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Benchmark Study of Contractor Profit Margins

Envestra

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1. Introduction and Summary

1.1 My name is Katherine Lowe and I am a Senior Consultant at NERA Economic Consulting (NERA). I have over eight years professional experience working as an economist and hold both a Master of Economics from the University of Sydney and a Master of Applied Finance from Macquarie University. A copy of my curriculum vitae is attached at Appendix D.

1.2 I have been asked by Envestra to update a benchmark study on the margins earned by contractors that was originally undertaken in 2007. This study formed part of a broader submission that was prepared by NERA¹ and submitted by Envestra to the Victorian Essential Services Commission (ESC) during the 2008-2012 Gas Access Arrangement Review, which considered amongst other things:

§ the framework that should be employed by a regulator when assessing the prudence of outsourcing contracts and the economic rationale for paying a contractor an amount in excess of its directly incurred expenses (ie, a margin);² and

§ the prudence and efficiency of Envestra's Operating and Management Agreement (OMA), which was assessed having regard to:³

- the pricing structure and incentive mechanisms contained within the OMA; and
- the prudence and the efficiency of the costs incurred under the OMA, which involved a consideration of:
 - ú the change in Envestra's real operating costs that had occurred in the period following the entry into the OMA;
 - ú the performance of Envestra relative to its peers, on the basis of both total factor and partial factor productivity measures;
 - ú Envestra's performance under the ESC's efficiency carryover scheme; and
 - ú the consistency of the incentive payments and management fee paid by Envestra under the OMA (herein referred to as "OMA payments") with the margins earned by contractors providing comparable services to those procured by Envestra under the OMA.

1.3 The benchmark study on margins was undertaken to assess the latter of these aspects and involved an examination of the earnings before interest and tax (EBIT) margins⁴

¹ The three reports prepared by NERA on this issue that were submitted to the ESC were:

§ NERA, Outsourcing by regulated businesses, 28 March 2007;

§ NERA, Benchmarking contractor's profit margins, 28 March 2007; and

§ NERA, Allen Consulting Group's Review of NERA's Benchmarking of Contractors' Margins Critique, October 2007.

² NERA, Outsourcing by regulated businesses, 28 March 2007, pp, 4-15.

³ NERA, Outsourcing by regulated businesses, 28 March 2007, pp, 16-25.

⁴ The EBIT margin in this context represents the amount received by the contractor in excess of that which is required to recover directly incurred expenses, overheads and a return of capital.

earned by 25 contractors providing comparable services to those procured by Envestra under the OMA. The principal finding of this study was that while the average implied EBIT margin paid by Envestra under the OMA over the period 2002-2006 was marginally higher than the sample average, it was within the 95 per cent confidence interval for the true population mean and could therefore be viewed as being consistent with the margins generated by other comparable contractors.⁵

1.4 The results of this study also confirmed that contractors providing services in competitive markets expected to earn positive margins, and the payment of such margins was consistent with predictions of economic theory and would reflect, amongst other things:

§ the return on and of physical and intangible assets employed by the contractor in the provision of the service;

§ the allowance required by a contractor to enable it to recover a share of its common costs;

§ the allowance required to self insure against any asymmetric risks arising under the contract; and

§ the margin paid to ensure the incentives of the contractor are aligned with those of the asset owner.

1.5 Three years have elapsed since the benchmark study of margins was originally undertaken and in that period the regulatory approach to outsourcing arrangements and the margins payable under such arrangements has continued to evolve. Over this period there has also been some debate about the relevance of margin-based benchmark studies. The recent decision made by the Australian Energy Regulator (AER) in the *Draft Decision - Victorian electricity distribution network service providers - Distribution determination 2011-2015* (Draft Decision) is apposite.

1.6 Within this Draft Decision, the AER identified a number of issues that it had with benchmarking material that regulated service providers have previously sought to rely upon to demonstrate the prudence and efficiency of their outsourcing arrangements. One of the benchmark studies that the AER referred to in this context was the 2007 EBIT margin benchmark study prepared by NERA for Envestra. The AER's specific concern with this study is captured in the following statement:⁶

“Whether or not a margin should be allowed, and the magnitude of that margin if allowed, should not simply be a matter of comparing the margin earned by a related party against industry benchmarks.”

1.7 I recognise that a benchmark study of this nature cannot, in and of itself, be relied upon as demonstrating the prudence and efficiency of an outsourcing contract.

⁵ NERA, Allen Consulting Group's Review of NERA's Benchmarking of Contractors' Margins Critique, October 2007, p14.

⁶ AER, Draft Decision - Victorian electricity distribution network service providers - Distribution determination 2011-2015, p186.

However, it was never the intention that the results of the benchmark study should be used in this manner. I described at paragraph 1.2 that the benchmark study of contractor profit margins was just one of a number of factors that were considered when assessing the prudence and efficiency of Envestra's OMA. Having said that, I do consider studies of this nature to be relevant to the consideration of whether the operating or capital expenditure proposed by a regulated service provider is consistent with the operating and capital expenditure criteria contained in rules 79(a) and 91(1) of the National Gas Rules (NGR). Rather, they represent one of a number of pieces of information that can inform the consideration as to whether the expenditure is such as would be incurred by a 'prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost'.

- 1.8 It is against this backdrop that Envestra has asked me to update the 2007 benchmark study and to compare the OMA payments with the margins received by other contractors. I understand that the results of this updated study are to be submitted by Envestra to the AER for consideration during the South Australian and Queensland access arrangement reviews.
- 1.9 In short, the results of this updated study reveal that the OMA payments remain in line with the margins earned by contractors providing comparable services to those provided under the OMA. Specifically, the results of the updated study indicate the following:
- § Over the entire sample period (2002-2009) the mean EBIT margin earned by the contractors included in the sample was 5.7 per cent while the 95 per cent confidence interval for the true population mean ranged from 4.8 per cent to 6.6 per cent. Over the same period, the mean OMA implied EBIT margin paid by Envestra under the OMA was 6.0 per cent, which was 0.3 per cent *higher* than the sample average but *within* the 95 per cent confidence interval for the true population mean; and
- § Over the last five years (2005-2009) the mean EBIT margin earned by the contractors included in the sample was 6.4 per cent while the 95 per cent confidence interval surrounding this estimate ranged from 5.4 per cent to 7.4 per cent. Over the same period, the mean OMA implied EBIT margin was 5.8 per cent, which was 0.6 per cent *lower* than the sample average and toward the *lower end* of the 95 per cent confidence interval.
- 1.10 In keeping with my instructions, I confirm that I have undertaken this engagement having regard to the Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia and the requisite statement to this effect is included in Appendix B. I have been assisted in the preparation of this report by Tom Graham,⁷ an Analyst in NERA's Sydney office. Notwithstanding this assistance, the opinions in this report are my own and I take full responsibility for them. A list of the material that I have relied upon in the preparation of this report is contained in Appendix C.

⁷ Tom Graham holds a Bachelor of Commerce degree (with First-Class honours) from the University of Otago, New Zealand.

1.11 The remainder of this report is structured as follows:

- § Chapter 2 provides an overview of the services provided under the OMA and the pricing mechanism adopted in this contract;
- § Chapter 3 describes the methodology that has been employed when undertaking the benchmark study;
- § Chapter 4 sets out the results of the benchmark study; and
- § Appendix A provides an overview of the companies included in the benchmark study.

2. Operating and Management Agreement

2.1 In 1997 Envestra entered into an agreement with Boral Energy Asset Management (BEAM) (later Origin Energy Asset Management (OEAM)) for the provision of operating, maintenance and asset management services to the Queensland and South Australian gas distribution networks. The terms of this agreement were set out in the Operating and Management Agreement (OMA), dated 30 June 1997. This contract was entered into as part of a broader transaction, which involved:⁸

§ the transfer of Boral Ltd's interests in gas distribution network assets located in South Australia, Queensland and the Northern Territory to Envestra; and

§ the public float of Envestra and the acquisition of a 19.97 per cent interest in Envestra by Boral.

2.2 In 1999 Envestra acquired the Stratus gas distribution network in Victoria and around this time entered into another agreement with BEAM (later OEAM) for the provision of operating, maintenance and asset management services to this asset.⁹ In 2007 Origin Energy sold its interests in both OEAM and Envestra to Australian Pipeline Trust (APA) and in July 2007 APA became the provider of services under each of the operating and management agreements applying to Envestra's distribution assets.¹⁰ Following APA's acquisition of OEAM, Envestra and APA entered into new contracts for the provision of services to Envestra's South Australian, Queensland and Victorian assets. I have been instructed by Envestra that the terms and conditions specified in these contracts are materially in the same form as the contracts that were originally entered into with BEAM/OEAM. I have also been informed that the commercial terms of the South Australian and Queensland OMAs are materially of the same form as those contained in the Victorian OMA.

