
Appendix X.2 – Ernst & Young Report – Advice on Aspects of Equity Beta Estimation

September 2011



Advice on aspects of equity beta estimation

Western Power Electricity Networks Corporation

9 September 2011

Ms Sally McMahon
Project Director
Western Power Electricity Networks Corporation
363 Wellington Street
Perth WA 6000
Sally.mcmahon@westernpower.com.au

9 September 2011

Private and confidential

Expert report on the equity beta component of the weighted average cost of capital for Western Power's revised access arrangement for the AA3 period

Dear Sally

Please find attached my expert witness report.

If you have any queries, please contact me on (02) 9248 5196 or craig.mickle@au.ey.com.

Yours sincerely

A handwritten signature in black ink, appearing to be 'CM' or similar initials.

Craig Mickle
Partner
Ernst & Young

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This report was prepared at the request of Western Power Electricity Networks Corporation ('Western Power') solely for the purpose of providing regulatory advice to Western Power on certain issues pertaining to the estimation of the equity beta. In carrying out our work and preparing this report, we have worked on the instructions of the Western Power only and we have not taken into account the interests of any parties other than Western Power. Ernst & Young does not extend any duty of care in respect of this report to anyone other than Western Power.

The services provided by Ernst & Young do not constitute an audit in accordance with generally accepted auditing standards, or a review, examination or other assurance engagement in accordance with auditing and assurance standards issued by the Australian Auditing and Assurance Standards Board. Accordingly, we do not provide an opinion or any other form of assurance under audit or assurance standards.

Except to the extent that we have agreed to perform the specified scope of work, we have not verified the accuracy, reliability or completeness of the information we accessed, or have been provided with by Western Power, in preparing this report.

Liability limited by a scheme approved under Professional Standards Legislation.

Expert Witness Statement

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Introduction

1. I am a Partner of Ernst & Young, working in its Economics, Regulation and Policy practice. My curriculum vitae is at Appendix A.
2. In this report, I have adopted the acronyms and abbreviations set out in Appendix B.

The assignment

3. I understand that this report is prepared in respect of setting the equity beta component ("equity beta") of the Weighted Average Cost of Capital ("WACC") for Western Power Electricity Network Corporation's ("Western Power's") revised access arrangement for the third access arrangement ("AA3") period (i.e. 2012/13 to 2016/17) in relation to the South West Interconnected Network ("SWIN"). In completing this report, I have been instructed by Sally McMahon - Project Director - Western Power.
4. I have been instructed to prepare an expert report on the equity beta that satisfies the Federal Court Guidelines (see Appendix D) and determines for Western Power and for the purposes of AA3 the range of outcomes for the equity beta which conform to the requirements and principles of the Western Australian *Electricity Networks Access Code 2004* ("the Access Code"). In determining a range of outcomes for the equity beta, I have had regards to the:
 - Relevant provisions of the Access Code; and
 - Fact that Western Power's capital expenditure (also referred to as "capex") is subject to an *ex-post* review by the Economic Regulation Authority of Western Australia ("the ERA") prior to it being included in the capital asset base. Furthermore, the ERA has exercised this provision in its assessment of Western Power's second access arrangement ("AA2") in 2009. The *ex-post* review is unique to Western Power compared to other Australian regulated electricity transmission and distribution businesses.
5. Specifically, I have been asked to address whether it is appropriate for Western Power to adopt a value for the equity beta which is different (i.e. higher) to that adopted by the Australian Energy Regulator ("the AER") under the National Electricity Rules ("NER"), given the requirements under the Access Code for the ERA to undertake an *ex-post* review of capital expenditure.
6. I have not been asked to develop an independent estimate of the equity beta based on quantitative analysis of the available empirical evidence from the capital markets.

Background

7. Western Power owns and operates an electricity transmission and distribution network ("Western Power's Network"). The terms and conditions on which users (typically retailers and generators) can obtain access to Western Power's Network are described in Western Power's access arrangement. The access arrangement is revised on a periodic basis, in accordance with the Access Code, and is submitted to the ERA for approval that it is compliant with the Access Code.
8. Western Power is required to submit proposed revisions to the access arrangement and access arrangement information for its network to the ERA by 1 October 2011. This revised access arrangement will cover the AA3 period.

9. Section 6.64 of the Access Code requires Western Power to set out the WACC for its covered network. The revised access arrangement will include an opening capital asset base and detailed capital expenditure forecasts for the AA3 period. For the purposes of determining the building block revenue, the WACC will be applied to the forecast value of the capital base for both the transmission and distribution networks. The determination of the WACC and its component parameters is required for the AA3 period, including the equity beta.
10. In preparing the access arrangement information, Western Power has identified the equity beta as requiring further independent analysis.
11. The equity beta reflects the degree of systematic risk (also known as market risk or non-diversifiable risk) to which investors are exposed. Under the Capital Asset Pricing Model ("CAPM"), systematic risk is the only risk that is taken into account by investors. This is because CAPM assumes that investors eliminate all other risk by holding a diversified portfolio of assets.
12. The rationale is that in a diversified portfolio, positive events affecting some stocks are offset by negative events affecting other stocks, so that on average, the overall return on a diversified portfolio will equate to the weighted average expected return on all stocks in the portfolio. Hence, it is assumed that diversified investors are not concerned about non-systematic risk and do not require compensation by way of a higher return for such risk. By contrast, diversification cannot eliminate systematic risk since it affects all stocks.

