our draft decision for TransGrid we stated "Under our transitional arrangements, the allowed return on debt for that debt that existed at the start of the 2014–18 period is set in a manner similar to the previous on-the-day approach… The chosen risk strategies that service providers adopted in the past in relation to their financing arrangements are therefore left to run to their natural conclusion and they will keep any benefits or wear any detriments that flow from those choices." AER, *Draft decision–TransGrid transmission determination–Attachment 3: Rate of return*, November 2014, p.14. Analogous reasons were includes in our November 2014 draft decisions for ActewAGL, Ausgrid, Directlink, Endeavour Energy, Essential Energy, and TasNetworks.

[148] AEMC, *Rule determination–National electricity amendment (Economic regulation of NSPs) Rule 2012–National gas amendment (Price and revenue regulation of gas services) rule 2012*, November 2012, p.73.

[149] NER, cl.6.5.2(k)(1) and cl.6A.6.2(k)(1).

[150] Lally, *Review of submissions on the cost of debt*, April 2015, p.16.

Our assessment of the four options against the considerations in this section are summarised in the following table.

Table 3-3   Option analysis— Promotes efficient financing practices consistent with the principles of incentive based regulation?

Option		Assessment
1	Maintain on-the-day	Yes
2	Gradually transition from on-the-day to trailing average	Yes
3	Hybrid transition	Yes
4	Backwards looking trailing average approach	No

Source: AER analysis

In the next section, we assess whether the four options provide a benchmark efficient entity with a reasonable opportunity to recover at least its efficient financing costs over the life of its assets.

Provides a benchmark efficient entity with a reasonable opportunity to recover efficient financing costs

The NEL requires us to take into account that a regulated service provider should be provided with a reasonable opportunity to recover at least its efficient costs.[151] Lally advised that this principle in the NEL is 'equivalent' to the net present value (NPV) principle.[152]

The NPV principle is a fundamental principle of economic regulation. The NPV principle is that the expected present value of a benchmark efficient entity's regulated revenue should reflect the expected present value of its expenditure, plus or minus any efficiency incentive rewards or penalties.[153] In other words, departures from cost recovery are acceptable and desirable, so long as they are the result of management induced efficiencies or inefficiencies, rather than windfall gains or losses. Windfall gains or losses would result in a service provider being over- or under-compensated for its efficient costs. The building block model which the NER require us to use is based on this principle.[154]

---

[151]   NEL s. 7A(2)

[152]   Lally, *The risk free rate and the present value principle*, 22 August, 2012. SFG also appears to support using the NPV principle to assess rate of return approaches. SFG, *Preliminary analysis on rule change proposals*, February 2012, p.47.

[153]   The NPV principle can be equivalently stated that the present value of a benchmark efficient entity's future regulated cashflows should equal the value of the initial regulatory asset base.

[154]   For more details on the NPV principle and building block framework, generally, see Biggar, D., *Public utility regulation in Australia: Where have we got to? Where should we be going?* Working paper no. 4, ACCC/AER working paper series, July 2011, p.58; Biggar, D., *Incentive regulation and the building block model*, 28 May 2004; Lally, *The risk free rate and the present value principle*, August 2012; and Lally, *The present value principle: risk, inflation and interpretation*, 4 March

Lally also advised that the NPV principle and the allowed rate of return objective are 'equivalent'. Lally stated:

> The legal requirement for the allowed cost of debt to be commensurate with the costs incurred by a [benchmark efficient entity] is not sufficiently precise to be readily implemented, and therefore requires formalizing. This is obtained through the NPV = 0 principle: the allowed prices or revenues of the regulated business should be such that the present value of the resulting revenues net of opex and taxes must equal the initial investment. Lower revenues than those that satisfy this principle will fail to entice producers to invest and higher revenues constitute the very excess profit that regulation seeks to prevent (Marshal et al, 1981). I consider this economic principle to be equivalent to the [allowed rate of return objective].[155]

Accordingly, there is a strong connection between the NPV principle, the allowed rate of return objective and the NEL revenue and pricing principle of providing service providers with a reasonable opportunity to recover at least efficient costs. Lally advised that each of these principles or objectives are equivalent. We therefore consider it is useful to assess the four return on debt approaches for consistency with the NPV principle.[156]

The NER require us, when estimating the return on debt, to consider any impacts on a benchmark efficient entity from changing the return on debt method from one regulatory control period to the next.[157] In this decision, we are changing the method from the previous on-the-day approach. We are gradually transitioning from the on-the-day approach to a trailing average portfolio approach (Option 2). So, we must consider the impact of this change in debt approach on the benchmark efficient entity.

A contentious issue in the current determinations is the timeframe over which it is appropriate to consider the impact of this change. In particular, in relation to providing a benchmark efficient entity a reasonable opportunity to recover its efficient financing costs, whether it is appropriate to consider the impact on the benchmark efficient entity over the life of its assets. Several service providers submit that the time horizon of our perspective must be confined to the 2014–18 period (for TransGrid) or the 2014–19 period (for ActewAGL, Ausgrid, Endeavour Energy and Essential Energy). Also, they submit that the approach to debt should not be determined by reference to the activities and investments of a benchmark efficient entity beyond the regulatory control period in question. We disagree.

The NER refer to 'any' impacts on a benchmark efficient entity as a result of changing the return on debt methodology. The NER then give an example of one impact—the cost of servicing debt across regulatory control periods. Accordingly, the NER specifically give an

---

2013. Also, we explained the legislative origins of the connection between the NER, the building block model, and the present value principle in the return on debt appendix in the draft decision.

[155] Lally, *Review of submissions on the cost of debt*, April 2015, p.19.

[156] Lally advised that the NPV principle should be viewed as a compatible combination of regulatory policy and service providers' actions that satisfy the NPV principle. For more details on the NPV principle in respect of the return on debt, see: Lally., *Trailing average cost of debt*, 19 March 2014, pp.8–9; Lally, *Transitional arrangements for the cost of debt*, November 2014, pp. 22-25; and Lally, *Review of submissions on the cost of debt*, November 2014, pp.18-37.

[157] NER, cl.6.5.2(k)(4) and cl.6A.6.2(k)(4).

example where it is appropriate to take a perspective across more than one regulatory control period.

We consider another impact that is encompassed in the NER is the impact on whether a benchmark efficient entity remains able to recover its efficient financing costs over the life of its assets, in light of the regime change. In other words, we consider the NER require us to consider whether the regime change results in a benchmark efficient entity being over or under compensated over the life of its assets. That is, we consider another relevant impact is on whether the NPV principle is satisfied or not, in light of the regime change.

If applied consistently over the life of a regulated asset, both the on-the-day (Option 1) and trailing average (Option 4) methods would provide, on average, an allowed return on debt commensurate with the efficient financing costs of a benchmark efficient entity.[158] Changes in interest rates may create differences between the allowed and actual return on debt of the benchmark entity during a particular regulatory control period. However, consistent application of either method accounts for these differences, because it promotes revenue with an expected present value equal to the present value of the entity's efficient costs. This is consistent with the NPV principle. Thus, under the on-the-day approach, service providers have been fairly compensated for their efficient financing costs.

For the base rate component, we consider the allowed and actual return on debt of a benchmark efficient entity would have broadly matched in each regulatory control period. This match arises because a benchmark efficient entity is and was able to undertake hedging arrangements under the on-the-day approach.[159]

For the debt risk premium component, we consider the allowed and actual return on debt of a benchmark efficient entity would have usually differed in each regulatory control period. This is because the DRP component could not have been efficiently hedged to the allowed debt risk premium. So, in some regulatory control periods, the allowed debt risk premium would have exceeded the actual debt risk premium of a benchmark efficient entity. In other regulatory control periods, the allowed debt risk premium would have been less than the actual debt risk premium. Over a large number of periods, these differences in the DRP component would be expected to broadly cancel each other out.[160]

Further, interest rate risk is a component of systematic risk.[161] Accordingly, the difference between the allowed DRP and actual DRP of a benchmark efficient entity under the on-the-day approach in previous regulatory periods is a risk that the benchmark efficient entity was

---

[158] Lally, *Review of submissions on the cost of debt*, April 2015, p.26.

[159] The allowed base rate and actual base rate of a benchmark efficient entity would have broadly matched, though the allowed base rate would have over-compensated the actual base rate. This is because the allowed base rate was set on a 10 year term. Whereas the result of hedging is that the base rate is effectively a 5 year term. As the yield curve is generally upward sloping, the allowed 10 year base rate would have overcompensated the actual 5 year base rate during most periods. Chairmont, *Cost of debt: Transitional analysis*, April 2015, p.33; Lally, *Review of submissions on the cost of debt*, April 2015, p.9.

[160] Lally, *Review of submissions on the cost of debt*, April 2015, pp.33–34.

[161] McKenzie and Partington, *Risk, asset pricing models and WACC*, June 2013, pp.16–17.

compensated for in previous regulatory periods through the equity beta component of the return on equity. This is because the sample of privately owned service providers whose practices have informed our view of efficient financing practices, are largely also the same sample of service providers whose empirical equity beta estimates we have had primary regard to in estimating the equity beta.[162] This position is supported by Lally. Lally stated:

> The actual outcome could involve the allowed DRP being more than that paid (or less) because the allowance for a year is the … DRP prevailing at the beginning of the year whilst the rate paid is the … trailing average. However, any systematic risk associated with such mismatches is in principle compensated for ex-ante through the asset beta, and therefore these possible mismatches would not give rise to a violation of the NPV = 0 principle.[163]

Thus, under the on-the-day approach, service providers have been fairly compensated for their efficient financing costs in each and every regulatory control period, and when taking a life of the assets perspective.

We consider a benchmark efficient entity would have hedged the base rate component of its debt to the allowed return on debt. This position is supported by advice from Chairmont and Lally. However, alternatively, a service provider might have chosen to not hedge the base rate component. The NSW service providers adopted this approach. For these service providers, the total allowed return on debt may have exceeded their total actual return on debt in some regulatory control periods, and been less in other regulatory control periods. That is, both the base rate component and the debt risk premium component of a service provider's actual return on debt could have exceeded or been less than the allowed return on debt. Over a large number of periods, these differences in the total return on debt would have broadly cancelled each other out. TransGrid's consultant NERA, agreed with this point. NERA stated:

> We note that the previous 'on-the-day' approach to setting the return on debt did not impose a windfall loss when the prevailing debt yield was less than a benchmark efficient TNSP historical trailing average debt costs. This is because, although historical debt costs can diverge from the return on debt allowance at the time of a decision, over the long term periods of over recovery should be balanced by periods of the under recovery. In other words, in some decisions the return on debt allowance will be above the benchmark efficient TNSP's debt costs while, in others, it will be below.[164]

TransGrid's consultant HoustonKemp also appeared to agree with this point. It advised that TransGrid's debt practices (of not hedging) under the on-the-day approach resulted in TransGrid having "a reasonable prospect of recovering its debt costs over the long term".[165]

---

[162] AER, *Final decision–Review of electricity transmission and distribution WACC parameters*, May 2009, pp.255–260, 331–332; AER, *Explanatory statement to the final rate of return guideline (appendices)*, December 2014, pp.46–49.

[163] Lally, *Review of submissions on the cost of debt*, April 2015, p.25.

[164] NERA, *Return on capital of a regulated electricity network*, May 2014, p.32

[165] HoustonKemp, *Response to draft decision on the return on debt allowance*, January 2015, p. iii.

This statement demonstrates an understanding that some periods TransGrid would over-recover its costs, some periods it would under-recover its costs, but these differences would largely balance out in the long term.

Further, at the time a particular investment is made, it will not be known which periods will result in an over-recovery and which periods will result in an under-recovery through applying the on-the-day approach. Accordingly, the allowed return on debt will be fair at the time it is set, and the allowed return on debt will be the same as the expected actual return on debt over the life of that asset. That is, in expectation, the allowed return on debt and the actual return on debt will correspond.

Accordingly, regardless of whether a benchmark efficient entity would have hedged (as we consider) or not hedged (as the NSW service providers submitted), continuing to apply the on-the-day approach (Option 1) over the life of the assets would reasonably be expected to satisfy the NPV principle. However, when the method for estimating the return on debt changes during the life of a regulated asset, the NPV principle is unlikely to be met automatically. Any accumulated differences between the allowed and actual return on debt of a benchmark efficient entity remain. The service provider will receive a return on debt that is different from that of a benchmark efficient entity, and consumers could be required to pay prices that incorporate this difference. This would mean that a benchmark efficient entity is either over-compensated or under-compensated for its efficient financing costs over the life of its assets.

In these circumstances, departures from the NPV principle do not result from efficiency gains or losses, but from changing the regulatory regime. For this reason, we consider the resulting benefits or detriments are windfall gains or losses that the change in methodology for estimating the return on debt should avoid. In other words, regardless of who faces the benefit or detriment, an immediate change from one return on debt method to another could have undesirable consequences. This possibility should concern both service providers and consumers. This is because, prior to a change in method occurring, neither could know whether they would face a benefit or detriment.

As Lally demonstrated through various interest rate sensitivity analysis, gradually transitioning from the on-the-day approach (Option 2) to the trailing average approach largely avoids the undesirable outcomes of changing the return on debt method. This allows the regulatory regime to account for accumulated differences between the return on debt estimate and the actual return on debt of a benchmark efficient entity, despite any change in method. This also means a benchmark efficient entity would receive a return on debt commensurate with its efficient financing costs over the life of its assets (rather than commensurate with windfall gains or losses). For these reasons, we are satisfied that gradually transitioning from the on-the-day approach to a trailing average approach (Option 2) will result in a return on debt that helps achieve the allowed rate of return objective.

At present, prevailing interest rates are lower than the 10 year historical average of interest rates. The return on debt significantly increased during the global financial crisis, but has subsequently decreased. In these circumstances, Lally estimated the impact on a benchmark efficient entity with different regulatory control period cycles of continuing the on-

the-day approach (Option 1), gradually transitioning from the on-the-day to trailing average approach (Option 2) or adopting a backwards looking trailing average approach (Option 4).

Lally found a similar outcome from continuing with the on-the-day approach (Option 1) and from gradually transitioning to the trailing average approach (Option 2).[166] These two scenarios result in an average 1.3 per cent estimated over recovery of the debt portfolio across all service providers, in present value terms. In contrast, adopting a backwards looking trailing average approach (Option 4) results in an average 3.4 per cent estimated over recovery of the debt portfolio across all service providers. Lally estimated this would result in approximately a $2.3 billion total of windfall gains across all service providers.[167]

Lally also advised that adopting a backwards looking trailing average (Option 4), instead of the gradual transition into the trailing average (Option 2) would involve 'double counting' the return on debt in previous years. Lally stated:

> An equivalent way of viewing this matter arises from the fact that immediately switching to a trailing average regime implies that the DRP results for some years will be doubled counted, once in the course of applying the on-the-day regime and again in applying the trailing average regime. Furthermore, if the regime shift occurs in 2014, this double counting will be particularly beneficial to the [benchmark efficient entity] because it will lead to double counting the high DRP years.[168]

Prevailing interest rates are currently lower than the historical average of interest rates over the past 10 years. However, this is just a consequence of the particular timing of our decision. Equally, prevailing interest rates could have been higher than the historical average. Lally emphasised the importance of a regulator applying symmetry in its approach to regime changes. That is, immediately applying the backwards looking trailing average (Option 4) when it results in windfall gains to service providers, but gradually transitioning into the trailing average (Option 2) when Option 4 would lead to windfall losses to service providers would be a biased approach and violate the NPV principle by over-compensating service providers. He further advised that a policy of not applying transitional measures (Option 4) in both scenarios would increase regulatory risk and potentially threaten a service provider's financial viability. Accordingly, the regulator should apply transitional measures (Option 2) in both scenarios if the matter is material. Lally advised:

> In summary, immediately adopting a new regime only when the one-off effect is favourable to the [benchmark efficient entity] but not otherwise would necessarily violate the NPV = 0 principle. Alternatively, the policy of immediately adopting a new regime regardless of whether the one-off impact was favourable or unfavourable would expose the [benchmark efficient entity] to a 'roll of the dice', with potentially very adverse effects, thereby discouraging investment. It would also expose the [benchmark efficient entity] to the possibility of an adverse shock so large as to threaten its financial viability, which would lead to either regulatory relief in such cases (and hence violation of the NPV = 0 principle) or the possibility of a supply

---

[166] Lally, *Transitional arrangements for the cost of debt*, November 2014, pp.22–25.
[167] Lally, *Review of submissions on the cost of debt*, April 2015, p.37.
[168] Lally, *Review of submissions on the cost of debt*, April 2015, p.32.

disruption. In addition, even if the policy of immediately adopting a regime change regardless of the one-off impact on the [benchmark efficient entity] were rigorously followed, the upside and downside from this policy might not be symmetric, in which case the NPV = 0 principle would still be violated. These disadvantages are all so substantial that the only viable regulatory policy would be to neutralize the one-off effects of regime changes, possibly through a transitional regime, or at least to do so when the one-off effects in either direction are substantial.[169]

Our assessment of the four options against the considerations in this section are summarised in the following table.

Table 3-4 Option analysis—Provides a benchmark efficient entity with a reasonable opportunity to recover efficient financing costs over the life of its assets?

Option		Assessment
1	Maintain on-the-day	Yes
2	Gradually transition from on-the-day to trailing average	Yes
3	Hybrid transition	Yes: Base rate No: DRP
4	Backwards looking trailing average approach	No

Source: AER analysis

In the next section, we assess whether each of the four options match the allowed return on debt with efficient financing cashflows over a single regulatory control period, and the potential conflict between this consideration and providing a benchmark efficient entity with a reasonable opportunity to recover its efficient financing costs over the life of its assets.

Matches allowed return on debt with efficient financing cashflows regulatory period-by-period

We consider that in estimating the efficient debt financing *costs* of a benchmark efficient entity, it can be useful to consider the efficient debt financing *practices* of a benchmark efficient entity. By extension, efficient debt financing costs result from efficient debt financing practices.

For the base rate component of the return on debt, we are satisfied a gradual transition from the on-the-day approach to the trailing average approach reduces the potential mismatch between the allowed return on debt and actual cost of debt of a benchmark efficient entity

---

[169] Lally, *Review of submissions on the cost of debt*, April 2015, pp.27–28.

over the 2015–20 period while the entity transitions its financing practices in line with the new regulatory approach.

The on-the-day approach was a regulatory approach in past regulatory decisions for setting the allowed return on debt. It was designed to match the allowed return on debt to prevailing market conditions in the market for funds at the start of each regulatory control period.

One of the factors we must have regard to in estimating the return on debt is any impacts (including in relation to the costs of servicing debt across the regulatory control periods) on a benchmark efficient entity that could arise as a result of changing the return on debt methodology from one regulatory control period to the next.

So, to understand the impact of changing the return on debt methodology on a benchmark efficient entity, we considered how such an entity would likely efficiently finance itself under the on-the-day approach. We then considered what a benchmark efficient entity's likely financing strategy would be to transition its financing practices to a trailing average approach. We were assisted in this assessment through advice from Chairmont and Dr Lally.

There are a number of financial instruments and financing strategies for a benchmark efficient entity to choose between, in deciding what is efficient, and these choices may also change over time. For example, Chairmont advised that these choices include:

- 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

- short term debt funding facilities, such as overdrafts and working capital bank facilities

- borrowing for terms of 10 years that match the AER's debt term benchmark. Or the possibility of borrowing for shorter or longer terms than the AER benchmark of 10 years.

- a smoothly staggered debt profile. Or 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.[170]

Chairmont also advised that the decision as to which market and product to use will depend on availability and the relative pricing as it changes over time.[171]

All models are by definition a simplified version of reality.[172] This is also true of the regulatory model (or benchmark). It is not practical for the regulatory return on debt benchmark to be a complicated amalgamation of bonds, hybrid debt, bilateral loans, syndicated loans, overdrafts and other features. Models seek to abstract away from some of the realities of the

---

[170] Chairmont, *Cost of debt: Transitional analysis*, April 2015, pp.22, 26.

[171] Chairmont, *Cost of debt: Transitional analysis*, April 2015, p. 26.

[172] IMF Institute (Sam Ouliaris), *Back to basis–What are economic models?–How economists try to simulate reality*, Finance and Development, June 2011, p.46.

real world to focus on core concepts or relationships. We consider the core relationship is that the efficient financing practices of a benchmark efficient entity are practices which are expected to minimise a benchmark efficient entity's debt financing costs over the life of its assets, while managing refinancing risk and interest rate risk.

We consider an efficient financing practice of a benchmark efficient entity under the on-the-day approach would have been to borrow long term and stagger the borrowing so only a small proportion of the debt matured each year. We consider a benchmark efficient entity would have combined this practice with interest rate swap contracts to broadly match the base rate component of its actual return on debt to its return on debt allowance. Specifically, we consider an efficient financing practice would have been to:

- borrow long term (10 year) debt and stagger the borrowing so only a small proportion (around 10 per cent) of the debt matured each year

- borrow using floating rate debt, or borrow fixed rate debt and convert it to floating rate debt using fixed-to-floating interest rate swaps at the time of the debt issue, which extended for the term of the debt (10 years)

- enter floating-to-fixed interest rate swaps at, or around, the time of the service provider's averaging period, which extended for the term of the regulatory control period (typically five years).[173]

Our reasoning is that this financing strategy:

- compared with the alternative broad debt financing strategies, would have more effectively managed refinancing risk and interest rate risk, and resulted in a lower expected actual return on debt[174]

- was generally adopted by most privately owned service providers under the on-the-day approach.[175]

Under this financing strategy, the base rate component of a benchmark efficient entity's actual return on debt would have broadly matched the on-the-day rate, while the debt risk premium component each year would have reflected the average of the previous 10 years.