2.3 The remainder of this chapter provides an overview of the services procured by Envestra under the OMA and the pricing mechanism adopted in this agreement.

2.1. Services provided under the OMA

2.4 Under the terms of the OMA, APA is required to provide the following services to Envestra's South Australian and Queensland distribution networks:¹¹

§ manage the haulage of gas, including negotiating contracts with shippers for the haulage of gas and for associated services, including forecasting and managing network capacity;

§ provide all services, labour and materials necessary to operate and maintain each network (including periodic pipeline replacement);

⁸ Envestra, Prospectus, July 1997.

⁹ Operating and Management Agreement (Stratus), 9 March 1999, Envestra Victoria Pty Ltd and Boral Energy Asset Management Ltd

¹⁰ Origin Energy, ASX Media Release – Origin Energy finalises sale of Network Business to APA, 2 July 2007.

¹¹ Clause 4.2 of the Amendment and Restatement Deed – Operating and Management Agreement, 2 July 2007.

- § assist Envestra with the development of regulatory submissions;
- § initiate, promote and engage in industry support activities that are designed to promote the growth in the volume of gas hauled through Envestra's networks through both increased utilisation and expansion;
- § plan, design and construct network extension;
- § read meters, issue invoices and collect and account for network revenue;
- § disconnect customers;
- § odorise the gas hauled through the network; and
- § prepare and settle with Envestra a budget for each financial year and prepare a report that compares its actual performance with budgeted performance.

2.2. Pricing mechanism adopted in the OMA

2.5 The pricing mechanism specified in the OMA allows APA to recover the following items:^{12,13}

- § all expenses it *reasonably* incurs in the provision of the service;
- § government charges;
- § the costs associated with acquiring system use gas;
- § 33 per cent of the value of any annual real reductions in:
 - controllable costs per GJ; and
 - costs per connection of new customers; and
- § a Network Management Fee (NMF) equal to 3 per cent of Envestra's network revenues.

2.6 Notable features of this pricing mechanism include:

- § the cost pass-through component, which is subject to both a 'reasonably incurred' test and a 5 per cent budget constraint.¹⁴ These two aspects of the price mechanism

¹² Section 10 of the Amendment and Restatement Deed – Operating and Management Agreement, 2 July 2007.

¹³ Under the contract Envestra is also required to pay the costs and expenses incurred by OEAM consequent upon employees being made redundant.

¹⁴ Clause 3.3(e) of the OMA states that APA shall not, without the prior consent of Envestra, incur expenditure for operating expenses unless, in its reasonable opinion, the aggregate of anticipated expenditure plus the sum of all expenditure already incurred in the financial year plus the further forecast expenditure will not exceed by more than 5 per cent the allowance for operating expenditure in the budget unless it is necessary to anticipate or respond to any emergency or an incremental matter to ensure continuation of operation of the networks in accordance with a new, or a change in a legal and prudential standard occurring during the financial year covered by the budget. Clause 3.3(f) similarly prevents APA from incurring expenditure for capital expenditure that exceeds the budgeted allowance by more than 5 per cent unless it is necessary to anticipate or respond to any emergency or an incremental matter to ensure continuation of operation of the networks in accordance with a new, or a change in a legal and prudential standard occurring during the financial year covered by the budget.

limit the exposure of Envestra and users of the Queensland and South Australian distribution networks to any significant cost overruns;

§ the capital and operating expenditure based incentive mechanisms are designed to encourage APA to pursue real reductions in controllable costs and connection costs on an ongoing basis. When coupled with the cost pass-through mechanism, this incentive mechanism ensures that permanent efficiency gains are passed through immediately to Envestra via lower operating costs and to users at the next regulatory reset; and

§ the performance based management fee, the NMF, which in combination with the operating and capital expenditure based incentive mechanism and the cost pass-through mechanism outlined above, is designed to align APA's incentives with Envestra's joint objective of minimising costs and maximising revenue.

2.7 The latter two of these components of the pricing mechanism are jointly referred to in this report as the OMA payments.

3. Methodology

3.1 The methodology underlying this benchmark study has been developed to enable the OMA payments to be compared with the margins earned by 'comparable' infrastructure contractors in a standardised manner.

3.2 Before moving on to describe the methodology used in this study it is important to recognise that prudently incurred outsourcing contracts *will* generally include an explicit or implicit margin on the contractor's costs. The existence of such a margin will, as noted in the earlier NERA report for Envestra entitled *Outsourcing by Regulated Businesses*,¹⁵ tend to reflect a range of legitimate costs and risks that are not otherwise captured in the contractor's direct expenses including:

§ the return on and return of capital required by the contractor to compensate it for the use of the physical and intangible assets employed in the provision of the services;

§ the allowance required to enable the contractor to recover a share of its common costs; and

§ the allowance required by the contractor to self insure against any asymmetric risks arising under the contract.

A margin may also be used to ensure the interests of the contractor are aligned with those of the asset owner.

3.3 The remainder of this chapter describes the more fundamental aspects of the methodology underpinning the benchmark study, including:

§ the factors considered when selecting the sample of 'comparable' contractors;

§ the metric used to measure the margins earned by contractors;

§ the measurement period used for the study; and

§ the method used to convert the NMF and the incentive payments payable by Envestra under the OMA to a comparable margin metric.

3.1. Sample selection

3.4 The key objective of this study is to test whether the OMA payments are reasonable having regard to the margins earned by other contractors providing comparable services to those provided under the OMA. In making such an assessment, the sample used to assess the reasonableness of the OMA payments is of particular importance and should be designed to ensure that it is representative of the conditions faced by the relevant contractor and reflects the spectrum of possible outcomes to which the contractor may be exposed. To this end, I have considered the comparability of both the services provided and the physical capital requirements of a large number of companies (or business units within companies) operating within Australia.

¹⁵ NERA, *Outsourcing by regulated businesses*, 28 March 2007, pp. 7-8.

3.1.1. Comparability of services

- 3.5 The first element of comparability that I considered when developing the sample was the comparability of the services provided by the contractors to the services provided under the OMA. The list of services procured by Envestra under the OMA, as described in section 2.1, can broadly be characterised as asset management, operation, maintenance, engineering, design, project management, construction and labour services.
- 3.6 From an engineering standpoint it could be argued that the services provided under the OMA are more akin to those provided to other network infrastructure assets. However, from an economic standpoint, entities that provide similar services across other forms of infrastructure may also be viewed as comparable if the nature and scope of the services is similar to those supplied under the OMA. This view is consistent with the fact that a large number of contractors are observed to provide services across a range of different types of infrastructure assets (see Table 3.1) and is true of APA itself.
- 3.7 In addition to providing services to Envestra's distribution networks, APA provides asset management, operating and maintenance services, engineering, project management and labour services to gas transmission pipelines, the Moomba to Sydney Ethane Pipeline, the Murraylink and Directlink electricity interconnectors, two power stations, two coal seam methane processing plants and a number of reticulated LPG systems (see Table 3.2). While these services are provided in different industries, and no doubt require the use of staff with different technical skills, the economics of efficiently managing those staff and delivering the services will be very similar. If this was not the case then it is unlikely that they would be provided in the same firm.
- 3.8 The foregoing suggests that the nature of the services required by infrastructure assets is sufficiently similar for contractors to provide asset management, operation, maintenance, engineering, design, project management, construction and labour services across a range of infrastructure assets. I am therefore of the view that an assessment of whether the OMA payments are in line with those received by other comparable contractors, should be made having regard to contractors that provide services similar in nature to those provided under the OMA across any type of infrastructure asset. Notwithstanding this view, I have for completeness undertaken a separate examination of the margins earned by:
- § contractors providing infrastructure based contract services irrespective of the type of infrastructure. This group of contractors is referred to in the remainder of this report as the 'All Infrastructure' sample set; and
 - § contractors providing services to network infrastructure assets, ie, gas pipelines, electricity networks, water distribution, rail networks and telecommunication networks. This group of contractors is a sub set of the broader All Infrastructure sample and in the remainder of this report is referred to as the 'Network Infrastructure' sub set.
- 3.9 To identify contractors to include in the study I have had regard to those companies (or business units within companies) that are either listed on the Australian Securities Exchange (ASX) or file statutory accounts (Form 388) with the Australian Securities

and Investment Commission (ASIC), and that provide operating, maintenance, construction, labour, procurement, engineering, design and/or asset management services. The companies that I identified with operations of this nature included:

- § Ausenco Ltd;
- § Bechtel Australia Pty Ltd;
- § Clough Ltd;
- § Downer EDI Ltd (Infrastructure, Rail and Engineering business units);
- § Fluor Australia Pty Ltd;
- § Hatch Associated Pty Ltd;
- § KBR Holdings Ltd;
- § Lend Lease Corporation Ltd (Project Management and Construction business unit);
- § Sinclair Knight Merz (SKM) Holdings Ltd;
- § SMEC Holdings Ltd;
- § Tenix Alliance Pty Ltd;
- § Transfield Services Ltd (Services business unit);
- § Thomas & Coffey Ltd;
- § United Group Ltd (Rail, Infrastructure and Resources business units); and
- § WorleyParsons Ltd (Power, Infrastructure, Minerals and Metals and Hydrocarbons business units).