Information

13. The documents that I have relied upon for the purposes of completing this report are listed in Appendix C.
14. I have not conducted an audit or other verification of any information supplied to me. I have assumed that the information supplied to me is accurately stated.
15. Neither Ernst & Young, nor I warrant the accuracy or reliability of any of the information supplied to me.
16. The opinions set out in this report may alter if there are any changes to the information supplied to me.
17. I have received all relevant information requested during the course of preparing this report.

Qualifications

18. My opinion is based on my interpretation of the relevant regulatory provisions, my experience in the relevant field, and on the information provided to me by Western Power management. Should any of these facts and circumstances and/or the relevant accounting pronouncements change, my conclusion may change.

Reliance on this report

19. This report has been prepared, and may be relied on, solely for the purposes of this submission. This report has been prepared specifically for Western Power. Ernst & Young does not take responsibility to any person, other than Western Power, in respect of this report, including any errors or omissions howsoever caused.

Assistance by colleagues

20. Where appropriate, I have sought the assistance of colleagues in preparing this report. The opinions expressed in this report are mine.

Conduct of this assignment

21. I have read the Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia and agree to be bound by them.
22. I have made all the inquiries which I believe are desirable and appropriate. No matters of significance that I regard as relevant to my opinion have, to my knowledge, been withheld.

Structure of this report

23. The structure of the remainder of this report is as follows:
 - ▶ Paragraphs 24 to 25 contain a summary of my opinion.
 - ▶ Paragraphs 26 to 30 summarise the ERA's previous decision on equity beta and the relevant context in regard to the AER's decision on equity beta.
 - ▶ Paragraphs 31 to 37 outline the requirements of the Access Code in respect of *ex-post* reviews of capital expenditure and those of the National Electricity Rules ("NER"), and the ERA's application of the requirements under the Access Code.
 - ▶ Paragraphs 38 to 57 examine the implications for risk of having *ex-post* reviews of capital expenditure.

Summary of my opinion

24. This summary should be read in conjunction with the full report.

25. In my opinion:

- ▶ The evidence suggests the requirement to undertake *ex-post* reviews of capital expenditure impacts on the level of risk Western Power faces. This is because there is a risk that capital expenditure undertaken by Western Power may not be allowed into its asset base.
- ▶ That risk materialised in AA2 and the ERA acknowledges the requirement to undertake *ex-post* reviews of capital expenditure could have adverse impacts on incentives to invest.
- ▶ To the extent that this risk is systematic, it should be reflected in the value assigned to the equity beta.
- ▶ There is evidence that the risk is systematic. More specifically, this is the view of the AER, Yarrow and Decker and other experts.
- ▶ This risk does not exist under the NER and so investors in assets regulated under that regime do not face it.
- ▶ It seems reasonable to conclude therefore, that investors in Western Power are exposed to greater systematic risk than investors in electricity network assets regulated under the NER, and that the risk is material.
- ▶ An appropriate value for the equity beta would on this basis lie above the value of 0.8 which has been adopted by the AER for electricity network businesses. In light of the empirical analysis I have reviewed, and the additional risk that Western Power is bearing, it would seem reasonable to conclude that an equity beta of at least 1.0 would be appropriate.

Opinion

The ERA's and AER's relevant recent decisions on the equity beta

26. The ERA's Final Decision for AA2 used a range of 0.50 to 0.80 for the equity beta. It argued primary reliance should be placed on capital market evidence and statistical estimates of beta values.¹
27. In the AER's 2009 review under the NER of WACC parameters² for regulated electricity transmission and distribution businesses, it decided on a value of 0.8 for the equity beta. This value is locked into the AER's Statement of Regulatory Intent.
28. The ERA appeared to argue, in the debate around how it arrived at a different value to the AER, that its decision making criteria in relation to the equity beta was different to that used by the AER because:

"...the AER was determining whether there was sufficient evidence to change values of parameters from the values previously applied. This is a different exercise to that being undertaken by the Authority, which is to consider best estimates of parameters of the CAPM"³

29. The AER undertook extensive analysis in making its decision on the equity beta. Under the NER, the standard required to depart from a previously adopted value is based on the concept of "persuasive evidence". The AER interpreted this concept as follows:

"The AER maintains that persuasive evidence is likely to include objective and verifiable empirical market evidence. Persuasive evidence is also likely to include theoretical reasons, so long as they are well founded. This may include expert empirical analysis, and expert theoretical reasoning, so long as any analysis or reasoning given is not outside the expert's areas of expertise. However, persuasive evidence is not limited to evidence presented by experts (in this sense referring to academics and economic consultants). Persuasive evidence can also comprise factual evidence and material from any relevant source including, by way of obvious example, industry stakeholders, consumer stakeholders and the regulator. ... The AER's view is that persuasive evidence refers to material which is of sufficient substance to justify a departure from the previously adopted value, method or credit rating."⁴

30. Despite these apparent differences, the ERA ultimately decided to provide a value for the overall cost of capital no lower than that arrived at using the key parameter values determined by the AER. In practice, this is consistent with the ERA using an estimate of the equity beta from the top of its estimated range (0.5-0.8). To that extent, its decision is consistent with the value of 0.8 determined by the AER.