---

[173] We do not necessary consider all efficient service providers would have adopted precisely this strategy. However, we consider this is a reasonable approximation of the range of efficient financing practices that a benchmark efficient entity would have adopted under the on-the-day approach. For example, Chairmont advised "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." Chairmont, *Cost of debt: Transitional analysis*, April 2015, p.26.

[174] Lally, *Transitional arrangement for the cost of debt*. November 2014, pp. 25–30

[175] Deloitte, *Refinancing, debt markets and liquidity*, 12 November 2008, p. 13; Jemena, *Submission to the rate of return guideline consultation paper*, June 2013, p. 19; Lally, M, *Transitional arrangement for the cost of debt*. November 2014, pp. 25–30.

The staggering of debt under this strategy would have lowered the refinancing risk, compared with the risk if a benchmark efficient entity had issued all its debt during the averaging period. Adopting a staggered debt portfolio with interest rate swaps, compared with a staggered debt portfolio without interest rate swaps, would have led to the same degree of refinancing risk. However, the former strategy would also have resulted in:

- lower interest rate risk—this is because interest rate risk would have been borne on only the debt risk premium component of the return on debt, rather than on the total return on debt

- a lower actual return on debt—this is because hedging via interest rate swaps would have reduced the effective term of the debt. Because longer term debt is typically more expensive than otherwise equivalent shorter term debt (given the holders of long term debt face greater risks), reducing the effective term would have likely reduced the actual return on debt, on average.[176]

Our assessment that the above strategy was an efficient financing practice of a benchmark efficient entity under the on-the-day approach is supported by expert advice from both an academic perspective (Dr Lally) and a financial market practitioner perspective (Chairmont).[177]

A staggered debt portfolio with interest rate swaps is also the financing strategy that most privately owned service providers generally adopt under the on-the-day approach. This tendency is reflected in:

- corporate treasurers' statements to our 2009 weighted average cost of capital (WACC) review[178]

- the data on debt financing strategies of the privately owned service providers we collected during the 2009 WACC review,[179]

- submissions from privately owned service providers to the Australian Energy Market Commission (AEMC) during the 2012 network regulation rule change process[180]

- submissions to our development of the 2013 rate of return guideline.[181]

When privately owned service providers explained the reasons for their debt financing strategy, it was consistent with our understanding of how this strategy lowers refinancing

---

[176] Lally, *Transitional arrangement for the cost of debt*. November 2014, pp. 25–30.

[177] Lally, *Transitional arrangement for the cost of debt*. November 2014, pp. 8–10. Chairmont, *Cost of debt: Transitional analysis*, April 2015, pp.30–33.

[178] The Joint Industry Associations (JIA), *Submission on the explanatory statement: WACC review,* February 2009, Appendixes, E, F, G, H and I; see www.aer.gov.au/node/11822.

[179] AER, *Final decision: review of electricity transmission and distribution WACC parameters*, May 2009, pp.150–4; AER, *Explanatory statement review of electricity transmission and distribution WACC parameters*, December 2008, pp.103–7.

[180] ETSA Utilities, CitiPower and Powercor Australia, *Submission attachments: joint response to AER and URCC rules change proposals*, December 2011, pp. 138–43; ENA, *Response to AEMC directions paper—economic regulation of network service providers (AEMC rules change),* 20 April 2012, Attachment E, pp. 3–5.

[181] Jemena, *Submission to the rate of return guideline consultation paper*, June 2013, p. 19.

risk, lowers interest rate risk and lowers the actual return on debt. In the 2009 WACC review, for example, Envestra's corporate treasurer explained how the business's hedging strategy lowers interest rate risk:[182]

> … the interest rate of the principal is usually floating rate consisting of a base rate, such as BBSW, plus a credit margin plus establishment fees… The Treasury Policy requires that we hedge between 80% and 100% of the interest rate risk on the floating rate debt.
>
> So to explain that in more detail, for each regulatory period we enter into hedges over the Regulators designated risk free rate averaging period, in order to match as closely as we can the base rate of our actual debt (i.e. BBSW) with the risk free rate used in the regulatory cost of debt and WACC. The hedges are for the term of the regulatory period.

This statement is consistent with Lally's advice:

> Faced with the current regulatory regime, businesses have borrowed long term, with staggering, to deal with refinancing risk and used interest rate swap contracts to align the risk free rate component of their cost of debt with the regulatory cycle.[183]

Efficient financing practices as benchmark efficient entity transitions its debt portfolio to the trailing average approach

For the above reasons, we consider a staggered debt portfolio with interest rate swaps was an efficient financing practice of a benchmark efficient entity under the on-the-day approach. For the base rate component, we now consider the impact on a benchmark efficient entity of gradually moving to the trailing average approach (Option 2 or 3) or adopting a backwards looking trailing average approach (Option 4).

For the on-the-day approach, Lally examined what the financing arrangements of a benchmark efficient entity would be at the end of the regulatory control period:[184]

> So, at the end of the most recent regulatory cycle, a swap of floating to five-year fixed for all of the firm's debt would just have matured (in line with the end of the regulatory cycle). If the previous regime had been maintained, the firm would then have entered a new swap of floating to five-year fixed for all of its debt. However, upon the introduction of a trailing average regulatory regime, the rationale for these swap contracts would disappear and the firms could be expected to desist from them at that point. Nevertheless, in respect of the risk-free rate component of its debt, the existing debt has already been converted to floating rate debt and these swaps have residual lives of up to nine years (arising from ten-year debt that was issued one year ago).

---

[182] JIA, *Submission on the explanatory statement: WACC review,* February 2009, Appendix F: statement of Gregory Damian Meredith, Treasurer for Envestra, p. 5.

[183] Lally, M, *The trailing average cost of debt*, 19 March 2014, p. 15.

[184] Lally, M, *Transitional arrangements for the cost of debt*, November 2014, pp. 7–8.

Similarly, Chairmont also advised that the efficient financing practices of a benchmark efficient entity under the on-the-day approach would not already resemble the efficient practices under the trailing average approach. Chairmont advised that:

> A [benchmark efficient entity] 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.

Lally examined the actual and allowed base rate component of the return on debt for a benchmark efficient entity under various future interest rates. He demonstrated that gradually transitioning from the on-the-day to trailing average approach (Option 2) would reduce the mismatch between the actual and allowed base rate. He calculated the mismatch between the base rate component of a benchmark efficient entity's actual costs and those allowed under a gradual transition to the trailing average (Option 2) would be between an average over recovery of 0.6 per cent of the debt portfolio per year for the transitional period, and an average under recovery of 0.4 per cent per year.[185] From this calculation, Lally considered the actual outcome for a benchmark efficient entity would not differ much from zero.[186]

Lally also investigated the impact of an alternative strategy for a benchmark efficient entity:[187]

> This analysis presumes (plausibly) that, upon the introduction of the trailing average regime with the proposed transitional regime, firms will desist from entering into the floating to five-year fixed rate swap contracts that they would have entered into under the previous regime. However, it is possible that firms might enter into alternative arrangements in an attempt to reduce or eliminate the exposure shown in equations (3). The best such option would involve the regulated businesses entering into a series of swap contracts upon the commencement of the new regime, to swap each of their prevailing floating-rate exposures into a fixed rate for the remainder of the borrowing. Thus, the debt with one year to maturity would be swapped into one-year fixed-rate debt, the debt with two years to maturity would be swapped into two-year fixed-rate debt, etc.

He estimated this strategy's outcome for a benchmark efficient entity would be an average over recovery of 0.23 per cent of the debt portfolio each year. Accordingly, under either financing strategy, Lally concluded:[188]

---

[185] This calculation assumes the averaging period for the existing debt is June 2014. The averaging period differs for different service providers, which would affect the calculation for each service provider, but not the overall conclusions drawn from this calculation.

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

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

[188] Lally, M, *Transitional arrangements for the cost of debt*, November 2014, p. 11.

> … if the proposed transitional arrangements are adopted, the actual outcome for firms will not differ much from zero.

Based on this analysis, we are satisfied that gradually transitioning from the on-the-day to trailing average approach (Option 2) reduces the potential mismatch between the base rate component of the allowed return on debt and the actual return on debt of a benchmark efficient entity, as the entity transitions its financing practices. Specifically, a gradual transition (Option 2) broadly matches (though over-compensates) a benchmark efficient entity for the base component of its actual return on debt. Whether it matches, over- or under compensates a benchmark efficient entity for the DRP component depends on whether the prevailing DRP at the start of the transition period and historical average DRP is higher, lower, or the same as each other.

Our assessment of the four options against the considerations in this section are summarised in the following table.

Table 3-5   Option analysis—Matches allowed return on debt with efficient financing cashflows regulatory period-by-period?

Option		Assessment: Existing debt	Assessment: New debt
1	Maintain on-the-day	Yes: Base rate Depends: DRP	Yes: Base rate Depends: DRP
2	Gradually transition from on-the-day to trailing average	Yes: Base rate Depends: DRP	Yes
3	Hybrid transition	Yes	Yes
4	Backwards looking trailing average approach	No: Base rate Yes: DRP	Yes

Source: AER analysis

In the next section, we assess whether each of the four options avoids a potential bias in regulatory decision making that can arise from choosing an approach that requires historical data after the results of that historical data are already known.

Avoids a bias in regulatory decision making

We consider the use of an unbiased estimate is of significant importance in achieving the allowed rate of return objective. This provides for the rate of return to be commensurate with the efficient financing costs of a benchmark efficient entity.

We do not consider the practice of selecting averaging periods after they have occurred is an effective mechanism for achieving the allowed rate of return objective. This is because choosing the averaging period in advance is important for obtaining an unbiased estimate. By bias, here we mean that at the time the averaging period is selected, it is not known with certainty whether it will result in a higher or lower estimate than the estimate from a different potential averaging period.

If an averaging period is chosen after the nominated period has occurred, the knowledge of the return on debt at any past point of time may influence the choice. It would not matter if the period were chosen by the AER, the service provider, a user or consumer, the Australian Competition Tribunal or another stakeholder. We made this clear in the Guideline when we specified the importance of determining an averaging period in advance.[189] In particular, we specified that if a service provider could select an averaging period by looking at historical yields, it could introduce an upward bias.[190]

The above considerations reflect our long standing view about the importance of selecting averaging periods in advance of the period (for either the return on equity or debt).[191] For example, in the Victorian gas access arrangement review several service providers proposed using a historical average risk free rate (for the return on equity). We did not accept this proposal. As part of our reasons, we stated:[192]

> Determining the averaging period in advance helps achieve an unbiased risk free rate.
>
> Regulated businesses have an incentive to seek a WACC that is as high as possible, because it will increase their revenue allowance. If a regulated business can select an averaging period by looking at historical yields, they may introduce an upward bias.[193] They can select a period with the highest yield available. But, when an averaging period is agreed or specified in advance regulatory "gaming" is less likely because the risk free rate is unknown for that future period.
>
> …
>
> The AER thus maintains its position that a short averaging period, determined in advance, minimises the likelihood of bias.

Applying the on-the-day approach (Option 1) enables the averaging period to be selected in advance and reduces the risk of bias in the selection of that period. Similarly, our approach of starting with an on-the-day rate and gradually transitioning to the trailing average approach (Option 2) only uses averaging periods for each year that are nominated in

---

[189]   AER, *Explanatory statement to the rate of return guideline*, December 2013, pp. 79–80.

[190]   Lally, M., *Expert Report of Martin Thomas Lally*, 13 February 2011, pp. 9-10.

[191]   We note that in other components of the rate of return, such as the market risk premium and equity beta, we have regard to historical market data. However, with these parameters, we are broadly consistent in our approach over time of having regard to historical market data. In contrast, if we switched from having primary regard to historical market data to primary regard to prevailing market data, or vice versa, and we made this switch when it was either most financially advantageous to service providers or consumers, then this switch could raise the perception of bias. In the current scenario, the NSW service providers are proposing the switch from the old regime (on-the-day) to the new regime (trailing average) at the time when it is the most financially advantageous from them to do so. Lally, M., *Review of submissions on the cost of debt*, April 2015, p.37.

[192]   AER, *Access arrangement draft decision–Envestra Victoria 2013–17*, September 2012, p.190.

[193]   Lally, M., *Expert Report of Martin Thomas Lally*, 13 February 2011, pp. 9-10. Lally's comments in this report were made about a specific approach proposed in the relevant determination but are consistent with the approach taken by the AER in this decision.

advance. Further, we proposed this approach during the Guideline process when the level of current prevailing interest rates (used for the on-the-day rate in the first year) was not known.

Our debt approach in this final decision is consistent with the approach we proposed in the Guideline and adopted in the draft decision. In the Guideline, we based our transition on the approach recommended by the Queensland Treasury Corporation (QTC). We refer to this as 'the QTC approach'. In recommending a gradual transition into the trailing average approach, QTC stated:

> The transitional rule ensures that the NSP is not able to receive a higher initial rate simply by electing to use the moving average approach. It also avoids the need to reach agreement on the return on debt calculation for each of the preceding nine years.[194]

We agree with QTC's advice.

In contrast, the NSW service providers, ActewAGL and Directlink have proposed a backward looking trailing average approach (Option 4). They propose an approach where the resulting allowed return on debt is largely known at the time they proposed it. Under this approach, it is difficult to avoid the perception of bias—in the sense of selecting an approach that uses historical data after the results of that data is known. Lally also made this point.[195]

We also note JGN, SAPN and the Victorian service providers supported our proposed transition (Option 2) during the Guideline, but now support the hybrid transition approach (Option 3). The main difference between the approaches is that our approach commences with an on-the-day rate for the DRP, whereas the hybrid approach commences with a backwards looking DRP. At the time of the Guideline, when those service providers supported our approach, it would not have been clear which result provided the higher DRP. However, now that we are closer to (or past) the averaging period for the first regulatory year, a comparison between the return on debt between the two approaches can be made. Under this approach, it is difficult to avoid the perception of bias in their change of position— in the sense of selecting an approach that uses historical data after the results of that data is known.

Our assessment of the four options against the considerations in this section are summarised in the following table.

Table 3-6 Option analysis—Avoids a potential bias in regulatory decision making that can arise from choosing an approach that uses historical data after the results of that historical data is already known?

Option		Assessment
1	Maintain on-the-day	Yes

---

[194] QTC, *Moving average approach–Detailed design issues*, 8 June 2012.
[195] Lally, Transitional arrangements for the cost of debt, November 2014, p.22.

Option		Assessment
2	Gradually transition from on-the-day to trailing average	Yes
3	Hybrid transition	Yes: Base rate No: DRP
4	Backwards looking trailing average approach	No

Source: AER analysis

In the next section, we whether each of the four options avoids the practical difficulties in the use of historical data to calculate the allowed return on debt, particularly during the global financing crisis.

Avoids practical difficulties with the use of historical data

Adopting the hybrid transition (Option 3) or backwards looking trailing average approach (Option 4) would require historical data on the return on debt from approximately 2005 to 2014.[196] Whereas continuing with the on-the-day approach (Option 1) or gradually transitioning from the on-the-day to the trailing average approach (Option 2) does not require historical data before 2014.

For the base rate component, high quality historical data is readily available.[197] However, for the debt risk premium component, similarly high quality and readily available data is not available. This is because:

- No third party data series is available for the full 10 year historical period, meaning a mixture of data series for different time periods would be required. The RBA and Bloomberg (BVAL) data series commenced in January 2005 and April 2010 respectively.[198] But the Commonwealth Bank of Australia (CBA) Spectrum and Bloomberg fair value (BFV) curve data series ceased publication in August 2010 and May 2014 respectively.

- There is no consensus among service providers on how to estimate the historical debt risk premium. Service providers with current regulatory proposals and their consultants (CEG, NERA) proposed a combination of data series to implement the backwards looking trailing average approach:

---

[196] For the ActewAGL, Ausgrid, Endeavour Energy, Essential Energy, TasNetworks and TransGrid data would be needed for 2005–06 to 2014–15; and for Directlink, Energex, Ergon Energy and SAPN data would be needed for 2006–07 to 2015–16. For Option 4, historical data would be needed for the total return on debt; for Option 3 historical data would be needed for the DRP component.

[197] If the base rate is defined as the risk free rate, data on the historical yield of long term Commonwealth Government securities (CGS) is available from the Reserve Bank of Australia. If the base rate is defined as the bank bill swap rate (BBSW), data is available from Bloomberg.

[198] We note the BVAL series has missing data, particularly from late October 2010 to late January 2011.

- ActewAGL proposed a simple average of the RBA and BVAL curves be used.

- TransGrid proposed a simple average of the RBA and BVAL curves be used from 2012 onwards, and only the RBA be used before that time.

- Ausgrid, Endeavour Energy and Essential Energy proposed that only the RBA curve should be used from 2005 onwards, and only the BFV curve should be used in 2004 where the RBA curve is not available.

- Directlink proposed that only the RBA curve be used.

- The results of the different data series vary considerably, which complicates the choice and materiality of choosing or combining different data series for different time periods.[199] Lally stated:[200]

> Furthermore, there has been considerable variation in the results from four such indexes since early 2007, most particularly in early 2009 when the estimates of the RBA, CBA Spectrum, and BFV indexes were 9.5%, 5.0% and 3.5% respectively (CEG, 2014, Figure 1); this variation complicates the process of choosing estimates for that historical period.

- It is not clear whether each data series is of comparable quality, and whether the quality has changed over time. The RBA series, for example, used a small sample in the first several years, but then a larger sample in more recent years.[201]

Figure 3-3 contains the available BBB rated data from the RBA curve, Bloomberg Valuation Service curve (BVAL), Bloomberg fair value curve (BFVC) and CBA Spectrum curve over time.

---

[199] CEG contended that while the different data series differ from one another over time, the historical average of each data series is comparable. However, CEG analysis overlooks that under the backwards looking trailing average approach the impact on the allowed return on debt of each historical year is different. For example, for the NSW service providers the historical return on debt from 2005–06 would appear in the calculation of the allowed return on debt for regulatory year 2014–15 only. After this year, it would drop out of the trailing average and not appear in the calculation of the allowed return on debt for 2015–16 or future regulatory years. Whereas, the historical return on debt from 2013–14 would appear in the calculation of the allowed return on debt for both regulatory year 2014–15 and the next eight regulatory years. Accordingly, the impact on the allowed return on debt of the historical return on debt from 2013–14 is nine times greater than the impact of the historical data from 2013–14.

[200] Lally, M, *Transitional arrangements for the cost of debt*, November 2014, p. 15.

[201] The number of bonds in the sample for any monthly estimate is published on the RBA's website.

Figure 3-3   Comparison of BBB rated return on debt data series over time
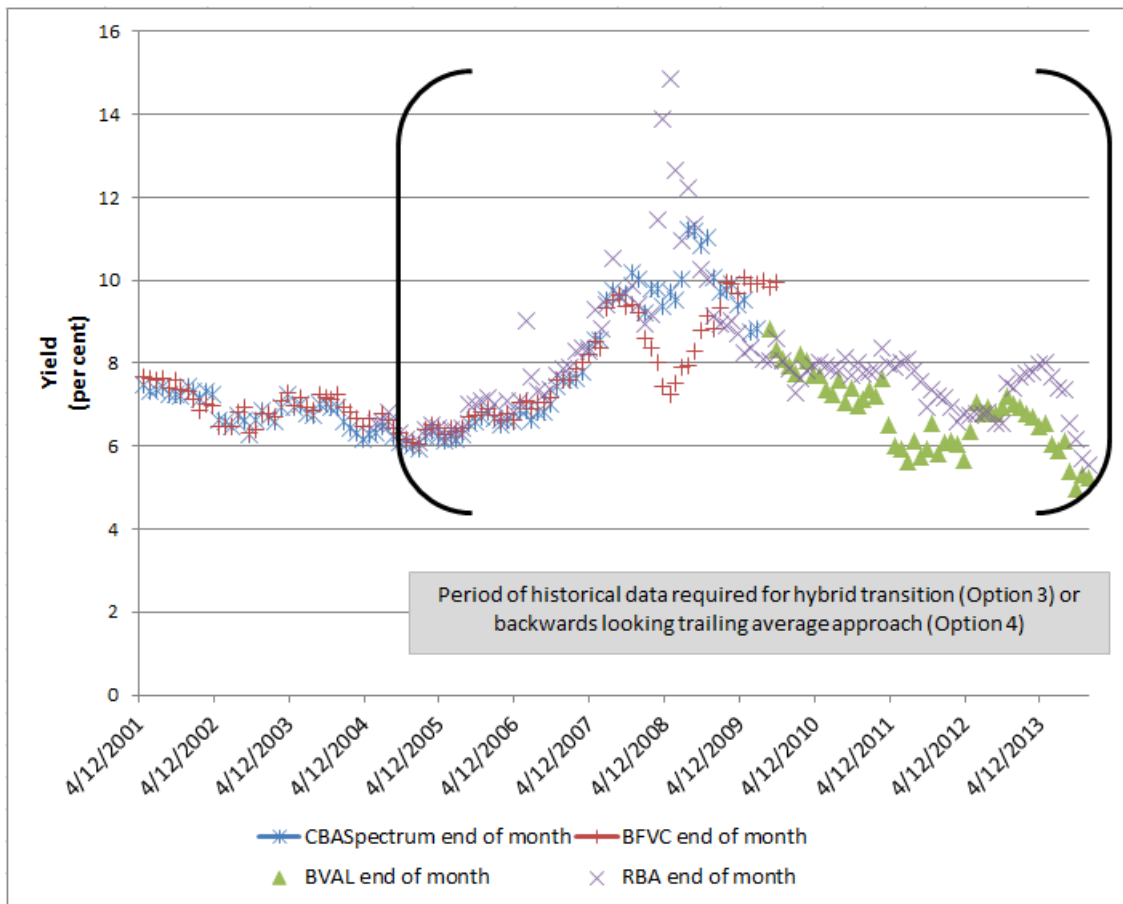
Source: CBA Spectrum, Bloomberg, RBA, AER analysis

In contrast, either continuing with the on-the-day approach (Option 1) or gradually transitioning from the on-the-day to the trailing average approach (Option 2) does not use any data from before 2015. We have been able to assess the data series that are currently available, and to consider how to combine the series. Accordingly, we have a better understanding of the reliability of the return on debt resulting from our combination of those data series. We do not have the same understanding of the reliability of a historical return on debt, for reasons stated above.