3.10 An overview of each of the services provided by each of the entities identified above and the basis for determining whether an entity should be included in the All Infrastructure sample or the Network Infrastructure sub set is provided in Appendix A.

3.1.2. Controlling for capital intensity

3.11 The second element of comparability that I considered when developing the sample was the physical capital requirements of the contractors. In general, holding all other things constant, a contractor that utilises a greater level of physical capital in the provision of its service will require a higher return on and of capital (ie, a higher margin) than a contractor with a lower capital requirement. I have therefore excluded those entities that were more capital intensive than APA and its predecessor, OEAM to ensure that the results of the benchmark study were not distorted by the inclusion of entities that utilised a relatively high proportion of physical capital in the generation of revenue. The term 'capital intensity' is used in this context to refer to the ratio of accounting depreciation to revenue. Over the period 2002-2009, the capital intensity exhibited by both APA and OEAM ranged from 0.4 per cent to 3.4 per cent. Companies (or business units within companies) that exhibited an average capital intensity measure in excess of 3.5 per cent over the sample period were therefore excluded from the sample.

3.1.3. Final sample

3.12 The application of the service and capital intensity filters outlined above resulted in the identification of the companies (or business units within companies) set out in the table below. I note in this context that the only difference between this sample and the original sample is that Agility Management Pty Ltd, Alinta Asset Management Pty Ltd and Origin Energy – Networks are no longer included. Each of these entities ceased operations in 2007 and so they have been excluded from the sample (see Appendix A.16).

Table 3.1: Final Sample

Sample Set	Company	Business Unit	Infrastructure Assets Serviced	
All Infrastructure Sample Set	Network Infrastructure Sub Set	Downer EDI	Infrastructure	Energy, water, wastewater and transport sectors
		Tenix Alliance		Energy, water, wastewater, telecommunications and transport sectors
		United Group	Infrastructure	Energy, water, wastewater and transport sectors
		Worley Parsons	Infrastructure	Energy, water, wastewater and transport sectors
			Power	Energy sector
	Ausenco		Energy, environmental, mining and mineral processing sectors	
	Bechtel		Energy, transport, mining, telecommunications, oil and gas sectors	
	Clough		Energy, minerals and water sectors	
	Downer EDI	Engineering	Energy, telecommunications and process engineering sectors	
		Rail	Above rail sector.	
	Fluor		Energy, mining and transport sectors.	
	Hatch		Mining, metallurgical, manufacturing, energy and infrastructure sectors	
	KBR		Energy, transport, water, wastewater, property and mining sectors	
	Lend Lease	Project Management & Construction	Transport, residential, non-residential, communications, education, defence and pharmaceutical sectors	
	SKM		Energy, resources, transport, defence, property and water sectors	
	SMEC		Energy, transport, mining, urban development and water sectors	
	Thomas & Coffey		Energy, mining, manufacturing, health care, defence and property services sectors	
	Transfield Services		Energy, water, transport, telecommunications, facilities management, defence and complex process sectors	
	United Group	Rail	Above rail sector	
		Resources	Oil, gas, petrochemicals, chemicals and minerals industries	
	Worley Parsons	Hydrocarbons	Oil, gas, refining and petrochemical industries	
		Minerals and Metals	Minerals and metals industries	

3.2. Margin metric

3.13 The margin payable under outsourcing arrangements can take a variety of forms depending on the pricing mechanism adopted in the contract. The two most basic forms of contract are:

- § the fixed price contract - under a fixed price contract the margin received by a contractor is equal to the difference between the actual expenditure it incurs and the fixed price specified in the contract. The margin in this type of contract is therefore

implicit and can only be calculated by reference to information on the contractor's costs; and

§ the cost pass-through contract – under a cost pass-through contract the margin payable to the contractor will be specified in the contract. It is important to recognise with these types of contracts that while a margin may be explicitly referred to in the contract the *actual* margin a contractor receives, defined in this context as the amount received in excess of its costs, will depend on whether the cost pass through component includes or excludes the recovery of other costs such as common costs and depreciation. The actual margin in a contract will also depend on whether it is defined in the contract as a fixed dollar amount or expressed as a percentage of a specified variable (eg, contractor's costs (a cost plus mark-up mechanism) or the profits/revenue generated by the asset owner).

3.14 Viewed in this way it is apparent that measuring the margin received by a contractor under individual outsourcing contracts can be a complex task and subject to a number of definitional issues. It is for this reason that I have used the accounting based, earnings before interest and tax (EBIT) margin to measure the margins generated by each of the contractors identified in the preceding section. Using the EBIT margin measure, rather than the margins specified within outsourcing contracts, enables costs, income and margins to be considered in a more standardised manner and therefore overcomes the definitional issues that may otherwise affect a study based on the margins specified in outsourcing contracts. Another advantage of using EBIT margins is that comparable information can be obtained for a large number of companies.

3.15 Formulaically, the EBIT margin can be expressed as follows:

$$\text{EBIT margin} = \frac{\text{EBIT}}{\text{Revenue}}$$

The EBIT term in this formulation measures the difference between revenue and operating expenses (where operating expenses includes directly incurred expenses, depreciation,¹⁶ amortisation and common costs) and so provides a measure of the funds available to a contractor to pay taxes and pay a return on physical and intangible assets. The EBIT margin standardises this profit measure for the scale of operations by measuring the funds available for these purposes on a 'per unit of revenue' basis.¹⁷

3.16 Although the EBIT margin metric has a number of positive attributes, care must be taken to ensure that the calculation of the margin is not distorted by the inclusion of

¹⁶ The earnings measure after depreciation is the relevant measure to use because under the OMA Envestra owns all of the plant, property and equipment used in the provision of services and thus APA should receive only a minimal return of capital for smaller assets such as motor vehicles and information technology.

¹⁷ It is worth noting in this context that while many companies report EBIT there are many other companies that simply report all sources of revenue and costs while others separately report earnings before interest tax depreciation and amortisation (EBITDA) and depreciation and amortisation (DA). In these circumstances the EBIT measure has been calculated using the information contained in the annual reports. For example, where EBITDA has been reported EBIT has been calculated by deducting depreciation and amortisation from this measure. Where revenues and costs are simply presented EBIT has been calculated by deducting total costs (excluding interest and tax related expenses) from sales revenue.

income that is unrelated to the provision of contractor services, such as dividend and interest based income that a company receives from associates or other debt or equity interests. It is for this reason that I have excluded 'Other Income' when deriving the EBIT margin for each of the entities included in the sample. I have also excluded the 'Share of Net Profit of Associates' where the profit generated by the associates is unrelated to the provision of contractor services.¹⁸

3.17 While these sources of income have been excluded from the EBIT margin calculations, the income generated through joint venture arrangements has been retained in the calculation because these arrangements are typically entered into for the purposes of providing contractor services.¹⁹ Examples of such arrangements from the list of comparable companies set out in the preceding section include:

§ United Group Infrastructure, which has entered into a number of joint venture arrangements including those with:

- Balfour Beatty to construct high power voltage lines for Powerlink; and
- Thiess to upgrade rail infrastructure in south east Queensland for Queensland Rail;

§ WorleyParsons, which has entered into a number of joint ventures including those with:

- KBR to design and provide the engineering services for two of the LNG trains for Woodside's Pluto LNG Project;
- Transfield to provide maintenance and project implementation services to Woodside Energy's North West Shelf Venture; and
- Foster Wheeler to provide design and project services to the Pluto LNG Project;

§ Downer EDI, which has a number of joint venture arrangements including an arrangement with Clough to construct port facilities at the Dalrymple Bay Coal Terminal;

§ SMEC, which has entered into a number of joint venture arrangements, including those with:

- Maunsell Australia for the provision of design services for the Brisbane Gateway Upgrade project; and

¹⁸ Apart from Tenix Alliance, the EBIT margins calculated for all of the other entities in the sample exclude the 'Share of Net Profit of Associates'. The Tenix Alliance EBIT margin calculations include the revenue generated and the expenses incurred by Tenix Alliance through its alliance with SP AusNet, T-Squared. While this alliance has been classified as an associate arrangement, the profits do not relate to an equity ownership. Rather they reflect the profit generated through the provision of contractor services and could be better characterised as a joint venture arrangement. The revenue generated and expenses incurred as a result of this arrangement have therefore been included in the derivation of the EBIT margin

¹⁹ To ensure that the margins earned on joint venture arrangements are accurately reflected in the derivation of the EBIT margin estimates of both the revenue and the profit generated by these joint ventures are required. In those cases where these two pieces of information were not reported, the income generated by the joint ventures has been *excluded* from the derivation of the EBIT margin. It is worth noting in this context that this has only affected the derivation of EBIT margins for Bechtel, Hatch Associates and KBR Holdings.