Ex-post reviews of capital expenditure

New Facilities Investment Test under the WA Access Code

31. The Access Code contains a New Facilities Investment Test ("NFIT") which must be met for new facilities to be added to the capital base (under section 6.51A(b) of the Access Code). In relation to AA3, the test is applied retrospectively in relation to capital expenditure incurred from the start of the current access arrangement period to 30 June 2012.

¹ ERA, Final Decision on Proposed Revisions to the Access Arrangement for the South West Interconnected Network, 17 December 2009, para. 882

² AER, Final Decision on review of the weighted average cost of capital parameters for electricity transmission and distribution network service providers, May 2009

³ ERA, Final Decision, op cit., para. 890

⁴ AER, Final Decision, op cit., page 91. Further guidance on this concept has since been provided by the Australian Competition Tribunal. See Application by Energex Limited [2010] ACompT 7, 13 October 2010.

National Electricity Rules

32. There is no provision under the NER for the AER to conduct ex-post reviews of capital expenditure. Instead, the AER has applied a Roll Forward Model ("RFM") to electricity transmission businesses since September 2007 and to electricity distribution businesses since 2008.
33. The RFM sets out the calculation of the Regulatory Asset Base ("RAB"). In establishing the opening RAB, the RFM requires the AER to take into account actual capex and depreciation in the previous regulatory period, even if these amounts differ from the regulatory allowance for that period. The RAB values from the RFM form inputs into the AER's Post-tax Revenue Model to determine the return of capital and return on capital of the regulated business.

Application of NFIT

34. The ERA's Final Decision for AA2 reduced Western Power's proposed opening value for the capital base by \$334.53 million. This reduction was comprised primarily of a \$332.38 million reduction in new facilities investment (other than that comprising of gifted assets) to reflect inefficiencies in investment.⁵
35. The ERA argued there were inefficiencies arising from poor cost control:
- "...the Authority considers that the extent of inefficiency arising from poor cost estimation processes may extend to five per cent of investment for the transmission network and that part of the investment in the distribution network internally funded by Western Power (that is, excluding gifted assets). This would amount to a value of \$117 million (five per cent of \$910 million (net of previous adjustment) of investment in the transmission network and \$1,436 million of Western Power funded investment in the distribution network). Together with the extent of inefficiency arising from overcharging by contractors (\$9.56 million), the extent of inefficiency from deficiencies in cost control is estimated to amount to \$126.87 million"*⁶
36. The ERA also argued there were inefficiencies in the planning and design of augmentations of the network *"...as a result of deficiencies in forecasting of demand for services, deficiencies in consideration of all relevant options for augmentations, and over-engineering of augmentation designs."*⁷ The ERA was unable to assess the extent of the inefficiency on a project-by-project basis, but concluded that *"...the extent of the inefficiency is greater than a nominal amount. The Authority considers that the extent of inefficiency is in the order of five per cent."*⁸
37. The ERA noted its decision to disallow actual capex could potentially have adverse incentive effects for investment, but argued it was obliged to undertake the ex-post review of capital expenditure:

"The Authority recognises the potential adverse incentive effects for investment that may arise as a result of ex post adjustments to values of investment to be added to the capital base and reflected in reference tariffs. It is these adverse incentive effects that are the subject of the paper by Yarrow and Decker, submitted to the Authority by Western Power, and the submission of the Financial Investor Group.

Notwithstanding the potential adverse incentive effects of an ex post review of the efficiency of investment, the Authority is required to undertake such a review under the requirements of the new facilities investment test under section 6.52 of the Access Code. The Authority has had to undertake this review in circumstances of Western Power not being able to provide project or program specific information to support the claim of compliance of new facilities investment with the new facilities investment test. As a result, the Authority's view on whether, and to what extent, the new facilities investment test of the first access arrangement period meets the efficiency criterion of section 6.52(a) of the Access Code is based on a

⁵ Source: ERA Final Decision, revisions to opening value of capital base of \$334.53m calculated from para. 757-758, revisions to new facilities investment of \$332.38m calculated from values in Table 52-53, 56-57.

⁶ Ibid., para. 735

⁷ Ibid., para. 737

⁸ Ibid., para. 738

consideration of processes and practices within Western Power, rather than consideration of particular capital projects and programs. The Authority's view is that the planning, design and governance processes of Western Power were, during the first access arrangement period, sufficiently deficient that the value of new facilities investment is in excess of the amount that satisfies the efficiency test of section 6.52(a). On the basis of available information, it has not been possible for the Authority to rigorously derive a value of this inefficiency, but this does not absolve the Authority of the obligation to determine a value. ⁹

Evidence on the risk implications of ex-post reviews of capital expenditure

The AER's view

38. The AER examined the degree of systematic risk faced by businesses regulated under the NER, including the potential implications of having ex-post reviews of capital expenditure, in making its 2009 decision on the appropriate value for the equity beta.

39. Its Final Decision states:

"The AER considered that regulated utilities face a lower degree non-diversifiable business risk, compared to the market, which is primarily driven by the stable cash flows of regulated utilities. This in turn is driven by both the nature of the industry, such as the relatively high demand inelasticity of electricity to price, and by the protection of the regulatory regime.