The choice of data series to calculate the return on debt has been considerably less contentious in the current regulatory processes, than in previous regulatory processes. For Options 1 or 2, data is only required for the 2014–15 or 2015–16 regulatory year onwards, depending on the service provider. For these years, most service providers agree with our position of taking a simple average of the RBA and BVAL data series.

Whereas, for Option 3 or 4, data is required for a long historical period, which includes the global financial crisis. During previous regulatory processes that covered this period, the method to estimate the return on debt was highly contentious, and frequently resulted in service providers seeking review of our decisions by the Tribunal. The choice of data series (or other sources of data) adopted by us, service providers and the Tribunal also changed over time, and often resulted in very different estimates. Accordingly, estimating the long

historical data series needed to implement Options 3 or 4 is a difficult and contentious exercise.

Further, the benchmark credit rating also changed over time and differed between service providers. We currently adopt a BBB+ credit rating and apply this rating to service providers across electricity transmission and distribution. However, this was not the case in the past. For example:

- In the ACCC's 2005 transmission decision for TransGrid, it adopted an A rated credit rating. At that time, TransGrid also considered the benchmark credit rating should be higher than BBB+ and proposed an A- rating, though it submitted this view was "conservative".[202]

- In IPART's 2004 distribution decision for Ausgrid, Endeavour Energy and Essential Energy, it adopted an "investment grade" credit rating without adopting an explicit benchmark credit rating. It considered estimates from BBB and BBB+ data series, and then adopted a range that extended below those estimates on the basis that not all investment grade bonds are rated that low.[203]

Therefore in implementing Option 3 or 4, if we calculated the NSW service providers' historical return on debt over the 2004–09 regulatory control period based on a BBB data series, as the NSW service providers propose, we would overstate the return on debt. Previous regulatory decisions employed higher credit ratings. In the case of TransGrid, it considered efficient financing costs of a benchmark efficient transmission entity at the time were lower than currently.

Table 3-7   Option analysis—Avoids practical difficulties with the use of historical data?

Option		Assessment
1	Maintain on-the-day	Yes
2	Gradually transition from on-the-day to trailing average	Yes
3	Hybrid transition	Yes: Base rate No: DRP
4	Backwards looking trailing average approach	No

Source: AER analysis

---

[202]   ACCC, *NSW and ACT transmission network revenue cap—TransGrid 2004-05 to 2008-09—Final decision*, April 2005, pp.139-143; AER, *TransGrid 2004-05 to 2008-09 revenue cap—Application by TransGrid for revocation and substitution*, February 2007.

[203]   IPART, *NSW electricity distribution pricing 2004-05 to 2008-09—Final report*, June 2004, pp.224–226.

In the next section, we consider whether we should apply annual updates to the allowed return on debt.

Annual updates to the return on debt

Our final decision is to update the return on debt each year. This position is consistent with our approach proposed in the Guideline and adopted in the draft decision.[204] All service providers with current regulatory proposals also proposed to update annually the return on debt.[205] We agree with this component of their proposals.

The NER states that the return on debt may be estimated using a methodology which results in either:

- the return on debt for each regulatory year of the regulatory control period being the same, or

- the return on debt (and consequently the allowed rate of return) being, or potentially being, different for different regulatory years in the regulatory control period.[206]

Annually updating is a methodology which results in the return on debt being, or potentially being, different for different regulatory years.

We are satisfied that annual updates contribute towards the achievement of the allowed rate of return objective. This is because annual updates:

- reduce the potential mismatch between the allowed return on debt and the actual cost of debt of a benchmark efficient entity, and

- reduce the potential for large price shocks or volatility for consumers between regulatory control periods (by introducing a smaller degree of price volatility within the regulatory control period).

By the end of the Guideline development, the majority of stakeholders (including both service providers and consumer representatives) supported updating the return on debt each year.[207]

---

[204] AER, *Explanatory statement—rate of return guideline*, December 2013, pp. 111–15; AER, *Draft decision–Ausgrid distribution determination–Attachment 3: Rate of return*, November 2014, section 3.4.2. Analogous reasons were includes in our November 2014 draft decisions for ActewAGL, TransGrid, Endeavour Energy, Essential Energy, JGN, Directlink.

[205] Ausgrid, *Revised regulatory proposal, 1 July 2014 – 30 June 2019*, January 2015, p.177; Endeavour Energy, *Revised regulatory proposal, 1 July 2014 – 30 June 2019*, January 2015, p.199; Essential Energy, *Revised regulatory proposal, 1 July 2014 – 30 June 2019*, January 2015, p.288; TransGrid, *Revised revenue proposal, 1 July 2014 – 30 June 2018*, January 2015, p.116; Directlink, *Revised revenue proposal, 2015 –2020*, January 2015, p.12; ActewAGL, *Revised regulatory proposal, 2015 – 2019,* January 2015, p.472*; JGN, Revised access arrangement proposal 2015–20,* February 2015, p.98*.*

[206] NER, cl.6.5.2(i) and cl.6A.6.2(i).

[207] Consumer representatives such as COSBOA, EUAA and MEU supported annual updating. Service providers (and their representatives) such as APA Group, the ENA, Envestra, Ergon Energy, QTC and AusNet Services supported annual updating. On the other hand, consumer representatives such as the NSW Irrigators' Council did not support annual updating, and PIAC did not express a strong preference either way. See AER, *Explanatory statement to the rate of return guideline (appendices)*, December 2014, p. 196.

As set out in the explanatory statement to the Guideline, we acknowledge the implementation of annual updates would be moderately complex. The NER require the change in revenue from the annual debt update to be effected through the automatic application of formula that is specified in a service provider's determination. [208] To facilitate the requirement for automatic updating, our decision is to:

- Use a third party data provider to estimate the allowed return on debt. Our decision on the choice of third party data provider is set out later in this attachment.

- Require service providers to nominate averaging periods for each regulatory year upfront in their regulatory proposals (rather than during the regulatory control period). Our decision on averaging periods and the annual update process is set out later in this attachment.

- Implement the annual updates in accordance with the process for annual updating set out in the handbook to the post-tax revenue model. [209]

As set out in the explanatory statement to the Guideline, we consider the advantages of annual updates outweigh the resource requirement and other potential disadvantages (such as potentially higher price volatility in a regulatory control period). [210] At this point in time, we maintain that view. However, this position is premised on our decision to adopt a third party data series and to require service providers to nominate averaging periods upfront.

The CCP disagrees with our adoption of a third party data series, and instead considers we should use actual debt costs such as constructing our own index of actual industry borrowing costs. ActewAGL disagrees with our requirement for service providers to nominate averaging periods upfront. Instead, it proposes to introduce a new annual process to nominate and assess averaging periods for the next year. We do not agree with the CCP's or ActewAGL's proposals for the reasons set out later in this attachment and in ActewAGL's final decision. At this point, we note that accepting either proposal would significantly increase the complexity of annual updating and may result in annual updating being impractical. Accordingly, if we accepted either proposal in the future then we would need to reassess our position on whether the advantages of annual updating continue to exceed the disadvantages.

We consulted on an amended post-tax revenue model (PTRM) that provides enough flexibility to implement the return on debt approach in this decision (or other potential approaches). We published the amended PTRM in January 2015, and have applied that version of the PTRM in this final decision.

In the next section, we consider whether the allowed return on debt should be a simple or weighted average.

---

[208] NER, cl.6.5.2(l) and cl. 6A.6.2(l).

[209] AER, *Final decision—Amendment—Electricity transmission network service providers—Post-tax revenue model handbook*, January 2015, pp.34-35; AER, *Final decision—Amendment—Electricity distribution network service providers—Post-tax revenue model handbook*, January 2015, pp.39-40.

[210] AER*, Explanatory statement—rate of return guideline*, December 2013, pp. 111–15.

Simple or weighted averaging

Our final decision is to calculate the allowed return on debt as a simple (that is, equally weighted) average of the prevailing market rates in each of the past 10 years, following a transition period. This is consistent with the approach we proposed in the Guideline and adopted in the draft decision.

All service providers with current revised proposals also proposed to adopt an equally weighted approach.[211] We agree with this component of their proposals.

In a separate determination process, Energex and Ergon Energy proposed an alternative weighting approach, based on the 'debt component of the forecast capex approved in the PTRM'.[212] This is a more complex approach, which effectively weights the prevailing rates in each of the past 10 years by the amount of debt that the service provider was forecast in its PTRM to have raised in that year. We refer to this approach as the 'PTRM-weighted average'.

We did not accept this aspect of Energex and Ergon Energy's proposals in our preliminary decisions for those service providers. We explain our reasons for this position in those preliminary decisions.

On balance, we choose to maintain the Guideline approach of calculating the allowed return on debt as the simple average of the prevailing market rates in each of the past 10 years, following a transition period. We acknowledge, however, the potential advantages of the PTRM-weighted average in some circumstances. We are therefore open to future consideration—especially under the next Guideline development process—of any new evidence that clearly demonstrates that the PTRM-weighted average better meets the objective and requirements of the NER.

Implementing the return on debt approach

In the previous section, we set out our approach to estimating the return on debt. This approach involves estimating an on-the-day rate (that is, based on prevailing market conditions) in the first regulatory year of the new period. It also involves gradually transitioning this rate into a trailing average approach (that is, a moving historical average) over 10 years. This gradual transition will occur through updating 10 per cent of the return on debt each year to reflect prevailing market conditions in that year.

---

[211] Ausgrid, *Revised regulatory proposal, 1 July 2014 – 30 June 2019*, January 2015, p.177; Endeavour Energy, *Revised regulatory proposal, 1 July 2014 – 30 June 2019*, January 2015, p.199; Essential Energy, *Revised regulatory proposal, 1 July 2014 – 30 June 2019*, January 2015, p.288; TransGrid, *Revised revenue proposal, 1 July 2014 – 30 June 2018*, January 2015, p.116; Directlink, *Revised revenue proposal, 2015–2020*, January 2015, p.12; ActewAGL, *Revised regulatory proposal, 2015–2019, January 2015, p.472;* JGN*, Revised access arrangement proposal 2015–20,* February 2015, p.98*.*

[212] Energex, *Regulatory proposal 2015–2020*, October 2014, pp. 167–171; Ergon Energy, *Regulatory proposal 2015–2020*, October 2014, pp. 142–143.

In this section, we set out our considerations on the implementation issues associated with estimating the return on debt. These issues are:

- the term of debt issued by a benchmark efficient entity

- the credit rating of a benchmark efficient entity

- whether to use a third party data series or to construct our own data series (for example, based on an index of actual industry borrowing costs)

- the choice of third party data series (or combination of data series) to estimate the efficient debt financing costs of the benchmark efficient entity, based on the benchmark debt term and benchmark credit rating

- extrapolation and interpolation issues with adjusting our choice of data series

- contingencies associated with implementing our choice of data series, if the data series we have chosen to estimate the return on debt are unavailable or change in future regulatory years

- the averaging period used to estimate the return on debt for each regulatory year, and

- the annual process to update the return on debt

Consistent with the Guideline and draft decision, we are satisfied that a return on debt estimated based on a 10 year benchmark debt term, BBB+ benchmark credit rating, and using an independent third party data series is commensurate with the efficient financing costs of a benchmark efficient entity.

In choosing that third party series (or combination of series), we are satisfied that adopting a simple average of the 10 year broad BBB rated Reserve Bank of Australia (RBA) and Bloomberg Valuation Service (BVAL) curves, with some adjustments, is commensurate with the efficient financing costs of a benchmark efficient entity.

Term

Our final decision is to adopt a 10 year term for the return on debt. A 10 year term is the same as the term we proposed in the Guideline and adopted in the draft decision.

In the revised proposals currently before us, all service providers proposed a 10 year term for the return on debt.[213] We agree with that component of those proposals. A 10 year term

---

[213] ActewAGL, *Revised regulatory proposal*, January 2015, p. 430; JGN, *Response to the AER's draft decision and revised proposal: Appendix 7.10*, February 2014, p. 2; TransGrid, *Revised revenue proposal*, January 2015, p. 116. Directlink did not propose to depart form the Guideline for calculating the return on debt (which is based on a 10 year term) in Directlink, *Revised revenue proposal*, January 2015, p. 12. The NSW distributors did not depart from their initial proposals, where they used a 10 year tenor: Ausgrid, *Regulatory proposal*, May 2014, 68; Endeavour Energy, *Regulatory proposal*, May 2014, p. 104; Essential Energy, *Regulatory proposal*, May 2014, p. 91.

is also consistent with the advice from NERA and CEG submitted by several service providers with their initial proposals.[214]

We are satisfied that a 10 year term is commensurate with the efficient financing costs of a benchmark efficient entity. This is because:

- A long debt tenor is consistent with the long lived assets of the benchmark efficient entity and reduces refinancing risk.

- A 10 year term is similar to (though somewhat longer than) the industry average term at issuance of a sample of firms that are comparable to the benchmark efficient entity.

We explain each of these considerations further below.

The benchmark efficient entity is a regulated energy network service provider. Regulated energy network assets are long lived, and have asset lives that are longer than the terms that are commonly available for debt. The fewer the number of times the debt which funds these assets is required to be refinanced, the lower is the risk of not being able to refinance the debt upon maturity. We refer to this as refinancing risk. On the other hand, the cost of longer term debt is generally higher than shorter term debt as debt holders require compensation for the risks associated with holding debt over a longer time period. Accordingly, the benchmark efficient entity faces a trade-off between the higher cost of issuing long term debt and lower refinancing risk. Overall, these considerations suggest the average debt term of the benchmark efficient entity may be long term, but they do not provide clear guidance on what exactly that term should be.

During the development of Guideline, we requested information from a range of privately owned service providers on the amount, type, term and credit rating of their debt issuances.[215] These service providers are comparable to our definition of the benchmark efficient entity which is a 'pure play' regulated energy network business operating within Australia. Based on observed practice, the weighted average term at issuance of the debt portfolio of these service providers was 8.7 years at the time of the Guideline. We observed that service providers are securing bank debt with an average term at issuance of 4.3 years, issuing Australian bonds with an average term at issuance of 9.6 years, and issuing offshore bonds with an average term of 9.7 years.

However, as we discussed above in relation to the return on debt approach, we consider that under the on-the-day approach, the benchmark efficient entity would have issued interest rate swaps to closely match the base rate component of its actual return on debt with the allowed return on debt. We also note that Lally explained how this lowers the effective debt term below the term at issuance, and thereby lowers the cost of debt (as shorter term debt is typically cheaper than longer term debt). In this decision, we are gradually transitioning from the on-the-day approach to the trailing average approach. The effect of this is that the on-

---

[214] NERA, *Return on capital of a regulated electricity network*, May 2014, p. ii; CEG, *WACC estimates, a report for NSW DNSPs*. May 2014, pp. 48–49.

[215] Information was received from APA Group, AusNet Services, CitiPower, Dampier to Bunbury Pipeline, ElectraNet, Envestra, Jemena, Multinet, Powercor, SA Power Networks and United Energy.

the-day approach continues to be applied to existing debt. Accordingly, for existing debt, the benchmark efficient entity could be expected to continue to use interest rate swaps and this would reduce the effective term on the base component of its debt, lowering the cost of that debt.

In summary, we are satisfied that a 10 year term is a reasonable view as to the benchmark debt term. We also consider that, if anything, this assumption is more likely to overstate than understate the debt term of a benchmark efficient entity. This is because the industry average term at issuance is currently less than 10 years, and the benchmark efficient entity may have an incentive to enter into interest rate swaps on its existing debt that would further lower the effective term of that debt.

As we stated in the explanatory statement to the Guideline and the draft decision, we will continue to monitor the average debt term at issuance of service providers against the benchmark term.[216] We may also consider this information when we are assessing proposals for transactions costs, whether it is necessary to extrapolate the third party data series we have adopted out to the 10 year benchmark debt term, and any proposed adjustment to the foundation model estimate of the return on equity.

Credit rating

Our final decision is to adopt a BBB+ credit rating to estimate the return on debt. This credit rating is the same rating we proposed in the Guideline and applied in our draft decisions.[217]

TransGrid, Directlink and TasNetworks each proposed a BBB+ credit rating.[218] NERA and Houston Kemp (commissioned by TransGrid) recommended a BBB+ credit rating.[219] NERA stated 'in our opinion a BBB+ credit rating is the best estimate of the benchmark credit rating'.[220] We agree with this component of those proposals.

Other service providers, consultants and other stakeholders proposed different credit ratings for the benchmark efficient entity. Several service providers and CEG proposed a BBB credit rating.[221] Lally and the SA Centre for Economic Studies (SACES) recommended a credit

---

[216] AER, *Explanatory statement to the rate of return guideline*, December 2013, p. 137.

[217] AER, *Rate of return guideline*, 17 December 2013, p. 21; AER, *Draft decision*: *TransGrid transmission determination, Attachment 3: Rate of return*, November 2014, p. 9; AER, *Draft decision: Directlink transmission determination, Attachment 3: Rate of return*, November 2014, p. 10; AER, *Draft decision: TasNetworks transmission determination, Attachment 3: Rate of return*, November 2014, p. 11.

[218] For revised proposals, see Directlink, *Revised revenue proposal*, January 2015, p, 11; TasNetworks, *Revenue proposal*, May 2014, p. 7; TransGrid, *Revised revenue proposal*, January 2015, p. 116. Also see Directlink, *Revenue proposal*, May 2014, p. 36; TasNetworks, *Tasmanian transmission revenue proposal*, May 2014, p. 108; TransGrid, *Revenue proposal*, May 2014, p. 178.

[219] Houston Kemp, *Response to the draft decision on the return on debt allowance*, January 2015, p. 4; NERA, *Return on capital of a regulated electricity network: A report for Ashurst*, May 2014, p. 10.

[220] NERA, *Return on capital of a regulated electricity network: A report for Ashurst*, May 2014, pp. ii, 10.

[221] ActewAGL, *Revised regulatory proposal*, January 2015, pp. 431–432; Ausgrid, *Revised regulatory proposal and preliminary submission,* January 2015, pp. 70–71; AusNet Services, *Draft decisions NSW/ACT electricity distribution determination 2015–19*, February 2015, pp. 11–16; CitiPower/Powercor, *Submission in relation to the first round of regulatory determinations under the new rules*, February 2015;Endeavour Energy, *Revised regulatory proposal*, January

rating for energy networks of BBB to BBB+.[222] Consumer groups generally supported a credit rating of BBB+ or higher.[223]

We are satisfied that a return on debt estimated on the basis of a BBB+ credit rating is commensurate with the efficient financing costs of a benchmark efficient entity. This is because:

- A BBB+ credit rating is consistent with the conceptual position that the benchmark efficient entity is likely to face low credit risk. This is supported by advice from McKenzie and Partington and reports from Moody's and Standard and Poor's.[224]

- We are satisfied that, on balance, a BBB+ credit rating is consistent with the industry median credit rating of a sample of firms that are comparable to the benchmark efficient entity.[225] The median credit rating is currently BBB+.[226] For historical periods of progressively longer length (starting with the current year, then the last two years and etcetera, up to the last 10 years), the median credit rating has been BBB+ in three out of ten cases, BBB+/BBB in six cases, and BBB in one case. While some evidence supports a BBB credit rating (for example, the median over 2009– 2015), we are satisfied that, on balance, the evidence supports a BBB+ credit rating (for example, the median over the periods 2013–2015, 2014–2015 and 2015). We also note that this estimate entails taking the median from the yearly medians. We could also take the median of all credit rating observations over these time periods. This is BBB+ for the five most recent

---

2015, pp. 104–105, Ergon Energy, *Appendix C: Rate of return, Regulatory proposal*, October 2014, p. 123;Essential Energy, *Revised regulatory proposal*, January 2015, p. 230; JGN, *Access arrangement: Response to the AER's draft decision and revised proposal, Appendix 7.10 — Return on debt response*, February 2015, pp. 6–10; SAPN, *Regulatory proposal 2015–20*, October 2014, p. 305; United Energy, *Submission in relation to the first round of regulatory determinations under the new rules*, February 2015. CEG, *WACC estimates*, May 2014, p. 64; CEG, *Memorandum: Factors relevant to estimating a trailing average cost of debt*, 24 May 2014, pp. 12–15.