- KBR to provide design services for the Mitcham Frankston Freeway project;
 - § Clough, which has a number of joint venture arrangements in place including those with:
 - BAM International for the construction of the LNG marine load out structure for Woodside's Pluto LNG Project;
 - Murray & Roberts to deliver the Boddington Gold Mine Project in Western Australia; and
 - AMEC to provide engineering, project management and maintenance services to Woodside Energy's North West Shelf Venture; and
 - § Fluor, which has entered into a number of joint venture arrangements including those with:
 - AMEC to perform engineering, procurement and construction activities for the oil and gas industry;
 - SKM to carry out capacity and expansion projects for BHP Billiton; and
 - Technip and Chiyoda to perform studies for the Browse Development Project for Woodside Energy Limited.
- 3.18 This list is not exhaustive but does demonstrate that a large amount of the work undertaken by contractors is carried out through joint ventures. The revenue and profits derived from these joint ventures can therefore be assumed to be directly attributable to the provision of contractor services.

3.3. Measurement period

- 3.19 To ensure that the sample used in this study reflects the spectrum of possible outcomes and captures the influence of both positive and adverse events on the margins earned by individual contractors,²⁰ to the extent possible EBIT margins have been calculated for each of the contractors listed in section 3.1 over the period 2002-2009. The analysis of these margins has then been undertaken using data from the entire sample period (2002-2009) and from the last five years (2005-2009) to reflect more recent market conditions.

²⁰ The margins earned by contractors can be subject to a significant degree of inter-year volatility. The extent of this volatility will depend on the risks to which the contractor is exposed, which will in turn depend on:

- § the pricing mechanism adopted in the contractor's outsourcing contracts. For example, if a contractor has entered into a fixed price contract then it will be exposed to the risk of losing money (ie, earning negative margins) in circumstances where actual expenditure is higher than the contract payment. In cases where such contracts extend over a number of years then the potential for outturn costs to diverge from the forecast used to derive the fixed fees is heightened and so the margins generated on contracts of this form may exhibit considerable volatility over the duration of the contract. Contracts may also expose a contractor to the risk of earning negative margins, eg, where there are penalty clauses and the contractor fails to adhere to the relevant provisions in the contract; and
- § the extent to which a contractor can diversify individual contractual risks across a portfolio of outsourcing contracts.

3.4. Calculation of an implied EBIT margin for the OMA

3.20 To enable the OMA payments to be compared with the EBIT margins generated by each of the comparable contractors, it has been necessary to calculate an implied EBIT margin for the OMA. I made the decision to calculate an implied EBIT margin for the OMA, rather than simply using the EBIT margin earned by APA and its predecessor, OEAM, because both APA and OEAM provide infrastructure related asset management services to a range of other entities (see Table 3.2). On the information contained in APA's annual reports it is not possible to distinguish between the income generated by APA from the provision of services to Envestra's assets and that which is derived from the provision of services to other assets. An implied EBIT margin calculation overcomes this issue by focusing on the actual payments made to APA and its predecessor, OEAM, and therefore more accurately reflects the payments made by Envestra under the OMA.

3.21 Table 3.3 sets out the calculations used to derive an implied EBIT margin for the OMA over the period 2002-2009, which are based on the following formula:

$$\text{Implied EBIT margin} = \frac{3\% \times \text{Envestra Revenue} + \text{Incentive Payments}}{\text{Payments made by Envestra for operation, management and capital expenditure under the OMA}}$$

3.22 This calculation has been undertaken having regard to the following information obtained from Envestra's annual reports:

§ payments made by Envestra for the operation and management of its networks and for network related capital expenditure, which I understand include:

- the amount payable by Envestra under the direct cost pass through component of the OMA;
- the NMF; and
- the incentive payments payable under the OMA.

§ services revenue generated by Envestra, which is used in the derivation of the NMF.

I have also had recourse to information provided by Envestra on the actual incentive payments paid under the OMA.

Table 3.2: Assets serviced by APA

		Asset name	Asset Ownership
Gas Pipeline Assets			
NSW and ACT	T	Moomba to Sydney Pipeline (MSP)	APA
		Interconnect	APA
		Central West Pipeline (CWP)	APA
		Central Ranges Pipeline	APA
		Central Ranges Network	APA
Vic	T	Principal Transmission System (PTS)	APA
SA	T	SEA Gas Pipeline	Joint venture between APA (33.3%), International Power (33.3%), REST Superannuation Fund (33.3%)
		SESA Pipeline	APA
Qld	T	Roma to Brisbane (RBP)	APA
		Carpentaria Gas Pipeline (CGP)	APA
	D	Allgas Energy Distribution System	APA
WA	T	Goldfields Gas Pipeline	APA 88.2% BBP 11.8%
		Midwest Gas Pipeline	APA 50%, Horizon 50%
		Kalgoorlie to Kambalda Lateral	APA
		Telfer Gas Pipeline	Energy Infrastructure Investments, APA 19.9% interest
		Parmelia Gas Pipeline	APA
		Cape Lambert, Dampier, Paraburdoo and YMP Gas Pipeline	Pilbara Iron
		Nifty Consumer Gas Pipeline	Birla Nifty Pty Ltd
		Plutonic Gas Lateral	Barrick Gold
		Maitland Gas Lateral	EDL Group Operations Pty Ltd
		Onslow Gas Pipeline	Horizon Power
		Burrup Fertilizer	Apache Energy Pty Ltd
		Cawse Gas Lateral	Norilsk Nickel Cawse Pty Ltd
		Cosmos Gas Lateral	Xstrata Nickel Australasia Operations Pty Ltd
		Jundee Gas Lateral	Newmont Yandal Operations Pty Ltd
		Leonora Gas Lateral	Energy Generation
		Wiluna Gold Gas Lateral	APA
		Thunderbox Gas Lateral	Norilsk Nickel Wildara NL
		Jaguar Lateral	Jabiru Metals Ltd
		Magellan Gas Lateral	Redback Pipelines Pty Ltd
		Cockburn Cement Delivery Station (Dongara Pipeline)	Origin Energy Pipelines Pty Ltd
Woodada Receipt Facilities	Arc Energy Ltd		
NT	T	Amadeus Basin to Darwin Pipeline (ABDP)	APA 96%, and remainder PAWA and Centrecorp Aboriginal Investment Corporation Pty Ltd
		Bonaparte Gas Pipeline	Energy Infrastructure Investments, APA 19.9% interest
		Wickham Point Pipeline	Energy Infrastructure Investments, APA 19.9% interest
	D	Darwin Distribution System	APA 96%, and remainder PAWA and Centrecorp Aboriginal Investment Corporation Pty Ltd
Other Assets			
		Moomba to Sydney Ethane Pipeline	Ethane Pipeline Income Fund, APA 6.1% interest
		Murraylink and Directlnk electricity interconnectors	Energy Infrastructure Investments, APA 19.9% interest
		Daandine and X41 power stations	Energy Infrastructure Investments, APA 19.9% interest
		Tipton West and Kogan North coal seam methane processing plants	Energy Infrastructure Investments, APA 19.9% interest
		Reticulated LPG System in Queensland, Northern NSW, SA and NT	Origin Energy LPG Ltd

Source: Letter from John Ferguson (APA) to Craig de Laine (Envestra), dated 24 June 2010.