The regulatory regime for electricity transmission and distribution network service providers includes design features such as:

...

The rolling forward of the service provider's RAB, rather than the re-valuing or re-optimisation of the RAB at each reset. Under the ex-ante regime actual capex is rolled into the RAB, without any ex post prudency assessment. This approach means that at the end of each regulatory period a benchmark efficient NSP's prices and/or revenues are adjusted back to reflect their underlying cost base. This means that any increase in costs from forecast due to changes in GDP (which may effect the growth in peak demand), or from changes in commodity prices are automatically rolled into the RAB. The AER considered this was highly likely to reduce exposure to systematic risk compared with the market in general. ¹⁰

Yarrow and Decker

40. The ERA's Final Decision refers to the independent expert opinion of Prof. Yarrow and Dr. Decker, sought by Western Power following the ERA's Draft Decision in AA2, to address the following question:

"Is the ERA's application of the NFIT provisions (sections 6.51 A to 6.55 of the Electricity Networks Access Code 2004) and its reasoning for the proposed asset write down of 15 per cent:

- (a) consistent with the Code objectives?*
- (b) consistent with good regulatory principles and practice, including having regard to other regulatory decisions in comparable CPI-X or RPI-X regimes? ¹¹*

41. Yarrow and Decker concluded that the ERA's application of the NFIT provisions was:

- (a) "not consistent with the Code objectives.*
- (b) not consistent with good regulatory principles and practice in other, comparable jurisdictions. ¹²*

⁹ Ibid., para. 740-41

¹⁰ AER, Final Decision, op cit., page 249

¹¹ Prof. George Yarrow and Dr Christopher Decker, Draft Decision on Proposed Revisions to the Access Arrangement for the South West Interconnected Network; Expert opinion, page 1

¹² Ibid., page 27

42. Yarrow and Decker noted that 'prudency reviews' (as they term the capacity to undertake ex-post reviews) are not typically a feature of incentive based regimes, such as CPI-X regimes. Where prudency reviews exist, regulators have generally avoided making ex-post disallowances of capital expenditure. Where ex-post disallowances have been decided and challenged, Yarrow and Decker also note that the typical standard against which the prudency is assessed is based on 'reasonableness' or 'non-negligence', rather than 'best possible performance' or 'best practice'.
43. Yarrow and Decker noted that the reason for using this standard is that there are considerable uncertainties surrounding investment decisions and optimal courses of action are difficult to define in the absence of perfect knowledge.
44. Yarrow and Decker also noted the potential link between prudency reviews and the allowed rate of return, stating:

*"Disallowances based on comparisons with hypothetical, best possible outcomes could, in practice, be expected to lead to severe disincentives for investment, unless these adverse incentive effects are compensated for by some other aspect of regulatory decision making, such as a higher allowed rate of return on the (diminished) rate base."*¹³

45. Yarrow and Decker go on to note that such compensation has been a major factor in relevant US, UK and Irish decisions, where prudency provisions have been applied.

World Bank paper

46. A World Bank paper attributes higher observed beta values for regulated businesses operating under incentive based regulation to the risks imposed on investors under that regime.¹⁴
47. The World Bank paper argues incentive-based regulatory regimes transfer part of the risk of cost increases from customers to shareholders. In doing so, it raises the systematic risk of the company and hence its cost of capital:

*"Price-cap regulation as practised in the UK is widely thought to provide superior incentives for cost efficiency compared with US-style rate-of-return regulation, benefiting consumers in the long run through lower prices. However, there is a possible drawback of price controls: in its pure form, this type of regulation takes no account of cost of demand changes related to the economic cycle, thus raising the degree of market risk to which a company is exposed. This 'regulatory risk' increases the company's cost of capital as investors require higher average returns in compensation."*¹⁵

Other evidence

48. The evidence above suggests there is a range of options available to regulators in terms of how capex (and related depreciation) allowances can be taken into account in setting an opening capital base and these options are likely to have different incentive properties. These options and their incentive properties have been noted in a paper by the ACCC's consultant economist.

"The incentive properties of this [RFM] approach depend on how the capex and depreciation allowances depend on actual versus forecast capital expenditure and depreciation. In principle, there is an infinite variety of ways in which the capex out-turn versus forecast could be "rolled into" the RAB. To illustrate this range of possibilities, I will focus on just three cases:

- (a) *Roll forward based on actual capex and forecast depreciation (which, as we will see, leads to low-powered incentives to reduce capital expenditure);*

¹³ Ibid., page 5

¹⁴ Alexander, I., Mayer, C. And Weeds, H., 'Regulatory Structure and Risk and Infrastructure Firms: An International Comparison', World Bank Policy Research Working Group Paper No. 1698, 1999

¹⁵ Ibid., page 1

(b) *Roll forward based on actual capex and actual depreciation (which leads to medium-powered incentives to reduce capital expenditure);*

(c) *Roll forward based on forecast capex and forecast depreciation (which leads to high-powered incentives to reduce capital expenditure) ”¹⁶*

49. RAB roll-forward options involving actual capex lead to relatively low-powered incentives to reduce capex. In methods (a) and (b), the incentive not to spend above a regulatory allowance is arguably much lower than it would be under method (c), because over-spending cannot affect the RAB value.
50. The AER's RFM performs calculations relating to the opening RAB using actual capex incurred (consistent with method (b) outlined above).
51. The ERA's approach is not one of the three methods noted above, but in practice it lies closer to method (c), which leads to high-powered incentives to reduce capital expenditure. It also leads to higher risk.