[222] Lally, *Implementation issues for the cost of debt*, November 2014, pp. 28–3; SACES, *Independent estimates of the WACC for SAPN: Report commissioned by the SACOSS*, January 2015, pp. 13–14.

[223] AGL, *SAPN regulatory proposal July 2015 to June 2010*, 30 January 2015, p. 14; APVI, *Submission to the AER on the issues paper on SAPN's regulatory proposal*, December 2014, p. 5; ECC, *Submission concerning the TransGrid revised revenue proposal 2014–19*, 3 February 2015; ECC, *Submission concerning the NSW distribution networks revised revenue proposal 2014–19: Submission to the AER*, 11 February 2015, p. 2; ECCSA, *AER SA electricity distribution revenue reset SAPN application: A response*, December 2014, pp. 74–75; EMRF, NSW electricity transmission revenue reset: AER draft decision and TransGrid revised proposal, January 2015, p. 21; EMRF, *NSW electricity transmission revenue reset: AER draft decision and TransGrid revised proposal*, January 2015, p. 23; Hugh Grant (CCP member), *CCP submission AER draft TransGrid determination, TransGrid revised revenue proposal*, 6 February 2015, pp. 12–13; MEU, *Tasmanian electricity transmission revenue reset, AER draft decision and TasNetworks revised proposal: A response*, February 2015, p. 55; QCOSS, Understanding the long term interests of electricity customers: Submission to the AER's Queensland electricity distribution determination 2015-2020, 30 January 2015, pp. 75–76; SACOSS, *Submission to AER on SAPN 2015–2020 regulatory proposal*, January 2015, p. 21; TSBC, *Submission to the AER: TasNetworks transmission revenue reset — Draft determination & revised proposal*, February 2015, p. 32.

[224] For information we consider supports this position, see McKenzie, *Partington, Risk, asset pricing models and WACC*, June 2013, p. 15; Moody's, *Industry outlook: Australian Regulated Utility Networks*, 21 February 2013, p. 8; Standard and Poor's, *Key credit factors: Business and financial risks in the investor–owned utilities industry*, November 2008, p. 8.

[225] We draw our comparator set for estimating the benchmark credit rating from Standard and Poor's industry report cards, with the exclusion of a firm that is government owned (Ergon Energy Corp Ltd.). We set our comparator set out in the return on debt appendix. These credit ratings were updated at the end of the 2014 calendar year.

[226] Data are subject to updates and were last checked 7 April 2015.

periods, BBB/BBB+ for the period 2010–2015 and BBB for the longer averaging periods (2006–2015 to 2009–15).

Table 3-8 Median credit rating—Comparator set of firms

Time period	Median credit rating	Time period	Median credit rating
2015 (to date)	BBB+	2010–2015	BBB/BBB+
2014–2015	BBB+	2009–2015	BBB
2013–2015	BBB+	2008–2015	BBB+/BBB
2012–2015	BBB/BBB+	2007–2015	BBB/BBB+
2011–2015	BBB/BBB+	2006–2015	BBB/BBB+

Source: Bloomberg (S&P), AER analysis.

Further details supporting our reasons are set out in our recent draft decisions.[227]

Use of third party data series

Our final decision is to estimate the return on debt by reference to an independent third party data series. Using third party data series is the same approach we proposed in the Guideline and applied in the draft decisions.[228]

The service provider proposals currently before us all propose using third party data series to estimate the return on debt. This includes the revised proposals before us.[229] This also includes service provider submissions on our draft decisions and service provider proposals for Queensland and SA.[230] In its submission to SAPN's regulatory proposal, the South

[227]   AER, *Draft decision*: *TransGrid transmission determination, Attachment 3*, November 2014, pp. 131–133, 308–316; AER, *Draft decision: Directlink transmission determination, Attachment 3*, November 2014, pp. 126–128, 286–294; AER, *Draft decision: TasNetworks transmission determination, Attachment 3*, November 2014, pp. 127–129, 287–295.

[228]   AER, *Explanatory statement to the rate of return guideline*, December 2013, pp. 126–130; *AER, Draft decision: ActewAGL distribution determination, Attachment 3*, November 2014, p. 11; AER, *Draft decision: Ausgrid distribution determination, Attachment 3*, November 2014, p. 10 ('46'); 10 AER, *Draft decision: Directlink transmission determination, Attachment 3*, November 2014, p. 10; AER, *Draft decision: Endeavour Energy distribution determination, Attachment 3*, November 2014, p. 8; AER, *Draft decision: Essential Energy distribution determination, Attachment 3*, November 2014, p. AER, *Draft decision: TasNetworks transmission determination, Attachment 3*, November 2014, p. 11; AER, *Draft decision: TransGrid transmission determination, Attachment 3*, November 2014, p. 9.

[229]   ActewAGL, *Revised regulatory proposal*, January 2015, p, 428; Ausgrid, *Revised regulatory proposal and preliminary submission*, January 2015, p, 178; Directlink, *Revised revenue proposal*, January 2015, p, 13; Endeavour Energy, *Revised regulatory proposal*, January 2015, p, 200; Essential Energy, *Revised regulatory proposal*, January 2015, p, 219; JGN, *2015–20 access arrangement: Response to the AER's draft decision and revised proposal, Appendix 7.10 — Return on debt response*, February 2015, p. 1; TasNetworks, *Revenue proposal*, May 2014, p. 108; TransGrid, *Revised revenue proposal*, January 2015, p. 116.

[230]   Service provider proposals for Queensland and SA include Energex, *Regulatory proposal*, October 2014, p, 172–173; Ergon Energy, *Regulatory proposal*, October 2014, pp. 144–146; SAPN, *Regulatory proposal*, October 2014, p. 339. JGN

Australian Centre for Economic Studies (SACES) also appeared to support this.[231] We agree with using third party data series to estimate the return on debt.

The CCP and several other consumer groups raised our use of third party data service providers as an issue in several of the current resets.[232] We have regard to these submissions in this final decision. For instance, the CCP recommended using service providers' actual borrowing costs as a reasonableness check and/or using an industry index based on actual borrowing costs.[233] Similarly, in its submission to SAPN's regulatory proposal, the Energy Consumers Coalification of SA (ECCSA) submitted that both available third party yield curves have shortcomings. It also noted MEU's recommendation during the Guideline development process for the AER to develop its own series to replicate the return on debt for a pure play energy network. However, ECCSA accepted our use of third party data series for this review given we have not developed our own data series.[234]

We are satisfied that using a third party data series (or multiple series), appropriately chosen, is commensurate with the efficient debt financing costs of the benchmark efficient entity. It is also consistent with the rule requirement that the change in revenue (resulting from the annual debt update) is effected through the automatic application of a formula that is specified in the determination. This is because:

- A third party data series can be practically applied in the annual debt update process— We discuss this further below.

- A third party data series is independent information developed by finance experts with access to financial datasets—These experts develop this independently from the regulatory process and for the use of market practitioners.

- Using a third party data series also reduces the scope for debate on debt instrument selection and curve fitting—For instance, independent data service providers have already exercised their judgement on bond selection, curve fitting and adjusting yields. However, we still must exercise our regulatory judgement to assess which third party data series (or combination of series) is better suited for contributing to the achievement of the allowed rate of return objective.

- There is no consensus among Australian regulators on the best method to estimate the return on debt—Some regulators use independent third party data series while others use their own data series (with or without it being cross checked against a third party

---

and United Energy proposed this, but considered we should select which service provider to use annually. See JGN, *Submission in relation to the first round of regulatory determinations under the new rules*, 6 February 2015; United Energy, *Submission in relation to the first round of regulatory determinations under the new rules*, 6 February 2015. Ergon Energy proposed this, but considered we should only use RBA data. See Ergon Energy, *Submission on the draft decisions: NSW and ACT distribution determinations 2015–16 to 2018–19*, 13 February 2015.

[231] SACES, *Independent estimates of the WACC for SAPN: Report commissioned by the SACOSS*, January 2015, p. 14.

[232] We are concurrently assessing eight revised regulatory proposals. We are also assessing three regulatory proposals for Queensland and South Australia.

[233] CCP, *Smelling the roses and escaping the rabbit holes: the value of looking at actual outcomes in deciding WACC*, July 2014, pp. 4, 12.

[234] ECCSA, *SA electricity distribution revenue reset: A response*, December 2014, p. 80.

data series).[235] The Australian Competition Tribunal has found both approaches reasonable.[236]

We explain our first reason listed above in more detail here. The NER require that if we apply annual updating (or any other approach that could result in a different return on debt each year), then the change in revenue must be effected through the automatic application of a formula that is specified in the determination.[237] Even if this were not a rule requirement, using a third party data series may be the only practical option to update the return on debt annually. This position is supported by NERA, who advised that:

> …a third party data service provider is essential to allow the return on debt to be updated automatically'.[238]

Alternatives, such as calculating and implementing our own data series, would likely require us to apply a greater element of judgement and involve far greater complexity of calculations. For example, we may need to exercise judgement over whether we should exclude certain bonds as outliers. Consultation on these matters, and the complexity of calculations, would be impractical to achieve during the annual debt update process. The annual debt update we propose is set out below in the section on the averaging period. This process needs to occur relatively quickly and without consultation. Using a third party data series enables this. This is because we can consult on the choice of the data series and any implementation issues (for example, weighting of data series, extrapolation, or interpolation issues) when making the transmission determination. We can then add a formula to the determination and apply it mechanistically during the annual debt update process.

During the Guideline development process, we considered the use of a third party data series, in consultation with stakeholders.[239] Service providers tended to support using a third party data series.[240] While consumer representatives tended to consider we should develop

---

[235] IPART has recently switched from having its own approach to using an independent data service provider (the RBA). The ERA has developed its own bond yield approach and the QCA engaged PwC to develop an econometric approach (and uses the approaches of independent data service providers as a cross check). The ESCV and ESCOSA have been using an independent data service provider (Bloomberg). See IPART, *New approach to estimating the costs of debt: use of the RBA's corporate credit spreads*, February 2014; QCA, *Final decision: Cost of debt estimation methodology*, August 2014, p. ii; ESC, *Price review 2013: Greater metropolitan water businesses - Final decision*, June 2013, p. 108; ESCOSA, *SA Water's water and sewerage revenues 2013/14-2015/16: Final determination statement of* reasons, May 2013, p. 140.

[236] The Tribunal largely upheld the ERA's own bond-yield approach. See Australian Competition Tribunal, *Application by DBNGP (WA) Transmission Pty Ltd (No 3) [2012] ACompT 14*, 26 July 2012, Para 620. Similarly, the Tribunal has endorsed proposals to rely on an independent data service provider alone. See Australian Competition Tribunal, *Application by United Energy Distribution Pty Limited [2012] ACompT 1*, 6 January 2012, para 462.

[237] NER, cl.6A.6.3(l), NER, cl. 6.5.2(l).

[238] NERA, *Return on capital of a regulated electricity network: A report for Ashurst*, May 2014, p. 10.

[239] See AER, *Explanatory statement to the rate of return guideline*, December 2014, pp. 126–130; AER, *Explanatory statement to the rate of return guideline (appendices)*, December 2014, pp. 199–200.

[240] ENA supported using Bloomberg FVC and APA also supported the continued reliance on Bloomberg. ENA, *Response to the draft guideline*, October 2013, p. 56; APA, *Submission to the draft guideline*, October 2013, p. 35.

our own data series.[241] Our final decision is to use a third party data series, in the context of annual updating. This is for the reasons set out above.

Choice of data series

Our final decision on the choice of data series is to adopt a simple average of the debt data series published by the RBA and Bloomberg that match, as close as available, our benchmarks of a BBB+ credit rating and a 10 year debt term. Specifically our final decision is to adopt a simple average of:

- The RBA broad-BBB rated 10 year curve, extrapolated to an effective term of 10 years (the RBA curve)

- The Bloomberg Valuation Service (BVAL) broad-BBB rated curve (the BVAL curve). Depending on the maximum term published at the time, this will be either the BVAL:

    o 10 year estimate.[242]

    o 7 year estimate extrapolated to a 10 year term using the 7–10 year margin from the RBA curve.

    o 5 year estimate extrapolated to a 10 year term using the 5–10 year margin from the RBA curve.

This is consistent with the position we adopted in the draft decision.

It is also consistent with the approach we proposed in the Guideline to use one or more third party data series to estimate the return on debt.[243] At that time, however, we had not formed a view on which data series to use. Our April 2014 issues paper outlined how we would make this choice and sought submissions from stakeholders. In our November 2014 draft decision we formed a position on which data series to use, and set out our reasons for this position. Our position was informed by reports we commissioned from Dr Martin Lally and the ACCC/AER Regulatory Economic Unit, which we published with the draft decision.

In response to our draft decision, the most common position among service providers was to support a simple average of the RBA and BVAL curves in all or most circumstances:

- TasNetworks[244] and Directlink[245] agreed with our draft decision. In a separate regulatory process, SAPN and Energex also supported using a simple average of the RBA and BVAL curves.[246]

---

[241] PIAC, *Submission to the draft guideline*, October 2013, pp. 45–46; MEU, *Comments on the draft guideline*, October 2013, pp. 29–33; EUAA, *Submission to the draft guideline*, October 2013, p. 6. COSBOA, *Comments– draft guideline*, October 2013, p. 4.

[242] As of 14 April 2015, Bloomberg has revised its methodology for the BVAL curve (BVCSAB10). It has correspondingly recommended publishing a 10 year yield estimate. Therefore, in line with our specified contingencies in the draft decision and this final decision, we will adopt this curve where it is available. As Bloomberg has not backcast the updated curve methodology, we will apply the previous methodology as per the draft decision to estimate the annual cost of debt for 2014–15 and 2015–16.

[243] AER, *Explanatory statement—Rate of return guideline*, December 2013, pp. 23–4.

[244] TasNetworks, *Revised revenue proposal*, January 2015, p. 1.

- TransGrid largely adopted our draft decision, but proposed to use only the RBA curve where the BVAL curve was only available for terms less than the 7 year mark[247]

- JGN supported using a simple average of the RBA and BVAL curves where the difference between them was not 'a material divergence' (which it considered to be 60 basis points), but not necessarily when the difference was greater than 60 basis points.

- The Ausgrid, Endeavour Energy and Essential Energy did not adopt our draft decision, and maintained their initial proposal to use only the RBA curve. In a separate regulatory process, Ergon Energy proposed to adopt only the RBA curve.[248]

We are satisfied that a simple average of the two curves will result in a return on debt that contributes to achievement of the allowed rate of return objective. This is because:

- Based on analysis of the bond selection criteria, we are not satisfied that either curve is clearly superior to the other.

- Based on analysis of the curve fitting (or averaging) methodologies, we are not satisfied that either curve is clearly superior to the other.

- Both curves require adjustments from their published form to make them suitable,[249] and we are not satisfied that either can be more simply or reliably used for estimation of the annual return on debt.

- A simple average is consistent with expert advice from Dr Lally that we adopt a simple average of the BVAL curve and the RBA curve,[250] subject to the necessary adjustments to each curve. In particular, Lally concluded that based on analysis of the curves, it was reasonably likely that a simple average of the two curves would produce an estimator with a lower mean squared error (MSE) than using either curve in isolation. Lally also noted 'on the question of which index better reflects the cost of debt for the efficient benchmark entity, there is no clear winner'.[251]

- The two curves have regularly produced substantially different results at particular points in time. While we are not satisfied that either curve is clearly superior, this suggests that it may not be appropriate to simply select one curve or the other.

- A simple average of two curves, in these circumstances, is consistent with the Tribunal's decision in the ActewAGL matter where the Tribunal concluded that:

---

[245] Directlink, *Revised revenue proposal*, January 2015, p. 12.

[246] The Energex proposed to use only the RBA curve in its initial proposal. However, in a later submission, after considering our position and reasons in the November 2014 draft decision they were also supportive of using a simple average of the RBA and BVAL curves. See: SAPN, *Regulatory proposal*, November 2014, p. 339. Energex, *Response to AER Issues Paper – Qld electricity distribution regulatory proposals*, January 2015, p. 24.

[247] TransGrid, *Revised revenue proposal*, January 2015, p. 118.

[248] Ergon Energy, *Regulatory proposal*, October 2014, p. 124.

[249] As of 14 April 2015, Bloomberg has revised its methodology for the BVAL curve (BVCSAB10). It has correspondingly recommended publishing a 10 year yield estimate. Therefore, in applying this curve it only requires an adjustment to convert it into an effective annual rate, as set out in the formula for automatic application.

[250] Lally, *Implementation issues for the cost of debt*, November 2014, p.3.

[251] Lally, *Implementation issues for the cost of debt*, November 2014, p. 5.

> …if the AER cannot find a basis upon which to distinguish between the published curves, it is appropriate to average the yields provided by each curve, so long as the published curves are widely used and market respected.[252]

- A simple average of the two curves will reduce the likely price shock if either curve becomes unavailable or produces erroneous estimates during the period.

In the draft decision, we explained each of these reasons in more detail.

Response to key issues raised by stakeholders

In its revised proposal, TransGrid largely adopted our draft decision.[253] However, TransGrid proposed that where the 7 year BVAL curve is not available, we should adopt 100 per cent weight on the RBA curve. TransGrid submitted a report from HoustonKemp that, among other rate of return matters, recommended this approach. We are not persuaded by TransGrid's or Houston Kemp's reasons for this approach.

Where the maximum BVAL estimate is 7 years, we extrapolate the BVAL curve from 7 to 10 years using the 7–10 year margin from the RBA curve. We then average this extrapolated estimate with the 10 year RBA estimate., Where the 7 year BVAL estimate is not available, our final decision is to extrapolate the 5 year BVAL estimate to 10 years using the 5–10 year margin from the RBA curve. Compared to extrapolating from 7 years, this gives the RBA approach greater weight, but retains some weight on the BVAL curve. In contrast, TransGrid's proposed approach would place zero weight on the RBA curve in these circumstances. Based on our assessment of the strengths and weaknesses of the two series, we remain satisfied that the combination of two curves will result in a return on debt that contributes to achievement of the allowed rate of return objective. We also note that as of April 2015, BVAL has recommenced publishing a 10 year estimate. Accordingly, TransGrid's concern about extrapolating 5 year BVAL data does not currently arise and only applies to a small period of historical data..

In contrast, Ausgrid, Endeavour and Essential did not adopt our draft decision. They maintained instead their proposal to place 100 per cent reliance on the RBA curve.[254] The revised proposals by these service providers did not engage with the reasons we set out in our draft decision for adopting a simple average, nor did the revised proposals include substantive new analysis supporting using only the RBA curve. We therefore are not satisfied that their proposed approach as set out in the initial and revised proposals will result in a return on debt that contributes to achievement of the allowed rate of return objective.

---

[252] In this decision, the issue before the Australian Competition Tribunal was the choice between the Bloomberg BFVC and the CBASpectrum curve, neither of which are currently published. See: *Application by ActewAGL Distribution [2010] ACompT4*, 17 September 2010, paragraph 78.

[253] TransGrid, *Revised revenue proposal*, January 2015, p. 118.

[254] Ausgrid, *Revised revenue proposal*, January 2015, p.

In its revised proposal, JGN supported using a simple average of the two curves where the difference between them was not substantial (less than 60 basis points), but when the difference was greater than 60 basis points JGN proposed to adopt the RBA, BVAL or simple average of the curves (or some other curve or average of curves that become available) based a line of best fit exercise against a sample of bonds chosen using particular bond selection criteria.[255] We will assess JGN's proposed methodology in its final decision, to be released in late May 2015.

Also, in submissions on the draft determinations for the NSW and ACT distribution service providers:

- Ergon Energy submitted that the inclusion of the BVAL curve created unnecessary complexity.[256] However, we are not satisfied that the use of the second curve is substantially more complex. For the reasons set out above, we are satisfied that an average of the two curves will result in a return on debt that would contribute to achievement of the allowed rate of return objective.

- Jemena and United Energy submitted that the selection of appropriate bond curves should be formulaically re-tested each year against a sample of bonds.[257] This is consistent with the proposal by JGN which we discuss above. Further, the service providers submitted that the Tribunal required the AER to compare the past performance of any third party data source against bond data. However, the Australian Competition Tribunal only identified such a test as a way the AER 'is able to' compare the data sources.[258] We are not persuaded that the Australian Competition Tribunal decision referred to by Jemena and United Energy implies this is required or even necessary. For the reasons set out in our draft determination,[259] we are not satisfied that testing the past performance of curves is a reliable indicator of future curve performance. In contrast, we have assessed in detail the underlying characteristics and differences between the curves in reaching our decision.

Choice of data series—Extrapolation and interpolation issues

Our final decision on extrapolation and interpolation issues is to maintain the approach set out in our draft decision. This refers to:

- extrapolation—where we need to extend a curve beyond its observed or published range. For example, before April 2015, Bloomberg publishes its BVAL curve to a maximum term of 7 years, whereas we require an estimate for a 10 year term.