Table 3.3: OMA Implied EBIT Margin 2002-2009 (\$000)

Parameter	Formula	2002	2003	2004	2005	2006	2007	2008	2009
Envestra Revenue (Services) ¹	A	\$261,331	\$271,703	\$293,495	\$296,617	\$314,185	\$311,800	\$331,700	\$372,900
Payments for operation and management of the networks ¹	B	\$64,980	\$68,456	\$77,502	\$79,994	\$80,711	\$84,026	\$89,878	\$89,364
Payments for capital expenditure relating to the networks ¹	C	\$69,302	\$76,122	\$92,116	\$82,609	\$91,295	\$108,431	\$111,840	\$110,570
Incentive payments ²	D	\$1,900	\$1,200	\$1,835	\$900	\$800	\$91	\$1,485	\$1,463
<i>OMA implied EBIT margin</i>									
Revenue earned by APA/OEAM	E=B+C	\$134,282	\$144,578	\$169,618	\$162,603	\$172,006	\$192,457	\$201,718	\$199,934
EBIT earned by APA/OEAM (Network Management Fee + Incentive Fee)	F=3%xA+D	\$9,740	\$9,351	\$10,640	\$9,799	\$10,226	\$9,445	\$11,436	\$12,650
OMA Implied EBIT Margin	G=F/E	7.3%	6.5%	6.3%	6.0%	5.9%	4.9%	5.7%	6.3%

1. Envestra, Annual Reports, 2003-2009.

2. Data provided by Envestra.

4. Results of the Benchmark Study

- 4.1 The EBIT margins generated by each company (or business units) over the period 2002-2009 are set out in Table 4.1. Before examining the margins presented in this table, it is worth reiterating that the EBIT margin represents the amount received in *excess* of that which is required to enable the contractor to recover its costs. It therefore provides a measure of the funds available to the contractor to pay taxes and pay a return on physical and intangible assets. If the contractor is entitled to some form of incentive payment under its contracts then a component of the EBIT margin will also represent the amount paid to the contractor to align its interests with those of the asset owner.
- 4.2 Examining the information contained in Table 4.1 it is apparent that the mean EBIT margin generated by the All Infrastructure sample over the two measurement periods was *lower* than that generated by the Network Infrastructure sub set (2005-2009: 6.4 per cent versus 6.8 per cent and 2002-2009: 5.7 per cent versus 7.0 per cent). Viewed in this way it is apparent that the use of the All Infrastructure sample to assess the OMA payments will result in a more conservative assessment than would be the case if the Network Infrastructure sub set were used. The measurement of the mean EBIT margin generated by the All Infrastructure sample may also be viewed as being more robust because it is based on 4.5 times as many observations as those included in the Network Infrastructure sample (151 observations vs 33 observations). The broader All Infrastructure sample group therefore, in my view, results in a more conservative comparator to use when assessing the OMA's implied EBIT margin. The discussion of the results in the remainder of this section therefore focuses on the broader sample.
- 4.3 The distribution of margins generated across the All Infrastructure sample over the period 2002-2009 is illustrated in the figure below.

Figure 4.1: Distribution of Margins Across Entire Sample 2002-2009

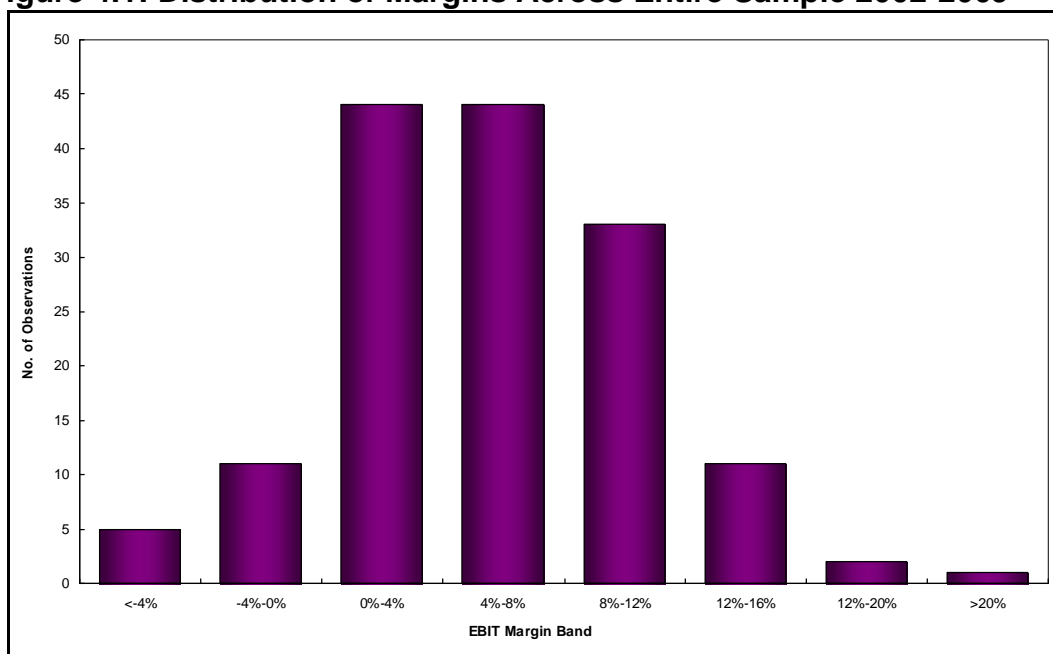


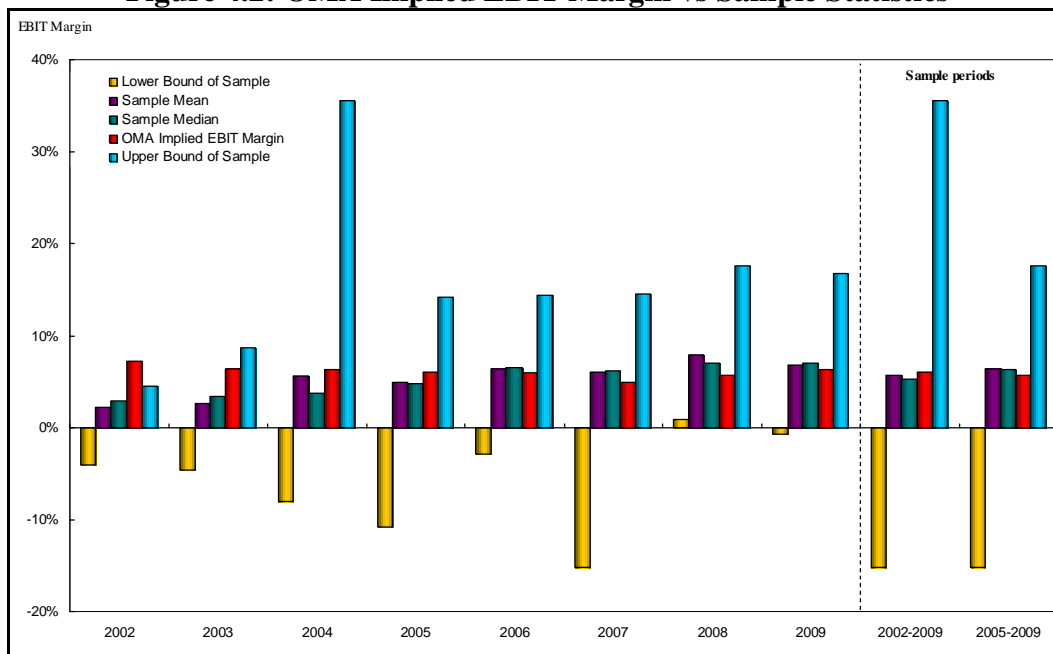
Table 4.1: EBIT Margins Generated Over the Sample Period

Sample Set	Company	Business Unit	Annual Data							Average Over Period				
			2002	2003	2004	2005	2006	2007	2008	2009	2002-09	2005-09		
All Infrastructure Sample Set	Network Infrastructure Sub Set	Downer EDI	Infrastructure	3.5%	4.4%	5.6%	5.5%	5.7%	4.6%	6.2%	6.1%	5.5%	5.7%	
		Tenix Alliance		-0.2%	2.9%	0.9%	-1.1%	2.0%	4.5%	3.2%	-0.7%	1.6%	1.7%	
		United Group		Infrastructure	n.a.	n.a.	n.a.	4.9%	6.3%	6.2%	6.1%	6.3%	6.1%	6.1%
		Worley Parsons		Infrastructure	n.a.	n.a.	6.5%	11.4%	6.8%	9.2%	11.9%	8.1%	9.5%	9.6%
				Power	n.a.	n.a.	35.5%	11.1%	14.4%	10.2%	11.9%	9.7%	11.2%	11.2%
	Ausenco			n.a.	3.7%	8.9%	8.7%	9.8%	10.4%	6.5%	1.3%	6.8%	6.7%	
	Bechtel			0.6%	-2.2%	-1.8%	-2.7%	9.9%	3.2%	4.9%	7.4%	1.0%	3.7%	
	Clough			n.a.	-0.3%	-1.0%	-10.8%	-2.8%	-15.2%	2.5%	7.3%	-2.9%	-4.1%	
	Downer EDI		Engineering	3.9%	3.4%	4.8%	4.3%	0.7%	2.1%	5.2%	6.2%	3.9%	3.8%	
			Rail	3.9%	6.1%	4.2%	6.4%	9.3%	n.a.	7.5%	6.8%	6.5%	7.3%	
	Fluor			2.8%	-4.6%	-8.0%	-0.2%	2.1%	2.9%	0.9%	3.0%	0.7%	1.9%	
	Hatch			2.9%	5.3%	10.8%	13.5%	9.6%	14.6%	14.8%	12.5%	11.7%	13.1%	
	KBR			3.7%	8.6%	-0.7%	3.1%	6.8%	9.0%	14.0%	7.6%	6.8%	8.8%	
	Lend Lease		Project Management & Construction	n.a.	n.a.	1.7%	2.2%	1.8%	0.3%	1.5%	1.9%	1.5%	1.5%	
	SKM			n.a.	n.a.	n.a.	10.7%	12.0%	12.0%	13.8%	10.1%	11.8%	11.8%	
	SMEC			4.6%	5.0%	3.1%	4.6%	7.4%	9.9%	10.5%	11.8%	8.4%	9.8%	
	Thomas & Coffey			-4.0%	1.3%	0.4%	2.2%	3.0%	3.5%	4.3%	2.4%	2.3%	3.1%	
	Transfield Services			2.2%	1.5%	1.5%	1.4%	1.6%	1.8%	2.2%	1.9%	1.8%	1.9%	
	United Group		Rail	n.a.	n.a.	n.a.	6.2%	5.2%	4.4%	7.8%	5.7%	5.9%	5.9%	
			Resources	n.a.	n.a.	n.a.	4.7%	6.4%	9.8%	10.4%	7.9%	8.0%	8.0%	
Worley Parsons		Hydrocarbons	n.a.	n.a.	11.8%	8.3%	8.7%	9.0%	10.5%	10.0%	9.7%	9.7%		
		Minerals and Metals	n.a.	n.a.	15.7%	14.2%	14.1%	14.2%	17.5%	16.8%	15.9%	15.9%		
Summary Statistics														
Network Infrastructure Sub Set														
Mean				1.6%	3.7%	12.1%	6.4%	7.0%	6.9%	7.8%	5.9%	7.0%	6.8%	
Median				1.6%	3.7%	6.0%	5.5%	6.3%	6.2%	6.2%	6.3%	6.1%	6.2%	
All Infrastructure Sample Set														
Mean				2.2%	2.7%	5.5%	4.9%	6.4%	6.0%	7.9%	6.8%	5.7%	6.4%	
Median				2.9%	3.4%	3.7%	4.8%	6.6%	6.2%	7.0%	7.1%	5.2%	6.3%	
OMA Implied EBIT Margin				7.3%	6.5%	6.3%	6.0%	5.9%	4.9%	5.7%	6.3%	6.0%	5.8%	