Implications for the value of the equity beta

52. The evidence suggests that the requirement to undertake *ex-post* reviews of capital expenditure impacts on the level of risk Western Power faces. This is because there is a risk that capital expenditure undertaken by Western Power may not be allowed into its asset base. That risk materialised in AA2 and the ERA acknowledges the requirement to undertake *ex-post* reviews of capital expenditure could have adverse impacts on incentives to invest (see paragraph 37). Implicitly, this suggests the prospect of earning a higher return would be necessary to negate those impacts.
53. To the extent that this risk is systematic, it should be reflected in the value assigned to the equity beta.¹⁷
54. There is evidence that the risk is systematic. More specifically, this is the view of the AER, Yarrow and Decker and other experts.
55. This risk does not exist for businesses regulated under the NER and so investors in assets regulated under that regime do not face it.
56. It seems reasonable to conclude therefore that investors in Western Power are exposed to greater systematic risk than investors in electricity network assets regulated under the NER, and that the risk is material.
57. An appropriate value for the equity beta would on this basis lie above the value of 0.8 which has been adopted by the AER for electricity network businesses. I have reviewed the report prepared by the Strategic Finance Group ("SFG") that addresses the issue of what may be an appropriate equity beta for Western Power.¹⁸ I note that it draws the conclusion that 0.9-1.1 provides a reasonable range for the equity beta of a benchmark electricity transmission and distribution business with 60% gearing. In light of SFG's analysis, the AER's analysis and the additional risk that Western Power is bearing, it would seem reasonable to conclude that an equity beta of at least 1.0 would be appropriate.

¹⁶ Darryl Biggar, *Updating the Regulatory Asset Base: Revaluation, Roll-forward and Incentive Regulation*, 1 April 2004, Prepared for the DRP Forum, 2 April 2004, page 3

¹⁷ To the extent that it is not, it should be reflected outside the cost of equity (e.g. either in other components of the cost of capital or in the other cost allowances provided to the regulated business).

¹⁸ Strategic Finance Group, *An appropriate equity beta estimate for Western Power*, 13 July 2011.

Appendix A: Curriculum vitae



Craig Mickle
Partner, Economics, Regulation and Policy

Tel: +61 2 9248 5196

Mobile: +61 0411 510 199

Fax: +61 2 9248 5214

Craig.Mickle@au.ey.com

Background

Craig has over 15 years experience in providing strategic advice and economic analysis across a range of infrastructure industries that are subject, or potentially subject, to economic regulation of the services they offer and the charges they impose.

He has particular experience working with infrastructure businesses across the energy, water and industrial transport sectors on:

- ▶ Infrastructure asset transactions; and
- ▶ Regulatory issues, such as the risk of regulation and its potential impacts on value, the cost of capital, the treatment of risk, 'related party' transactions, cost benchmarking, pricing, the form of price control, incentive mechanisms and the economic aspects of legal challenges to regulation. He has also addressed competition policy (e.g. merger) issues.

Prior to professional advisory services, Craig was previously Chief Economist at TXU Australia (now SP AusNet and TRUenergy).

Selected experience

Client/task	Value to client
Infrastructure asset transactions	<p>Provided regulatory due diligence (VDD and buy side) and advised on how to optimise the value of those potential acquisitions for numerous (well over a dozen) infrastructure asset transactions. This includes:</p> <ul style="list-style-type: none">▶ The Expression of Interest for the Abbott Point Coal Terminal T4-T7 (2011)▶ The sale of the Abbot Point Coal Terminal X50 (2011)▶ APA Group - proposed sale of assets to the Energy Investment Trust (2010)▶ Spark Infrastructure - strategic review (2010)▶ Sydney Water - issues pertaining to the potential sale of the desalination plant (2010)▶ Queensland Government - Provided regulatory advice on the sale of Queensland Rail (2010)▶ North Queensland Gas Pipeline (2008)▶ Spark Infrastructure - UK water asset due diligence (2009)▶ Origin Energy Networks (2007)▶ Allgas (2006)▶ Murraylink (2006)▶ Duke Energy's Australasian energy assets (2003)▶ Advised the DUET Group on several acquisitions opportunities (2003-2005)▶ Advised SP AusNet on its IPO (2006)▶ Advised AMP Henderson/Alinta on the acquisition/ownership reorganisation of United Energy, MultiNet and AlintaGas (2003)