---

[255] JGN, *Return on debt response*, February 2015, p. 17.

[256] Ergon Energy, *Submissions on the draft decisions: NSW and ACT distribution determinations 2015–16 to 2018–19*, February 2015, p. 17.

[257] Jemena, *Submission in relation to the first round of regulatory determinations under the new rules*, February 2015, p. 8; United Energy, *Submission in relation to the first round of regulatory determinations under the new rules*, February 2015, p. 8.

[258] Australian Competition Tribunal, *Application by ActewAGL Distribution [2010] ACompT 4*, September 2010, paragraph 77.

[259] AER, *Draft decision: TransGrid transmission determination, Attachment 3: Rate of return*, November 2014, p. 9, 144–145.

- Interpolation—where we need a value for which there is no published estimate but it lies between two published estimates. For example, the RBA only publishes its curve estimates for one day each month, but we require estimates for each business day.

Specifically, we will make the following adjustments as set out in Table 3-9 and Table 3-10. The impact of these adjustments is set out in Figure 3.4 and Figure 3.5.

Table 3-9   Adjustments to the RBA curve

Adjustment Type	Amendment made?	Comments
Interpolation to construct daily estimates.	Yes	The RBA curve only provides an estimate for one business day at the end of each month. In our experience, averaging periods commonly start and/or end on dates during the month. We will address this issue by linearly interpolating between month end values where possible. While we are satisfied that interpolation over business days is also reasonable, we will interpolate over all days because: • this is consistent with our widely accepted approach to interpolate estimates of the risk free rate using CGS • interpolating over all days is simpler to implement • it is impractical to interpolate over business days for estimating the risk free rate, as this would require calculations relative to specific trading days 10 years in advance • the difference to the estimates between interpolating over business days or interpolating over all days is immaterial.[260] Where this is not practical due to timing, we will hold the last available RBA monthly estimate constant until the end of the averaging period. It would not be practical to linearly interpolate between two RBA monthly estimates where the allowed return on debt must be estimated and incorporated into the annual debt update process before the publication of the next RBA monthly estimate after the end of the averaging period. Our final decision on the annual debt update process is set out in the annual debt update process later in this attachment.
Extrapolation to target term.	Yes	The 'effective term' of the RBA bond sample is commonly less than 10 years. For this reason, Lally recommended that the spread component of the yield should be extrapolated from its effective term at publication to the benchmark term (10 years).[261] We agree with Lally's recommendation to extrapolate the spread component of the RBA's published yield in order to match it with the benchmark term of debt. However, we do not agree it is necessary to extrapolate the base component. As identified by the RBA and Lally,[262] the base component of the published 10 year yield already matches the benchmark term of debt. Therefore, extrapolating this component would result would be erroneous and lead to overcompensation in most circumstances, where the yield curve

---

[260] For example, the difference between approaches over the 2-June 2014 to 30-June 2014 indicative averaging period is 0.22 basis points, or 0.0022 per cent.

[261] Lally, *Implementation issues for the cost of debt*, November 2014, pp. 38-44.

[262] See the 'notes' tab in RBA, *Aggregate measures of Australia corporate bond spreads and yields*, available at: http://www.rba.gov.au/statistics/tables/xls/f03hist.xls; Lally, *Implementation issues for the cost of debt*, November 2014, pp. 38-44.

Adjustment Type	Amendment made?	Comments
		is upward sloping.
		Further, while the benchmark term of debt is 10 years, this benchmark was based on analysis of debt issuance that indicated a weighted average of 8.7 years amongst the benchmark sample.[263] Our benchmark sample consisted of service providers that were comparable to our definition of the benchmark efficient entity. We were therefore satisfied the average term at issuance for this sample was reflective of efficient financing costs. Similarly, from its earliest available publication to February 2015, the average effective term of the RBA's bond sample for its 10 year estimate is also 8.7 years.[264] We recognise that the effective term of the RBA's sample may change each month. In some months, the effective term may be above or below its long term average. However, the long term average effective term to maturity is similar to the average term at issuance of our underlying benchmark sample. Therefore, while this average effective term is less than our stated benchmark term, it is consistent with the evidence of efficient financing practices that the benchmark term was based on. As such, extrapolation to match the benchmark term may result in overcompensation on average compared to the efficient financing costs of the benchmark efficient entity. In this final decision, we have maintained our draft decision position. However, we may revisit this in in future decisions or the next Guideline review.
Conversion to effective annual rate	Yes	The RBA's published methodology does not explicitly specify whether the published yields should be interpreted as effective annual rates. Effective annual rates are a consistent basis on which to compare bond rates and imply that the coupon payments compound during the year. We therefore consulted the RBA, who informed us that 'the spreads and yields in F3 can be best thought of as annual rates with semi-annual compounding'.[265] Therefore, this would require conversion into an effective annual rate, using the same approach as is applied to the BVAL yield estimate.
		However, we understand that the bonds in the RBA's sample are a mix of bonds with annual, semi-annual, and quarterly coupon frequencies. At this stage, there remains some uncertainty whether in all cases the bond yields and credit spreads are converted into comparable terms (i.e., annual rates with semi-annual compounding) prior to combining them into the published credit spread estimates for the target tenors (such as 7 and 10 year estimates in table F3). We may further investigate this issue in the future. The materiality of this issue is also currently unclear.

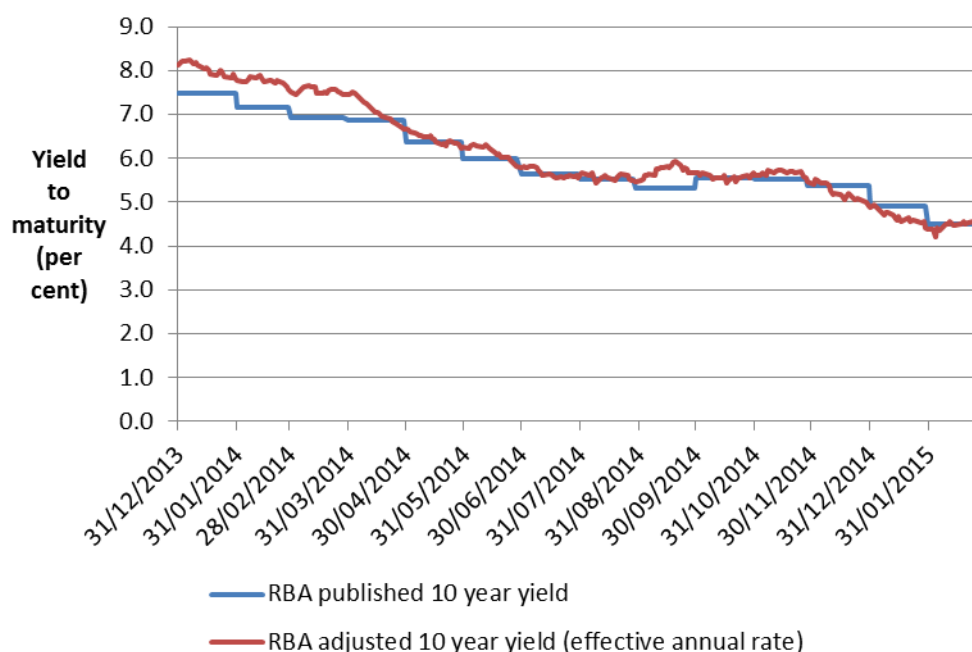Source: AER analysis

---

[263] AER, *Rate of return guideline—Explanatory statement*, December 2013, p. 136.

[264] RBA, *Aggregate measures of Australia corporate bond spreads and yields*, available at: http://www.rba.gov.au/statistics/tables/xls/f03hist.xls.

[265] RBA, *Email in response to: AER follow up question on the basis of YTM quotations in RBA statistical table F3*, 16 October 2014.

Figure 3.4 Impact of adjustments to the published 10 year RBA yields

Source: AER analysis, RBA

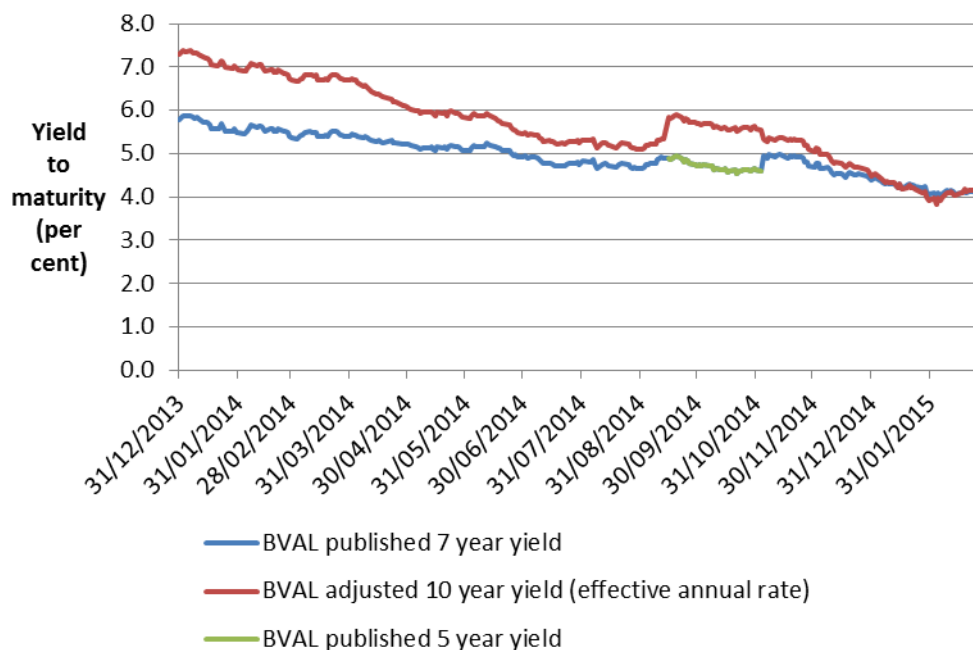## Table 3-10 Adjustments to the BVAL curve

Adjustment Type	Amendment made?	Comments
Interpolation to construct daily estimates	No	Bloomberg publishes daily estimates.
Extrapolation to target term	Depends on maximum term published by Bloomberg	For most of the time that the BVAL curve has been published, it has had a maximum term of 7 years. However, between September 2014 and November 2014, it was published to a maximum 5 year term.[266] In April 2015, Bloomberg revised its methodology for the BVAL curve (BVCSAB10) and it now publishes a 10 year estimate.[267] For the periods where 7 years is the maximum term, we extrapolate the spread component of the 7 year yield estimate to the 10 year target term. We have done so using the margin between the spread components of the extrapolated RBA 7 and 10 year yield estimates, converted to effective annual rates. We add to this extrapolation the difference between the base CGS estimates from 7 to 10 years. That is: BVAL yield 10 years = BVAL yield 7 years + difference in CGS from 7 to 10 years + difference in RBA extrapolated spread to

---

[266] Specifically, from 15 September 2014 to 3 November 2014.
[267] Specifically, 14 April 2015.

Adjustment Type	Amendment made?	Comments
		CGS from 7 to 10 years
		As recommended by Lally,[268] we are satisfied this approach is comparably reliable to the more complex approaches submitted by other stakeholders,[269] but is simpler to implement and based on publicly available data.
		For a period of time in 2014, the maximum published BVAL term was 5 years. Accordingly, we extrapolate the spread component of the 5 year yield estimate to the 10 year target term using an analogous methodology to that used to extrapolate from 7 to 10 years.
		Additionally, as of 14 April 2015, Bloomberg has revised its methodology for the BVAL curve (BVCSAB10). It has correspondingly recommended publishing a 10 year yield estimate. Therefore, in line with our specified contingencies in this decision, we will adopt this curve where it is available. As Bloomberg has not backcast the updated curve methodology, we will apply the previous methodology as per the draft decision to estimate the annual cost of debt for 2014¬–15 and 2015–16.
Conversion to effective annual rate	Yes	Bloomberg publishes its yield as annual rates with semi-annual compounding. This needs to be converted into an effective annual rate.

Figure 3.5   Impact of adjustments to the published 7 and 5 year BVAL yields

Source: AER Analysis, Bloomberg.

---

[268]   Lally, *Implementation issues for the cost of debt*, November 2014, pp. 38–44.
[269]   Incenta, *Methodology for extrapolating the debt risk premium*, June 2014, pp. 2–3.

Our extrapolation and interpolation approaches are consistent with the draft decision. Our position on these matters appears to be relatively non-contentious. None of the service providers who have recently submitted revised proposals identified problems with the AER's extrapolation or interpolation approach. We are also not aware of any submissions from consumer representatives commenting on these matters.

In contrast, in a separate regulatory process, the Queensland and South Australian service providers proposed alternative extrapolation methodologies to the approach set out in our draft decision. Generally, these approaches were regression based and also incorporated yield information from curve points with shorter terms to maturity. For the reasons set out in the preliminary determinations for these service providers, we are not persuaded that these approaches will better contribute to a return on debt that is commensurate with the efficient debt financing costs of the benchmark efficient entity. In particular, we are not satisfied that there is a compelling conceptual or practical basis to assume that yield curves should conform to a straight line along their entire length. In contrast, our approach relies only on the shape of the yield curve from 7 to 10 years as published by the RBA. We are satisfied that this is likely to be informative about the appropriate shape for the yield curve from 7 to 10 years. Therefore, we have adopted the same position in those preliminary determinations as adopted in this decision.

Overall, we remain satisfied that our extrapolation and interpolation approaches will result in a return on debt that is commensurate with the allowed rate of return objective.

Choice of data series—Contingencies

Our final decision is to largely maintain the set of contingencies as set out in our draft decision. We have for two contingencies expanded the definition for more general contingency scenarios. Specifically, the contingencies now address any expansion or reduction of the longest available BVAL term, where in the draft decision they addressed changes to a 5 year term, less than 5 year term or a 10 year term.

Service providers appear to have accepted the contingencies from our draft decision in full, with the exception of TransGrid. We are also not aware of any submissions from consumer representatives commenting on these matters.

TransGrid proposed only to use the RBA curve to estimate the return on debt where the 7 year BVAL curve is not available.[270] For the reasons set out in a previous section above, we are not persuaded by this component of TransGrid's revised proposal.

As identified in the draft decision, we have made our final decision based on the information and third party data that is currently available.[271] Nonetheless, in our experience it is

---

[270] TransGrid, *Revised revenue proposal*, January 2015, p. 118.

[271] As of 14 April 2015, Bloomberg has revised its methodology for the BVAL curve (BVCSAB10). It has correspondingly recommended publishing a 10 year yield estimate. Therefore, in line with our specified contingencies in this decision, we will adopt this curve where it is available. As Bloomberg has not backcast the updated curve methodology, we will apply the previous methodology as per the draft decision to estimate the annual cost of debt for 2014¬–15 and 2015–16.

common that the availability of third party data changes. Our final decision is to annually update the trailing average portfolio return on debt. Under the NER,[272] the change in revenue resulting from the annual update must occur by automatic application of a formula that is specified in the decision. This means that our decision on how to apply these third party data sources must be fully specified upfront in the determination, and must be capable of application over the regulatory control period without the use of subsequent judgement or discretion. For this reason, we have set out a series of contingencies in Table 3-11, below. These describe how we propose to estimate the annual return on debt in the event of revisions in the RBA's or Bloomberg's methodologies or other changes to data availability.

Table 3-11 Contingency approaches to choice of data series

Event	Changes to approach
Either the RBA or Bloomberg ceases publication of Australian yield curves that reflect a broad BBB rating.	We will estimate the annual return on debt using the remaining curve.
A different third party commences publication of a 10 year yield estimate.	We will not apply estimates from a third party data provider that we have not evaluated and included in our final decision approach. We will consider any new data sources in future determinations.
Either Bloomberg or RBA substitutes its current methodology for a revised or updated methodology.	We will adopt the revised or updated methodology. Then, at the next regulatory determination, we will review this updated methodology. As noted above, we would also review any new data sources.
Bloomberg reduces the maximum published BVAL term from 7 years	If Bloomberg still publishes the BVAL curve to 5 or more years, we will extrapolate the BVAL curve from the longest published term using the 5 to 10 year yield margin from the RBA curve. We have adopted this approach for the period from 15 September 2014 to 3 November 2014 where the 7 year BVAL curve was unavailable. If Bloomberg no longer publishes the BVAL curve to 5 years, we will rely entirely on the RBA curve.
The RBA ceases publication of a 10 year yield estimate.	If the RBA ceases publication of a 10 year yield estimate, we will extrapolate the RBA estimate to 10 years using: • if available, the margin between spreads in the Bloomberg curve,[273] from the RBA's longest published effective term to 10 years • otherwise, the actual CGS margin from the RBA's longest published estimate to 10 years, plus the average DRP spread for the same term margin over the last month prior to the end of its publication.
Bloomberg increases the maximum published BVAL term from 7 years.	If the longest published term is between 7–10 years, we will extrapolate it to a 10 year term using the corresponding margin from the RBA curve. If the longest term is 10 or more years, we will apply the 10 year BVAL curve un-extrapolated, but still adjusted to be an effective annual rate.
The RBA commences publication of daily estimates.	We will cease interpolating the RBA monthly yields. Instead, we will estimate both the RBA yield and the RBA year extrapolation margin (used with the BVAL curve) using these daily estimates.

---

[272] NER, cl. 6A.6.2(l), NER, cl. 6.5.2(l).
[273] Specifically, the spread to CGS.

Event	Changes to approach
Either Bloomberg or the RBA publishes a BBB+ or utilities specific yield curve.	We will adopt the BBB+ or utilities curve in place of the provider's existing curve, on the basis that it is a closer fit to our benchmark efficient entity.

Source: AER analysis

In general, we have decided on these contingencies based on a series of guiding principles. These are that the contingency must:

- Be practically implementable—the rules require the automatic application of a formula to update the trailing average portfolio return on debt. As a result, we will be unable to analyse changes to the approaches or new approaches during the regulatory control period. Therefore, it is important that any contingency be practical and easily implementable.

- Use the curve in a form as close as possible to its published form—for example, in April 2015 Bloomberg commenced publication of a 10 year BVAL curve. Accordingly, for averaging periods where the 10 year estimate is available, we will adopt this estimate rather than the 7 year BVAL curve extrapolated with RBA data.

- Where necessary, rely on the independent expert judgement of the RBA and Bloomberg—in particular, where the RBA or Bloomberg makes changes to its methodology, we would prefer to evaluate these changes before concluding we are satisfied the curve still meets the criteria set out in the Guideline.[274] However, this is not possible during the regulatory control period. In these circumstances, we therefore are faced with the two alternatives of ceasing to rely on the updated curve, or temporarily relying on the updated curve on the basis that we have assessed the data provider as credible. As we are satisfied that both the RBA and Bloomberg are credible and independent, but not that either curve is clearly superior, we consider it is preferable that we adopt the updated curve to limit stakeholders' exposure to the distinct characteristics of a single curve. This is consistent with our position of placing weight on both curves to minimise the mean squared error.

Averaging periods

Our final decision is to accept Directlink's proposed debt averaging periods for 2015–16 to 2019–20, consistent with our draft decision.

In assessing Directlink's averaging periods, we applied the approach in the Guideline.[275] In the Guideline, we proposed that service providers could nominate averaging periods of between 10 business days and 12 months. We also proposed that an averaging period should satisfy certain conditions. We developed these conditions so that the application of the averaging period contributes to the achievement of the rate of return objective.

---

[274]   AER, *Explanatory statement−Rate of return guideline*, December 2013, pp. 23–24.
[275]   AER, *Rate of return guideline*, December 2013, pp. 21–22.

Table 3-12 sets out why we consider an averaging period that meets these conditions contributes to the achievement of the rate of return objective. Our detailed assessment is set out in confidential appendix I on the rate of return averaging periods.

Table 3-12 AER final decision—Assessment of Directlink's averaging periods

Condition in the Guideline	Reasons for condition	Condition met?
Observed over a period of 10 or more consecutive business days up to a maximum of 12 months	Averaging daily estimates over at least 10 days smooths out short term volatility in the annually updated return on debt allowance. Allowing service providers to nominate averaging periods up to 12 months provides service providers with a degree of flexibility over how they manage their financing arrangements.	Yes
It should be specified prior to the commencement of the regulatory control period.	This allows us to substantively assess the service provider's proposal during the transmission determination process. This avoids the practical difficulties with either (1) creating a new process during the regulatory control period for approving averaging period proposals or (2) assessing averaging period proposals during the annual pricing process, which is meant to be a compliance check that takes place over a short time frame.	Yes
At the time it is nominated, all dates in the averaging period must take place in the future.	If a regulated service provider can select an averaging period by looking at historical yields, it may introduce an upward bias because the service provider would be able to observe the historical data and select the time period that results in the highest estimates.[276]	Yes
It should be as close as practical to the commencement of each regulatory year in a regulatory control period.	An averaging period at the start of the regulatory year would better reflect the return on debt for that period. However, to be capable of being practically applied, the period must typically end somewhat before this date to allow us to complete our regulatory tasks such as modelling and pricing compliance. It also allows sufficient time to complete our quality assurance checks on the calculations.	Yes
An averaging period needs to be specified for each regulatory year within a regulatory control period.	This allows for the annual debt update. The annual debt update reduces the potential for a mismatch between the allowed and actual return on debt for the benchmark efficient entity.	Yes

---

[276] Lally, *Expert Report of Martin Thomas Lally*, 13 February 2011, pp. 9–10.