- 4.4 The information contained in Figure 4.1 and Table 4.1 show that the range of margins generated by all of the contractors included in the sample over the period is wide, extending from -15.2 per cent to 35.5 per cent. The breadth of this range reflects the inclusion of contractors that have experienced negative margins over the period (Clough, Bechtel, Fluor, KBR Holdings, Tenix Alliance and Thomas & Coffey) and contractors that have generated returns in excess of 12 per cent (WorleyParsons, SKM, Hatch Associates and KBR Holdings).
- 4.5 Table 4.1 also illustrates the inter-year volatility that can surround the EBIT margins earned by some contractors. For instance, Clough's EBIT margin ranges from -15.2 per cent to 7.3 per cent over the sample period. Similar observations can be made for WorleyParsons – Power (9.7 per cent to 35.5 per cent), Bechtel (-2.7 per cent to 9.9 per cent), Fluor (-8 per cent to 3.0 per cent), KBR Holdings (-0.7 per cent to 14 per cent) and Hatch & Associates (2.9 per cent to 14.8 per cent). The volatility exhibited by the margins earned by these contractors may reflect, amongst other things:
- § the type of contracts the contractor has entered into;
 - § the portfolio of contracts that the contractor has in place; and
 - § the extent to which individual contractual risks can be diversified across the portfolio.
- 4.6 In contrast to the inter-year variability exhibited by these entities, other contractors such as United Group – Infrastructure, Downer EDI – Infrastructure, Transfield Services and Lend Lease – Project Management and Construction, appear to have earned relatively steady margins over the period. The steady nature of the margins earned by these contractors may reflect the fact that they have a portfolio of outsourcing contracts over which they diversify their exposure to individual contract risks. Such a portfolio may provide for diversification across industries and across alternative pricing structures.
- 4.7 Other relevant observations that can be made on the basis of the data contained in Table 4.1 include that:
- § all but six of the 22 business units included in the sample have been consistently able to earn positive margins over the sample period, which supports the view that contractors in competitive markets are not prepared to be compensated on a cost-recovery basis only and will expect to earn a positive margin; and
 - § the margins earned by WorleyParsons across all of its business segments have been consistently higher than the sample average while the margins earned by Fluor, Lend Lease – Project Management and Construction, Tenix Alliance, Thomas & Coffey and Transfield Services have been consistently lower than the sample average. The ability of these companies to earn consistently superior (inferior) returns may reflect the fact that these companies are more (less) efficient (ie, are able to achieve greater economies of scale and scope) than their counterparts or are better (less) able to diversify their contract-specific risks.

4.8 The figure below compares the OMA implied EBIT margin with the sample mean, median, upper and lower bound estimates.

Figure 4.2: OMA Implied EBIT Margin vs Sample Statistics



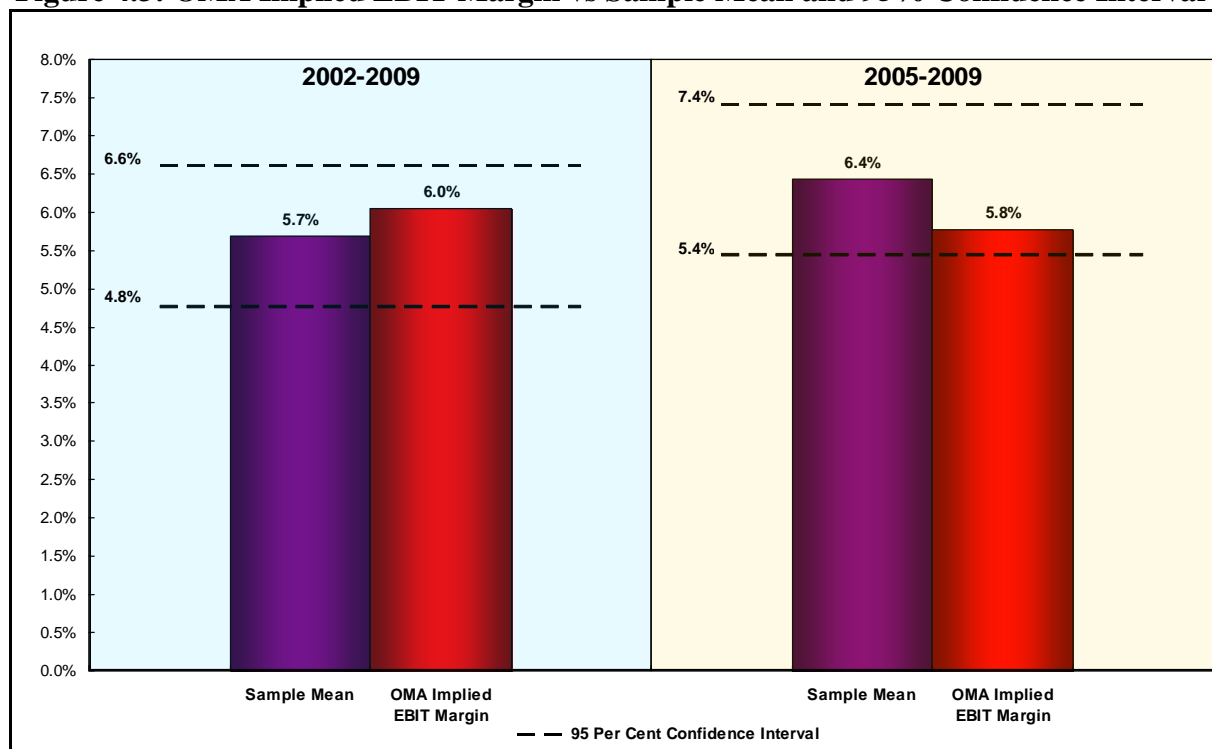
4.9 These data show that the OMA implied EBIT margin was higher than the mean and median EBIT margins earned by other comparable companies over the period 2002-2005 but since 2006 it has been consistently lower than these sample statistics. The data in this figure also reveal that, over the period 2002-2009, the OMA implied EBIT margin was 0.3 per cent *higher* than the sample mean (6.0 per cent versus 5.7 per cent) but over the period 2005-2009 was 0.6 per cent *below* the sample mean (5.8 per cent versus 6.4 per cent).

4.10 To determine whether the OMA payments are consistent with the margin earned by other contractors providing comparable services, I have used standard statistical techniques to establish the 95 per cent confidence interval for the true population mean for both the entire sample period (2002-2009) and for the last five years (2005-2009). The table below provides a summary of these results while Figure 4.3 provides a graphical representation of the OMA implied EBIT margin relative to both the sample mean and the 95 per cent confidence interval for the true population mean.