	<ul style="list-style-type: none"> ▶ CitiPower (2001) ▶ Advised on the sale of several energy retailers.
Regulatory issues	<ul style="list-style-type: none"> ▶ Advised on regulatory issues to clients including: Alinta, AGL Energy, APA Group, Aurora Energy, the Australian Gas Association, Brookfield, CKI, CitiPower, Country Energy, DUET, ElectraNet, Energex, EnergyAustralia, Envestra, Ergon, ETSA Utilities, Goldfields Gas Pipeline, Hastings Funds Management, HKE, Horizon Power, Integral Energy, Multinet, Origin Energy, PAWA, Powercor, Spark Infrastructure, SP AusNet, TransGrid, United Energy and Western Power.
Financial Investor Group	<ul style="list-style-type: none"> ▶ Advised the eight major energy asset owners in Australia (APA Group, Brookfield, CKI, DUET, Hastings Funds Management, Hong Kong Electric, Singapore Power, Spark Infrastructure) on the AER's first review of the cost of capital to apply to regulated energy network businesses, particularly in light of the Global Financial Crisis. ▶ Undertaken several engagements on the cost of capital for this group.
Financial Investor Group	<ul style="list-style-type: none"> ▶ Advised on the performance of the AER in respect of merits appeals.
Five Victorian electricity network businesses	<ul style="list-style-type: none"> ▶ Advised on the long term performance of these businesses in respect of network charges in light of the recent debate on increasing electricity prices.
Energy industry reforms in Australia, Oman, Israel and Korea	<p>Australian examples include:</p> <ul style="list-style-type: none"> ▶ Better Place: advised the business on the policy and regulatory reform needed to facilitate the penetration of electric vehicles in the NEM. ▶ Victorian Department of Primary Industries (DPI): Policy advice into Large-Scale Solar Electricity Feed-In tariff design. ▶ Ministerial Council on Energy: Advised on the retail market impacts associated with rolling-out 'smart' electricity meters for small customers. ▶ Energy Reform Implementation Group: Advised on the potential impediments in the capital markets to greater investment in the market.
Professional qualifications	
<ul style="list-style-type: none"> ▶ Bachelor of Business, Curtin University, Western Australia ▶ Diploma in Applied Finance and Investment, FINSIA ▶ MBA (hons) Middlesex University Business School, London UK 	

Appendix B: Glossary

Reference	Description
AA2	Western Power's second access arrangement (i.e. for the period 2009/10 to 2011/12)
AA3	Western Power's third access arrangement (i.e. for the period 2012/13 to 2016/17)
ACCC	Australian Competition and Consumer Commission
AER	Australian Energy Regulator
CAPM	Capital Asset Pricing Model
capex	capital expenditure
ERA	Economic Regulation Authority
NER	National Electricity Rules
NFIT	New Facilities Investment Test
RAB	Regulatory Asset Base
RFM	Roll Forward Model
the Access Code	<i>Electricity Networks Access Code 2004 (WA)</i>
WACC	Weighted Average Cost of Capital

Appendix C: Documents I have relied on

Documents:

1. Alexander, I., Mayer, C., and Weeds, H., Regulatory Structure and Risk and Infrastructure Firms: An International Comparison, World Bank Policy Research Working Group Paper No. 1698, 1999
2. Australian Competition Tribunal, Application by Energex Limited (No 2) [2010] ACompT7, 13 October 2010
3. Australian Energy Regulator, Final Decision on the Weighted Average Cost of Capital Parameters for Electricity Transmission and Distribution Network Service Providers, May 2009
4. Biggar, D., Updating the Regulatory Asset Base: Revaluation, Roll Forward and Incentive Regulation, 1 April 2004, prepared for the DRP Forum 2 April 2004
5. Economic Regulation Authority of Western Australia, Final Decision on Proposed Revisions to the Access Arrangement for the South West Interconnected Network - Submitted by Western Power, reprinted 17 December 2009
6. Electricity Networks Access Code 2004 (Western Australia)
7. Financial Investor Group, Submission to the ERA's Draft Decision on Western Power's Proposed Revisions to the Access Arrangement for the South West Interconnected Network - The investor perspective, September 2009
8. KPMG, Advice on certain aspects of the Weighted Average Cost of Capital - a report for Western Power, November 2010
9. Strategic Finance Group, An appropriate equity beta estimate for Western Power - report prepared for Western Power, 13 July 2011
10. Yarrow, G., and Decker, C., Report on the ERA's Draft Decision on Proposed Revisions to the Access Arrangement for the South West Interconnected Network, 1 September 2009

Appendix D: Terms of reference

SCOPE OF WORK

NAME OF PROJECT:

Expert advice regarding the equity beta component of the Weighted Average Cost of Capital (WACC) for Western Power's revised access arrangement for the AA3 Period (2012/13 to 2016/17)

LOCATION:

Head Office

BRANCH/DIVISION:

Access Arrangement, Regulation & Sustainability Division

PURPOSE:

Western Power requires the services of a suitably skilled and experienced consultant to provide expert advice regarding the equity beta parameter associated with the determination of Western Power's WACC for the next Access Arrangement period – 2012/13 to 2016/17.

BACKGROUND

Western Power owns and operates the transmission and distribution network which forms the South West Interconnected Network. The terms and conditions on which users (typically retailers and generators) can obtain access to Western Power's Network are described in Western Power's access arrangement. The access arrangement is revised on a periodic basis, in accordance with the Western Australian *Electricity Networks Access Code 2004* ("the Access Code"), and is submitted to the ERA for approval that it is compliant with the Code.

Western Power is required to submit proposed revisions to the access arrangement and access arrangement information for the Western Power Network with the ERA by 1 October 2011. This revised access arrangement will cover the period FY 2012/13 to 2016/17 (AA3).