Condition in the Guideline	Reasons for condition	Condition met?
The proposed averaging periods for different regulatory years are not required to be identical but should not overlap.	This avoids double counting averaging periods. This would detract from our specification of the trailing average, which weights periods equally. Not requiring periods to be identical helps preserve confidentiality and provide service providers with a degree of flexibility over how they manage their financing arrangements.	Yes
The nominal return on debt is to be updated annually using the agreed averaging period for the relevant regulatory year.	This prevents a service provider from introducing bias by only updating annually using the agreed averaging period when it is advantageous for it to do so.	Yes
Each agreed averaging period is to be confidential.	This facilitates service providers organising their financing arrangements without market participants being aware of the averaging periods. Accordingly, in practice we keep averaging periods confidential until they expire.	Yes

Source: AER, *Rate of return guideline*, December 2013, pp. 21–22; AER analysis.

Annual debt update process

One of the conditions we proposed in the Guideline is that the averaging period should be, 'as close as practical to the commencement of each regulatory year'.[277] We considered how the process to annually update the return on debt would align with the publication of transmission prices. The timing of publishing transmission prices affects how late an averaging period can end and still be implemented in practice.

Table 3-13 outlines the general process we propose to adopt for the annual debt update for transmission network service provider (TNSPs). This is the same process we proposed in the draft decision. When we put this forward, we encouraged submissions from stakeholders on this process, including from TNSPs with future revenue determinations.[278] Since we did not receive any comments on this process, we are satisfied with maintaining this process in this final decision.

Our assessment of the proposed averaging periods for TNSPs with current revised revenue proposals (including Directlink) has taken this process into account. We also propose to adopt this process for assessing the proposed averaging periods of other TNSPs in the future.

---

[277] AER, *Rate of return guideline*, December 2013, p. 21.

[278] See for example, AER, *Draft decision, Directlink transmission determination, Attachment 3*, November 2014, p. 154.

Table 3-13   Annual transmission debt update process

Step	Timing	Description of step	Reasons for timing
1	25 business days before transmission prices are published.	Averaging period ends on or before this date	We determine the maximum practical end date of the averaging period from the timing of steps 2 and 3.
2	10 business days before transmission prices are published.	So the TNSP can factor this its transmission prices, we inform it of updates on the return on debt, annual building block revenue requirement and X factor that incorporates the updated return on debt	15 business days between steps 1 and 2 provides sufficient time for us to calculate (and provide quality assurance checks on) the updated return on debt, revenue and X factor.
3	Transmission prices published on the date determined by the rules	The TNSP publishes transmission prices for the relevant year.	10 business days between steps 2 and 3 is based on a service provider's advice regarding the minimum period it would require to factor the updated information into its prices. We are open to individual TNSPs requiring a longer period (or requesting a shorter period) to accommodate their internal processes.[279]

Source: AER analysis.

The process outlined in Table 3-13 does not apply to the first regulatory year. This is because in the transmission determination, X factors will already incorporate the return on debt for 2015–16. Therefore, this process will generally apply to the subsequent years of a regulatory control period.

In Table 3-13, we propose calculating the return on debt, annual building block revenue requirement and X factor in accordance with the formula in the transmission determination. We propose informing the TNSP of these calculations annually. An alternative option would be for us to check the calculations the TNSP performs annually at some later date. However, our proposed process will provide us and the relevant TNSP certainty each year on the return on debt calculations that result from the application of the formula specified in the TNSP's transmission determination.

---

[279]   A longer (or shorter) time period would move back (or forward) the maximum practical end date of the averaging period by the same timeframe.

The above process factors in the date that the NER require transmission prices to be published. The AEMC has recently made a rule determination that, among other matters, affects this date:[280]

- From 2017— transmission prices will be required to be published by 15 March each year.[281]

- Before 2017—transitional arrangements will apply that maintain the current date transmission prices are required to be published, which is by 15 May each year.[282]

3.4.2 Gearing

Our final decision is to adopt a 60 per cent gearing ratio. A 60 per cent gearing ratio is the same as the gearing ratio we proposed in the Guideline and adopted in the draft decision.

In the revised proposals currently before us, service providers proposed a 60 per cent gearing ratio.[283] We agree with that component of those proposals. The consumer challenge panel submitted that while the benchmark gearing is 60 per cent, 'in practice gearing is typically above 70 per cent'.[284]

We are satisfied that a 60 per cent gearing ratio is commensurate with the efficient financing costs of a benchmark efficient entity. This is because a 60 per cent gearing ratio is supported by the industry average of a sample of firms that are comparable to the benchmark efficient entity.

Gearing is defined as the ratio of the value of debt to total capital (that is, debt and equity). There are benefits in using debt to fund investment. Debt is usually cheaper than equity and the use of debt also has tax advantages because borrowing costs are tax deductible. However, increased use of debt also increases the possibility that a business will experience financial distress, and in the worst case, bankruptcy. In theory, the optimal debt to equity ratio is the point at which business value is maximised, where the marginal benefits just offset the marginal cost of debt. While an optimal capital structure theoretically exists, the actual optimal value of debt and equity for any given business is dynamic and dependent on a number of business specific factors. Because of this uncertainty around the theoretically optimal gearing ratio, we primary rely on the average of a sample of firms that are comparable to the benchmark efficient entity. In other words, we assume that the industry is,

---

[280] AEMC, *Distribution network pricing arrangements, rule determination*, 27 November 2014.

[281] In Victoria, transmission prices will continue to be published by 15 May. This is because the pricing process in Victoria operates on calendar years, rather than financial years. See AEMC, *Distribution network pricing arrangements, rule determination*, 27 November 2014.

[282] AEMC, *Distribution network pricing arrangements, rule determination*, 27 November 2014.

[283] ActewAGL, *Revised regulatory proposal*, January 2015, p. 426; Ausgrid, *Revised regulatory proposal and preliminary submission*, January 2015, p. 177; Directlink, *Revised revenue proposal*, January 2015, p. 11; Endeavour Energy, *Revised regulatory proposal*, January 2015, p. 72; Essential Energy, *Revised regulatory proposal*, January 2015, p. 218; JGN, *2015–20 access arrangement: Response to the AER's draft decision & revised proposal*, February 2015, p. 100. TasNetworks accepted our draft decision. See TasNetworks, *Tasmanian revised transmission revenue proposal*, January 2015, p. 5. TransGrid did not propose a different gearing ratio. See TransGrid, *Revised revenue proposal*, January 2015.

[284] Consumer challenge panel, *CCP1 submission to the AER re: the NSW DNSPs: Jam tomorrow?*, August 2014, p. 5.

on average, efficient and therefore use the industry average to guide our regulatory benchmark.

We consider that the empirical evidence supports a gearing of 60 per cent. Average gearing levels from the 2009 WACC review are presented in Table 3-14as are the Bloomberg market valuations using the more recent data and Standard and Poor's book valuations. We observe that the average level of gearing across the four different approaches has a range of 59 to 66 per cent. Accordingly, we propose to maintain the currently adopted benchmark efficient level of gearing of 60 per cent.

Table 3-14   Average gearing ratio—Comparator set of firms

Year	2009 WACC review 2002–2007a	Bloomberg (market value) 2002–2012b (full sample)	Bloomberg (market value) 2002–2012 (refined sample)c	Standard and Poor's (book value) 2008–2012d
2002	65.1	54.5	65.8	N/A
2003	64.8	51.8	60.5	N/A
2004	61.7	51.2	55.1	N/A
2005	64.6	51.2	62.6	N/A
2006	63.0	56.6	61.9	N/A
2007	60.5	57.6	57.6	N/A
2008	N/A	68.3	68.3	70
2009	N/A	68.8	68.8	69
2010	N/A	65.5	65.5	66
2011	N/A	63.2	63.2	62
2012	N/A	60.6	60.6	65
Average	63.3	59.0	63.1	66

Source: AER analysis.

Notes: (a) AER, Final decision: Electricity transmission and distribution network service providers: Review of the weighted average cost of capital (WACC) parameters, 1 May 2009, p. 124

(b) Analysis including full sample of businesses

(c) AGL, Alinta and GasNet excluded from the analysis

(d) ERA, Explanatory statement for the draft rate of return guidelines, 6 August 2013, p. 49.

The benchmark gearing ratio is used:

- to weight the expected required return on debt and equity to derive a WACC

- to re-lever the asset betas for the purposes of comparing the levels of systematic risk across businesses, and

- as a factor in estimating the benchmark credit rating[285]

3.4.3 Expected inflation rate

Our expected inflation rate forecast is set out in Table 3-15. We base our approach on an average of the Reserve Bank of Australia's (RBA) short term inflation forecasts and the mid-point of the RBA's inflation targeting band. This method is consistent with what we have previously adopted.

Table 3-15 AER inflation forecast (per cent)

Forecast inflation	2015–16	2016–17	2017–18 to 2024–25	Geometric average
Directlink's proposal	2.5	2.5	2.5	2.50 [a]
Draft decision update	3.0 [b]	2.5	2.5	2.55
AER final decision	2.75 [c]	2.75 [c]	2.5	2.55

Source: RBA, *Statement on Monetary Policy*, November 2014, p. 61; RBA, *Statement on Monetary Policy*, February 2015, p. 71.

(a)   Directlink adopted the 2.5% forecast inflation rate applied by the AER in the TransGrid and Transend transitional decision of March 2014.

(b)   In November 2014, the RBA published a range of 2.5–3.5 per cent for its June 2016 CPI inflation forecast. We select the mid-points from this range.

(c)   In February 2015, the RBA published a range of 2.25–3.25 per cent and a range of 2.25–3.25 per cent for its June 2016 and June 2017 CPI inflation forecasts respectively. Where the RBA published ranges, we select the mid-points.

In the draft decision, we were satisfied with Directlink's proposed method for forecasting inflation. In its revised revenue proposal, Directlink accepted our draft decision forecast inflation rate.[286] For the draft decision, we applied a forecast inflation rate of 2.55 per cent. We based this on the method consistent with what we have previously adopted. We also stated that we expected the RBA to publish a more recent inflation forecast before the final decision; which we would use to update the expected inflation rate for the final decision.[287]

---

[285]   That is, if a service provider had a gearing ratio that was significantly different to the benchmark gearing ratio, then we would consider any implications of this for including that service provider within the sample used to estimate the industry median credit rating.

[286]   Directlink, *Revised Revenue Proposal*, January 2015, p. 13.

[287]   AER, *Draft decision Directlink transmission determination* 2015-16 to 2019-20*, Attachment 3 Rate of return*, November 2014, p. 157.

We have since updated the forecast inflation rate in line with the most recent RBA forecasts, which result in an inflation forecast of 2.55 per cent per annum.

A   Return on debt implementation

In attachment 3 we set out our positions and key reasons on return on debt implementation. In this appendix, we respond to consumer groups' submissions of on the benchmark credit rating and our use of a third party data series to calculate Directlink's return on debt allowance.

A.1   Credit rating

We are satisfied that the industry median, based on our comparator set, supports a benchmark credit rating of BBB+. Stakeholders took differing positions on the benchmark credit rating. TransGrid and its consultants, as well as Directlink and TasNetworks proposed a BBB+ credit rating.[288] Some consumer groups and consultants also appeared supportive of maintaining a BBB+ credit rating.[289] However, consumer representatives generally submitted that a credit rating of BBB+ would over-compensate network service providers.[290] Some consumer groups advised the BBB+ benchmark would particularly over-compensate the government owned serve providers.[291] We are not satisfied these submissions provide reason to depart from our BBB+ benchmark credit rating. For instance, QCOSS submitted that a lower medium credit rating grade of BBB+ was inconsistent with the benchmark efficient entity.[292] However, we would expect our empirical analysis of benchmark credit ratings to reflect this, given what ratings agencies take into account.[293]

---

[288]   TransGrid, *Revenue proposal*, May 2014, p. 178; Directlink, *Revenue proposal*, May 2014, p. 36; TasNetworks, *Tasmanian transmission revenue proposal,* May 2014, p. 108; Houston Kemp, *Response to the draft decision on the return on debt allowance*, January 2015, p. 4; NERA, *Return on capital of a regulated electricity network: A report for Ashurst*, May 2014, p. 10.

[289]   AGL, *SAPN regulatory proposal July 2015 to June 2010*, 30 January 2015, p. 14; APVI, *Submission to the AER on the issues paper on SAPN's regulatory proposal*, December 2014, p. 5; ECCSA, *AER SA electricity distribution revenue reset SAPN application: A response*, December 2014, pp. 74–75; Lally, *Implementation issues for the cost of debt*, November 2014, pp. 28–31; SACES, *Independent estimates of the WACC for SAPN: Report commissioned by the SACOSS*, January 2015, pp. 13–14; SACOSS, *Submission to AER on SAPN 2015–2020 regulatory proposal*, January 2015, p. 21.

[290]   ECC, *Submission concerning the TransGrid revised revenue proposal 2014–19*, 3 February 2015; EMRF, *AER review of NSW electricity transmission 2014*, July 2014, p. 28; EMRF, *AER review of NSW electricity distribution 2014*, July 2014, p. 33; EMRF, *NSW electricity transmission revenue reset: AER draft decision and TransGrid revised proposal*, January 2015, p. 21; Norske Skog Albury Mill, *NSW Electricity Transmission Revenue Reset: Response to TransGrid's Application*, p. 4; QCOSS, *Understanding the long term interests of electricity customers: Submission to the AER's Queensland electricity distribution determination 2015-2020*, 30 January 2015, pp. 75–76

[291]   Hugh Grant (CCP member), *CCP submission AER draft TransGrid determination, TransGrid revised revenue proposal*, 6 February 2015., pp. 12–13; ECC, *Submission concerning the NSW distribution networks revised revenue proposal 2014– 19: Submission to the AER*, 11 February 2015, p. 2; EMRF, *NSW electricity transmission revenue reset: AER draft decision and TransGrid revised proposal*, January 2015, p. 23; MEU, *Tasmanian electricity transmission revenue reset, AER draft decision and TasNetworks revised proposal: A response*, February 2015, p. 55; TSBC, *Submission to the AER: TasNetworks transmission revenue reset — Draft determination & revised proposal*, February 2015, p. 32.

[292]   QCOSS, *Understanding the long term interests of electricity customers: Submission to the AER's Queensland electricity distribution determination 2015-2020*, 30 January 2015, pp. 75–76.

[293]   Credit rating agencies consider qualities that QCOSS submitted contribute to the low risk of the benchmark efficient entity. Specifically, ratings agencies consider factors including but not limited to market risk, cash flow certainty, the regulatory approach and gearing.

In this section we set respond to the following issues raised by consumer representatives:

- whether we should use a private credit rating benchmark for government owned service providers

- whether credit ratings are a good indicator of the return on debt

A.1.1 Private credit ratings and government firms

Some consumer groups submitted that applying a benchmark credit rating of BBB+ is generous to service providers that acquire debt from their parents with higher credit ratings.[294] These proposals appear to primarily relate to government owned service providers. We do not agree with these proposals.

The Energy Markets Reform Forum (EMRF) supported applying the Guideline. However, the EMRF and Norske Skog submitted that a BBB+ credit rating provides a significant benefit to service providers that acquire credit from their owners who face better rates.[295] The Tasmanian Small Business Council (TSBC) submitted that government businesses do not face the same degree of risk as the benchmark efficient entity. It submitted that, 'this is inconsistent with incentive regulation, which is supposed to ensure that network entities do not benefit from windfall gains but rather benefit from the pursuit of greater efficiencies'.[296]

We apply a credit rating of BBB+ to all service providers, regardless of their ownership structure. The rules specify to take a benchmark approach to setting the allowed rate of return.[297] After careful analysis, we defined a benchmark efficient entity as, 'a pure play, regulated energy network business operating within Australia'.[298] This definition of a benchmark efficient entity makes no assumption on ownership structure. In forming this position, we had regard to the following:

- In the Guideline, we considered systematic risks were likely to be similar between government owned and private service providers in providing standard control services.[299]

- With respect to default risk, Klein has noted taxpayers underwrite the lower cost of debt for government-backed entities through the government's ultimate recourse to taxation. If governments were to compensate taxpayers for this risk, then there would be no capital

---

[294] For example, Hugh Grant (CCP member), *CCP submission AER draft TransGrid determination, TransGrid revised revenue proposal*, 6 February 2015., pp. 12–13; ECC, *Submission concerning the NSW distribution networks revised revenue proposal 2014–19: Submission to the AER*, 11 February 2015, p. 2; MEU, *Tasmanian electricity transmission revenue reset, AER draft decision and TasNetworks revised proposal: A response*, February 2015, p. 55.

[295] EMRF, *AER review of NSW electricity transmission 2014*, July 2014, p. 28; EMRF, A*ER review of NSW electricity distribution 2014*, July 2014, p. 33; Norske Skog Albury Mill, *NSW Electricity Transmission Revenue Reset: Response to TransGrid's Application*, p. 4.

[296] Tasmanian Small Business Council, *Submission to the AER: TasNetworks transmission revenue reset — Draft determination & revised proposal*, February 2015, p. 32.

[297] Specifically, the allowed rate of return must be commensurate with the efficient financing cost of a benchmark efficient entity. See NER cl. 6.5.2(c), 6A.6.2(c); NGR r. 87(3).

[298] See AER, *Explanatory statement to the rate of return guideline*, 17 December 2014, pp. 30–45.

[299] AER, *Explanatory statement to the rate of return guideline*, 17 December 2013, p. 44.

cost advantage of government finance. The risk premium on government finance would, in principle, be no different to that of private investors.[300] While the EMRF does not disagree with this, it submitted that using a private benchmark could only be efficient if the government returned the resulting the 'overpayment' to the taxpayer.[301] One would expect this to hold if governments use the revenue from their investments to substitute revenue they would otherwise collect from taxpayers.

- The relevant issue is whether government ownership alters the risks of investing in and operating energy networks to provide standard control services. The AEMC has noted:[302]

  > The interest rates that State treasury corporations can secure reflect the credit rating of the relevant state government and not the service provider. If state-owned service providers were to access debt capital markets directly then they would face debt financing costs that reflect their stand-alone credit ratings. If such costs are not reflected in the regulatory framework then investment and resource allocation decisions may be distorted. The Commission considers that the most appropriate benchmark to use in the regulatory framework for all service providers, regardless of ownership, in general is the efficient private sector service provider.

A.1.2 Credit ratings as an indicator of the return on debt

Consumer groups submitted evidence suggesting credit ratings for utility bonds often poorly estimate the likely costs.[303] In particular, lenders are willing to lend at lower rates because they value the stability of utility earnings.

We consider there is merit in this submission. However, at this stage, we predominately base our approach to estimating the benchmark return on debt on a benchmark credit rating and term to maturity. This is because:

- We use third party data series to estimate the return on debt. We are satisfied there are important benefits with adopting this approach, rather than constructing our own series and yield curve (see section A.2). However, third party data service providers define their series on credit ratings and terms. To date, data service providers have not published a utility-specific data series.

- We recognise the credit rating and term to maturity are factors in determining the return on debt.[304]

---

[300] Klein, M., 'The risk premium for evaluating public projects', *Oxford Review of Economic Policy*, Vol. 13, No. 4, pp. 29–42.

[301] EMRF, *NSW electricity transmission revenue reset: AER draft decision and TransGrid revised proposal*, January 2015, p. 23.

[302] AEMC, *Rule determination: Economic Regulation of Network Service Providers*, 29 November 2012, p. v.

[303] CCP, *Jam Tomorrow? Submission regarding NSW DNSP regulatory proposals 2014-19*, August 2014, pp. 18, 26.; EMRF, *AER review of NSW electricity distribution 2014*, July 2014, p. 37; EMRF, *AER review of NSW electricity transmission 2014*, July 2014, p. 33; EUAA, *Submission to TransGrid response to draft determination (2014 to 2019)*, 6 February 2015, p. 5; Hugh Grant (CCP member), *CCP submission AER draft TransGrid determination, TransGrid revised revenue proposal*, 6 February 2015, p. 12.

[304] ERA, *Final Decision on proposed revisions to the access arrangement for the Dampier to Bunbury Natural Gas Pipeline*, 31 October 2011, p. 143.

- Ideally, we could use a cohort of bonds that are comparable to those sourced by businesses similar to the benchmark efficient entity. However, for practical reasons, at this time we do not have a clear and unambiguous approach for factoring in these qualitative factors. In particular, we would need to achieve this whilst allowing for updating the annual revenue requirement through the automatic application of a formula.[305]

Further, EMRF and MEU submitted our approach has an additional layer of conservatism because it assumes service providers only raise debt using corporate bonds.[306] EMRF submitted this will overstate service providers' efficient costs because corporate bonds are a higher cost source of debt than what is available from other sources.[307] We agree that this is a conservative aspect of our approach. However, Lally advised that the impact of this may be mitigated given bank debt constitutes only about 25% of the debt of regulated firms.[308] Similarly, while PwC observed Australian listed regulated energy networks held an average of 27 per cent bank debt in 2012, it also noted:[309]

bank debt may be preferred at terms below 5 years because it is likely to be cheaper than bonds at those terms, while very little bank debt is issued for terms beyond 5 years because capital market sources (bonds) are cheaper at those terms to maturity.