Table 4.2: Confidence Interval for the Population Mean

Parameter	2002-2009	2005-2009
Sample mean (b_{est})	5.7%	6.4%
Sample standard deviation (s)	5.7%	5.2%
Number of observations in sample (n)	151	109
95% confidence interval for population mean ($b_{est} \pm t_{\alpha} se(b_{est}) = b_{est} \pm t_{\alpha} \frac{s}{\sqrt{n}}$)	4.8-6.6%	5.4%-7.4%
OMA Implied EBIT Margin	6.0%	5.8%

Figure 4.3: OMA Implied EBIT Margin vs Sample Mean and 95% Confidence Interval



4.11 Based upon the information contained in the table above, the following observations can be made about the OMA implied EBIT margin over the two sample periods:

- § 2002-2009 - the mean EBIT margin over this period was 5.7 per cent while the 95 per cent confidence interval surrounding this estimate ranged from 4.8 per cent to 6.6 per cent. Over the same period, the mean OMA implied EBIT margin was 6.0 per cent which was 0.3 per cent above the sample average but within the 95 per cent confidence interval; and
- § 2005-2009 - the mean EBIT margin over this period was 6.4 per cent while the 95 per cent confidence interval for the true mean ranged from 5.4 per cent to 7.4 per cent. Over the same period, the mean OMA implied EBIT margin was 5.8 per cent which was 0.6 per cent lower than the sample average and toward the lower end of the 95 per cent confidence interval.

4.12 Overall these results demonstrate that the OMA payments are in line with those being received by other comparable contract service providers that supply contract services to third parties.

Appendix A. Comparable Companies

A.1 The companies included in this study provide a range of contract services including asset management, operation, maintenance, engineering, project management, construction and labour services. The remainder of this appendix provides an overview of the services provided by those companies that have been included in the study and also sets out the EBIT margins that have been calculated having recourse to the statutory accounts prepared by each entity.

A.1. Ausenco Limited

A.2 Ausenco Limited is an Australian listed company that provides engineering, construction, operations, maintenance and project management services to the energy, environmental, mining and mineral processing sectors. Ausenco operates in Australia, New Zealand, Papua New Guinea, Canada, Argentina, Africa, Asia and Europe and its clients include Newcrest Mining, BeMax Resources and Triton Resources. The description of infrastructure assets serviced by Ausenco indicates that its operations extend beyond network infrastructure services. Ausenco has therefore only been included in the All Infrastructure sample.

A.3 The calculation of Ausenco's EBIT margin is set out in the table below. The EBIT margins appearing in this table have been calculated having regard to the income generated by Ausenco through its joint venture arrangements.

Table A.1: Ausenco EBIT Margin (\$000)

	2002	2003	2004	2005	2006	2007	2008	2009
Revenue	n.a.	\$34,567	\$78,392	\$83,216	\$177,076	\$519,839	\$726,875	\$442,500
EBIT	n.a.	\$1,278	\$6,966	\$7,252	\$17,272	\$53,830	\$47,168	\$5,922
EBIT Margin	n.a.	3.7%	8.9%	8.7%	9.8%	10.4%	6.5%	1.3%
Capital Intensity	n.a.	1.2%	0.5%	0.7%	1.0%	0.6%	1.4%	2.9%

Source: Ausenco Annual Reports.

A.2. Bechtel Australia Pty Ltd

A.4 Bechtel Australia Pty Ltd is an Australian subsidiary of the global company Bechtel. In Australia, Bechtel provides engineering, construction and project management services to the transport, energy, mining, telecommunications, oil and gas industries. The projects Bechtel has been involved in include Vodafone's high speed roll out and the development of the LNG project in Darwin. The description of infrastructure assets serviced by Bechtel indicates that its operations extend beyond network infrastructure services. Bechtel has therefore only been included in the All Infrastructure sample.

A.5 Bechtel is not listed on the ASX but it is required to file financial statements on an annual basis with ASIC using Form 388. The financial results contained in these 388 forms have therefore been used to calculate the EBIT margins contained in the table below. It should be noted that while Bechtel recorded income from its joint venture interests over the period, its financial reports do not provide a separate measure of the revenue and profit derived from these interests. It has not therefore been possible to

calculate the EBIT margin associated with these joint venture interests. The EBIT margins in the table below have therefore been calculated without regard to the EBIT margins generated from Bechtel's joint venture interests.

Table A.2: Bechtel EBIT Margin (\$000)

	2002	2003	2004	2005	2006	2007	2008	2009
Revenue	\$618,398	\$809,989	\$691,121	\$535,581	\$232,259	\$201,955	\$351,713	\$456,890
EBIT	\$3,751	-\$17,680	-\$12,635	-\$14,321	\$23,037	\$6,555	\$17,214	\$33,783
EBIT Margin	0.6%	-2.2%	-1.8%	-2.7%	9.9%	3.2%	4.9%	7.4%
Capital Intensity	0.9%	0.7%	0.9%	1.2%	2.2%	2.4%	1.8%	1.2%

Source: Form 388 filings with ASIC.

A.3. Clough Ltd

A.6 Clough Limited is an Australian listed company that provides engineering, project management, construction, commissioning, operations, maintenance and asset management services across a range of industries including the energy, minerals and water sectors. Clough operates in Australia, Indonesia, Pakistan, Thailand, India and the Middle East. Some of Clough's more notable clients include Woodside, ConocoPhillips, Chevron, the Gladstone Area Water Board and the Water Corporation of WA. The description of infrastructure assets serviced by Clough indicates that its operations extend beyond network infrastructure services. Clough has therefore only been included in the All Infrastructure sample.

A.7 The calculation of Clough's EBIT margin is set out in the table below. The EBIT margins appearing in this table include the effect of income generated by Clough through its joint venture arrangements.

Table A.3: Clough EBIT Margin (\$000)

	2002	2003	2004	2005	2006	2007	2008	2009
Revenue	n.a.	\$1,063,555	\$803,411	\$625,213	\$912,951	\$723,945	\$600,180	\$626,230
EBIT	n.a.	-\$2,700	-\$8,398	-\$67,806	-\$25,960	-\$110,089	\$14,936	\$45,542
EBIT Margin	n.a.	-0.3%	-1.0%	-10.8%	-2.8%	-15.2%	2.5%	7.3%
Capital Intensity	n.a.	3.4%	2.7%	2.0%	1.7%	2.4%	0.9%	1.2%

Source: Clough Annual Reports.

A.4. Downer EDI Limited

A.8 Downer EDI is an Australian listed company that provides engineering and infrastructure management services to the energy, rail, road, telecommunications, mining and mineral processing industries. Downer EDI operates in Australia, New Zealand, the UK and Asia and its clients have included VicRoads, Transit NZ, Sydney Water, Orica, Shell, Caltex, RailCorp, Xstrata, QR and BHP Billiton.

A.9 Downer EDI reports its data on a segment basis with the primary business segments being:

§ the Infrastructure business, which provides operating, maintenance and construction services to the road, rail, energy, water and wastewater industries. The services provided by this business unit can broadly be characterised as network

infrastructure services. This business unit has therefore been included in both the All Infrastructure sample set and the Network Infrastructure sub set;

§ the Rail business, which provides design, manufacture, refurbishment and maintenance services to the above rail industry. The description of infrastructure assets serviced by this business unit indicates that its operations extend beyond network infrastructure services. This business unit has therefore only been included in the All Infrastructure sample;

§ the Engineering business, which provides engineering and consultancy services to the telecommunications, energy and process engineering industries. The description of infrastructure assets serviced by this business unit indicates that its operations extend beyond network infrastructure services. This business unit has therefore only been included in the All Infrastructure sample; and

§ the Mining and Resources business, which provides mining and minerals processing services, drilling services, mine design, process design, construction, operations and maintenance services to the mining, resources, oil and gas and geothermal industries. The capital intensity measure of this business unit averaged 5.5 per cent over the sample period and has therefore been excluded from the study

A.10 The EBIT margins for the Rail, Infrastructure and Engineering business units are set out in the table below. The EBIT margins appearing in this table have been calculated having regard to the income generated by Downer EDI through its joint venture arrangements.