WACC

Section 6.64 of the Access Code requires Western Power to set out the WACC for its covered network. The revised access arrangement will include an opening capital asset base and detailed capital expenditure forecasts for the AA3 period. For the purposes of determining the building block revenue the WACC will be applied to the forecast value of the capital base for both the transmission and distribution networks. The determination of the WACC and its associated parameters is required for the period 2012/13 through to 2016/17.

In preparing the access arrangement information, Western Power have identified the equity beta parameter of the WACC as a candidate for further detailed analysis by a consultant

The ERA or its consultant will examine Western Power's WACC estimate which will also be subject to scrutiny during the public consultation phases of the regulatory approval process for the Access Arrangement.

PROJECT SCOPE

Western Power requires the consultant to prepare an expert report on the Equity Beta that satisfies the Federal Court Guidelines (see Attachment 1) and determines for Western Power in AA3 the range of outcomes for the equity beta which conform to the requirements and principles of the Access Code. In determining a range of outcomes for the equity beta, the consultant is required to have regards to:

- relevant provisions of the Access Code
- the fact that Western Power's capital expenditure is subject to an *ex-post* review by the ERA prior to it being included in the capital asset base. Furthermore, the ERA has exercised this provision in their 2009 assessment of Western Power's second access arrangement. The *ex-post* review is unique to Western Power compared to other Australian regulated electricity distribution businesses. Western Power is seeking advice as to the appropriateness of

proposing an Equity Beta that is different to that set by the ERA and AER's regulatory precedent given this particular situation.

TARGET COMPLETION DATE:

The target completion date for the report is 2 September 2011.

The required timeframe is as follows:

Release Request for Proposals	26 August 2011
Proposals submitted	28 August 2011
Consultant appointed	28 August 2011
Draft report	31 August 2011
Final report	2 September 2011

RESOURCES

The expert will be expected to liaise closely with Western Power and review other sources of information, including, but not limited to:

- *the work of other experts*
- recent AER and ERA regulatory decisions and associated expert reports relied upon by the regulators and submitted by network service providers.

DELIVERABLE

At the completion of its task the expert will provide an independent expert report that includes the findings for the Project Scope above. The report will:

- *be a standalone document of a professional standard that can be submitted to and relied upon by the ERA for the purpose of assessing WP's AA3 revision proposal*
- *be able to be made available to the public and be in an appropriate format to be accessible on the internet*
- *address where possible recent deliberations on equity beta by the AER and ERA*
- *is prepared in accordance with the Federal Court Guidelines for Expert Witnesses set out in Attachment 1 and acknowledges that the expert has read the guidelines*
- *summarises the expert's experience and qualifications and attaches curriculum vitae*
- *identifies any person and their qualifications, who assists you in preparing the report or in carrying out any research or test for the purposes of the report*
- *summarises WP's instructions and attaches these term of reference*
- *carefully sets out the facts that the expert has assumed in putting together the report and the basis for those assumptions.*

SELECTION CRITERIA

Western Power is seeking the services of a skilled and experienced consultant to undertake the required work. The criteria that will be used to select the successful consultant are as follows:

- Experience in providing similar review and advice in the electricity or gas industry previously;
- Demonstrated ability to deliver within the required timeframes;
- Demonstrated ability to deliver a report that will withstand scrutiny from the economic regulator.
- Project Management and Quality Assurance

Any queries regarding this Request for Proposal should be directed to Courtney Fitzsimmons 9326 4034.

ATTACHMENT 1: FEDERAL COURT GUIDELINES

Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia

This replaces the Practice Direction on Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia issued on 11 April 2007.

Practitioners should give a copy of the following guidelines to any witness they propose to retain for the purpose of preparing a report or giving evidence in a proceeding as to an opinion held by the witness

that is wholly or substantially based on the specialised knowledge of the witness (see - **Part 3.3 - Opinion of the [Evidence Act 1995](#)** (Cth)).

M.E.J. BLACK
Chief Justice
6 June 2007

Explanatory Memorandum

The guidelines are not intended to address all aspects of an expert witness's duties, but are intended to facilitate the admission of opinion evidence ([footnote #1](#)), and to assist experts to understand in general terms what the Court expects of them. Additionally, it is hoped that the guidelines will assist individual expert witnesses to avoid the criticism that is sometimes made (whether rightly or wrongly) that expert witnesses lack objectivity, or have coloured their evidence in favour of the party calling them.

Ways by which an expert witness giving opinion evidence may avoid criticism of partiality include ensuring that the report, or other statement of evidence:

- (a) is clearly expressed and not argumentative in tone;
- (b) is centrally concerned to express an opinion, upon a clearly defined question or questions, based on the expert's specialised knowledge;
- (c) identifies with precision the factual premises upon which the opinion is based;
- (d) explains the process of reasoning by which the expert reached the opinion expressed in the report;
- (e) is confined to the area or areas of the expert's specialised knowledge; and
- (f) identifies any pre-existing relationship (such as that of treating medical practitioner or a firm's accountant) between the author of the report, or his or her firm, company etc, and a party to the litigation.