A.2   Use of third party data series

Our final decision is to estimate the return on debt by reference to an independent third party data series. Using third party data series is the same approach we proposed in the Guideline and applied in the draft decisions.[310] The service provider proposals currently before proposed using third party data series to estimate the return on debt.[311] However, some consumer groups did not support this approach. We discuss these submissions here.

---

[305] NER 6.5.2(l), 6A.6.2(l); NGR 87(12).

[306] EMRF, *NSW electricity transmission revenue reset: AER draft decision and TransGrid revised proposal*, January 2015, p. 22; MEU, *Tasmanian electricity transmission revenue reset, AER draft decision and TasNetworks revised proposal: A response*, February 2015, p. 22

[307] EMRF, *NSW electricity transmission revenue reset: AER draft decision and TransGrid revised proposal*, January 2015, p. 22.

[308] Lally, *Implementation issues for the cost of debt*, 20 November 2014, p. 3.

[309] PwC, *A cost of debt estimation methodology for businesses regulated by the QCA*, June 2013, p. 57.

[310] AER, *Explanatory statement to the rate of return guideline*, December 2013, pp. 126–130; *AER, Draft decision: ActewAGL distribution determination, Attachment 3*, November 2014, p. 11; AER, *Draft decision: Ausgrid distribution determination, Attachment 3*, November 2014, p. 10 ('46'); 10 AER, *Draft decision: Directlink transmission determination, Attachment 3*, November 2014, p. 10; AER, *Draft decision: Endeavour Energy distribution determination, Attachment 3*, November 2014, p. 8; AER, *Draft decision: Essential Energy distribution determination, Attachment 3*, November 2014, p. AER, *Draft decision: TasNetworks transmission determination, Attachment 3*, November 2014, p. 11; AER, *Draft decision: TransGrid transmission determination, Attachment 3*, November 2014, p. 9.

[311] ActewAGL, *Revised regulatory proposal*, January 2015, p, 428; Ausgrid, *Revised regulatory proposal and preliminary submission*, January 2015, p, 178; Directlink, *Revised revenue proposal*, January 2015, p, 13; Endeavour Energy, *Revised regulatory proposal*, January 2015, p, 200; Essential Energy, *Revised regulatory proposal*, January 2015, p, 219; JGN, *2015–20 access arrangement: Response to the AER's draft decision and revised proposal, Appendix 7.10 — Return on debt response*, February 2015, p. 1; TasNetworks, *Revenue proposal*, May 2014, p. 108; TransGrid, *Revised revenue proposal*, January 2015, p. 116.

The CCP raised concerns that the use of current third party data series would overstate the efficient financing costs of a benchmark efficient entity. The CCP suggested that actual borrowing costs are lower than what our rate of return allowance indicates. We are not satisfied with the information the CCP used to support this position. This is because the CCP referred to:

- Information from Lally, Chairmont and the Energy Users Rule Change Committee, which it had submitted to us previously.[312] We have considered this information previously. However, we considered that using a third party data series was a practical necessity resulting from the choice to annually update the return on debt. We also considered that annually updating the return on debt would reduce the potential mismatch between the actual and allowed return on debt of the benchmark efficient entity.[313] Further, in its latest report, Chairmont's analysis indicated that using a simple average of RBA and Bloomberg was a fair approach.[314] Also, in his recent report on debt implementation, Lally advised:[315]

  > the bonds of regulated energy network businesses would have lower average liquidity than the bonds in the BVAL and RBA sets, and are also likely to have lower than normal expected loss rates for bondholders in the event of default. The first point would lead to the BVAL or RBA indexes underestimating the cost of debt for regulated energy network businesses with the same credit ratings whilst the second point would lead to an overestimate. The net effect of these two points is not known.

- The opinion of 'major investment banks and equity analysts' that the long run average cost of debt was around five per cent.[316] Before using this information, we would need to verify this number. However, the CCP submitted that it could not provide us this information because of confidentiality considerations. Therefore, it is difficult to verify the accuracy of this information. In addition, we would also need to ensure that this information is a like-for-like comparison to the regulatory benchmark. In particular, our return on debt approach is to adopt an on-the-day rate for the first regulatory year (and gradually transition this into a trailing average). The on-the-day rate reflects prevailing market conditions. Accordingly, it is not directly comparable to the long run average cost of debt stated by the CCP.

In submissions on the initial and revised regulatory proposals, consumer representatives proposed we develop our own data series, using either:

- A selection of benchmark bonds that target more features than the benchmark credit rating and benchmark debt term. In particular, consumer representatives submitted that

---

[312] CCP, *Smelling the roses and escaping the rabbit holes: The value of looking at actual outcomes in deciding WACC*, July 2014, p. 12.

[313] For example, see AER, *Draft decision: ActewAGL distribution determination, Attachment 3*, November 2014, p. 135/.

[314] Chairmont, *Cost of debt: Transitional analysis*, 18 March 2015, pp. 67–68.

[315] Lally, *Implementation issues for the cost of debt*, October 2014, p. 4.

[316] CCP, *Submission to AER on QLD/SA distributors' proposals*, January 2015, p. 10; CCP, *Response to the AER draft determination re: ActewAGL regulatory proposal 2014–19*, February 2015, p. 23; CCP, *Responding to NSW draft determinations and revised proposals from electricity distribution networks*, February 2015, 45.

the bonds included in the sample should reflect the industry of regulated utilities, given the view that the return on debt varies with the core business of firms.[317]

- Service providers' actual borrowing costs.[318]

The CCP submitted that considering actual costs would be valuable because:[319]

> …the evidence from the actual yields on network bonds and the price paid for bank debt shows that network businesses' actual borrowing costs are much lower than implied by their credit ratings. This is because lenders recognise that networks are monopolies and…lenders are willing to lend money to network utilities at much lower rates than implied by their credit ratings.

We acknowledge the views of consumer representatives on this issue. We also share some of the concerns on relying heavily on credit ratings, and not industry, as the measure of risk for estimating the return on debt of the benchmark efficient entity.[320] As such, our preference would be to use a third party utilities data series, rather than broad BBB data series. For this reason, we would consider using such a series if it becomes available from Bloomberg or the RBA.

However, we consider that using a third party data series is a practical necessity resulting from the choice to annually update the return on debt. We have chosen to annually update the return on debt because this reduces the volatility of prices between regulatory periods (by introducing a small degree of price volatility within the regulatory period). And it also reduces the potential mismatch between the actual and allowed return on debt of the benchmark efficient entity. At the end of the Guideline development process, the majority of stakeholders (including both service providers and consumer representatives) supported annually updating the return on debt.[321] In other words, calculating an index of actual borrowing costs might be feasible under an on-the-day approach, but it would be practically difficult to apply using a trailing average approach. And so there is a trade-off here.

Further, we do not apply a benchmark data series based on service providers' actual borrowing costs. In its submission, the CCP did not suggest precisely how we should use

---

[317] MEU, *Tasmanian Electricity Transmission Revenue Reset, TasNetworks Application: A response*, August 2014, pp. 34–35; EMRF, *AER review of NSW electricity transmission*, July 2014, pp. 32–34; Tasmanian Small Business Council, *Submission on TasNetworks revenue proposal*, 8 August 2014, p. 42.

[318] CCP, *Smelling the roses and escaping the rabbit holes: the value of looking at actual outcomes in deciding WACC*, July 2014, p. 6.

[319] CCP, *Submission to AER on QLD/SA distributors' proposals*, January 2015, p. 10; CCP, *Response to the AER draft determination re: ActewAGL regulatory proposal 2014–19*, February 2015, p. 23; CCP, *Responding to NSW draft determinations and revised proposals from electricity distribution networks*, February 2015, 45.

[320] For example, Lally explains that there are a 'host of other factors' that affect the debt risk premium but not the credit rating. Lally, *Implementation issues with the cost of debt*, pp.32-34.

[321] Consumer representatives such as COSBOA, EUAA and MEU supported annual updating. Service providers (and their representatives) such as APA Group, the ENA, Envestra, Ergon Energy, QTC and SP AusNet supported annual updating. On the other hand, consumer representatives such as the NSW irrigators' council did not support annual updating and PIAC did not express a strong preference either way. See AER, *Explanatory statement to the rate of return guideline (appendices)*, December 2014, p. 196.

this data.[322] In our recent draft decisions, we raised challenges in implementing this approach and specified that we would not apply this approach unless we had a sound idea of how to implement it well. [323] In its submission to our draft decision for TasNetworks, the Tasmanian Small Business Council (TSBC) responded to the challenges we raised.[324] After considering TSBC's submission, we are still satisfied with our position in the draft decision. This is for the following reasons:

- If we were to use historical actual debt costs to estimate future allowances, we would also want to account for changes in the financial environment since the historical period. We are unsure of how to best achieve this at this stage. We acknowledge TBSC's suggestion to seek expert advice on this matter. We accept it is possible to use historical costs to estimate future allowances. We also appreciate, like estimating many financial parameters, there will likely be difficulties with producing reliable estimates.

- If we were to use current actual debt costs at the time of the reset or annual update, we would need detailed and timely data. We do not currently have access to this level of detailed data. Even if we did, we would need to consider how best to use this data to construct a 'current' benchmark return on debt. We acknowledge TSBC's suggestion to obtain relevant and timely information through regulatory information notices and other government sources. While there may be potential to use regulatory information notices in this way, we are not convinced this is a pragmatic option for the current resets that are before us.

- If we were to base the allowed return on debt on actual costs, we would need to consider how this might affect service providers' incentives to minimise their debt costs. Further, we would have to be careful to apply this approach consistently with the allowed rate of return objective, which refers to a benchmark.[325] We recognise TSBC's view that developing an appropriate benchmark would negate blunting incentives. The CCP shared a similar view and likened this to establishing an allowance for operating expenditure based on a benchmark of actual costs.[326] While we do not necessarily disagree, we also appreciate that developing an effective benchmark will have its challenges and may not be a pragmatic option for the currently open resets.

- If we were to base debt allowances on actual costs, we would have to carefully consider whether or not we should include the costs of government owned sector service providers, as the CCP proposed.[327] We consider that data for government owned service

---

[322] CCP, *Smelling the roses and escaping the rabbit holes: the value of looking at actual outcomes in deciding WACC*, July 2013, p. 3.

[323] See for example AER, *Draft decision ActewAGL distribution determination — Attachment 3: Rate of return*, November 2014, p. 136.

[324] For TSBC's response, see TSBC, *Submission to the AER: TasNetworks transmission revenue reset — Draft determination & revised proposal*, February 2015, pp. 32–34.

[325] NER, cl. 6A.6.2(c), NER, cl. 6.5.2(c), and NGR, r. 87(3).

[326] Bruce Mountain (CCP member), *CCP submission to AER on QLD/SA distributors' proposals*, January 2015, p. 10; CCP, *Response to the AER draft determination re: ActewAGL regulatory proposal 2014–19*, February 2015, p. 23.

[327] CCP, *Smelling the roses and escaping the rabbit holes: the value of looking at actual outcomes in deciding WACC*, July 2013, p. 12.

providers may provide some insight for benchmarking purposes. However, we also recognise there may be limitations to using this information. This is because:

- o The AEMC has concluded an efficient private sector service provider is the most appropriate benchmark. [328] Synergies Economic Consulting concurred with this view.[329]

- o If we were to include the actual debt costs of government owned service providers in our benchmark, we would include debt guarantee fees. Excluding debt guarantee fees would not be consistent with setting a commercial rate of return. This is because these are intended to reflect a business's indicative, stand-alone credit rating or commercial status.[330] Nevertheless, we acknowledge that debt guarantee fees are based on estimates and are not 'actual' costs determined by capital markets. For example, NSW TCorp uses a third party data series (RBA) to calculate debt fees. Therefore, these estimates may still be subject to consumer groups' concerns regarding the use of third party data series.

However, we do consider it may be useful to have some regard to service providers' historical actual borrowing practices and costs. This information can help us assess how our regulatory approach has performed systematically over time. For instance, this could help us identify aspects of our regulatory approach we could refine in future Guideline reviews.

---

[328] AEMC, *Final rule change determination*, November 2012, p. 72.

[329] Synergies, *Response to issues raised by the CCP: Report for Ergon Energy*, September 2014, pp. 15–16.

[330] NSW Treasury, *Policy statement on the application of competitive neutrality: Policy & guidelines paper*, January 2002, p. 11; Queensland Government, N*CP implementation in Queensland: Competitive neutrality and Queensland government business activities*, July 1996, p. 24; ACT Department of Treasury, *Competitive neutrality in the ACT*, V. 2, October 2010, p. 10. We note that our interpretation of State government policy appears to differ from Origin Energy who submitted, 'for regulated utilities, the guarantee fee rate is determined using the debt tenor adopted by the regulator's debt allowance benchmark tenor'. See Origin Energy, *Submission to AER TransGrid draft determination*, 6 February 2015, p. 7.

B   Methodology to annually update the return on debt

Our final decision on the return on debt approach is to:

- estimate the return on debt using an on-the-day rate (that is, based on prevailing market conditions) in the first regulatory year (2015-16) of the 2015–20 period, and

- gradually transition this rate into a trailing average approach (that is, a moving historical average) over 10 years.[331]

Because our return on debt approach involves annual updates to the return on debt, this means that the return on debt will be, or potentially will be, different for different regulatory years in the regulatory control period.[332] The NER require that the resulting change to Directlink's annual building block revenue requirement is to be effected through a formula specified in the transmission determination.[333] For the purposes of clause 6A.6.2(l), our final decision is that the resulting change to Directlink's annual building block revenue requirement is to be effected through:

- the automatic application of the return on debt methodology specified in this appendix (appendix B)

- using the return on debt averaging periods specified in confidential appendix D and

- implemented using Directlink's final determination post-tax revenue model (PTRM) in accordance with section 3 of the AER's PTRM handbook for transmission network service providers.[334]

The return on debt methodology in this appendix specifies our final decision:

- methodology on the return on debt approach, and

- methodology to implement the return on debt approach

B.3   Approach to estimating the return on debt

This section sets out our final decision methodology on the return on debt approach. Below we specify the allowed return on debt formulae for each year of the 10 year transition path. In each formula:

---

[331]   This final decision determines the return on debt methodology for the 2015–20 period. This period covers the first five years of the 10 year transition period. This decision also sets out our intended return on debt methodology for the remaining five years. However, we do not have the power to determine in this decision the return on debt methodology for those years. Under the NER, the return on debt methodology for that period must be determined in future decisions that relate to that period.

[332]   NER, cl.6.5.2(i) and cl.6A.6.2(i).

[333]   NER, cl.6.5.2(l) and cl. 6A.6.2(l).

[334]   AER, *Final decision—Amendment—Electricity TNSPs PTRM handbook*, 29 January 2015.

$_aR_{a+10}$ corresponds to the estimated return on debt that was entered into in year a and matures in year a+10–which is to be calculated using the return on debt implementation methodology in section B.4 and Directlink's return on debt averaging periods specified in confidential appendix D

$_bkd_{b+1}$ refers to the allowed return on debt for regulatory year b+1.

In the first regulatory year (2015–16), the allowed rate of return on debt will be based on the estimated prevailing rate of return on debt for that year (similar to the 'on the day' approach):

$$_0kd_1 = {}_0R_{10}$$

In the second regulatory year, the allowed rate of return on debt will be the weighted average of the prevailing rates in the first and second regulatory years of the transitional period:

$$_1kd_2 = 0.9 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11}$$

In the third regulatory year, the allowed rate of return on debt will be the weighted average of the prevailing rates in the first, second, and third regulatory years of the transitional period:

$$_2kd_3 = 0.8 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12}$$

In the fourth regulatory year, the allowed rate of return on debt will be the weighted average of the prevailing rates in the first, second, third and fourth regulatory years of the transitional period:

$$_3kd_4 = 0.7 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12} + 0.1 \cdot {}_3R_{13}$$

In the fifth regulatory year, the allowed rate of return on debt will be the weighted average of the prevailing rates in the first, second, third, fourth and fifth regulatory years of the transitional period:

$$_4kd_5 = 0.6 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12} + 0.1 \cdot {}_3R_{13} + 0.1 \cdot {}_4R_{14}$$

The calculation for all subsequent regulatory years until the transitional period is completed is set out below:

$$_5kd_6 = 0.5 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12} + 0.1 \cdot {}_3R_{13} + 0.1 \cdot {}_4R_{14} + 0.1 \cdot {}_5R_{15}$$

$$_6kd_7 = 0.4 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12} + 0.1 \cdot {}_3R_{13} + 0.1 \cdot {}_4R_{14} + 0.1 \cdot {}_5R_{15} + 0.1 \cdot {}_6R_{16}$$

$$_7kd_8 = 0.3 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12} + 0.1 \cdot {}_3R_{13} + 0.1 \cdot {}_4R_{14} + 0.1 \cdot {}_5R_{15} + 0.1 \cdot {}_6R_{16} + 0.1 \cdot {}_7R_{17}$$

$$_8kd_9 = 0.2 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12} + 0.1 \cdot {}_3R_{13} + 0.1 \cdot {}_4R_{14} + 0.1 \cdot {}_5R_{15} + 0.1 \cdot {}_6R_{16} + 0.1 \cdot {}_7R_{17} + 0.1 \cdot {}_8R_{18}$$

$$_9kd_{10} = 0.1 \cdot {}_0R_{10} + 0.1 \cdot {}_1R_{11} + 0.1 \cdot {}_2R_{12} + 0.1 \cdot {}_3R_{13} + 0.1 \cdot {}_4R_{14} + 0.1 \cdot {}_5R_{15} + 0.1 \cdot {}_6R_{16} + 0.1 \cdot {}_7R_{17} + 0.1 \cdot {}_8R_{18} + 0.1 \cdot {}_9R_{19}$$

B.4 Implementing the return on debt approach

This section sets out our final decision methodology to implement the return on debt approach. This section specifies:

- our choice of data series

- extrapolation and interpolation issues with adjusting our choice of data series

- step-by-step calculation to calculating the final RBA and BVAL estimate

- contingencies associated with implementing our choice of data series, if the data series we have chosen to estimate the return on debt are unavailable or change in future regulatory years

B.4.1 Choice of data series

Our final decision on the choice of data series is to adopt a simple average of the debt data series published by the Reserve Bank of Australia (RBA) and Bloomberg that match, as close as available, our benchmarks of a BBB+ credit rating and a 10 year debt term. Specifically our final decision is to adopt a simple average of:

- The RBA broad-BBB rated 10 year curve, extrapolated to an effective term of 10 years (the RBA curve)

- The Bloomberg Valuation Service (BVAL) broad-BBB rated curve (the BVAL curve). Depending on the maximum term published at the time, this will be either the BVAL:

    o 10 year estimate.[335]

    o 7 year estimate extrapolated to a 10 year term using the 7–10 year margin from the RBA curve.

    o 5 year estimate extrapolated to a 10 year term using the 5–10 year margin from the RBA curve.

B.4.2 Choice of data series—Extrapolation and interpolation issues

Our final decision on extrapolation and interpolation issues is to maintain the approach set out in our draft decision. This refers to:

- extrapolation—where we need to extend a curve beyond its observed or published range. For example, before April 2015, Bloomberg publishes its BVAL curve to a maximum term of 7 years, whereas we require an estimate for a 10 year term.

---

[335] As of 14 April 2015, Bloomberg has revised its methodology for the BVAL curve (BVCSAB10). It has correspondingly recommended publishing a 10 year yield estimate.

- Interpolation—where we need a value for which there is no published estimate but it lies between two published estimates. For example, the RBA only publishes its curve estimates for one day each month, but we require estimates for each business day.

Specifically, we will make the following adjustments as set out in Table 3-16 and Table 3-10.

Table 3-16 Adjustments to the RBA curve

Adjustment Type	Amendment made?	Comments
Interpolation to construct daily estimates.	Yes	The RBA curve only provides an estimate for one business day at the end of each month. In our experience, averaging periods commonly start and/or end on dates during the month. We will address this issue by linearly interpolating between month end values where possible. While we are satisfied that interpolation over business days is also reasonable, we will interpolate over all days because: • this is consistent with our widely accepted approach to interpolate estimates of the risk free rate using CGS • interpolating over all days is simpler to implement • it is impractical to interpolate over business days for estimating the risk free rate, as this would require calculations relative to specific trading days 10 years in advance • the difference to the estimates between interpolating over business days or interpolating over all days is immaterial.[336] Where this is not practical due to timing, we will hold the last available RBA monthly estimate constant until the end of the averaging period. It would not be practical to linearly interpolate between two RBA monthly estimates where the allowed return on debt must be estimated and incorporated into the annual debt update process before the publication of the next RBA monthly estimate after the end of the averaging period. Our final decision on the annual debt update process is set out in the annual debt update process section of attachment 3.
Extrapolation to target term.	Yes	The 'effective term' of the RBA bond sample is commonly less than 10 years. For this reason, Lally recommended that the spread component of the yield should be extrapolated from its effective term at publication to the benchmark term (10 years).[337] We agree with Lally's recommendation to extrapolate the spread component of the RBA's published yield in order to match it with the benchmark term of debt. However, we do not agree it is necessary to extrapolate the base component. As identified by the RBA and Lally,[338] the base component of the published 10 year yield already matches the benchmark term of debt. Therefore, extrapolating this component would result be erroneous and lead to overcompensation in most circumstances, where the yield curve is upward sloping.