An expert is not disqualified from giving evidence by reason only of a pre-existing relationship with the party that proffers the expert as a witness, but the nature of the pre-existing relationship should be disclosed. Where an expert has such a relationship the expert may need to pay particular attention to the identification of the factual premises upon which the expert's opinion is based. The expert should make it clear whether, and to what extent, the opinion is based on the personal knowledge of the expert (the factual basis for which might be required to be established by admissible evidence of the expert or another witness) derived from the ongoing relationship rather than on factual premises or assumptions provided to the expert by way of instructions.

All experts need to be aware that if they participate to a significant degree in the process of formulating and preparing the case of a party, they may find it difficult to maintain objectivity.

An expert witness does not compromise objectivity by defending, forcefully if necessary, an opinion based on the expert's specialised knowledge which is genuinely held but may do so if the expert is, for example, unwilling to give consideration to alternative factual premises or is unwilling, where appropriate, to acknowledge recognised differences of opinion or approach between experts in the relevant discipline.

Some expert evidence is necessarily evaluative in character and, to an extent, argumentative. Some evidence by economists about the definition of the relevant market in competition law cases and evidence by anthropologists about the identification of a traditional society for the purposes of native title applications may be of such a character. The Court has a discretion to treat essentially argumentative evidence as submission, see Order 10 paragraph 1(2)(j).

The guidelines are, as their title indicates, no more than guidelines. Attempts to apply them literally in every case may prove unhelpful. In some areas of specialised knowledge and in some circumstances (eg some aspects of economic “evidence” in competition law cases) their literal interpretation may prove unworkable. The Court expects legal practitioners and experts to work together to ensure that the guidelines are implemented in a practically sensible way which ensures that they achieve their intended purpose.

Guidelines

1. General Duty to the Court ([footnote #2](#))

1.1 An expert witness has an overriding duty to assist the Court on matters relevant to the expert's area of expertise.

1.2 An expert witness is not an advocate for a party even when giving testimony that is necessarily evaluative rather than inferential ([footnote #3](#)).

1.3 An expert witness's paramount duty is to the Court and not to the person retaining the expert.

2. The Form of the Expert Evidence ([footnote #4](#))

2.1 An expert's written report must give details of the expert's qualifications and of the literature or other material used in making the report.

2.2 All assumptions of fact made by the expert should be clearly and fully stated.

2.3 The report should identify and state the qualifications of each person who carried out any tests or experiments upon which the expert relied in compiling the report.

2.4 Where several opinions are provided in the report, the expert should summarise them.

2.5 The expert should give the reasons for each opinion.

2.6 At the end of the report the expert should declare that “[the expert] has *made all the inquiries that [the expert] believes are desirable and appropriate and that no matters of significance that [the expert] regards as relevant have, to [the expert's] knowledge, been withheld from the Court.*”

2.7 There should be included in or attached to the report; (i) a statement of the questions or issues that the expert was asked to address; (ii) the factual premises upon which the report proceeds; and (iii) the documents and other materials that the expert has been instructed to consider.

2.8 If, after exchange of reports or at any other stage, an expert witness changes a material opinion, having read another expert's report or for any other reason, the change should be communicated in a timely manner (through legal representatives) to each party to whom the expert witness's report has been provided and, when appropriate, to the Court ([footnote #5](#)).

2.9 If an expert's opinion is not fully researched because the expert considers that insufficient data are available, or for any other reason, this must be stated with an indication that the opinion is no more than a provisional one. Where an expert witness who has prepared a report believes that it may be incomplete or inaccurate without some qualification, that qualification must be stated in the report ([footnote #5](#)).

2.10 The expert should make it clear when a particular question or issue falls outside the relevant field of expertise.

2.11 Where an expert's report refers to photographs, plans, calculations, analyses, measurements, survey reports or other extrinsic matter, these must be provided to the opposite party at the same time as the exchange of reports (footnote #6).

3. Experts' Conference

3.1 If experts retained by the parties meet at the direction of the Court, it would be improper for an expert to be given, or to accept, instructions not to reach agreement. If, at a meeting directed by the Court, the experts cannot reach agreement about matters of expert opinion, they should specify their reasons for being unable to do so.

footnote #1

As to the distinction between expert opinion evidence and expert assistance see *Evans Deakin Pty Ltd v Sebel Furniture Ltd* [2003] FCA 171 per Allsop J at [676].

footnote #2

See rule 35.3 Civil Procedure Rules (UK); see also Lord Woolf "Medics, Lawyers and the Courts" [1997] 16 CJD 302 at 313.

footnote #3

See *Sampi v State of Western Australia* [2005] FCA 777 at [792]-[793], and *ACCC v Liquorland and Woolworths* [2006] FCA 826 at [836]-[842]

footnote #4

See rule 35.10 Civil Procedure Rules (UK) and Practice Direction 35 – Experts and Assessors (UK); *HG v the Queen* (1999) 197 CLR 414 per Gleeson CJ at [39]-[43]; *Ocean Marine Mutual Insurance Association (Europe) OV v Jetopay Pty Ltd* [2000] FCA 1463 (FC) at [17]-[23]

footnote #5

The "*Ikarian Reefer*" [1993] 20 FSR 563 at 565

footnote #6

The "*Ikarian Reefer*" [1993] 20 FSR 563 at 565-566. See also Ormrod "*Scientific Evidence in Court*" [1968] Crim LR 240.