---

[336] For example, the difference between approaches between 2 June 2014 to 30-June 2014 was 22 basis points, which means it would have changed the return on debt by 0.0022 per cent.

[337] Lally, *Implementation issues for the cost of debt*, November 2014, pp. 38-44.

[338] See the 'notes' tab in RBA, *Aggregate measures of Australia corporate bond spreads and yields*, available at: http://www.rba.gov.au/statistics/tables/xls/f03hist.xls; Lally, *Implementation issues for the cost of debt*, November 2014, pp. 38-44.

Adjustment Type	Amendment made?	Comments
Conversion to effective annual rate	Yes	The RBA's published methodology does not explicitly specify whether the published yields should be interpreted as effective annual rates. Effective annual rates are a consistent basis on which to compare bond rates and imply that the coupon payments compound during the year. We therefore consulted the RBA, who informed us that 'the spreads and yields in F3 can be best thought of as annual rates with semi-annual compounding'.[339] Therefore, this would require conversion into an effective annual rate, using the same approach as is applied to the BVAL yield estimate.

Source: AER analysis

Table 3-17   Adjustments to the BVAL curve

Adjustment Type	Amendment made?	Comments
Interpolation to construct daily estimates	No	Bloomberg publishes daily estimates.
Extrapolation to target term	Depends on maximum term published by Bloomberg	For most of the time that the BVAL curve has been published, it has had a maximum term of 7 years. However, between September 2014 and November 2014, it was published to a maximum 5 year term.[340] In April 2015, Bloomberg revised its methodology for the BVAL curve (BVCSAB10) and it now publishes a 10 year estimate.[341] For the periods where 7 years is the maximum term, we extrapolate the spread component of the 7 year yield estimate to the 10 year target term. We have done so using the margin between the spread components of the extrapolated RBA 7 and 10 year yield estimates, converted to effective annual rates. We add to this extrapolation the difference between the base CGS estimates from 7 to 10 years. That is: BVAL yield 10 years = BVAL yield 7 years + difference in CGS from 7 to 10 years + difference in RBA extrapolated spread to CGS from 7 to 10 years As recommended by Lally,[342] we are satisfied this approach is comparably reliable to the more complex approaches submitted by other stakeholders,[343] but is simpler to implement and based on publicly available data. For the period where 5 years is the maximum term, we extrapolate the spread component of the 5 year yield estimate to the 10 year target term using an analogous methodology to that used to extrapolate from 7 to 10 years. For the period where 10 years is the maximum term, we do not extrapolate the estimate.

---

[339] RBA, *Email in response to: AER follow up question on the basis of YTM quotations in RBA statistical table F3*, 16 October 2014.

[340] Specifically, from 15 September 2014 to 3 November 2014.

[341] Specifically, 14 April 2015.

[342] Lally, *Implementation issues for the cost of debt*, November 2014, pp. 38–44.

[343] Incenta, *Methodology for extrapolating the debt risk premium*, June 2014, pp. 2–3.

Adjustment Type	Amendment made?	Comments
Conversion to effective annual rate	Yes	Bloomberg publishes its yield as annual rates with semi-annual compounding. This needs to be converted into an effective annual rate.

B.4.3 Choice of data series—Step-by-step guide to calculations

Below we describe the step-by-step processes of calculating:

- the adjusted RBA estimate

- the adjusted BVAL estimate

- the final estimate—where we combine our implementations of the RBA estimate and the BVAL estimate.

These formula steps relate to the approach specified in this final decision. In the event that data availability changes during the regulatory control period, the formulas below will change to reflect the contingencies set out in section B.4.4.

Calculation of the adjusted RBA estimate

1. Download RBA table F3—'Aggregate measures of Australian corporate bond yields' from the RBA website.

2. From this file, download the 7 and 10 year 'Non-financial corporate BBB-rated bonds—Yield' entries for dates:

   a. from the most recent published RBA date prior to the commencement of the nominated averaging period for debt

   b. to the first published RBA date following the conclusion of the nominated averaging period for debt

   c. all published dates between a. and b.

3. Download, from RBA table F16—'Indicative Mid Rates of Commonwealth Government Securities - 2013 to Current', daily yields on CGSs for dates within the service provider's averaging period.

4. Linearly interpolate between the two nearest bonds straddling 7 years remaining term to maturity,[344] and the two nearest CGS bonds straddling 10 years remaining term to maturity. This should be done using the following formula: [345]

---

[344] That is, the bond with the nearest maturity date that is earlier than 10 years from the interpolation date, and the bond with the nearest maturity date than is later than 10 years from the interpolation date.

[345] This formula relies on the operation in Microsoft Excel, dates can be subtracted from one another to work out the number of days in between two dates.

yield interpolated = yield lower straddle bond + (yield upper straddle bond - yield lower straddle bond) * (date 10 years from interpolation date - maturity date lower straddle bond) / (maturity date upper straddle bond - maturity date lower straddle bond).

5. Linearly extrapolate the published RBA 10 year yield (from step 2) from its published effective term to an effective term of 10 years using the formula below:[346]

$yield_{10}$ = $yield_{10}$ year published + [(spread to $swap_{10}$ year published - spread to $swap_7$ year published)/(effective $term_{10}$ year published - effective $term_7$ year published)] * (10 - effective $term_{10}$ year published).

6. Linearly extrapolate the published RBA 7 year yield (from step 2) from its published effective term to an effective term of 7 years using the formula below:[347]

$yield_7$ = $yield_7$ year published + [(spread to $swap_{10}$ year published - spread to $swap_7$ year published)/(effective $term_{10}$ year published - effective $term_7$ year published)] * (7 - effective $term_7$ year published).

7. Subtract from the extrapolated 10 year RBA yield on each publication date the interpolated CGS yield on that date. For the 10 year term, use the RBA series as adjusted in step 5. These are the adjusted RBA 10 year spreads.[348]

8. Obtain daily RBA spread estimates by linear interpolation of the adjusted RBA spreads (from steps 5 and 6) for both 7 and 10 year terms between the published dates identified in step 2. Use the adjusted RBA spread estimates as calculated in step 6. This should be done using the following formula:

spread interpolated = spread first straddling publication date + (date interpolation - date first straddling publication date) * (spread second straddling publication date - spread first straddling publication date) / (date second straddling publication date - date first straddling publication date)

Note: If the annual return on debt estimate must be finalised before a final published RBA month-end estimate is available, hold the last observed RBA spread constant to the end of the averaging period.

9. Add to these daily spreads (from step 8), daily interpolated estimates of the CGS (from step 4) for all business days in the service providers averaging period. Specifically:

    a. add the 7 year interpolated CGS estimates to the 7 year interpolated RBA spreads. These are the interpolated RBA daily 7-year yield estimates.

---

[346] As per Lally, *Implementation issues for the cost of debt*, November 2014, pp. 38-44.
[347] As per Lally, *Implementation issues for the cost of debt*, November 2014, pp. 38-44.
[348] We have re-calculated the published 'spread to CGS' by subtracting our estimate of the interpolated CGS, as calculated in step 4, from the RBA's published yield to maturity. This allows us to combine daily data from the CGS with an estimate of the spread calculated correctly with reference to both the RBA's yield estimate and our estimate of CGS.

b. add the 10 year interpolated CGS estimate to the 10 year interpolated RBA spread. These are the interpolated RBA daily 10-year yield estimates.

10. Convert the interpolated daily yield estimates (from step 9) to effective annual rates, using the formula:[349]

effective annual rate = $((1 + yield / 200)^2 - 1)*100$

11. Average the yield estimate for the 10 year RBA yield estimate over all business days in the service provider's averaging period. This is our adjusted RBA estimate.

Calculation of the adjusted BVAL estimate

1. For dates after 14 April 2015, download the 10 year Corporate BBB rated Australian BVAL curve (BVCAB10). For dates before 14 April 2015, Download from Bloomberg the 7 year Corporate BBB rated Australian BVAL curve (BVCSAB07 index) for all business days in the service provider's averaging period.[350]

2. For dates before 14 April 2015, add to the 7 year yield the difference between the 7 and 10 year daily RBA adjusted yields (as calculated in steps 5 and 6 of the RBA process). This is the extrapolated daily estimate of the BVAL 10 year yield.[351]

3. For all dates, convert the 10 year yields into effective annual rates, using the formula:

effective annual rate = $((1 + yield / 200)^2 - 1)*100$

4. Average the extrapolated daily estimates of the BVAL 10 year yield over all business days in the service provider's averaging period. This is our adjusted BVAL estimate.

Final estimate

Take the simple average of the adjusted RBA estimate (from step 11 in the RBA data section) and the adjusted BVAL estimate (from step 4 in the BVAL data section). This is the annual estimate of the return on debt.

B.4.4 Choice of data series—Contingencies

Our final decision is to largely maintain the set of contingencies as set out in our draft decision. We have for two contingencies expanded the definition for more general contingency scenarios. Specifically, the contingencies now address any expansion or

---

[349] In this formula, the term 'published yield / 200' is based on the yield being published as a number (e.g. 2.0) rather than a percentage (e.g. 2 %, or 0.02). The RBA yield data is published in this form at the time of this decision. For example, where the yield is published as '2.0', this is equivalent to 2 per cent or 0.02. However, it is necessary to convert from the published yield to either alternative to calculate the effective annual rate. If the spread was published as 2 per cent, this term would be 'published spread/2'.

[350] Subject to the availability of the Bloomberg BVAL curve. For other contingencies, see section B.4.4.

[351] If only the 5 year BVAL curve is available, adjust necessary steps to perform the same process using the margin between the adjusted 5 and 10 year RBA yields.

reduction of the longest available BVAL term, where in the draft decision they addressed changes to a 5 year term, less than 5 year term or a 10 year term.

As identified in the draft decision, we have made our final decision based on the information and third party data that is currently available.[352] Nonetheless, in our experience it is common that the availability of third party data changes. Our final decision is to annually update the trailing average portfolio return on debt. Under the NER,[353] the change in revenue resulting from the annual update must occur by automatic application of a formula that is specified in the determination. This means that our decision on how to apply these third party data sources must be fully specified upfront in the determination, and must be capable of application over the regulatory control period without the use of subsequent judgement or discretion. For this reason, we have set out a series of contingencies in Table 3-11, below. These describe how we propose to estimate the annual return on debt in the event of revisions in the RBA's or Bloomberg's methodologies or other changes to data availability.

Table 3-18   Contingency approaches to choice of data series

Event	Changes to approach
Either the RBA or Bloomberg ceases publication of Australian yield curves that reflect a broad BBB rating.	We will estimate the annual return on debt using the remaining curve.
A different third party commences publication of a 10 year yield estimate.	We will not apply estimates from a third party data provider that we have not evaluated and included during the determination process. We will consider any new data sources in future determinations.
Either Bloomberg or RBA substitutes its current methodology for a revised or updated methodology.	We will adopt the revised or updated methodology. Then, at the next regulatory determination, we will review this updated methodology. As noted above, we would also review any new data sources.
Bloomberg reduces the maximum published BVAL term from 7 years	If Bloomberg still publishes the BVAL curve to 5 or more years, we will extrapolate the BVAL curve from the longest published term using the 5 to 10 year yield margin from the RBA curve. We have adopted this approach for the period from 15 September 2014 to 3 November 2014 where the 7 year BVAL curve was unavailable. If Bloomberg no longer publishes the BVAL curve to 5 years, we will rely entirely on the RBA curve.
The RBA ceases publication of a 10 year yield estimate.	If the RBA ceases publication of a 10 year yield estimate, we will extrapolate the RBA estimate to 10 years using: • if available, the margin between spreads in the Bloomberg curve,[354] from the RBA's longest published effective term to 10 years • otherwise, the actual CGS margin from the RBA's longest published estimate to 10 years, plus the average DRP spread for the same term margin over the last month

---

[352]   As of 14 April 2015, Bloomberg has revised its methodology for the BVAL curve (BVCSAB10). It has correspondingly recommended publishing a 10 year yield estimate. Therefore, in line with our specified contingencies in this decision, we will adopt this curve where it is available. As Bloomberg has not backcast the updated curve methodology, we will apply the previous methodology as per the draft decision to estimate the annual cost of debt for 2014¬–15 and 2015–16.

[353]   NER, cl. 6A.6.2(l), NER, cl. 6.5.2(l).

[354]   Specifically, the spread to CGS.

Event	Changes to approach
	prior to the end of its publication.
Bloomberg increases the maximum published BVAL term from 7 years.	If the longest published term is between 7–10 years, we will extrapolate it to a 10 year term using the corresponding margin from the RBA curve. If the longest term is 10 or more years, we will apply the 10 year BVAL curve un-extrapolated, but still adjusted to be an effective annual rate.
The RBA commences publication of daily estimates.	We will cease interpolating the RBA monthly yields. Instead, we will estimate both the RBA yield and the RBA year extrapolation margin (used with the BVAL curve) using these daily estimates.
Either Bloomberg or the RBA publishes a BBB+ or utilities specific yield curve.	We will adopt the BBB+ or utilities curve in place of the provider's existing curve, on the basis that it is a closer fit to our benchmark efficient entity.

Source: AER analysis

In general, we have decided on these contingencies based on a series of guiding principles. These are that the contingency must:

- Be practically implementable—the NER require the automatic application of a formula to update the trailing average portfolio return on debt. As a result, we will be unable to analyse changes to the approaches or new approaches during the regulatory control period. Therefore, it is important that any contingency be practical and easily implementable.

- Use the curve in a form as close as possible to its published form—for example, in April 2015 Bloomberg commenced publication of a 10 year BVAL curve. Accordingly, for averaging periods where the 10 year estimate is available, we will adopt this estimate rather than the 7 year BVAL curve extrapolated with RBA data.

- Where necessary, rely on the independent expert judgement of the RBA and Bloomberg—in particular, where the RBA or Bloomberg makes changes to its methodology, we would prefer to evaluate these changes before concluding we are satisfied the curve still meets the criteria set out in the Guideline.[355] However, this is not possible during the regulatory control period. In these circumstances, we therefore are faced with the two alternatives of ceasing to rely on the updated curve, or temporarily relying on the updated curve on the basis that we have assessed the data provider as credible. As we are satisfied that both the RBA and Bloomberg are credible and independent, but not that either curve is clearly superior, we consider it is preferable that we adopt the updated curve to limit stakeholders' exposure to the distinct characteristics of a single curve. This is consistent with our position of placing weight on both curves to minimise the mean squared error.

---

[355]   AER, *Explanatory statement−Rate of return guideline*, December 2013, pp. 23–24.

C   Equity and debt raising costs

In addition to compensating for the required rate of return on debt and equity, we provide an allowance for the transaction costs associated with raising debt and equity.

We include debt raising costs within the opex forecast because these are regular and ongoing costs which are likely to be incurred each time service providers refinance their debt. On the other hand, we include equity raising costs within the capex forecast because these costs are only incurred once and would be associated with funding the particular capital investments included within our capex forecast.

In the opex attachment we included our final decision forecast for debt raising costs, and in the capex attachment we included our final decision forecast for equity raising costs. In this appendix, we set out our assessment approach and the reasons for those forecasts.

C.5   Equity raising costs

Directlink proposed that it will not incur equity raising costs for the 2015-2020 regulatory control period.[356] Therefore, we accept Directlink's proposal and provide no allowance for equity raising costs in the 2015–2020 regulatory control period.

Equity raising costs are transaction costs incurred when service providers raise new equity from outside the business. Our equity raising cost benchmark allows for the costs of dividend reinvestment plans and seasoned equity offerings. Equity raising costs are an unavoidable aspect of raising equity that would be incurred by a prudent service provider acting efficiently. Accordingly, we provide an allowance to recover an efficient amount of equity raising costs. This is where a service provider's capex forecast is large enough to require an external equity injection to maintain the benchmark gearing of 60 per cent.

While the Guideline does not set out an approach for estimating equity raising costs, we have previously applied an established method for estimating these costs. We initially based our method for determining benchmark equity raising costs on advice in 2007 from Allen Consulting Group (ACG).[357] We amended this method in our decisions for the ACT, NSW and Tasmanian electricity service providers.[358] We have applied this method in subsequent

---

[356]   Directlink, *Post Tax Revenue Model*, May 2014; Directlink, *Revised Proposal 2015-20 - Attachment 8.1 - Post Tax Revenue Model*, January 2015.

[357]   ACG, *Estimation of Powerlink's SEO transaction cost allowance-Memorandum*, 5 February 2007.

[358]   AER, *Final decision, ACT distribution determination 2009–10 to 2013–14*, April 2009, appendix H; AER, *Final decision, NSW distribution determination 2009–10 to 2013–14*, April 2009, appendix N; AER, *Final decision, TransGrid transmission determination 2009–10 to 2013–14*, April 2009, appendix E; AER, *Final decision, Transend transmission determination 2009–10 to 2013–14*, April 2009, appendix E.

decisions for other electricity and gas service providers.[359] This approach has been further refined, as discussed and applied in the Powerlink final decision.[360]

C.6   Debt raising costs

Debt raising costs are transaction costs incurred each time debt is raised or refinanced. These costs may include arrangement fees, legal fees, company credit rating fees and other transaction costs. Debt raising costs are an unavoidable aspect of raising debt that would be incurred by a prudent service provider, and data exists such that we can estimate these costs. Accordingly, we provide an allowance to recover an efficient amount of debt raising costs.

C.6.1   Final decision

Our final decision for debt raising costs is to largely maintain the approach set out in our draft decision. In its revised proposal, Directlink adopted our draft decision on debt raising costs. We have therefore only updated our final decision estimate of debt raising costs to reflect:

- the final decision return on capital

- the final decision projected RAB

- to give effect to the newly implemented post-tax revenue model (PTRM) update. Since our draft decision, we have published a new post-tax revenue model (PTRM). We have applied the new model in this final decision. Amongst other things, this update affects the calculation of debt raising transaction costs. In the process of consulting on the update, Networks NSW submitted that (as with equity raising costs) the debt raising costs calculation should use the nominal (inflated) opening RAB value, rather than nominal closing RAB from the prior year as in version 2 of the TNSP PTRM.[361] We have implemented this suggestion, noting that the change will result in a slight increase in the calculated costs of raising debt (reflecting one year's inflation).[362]

In total, we accept debt raising costs of $0.4 million (nominal) over the 2015–20 period, as set out in Table C-1. This is a reduction of 7 per cent compared to Directlink's proposed allowance. We are satisfied this estimate contributes towards a total opex forecast that reasonably reflects the opex criteria.

---

[359]   AER, *Final decision, Victorian electricity distribution network service providers, Distribution determination 2011–2015,* October 2010; AER, *Final Decision, Jemena Gas Networks, Access arrangement proposal for the NSW gas networks ,1 July 2010 – 30 June 2015*, June 2011.

[360]   AER, *Final decision, Powerlink Transmission determination 2012-13 to 2016-17*, April 2012, pp. 151-152.

[361]   Networks NSW, *Submission on Distribution PTRM,* November 2014, Attachment 1, p. 2.

[362]   AER, *Final decision: Amendment—Electricity transmission and distribution network service providers Post Tax Revenue Models (version 3),* January 2015, p. 14.

Table C-1　AER's final decision on debt raising costs (million, $ nominal)

2014-15	2015-16	2016-17	2017-18	2018-19	Total
0.1	0.1	0.1	0.1	0.1	0.4

Source: AER analysis.

C.6.2　Debt raising transaction costs

Directlink did not address debt raising costs in detail in its revised proposal. However, it included in its PTRM 9.5 basis points as the rate to calculate debt raising costs.[363] This value was consistent with the draft decision.[364] Specifically, the value was the outcome of the standard approach to debt raising costs but using the draft decision return on capital and the projected RAB values from the draft decision as inputs.[365]

In our draft decision, we adopted our standard approach to estimate debt raising costs, however we updated it to reflect the draft decision projected RAB and the draft decision return on capital. For this final decision, we have again updated these inputs to reflect the final decision projected RAB and the final decision return on capital. In addition, the calculation of debt raising costs within the PTRM has changed in line with the update to the transmission PTRM.

Our final decision on the unit costs and components of Directlink's benchmark rate of debt raising transaction costs is set out in Table C-2.

Table C-2　Benchmark debt raising costs (basis points per annum)

Number of bonds	Value	1 bond issued
Amount raised		$250m
Arrangement fee		6.92
Bond Master Program (per program)	$56,250	0.30
Issuer's legal counsel	$15,265	0.08
Company credit rating	$77,500	0.41
Annual surveillance fee	$35,500	0.14
Up-front issuance fee	5.20bp	0.69
Registration up-front (per program)	$20,850	0.11
Registration- annual	$7,825	0.31

---

[363]　Directlink, *Revised proposal post-tax revenue model*, January 2015.

[364]　AER, Draft decision—*Directlink: Attachment 3: Rate of return*, November 2014, p. 304.

[365]　AER, Draft decision—*Directlink: Attachment 3: Rate of return*, November 2014, p. 304.

Number of bonds	Value	1 bond issued
Agents out-of-pockets	$3,000	0.02
Total (basis points per annum)		9.0

D   Return on debt averaging periods (confidential)