Table A.4: Downer EDI EBIT Margin (\$000)

	2002	2003	2004	2005	2006	2007 ^b	2008	2009
<i>Rail^b</i>								
Revenue	\$362,329	\$333,509	\$409,911	\$360,918	\$348,904	n.a.	\$613,072	\$888,925
EBIT	\$13,989	\$20,417	\$17,342	\$23,258	\$32,389	n.a.	\$45,904	\$60,765
EBIT Margin	3.9%	6.1%	4.2%	6.4%	9.3%	n.a.	7.5%	6.8%
Capital Intensity	3.0%	3.3%	2.6%	1.3%	1.5%	n.a.	1.2%	0.8%
<i>Infrastructure</i>								
Revenue	\$425,470	\$576,537	\$683,980	\$893,571	\$1,078,510	\$1,619,922	\$1,775,204	\$1,863,839
EBIT	\$14,750	\$25,349	\$38,167	\$49,576	\$61,610	\$74,121	\$110,012	\$113,543
EBIT Margin	3.5%	4.4%	5.6%	5.5%	5.7%	4.6%	6.2%	6.1%
Capital Intensity	3.1%	2.6%	3.1%	2.5%	2.9%	2.6%	2.6%	2.9%
<i>Engineering</i>								
Revenue	\$741,152	\$869,470	\$1,170,472	\$1,289,894	\$1,649,249	\$2,113,256	\$2,139,722	\$2,131,154
EBIT	\$28,608	\$29,667	\$56,234	\$54,827	\$11,625	\$44,657	\$111,707	\$131,415
EBIT Margin	3.9%	3.4%	4.8%	4.3%	0.7%^a	2.1%	5.2%	6.2%
Capital Intensity	1.7%	1.6%	1.8%	1.0%	0.9%	1.3%	1.1%	1.2%

Source: Downer EDI Annual Reports

a. In 2006 Downer EDI wrote down losses associated with construction contracts in the Engineering business segment, which resulted in a lower than average EBIT margin in this year.

b. In 2007 Downer EDI reported the earnings from the Rail and Engineering business segments on a combined basis. The results for the combined business segment have been included in the Engineering business segment data for 2007.

A.5. Fluor Australia Pty Ltd

A.11 Fluor Australia Pty Ltd is an Australian subsidiary of the US based company, Fluor Corporation. Within Australia, Fluor provides engineering, construction, operation, maintenance and project management services across a range of sectors including the energy, mining and transport sectors and its clients in Australia have included BHP Billiton, Worsley Alumina and Anaconda Nickel. The description of infrastructure assets serviced by Fluor indicates that its operations extend beyond network infrastructure services. Fluor has therefore only been included in the All Infrastructure sample.

A.12 Fluor is not listed on the ASX but it is required to file financial statements on an annual basis with ASIC using Form 388. The financial results contained in these 388 forms have therefore been used to calculate the EBIT margins in the table below. The EBIT margins appearing in this table have been calculated having regard to the income generated by Fluor through its joint venture arrangements.

Table A.5: Fluor EBIT Margin (\$000)

	2002	2003	2004	2005	2006	2007	2008	2009
Revenue	\$294,592	\$196,642	\$163,203	\$215,685	\$184,334	\$244,992	\$372,992	\$498,261
EBIT	\$8,302	-\$9,125	-\$13,011	-\$339	\$3,913	\$7,141	\$3,409	\$14,928
EBIT Margin	2.8%	-4.6%^a	-8.0%^b	-0.2%	2.1%	2.9%	0.9%	3.0%
Capital Intensity	0.7%	0.6%	0.9%	0.1%	0.3%	0.5%	0.4%	0.6%

Source: Form 388 filings with ASIC.

a. Includes the effect of a write down of a joint venture investment in magnesium smelter.

b. Includes the effect of a settlement paid to Anaconda Nickel.

A.6. Hatch Associates Pty Ltd

A.13 Hatch Associates Pty Ltd provides engineering, project management, construction, business consulting and IT services to the mining, metallurgical, manufacturing, energy and infrastructure industries. Hatch Associates is a Canadian company with interests in Australia, New Zealand, the US, Europe and Asia. Within Australia, Hatch Associates' clients have included BlueScope Steel, BHP Billiton and Barrick Gold. The description of infrastructure assets serviced by Hatch indicates that its operations extend beyond network infrastructure services. Hatch has therefore only been included in the All Infrastructure sample.

A.14 Hatch Associates is not listed on the ASX but it is required to file financial statements on an annual basis with ASIC using Form 388. The financial results contained in these 388 forms have therefore been used to calculate the EBIT margins in the table below. It should be noted that while Hatch Associates recorded income from its joint venture interests over the period, its financial reports do not provide a separate measure of the revenue and profit derived from these interests. It has not therefore been possible to calculate the EBIT margin associated with these joint venture interests. The EBIT margins in the table below have therefore been calculated without regard to the EBIT margins generated from Hatch Associates' joint venture interests.

Table A.6: Hatch Associates EBIT Margin (\$000)

	2002	2003	2004	2005	2006	2007	2008	2009
Revenue	\$171,935	\$187,985	\$255,613	\$350,355	\$358,572	\$386,631	\$481,330	\$435,233
EBIT	\$5,026	\$10,009	\$27,654	\$47,423	\$34,344	\$56,277	\$71,412	\$54,508
EBIT Margin	2.9%	5.3%	10.8%	13.5%	9.6%	14.6%	14.8%	12.5%
Capital Intensity	1.4%	1.4%	0.9%	0.7%	0.7%	0.7%	0.8%	1.3%

Source: Form 388 filings with ASIC.

A.7. KBR Holdings Ltd (Australia)

A.15 KBR Holdings Ltd is an Australian subsidiary of the US based company, KBR. Within Australia, KBR Holdings provides engineering, construction, operation, maintenance and asset management services to the energy, transport, water, wastewater, property and mining sectors. KBR's more notable projects in Australia have included the Sydney 2000 Olympic Games, Queensland's Coombabah Water Futures Project and the Adelaide to Darwin Railway. It has also recently been awarded a contract for the Gorgon LNG project on Barrow Island. The description of infrastructure assets serviced by KBR Holdings indicates that its operations extend beyond network infrastructure services. KBR has therefore only been included in the All Infrastructure sample.

A.16 KBR Holdings is not listed on the ASX but it is required to file financial statements on an annual basis with ASIC using Form 388. The financial results contained in these 388 forms have therefore been used to calculate the EBIT margins in the table below. KBR has interests in a number of joint ventures in Australia but has only provided a breakdown of the revenue and expenses arising from these joint venture arrangements up to 2005. The EBIT margins calculated in the table below therefore include the effect of the joint venture arrangements up to 2005 but *exclude* the effect thereafter.

Table A.7: KBR Holdings EBIT Margin (\$000)

	2002	2003	2004	2005	2006	2007	2008	2009
Revenue	\$602,333	\$413,262	\$333,640	\$264,271	\$279,997	\$356,409	\$492,257	\$408,794
EBIT	\$22,192	\$35,685	-\$2,317	\$8,303	\$19,160	\$32,039	\$68,702	\$31,080.
EBIT Margin	3.7%	8.6%	-0.7%	3.1%	6.8%	9.0%	14.0%	7.6%
Capital Intensity	1.8%	2.5%	1.1%	1.1%	1.1%	0.9%	0.8%	1.2%

Source: Form 388 filings with ASIC.

A.8. Lend Lease Corporation Limited

A.17 Lend Lease is an Australian listed company that operates in Australia, New Zealand, the US, the UK, Asia and Europe. Lend Lease's operations can broadly be divided into five businesses including:

- § the Retail business, which develops, builds, operates and manages retail centres;
- § the Communities business, which is involved in urban development;
- § the Investment Management business, which manages property funds;
- § the Public Private Partnerships business, which manages and invests money in large public private partnership projects in the US and UK; and

§ the Project Management and Construction business, which provide construction management, project and programme management, design management, design engineering, procurement and facilities management services to the residential, non-residential, communications, transport, education, defence and pharmaceutical sectors.

A.18 Of these five business units, the Project Management and Construction business unit appears to be the only one that provides similar infrastructure based contract services to those provided under the OMA. This is the only business segment that has therefore been included in the study. The description of infrastructure assets serviced by this business unit indicates that its operations extend beyond network infrastructure services. The Project Management and Construction business unit has therefore only been included in the All Infrastructure sample.

A.19 The calculation of the Project Management and Construction business unit's EBIT margin is set out in the table below. It is worth noting that in 2003 Lend Lease underwent a restructure. It has therefore only been possible to calculate an EBIT margin for this segment from 2004 onward.

Table A.8: Lend Lease Project Management Construction EBIT Margin (\$000)

	2002	2003	2004	2005	2006	2007	2008	2009
Revenue	n.a.	n.a.	\$7,691,900	\$8,183,800	\$9,572,200	\$12,056,700	\$12,426,800	\$12,421,400
EBIT	n.a.	n.a.	\$130,300	\$178,800	\$171,300	\$40,300	\$191,400	\$236,900
EBIT Margin	n.a.	n.a.	1.7%	2.2%	1.8%	0.3%	1.5%	1.9%
Capital Intensity	n.a.	n.a.	0.6%	0.1%	0.1%	0.1%	0.1%	0.1%

Source: Lend Lease Annual Reports.

A.9. Sinclair Knight Merz Holdings Ltd

A.20 Sinclair Knight Merz Holdings Limited (SKM) provides engineering, geotechnical engineering, planning, construction, design, environmental planning and project management services to the energy, resources, transport, infrastructure, defence, property and water industries. Some of SKM's more notable clients and projects include the Australian Competition and Consumer Commission, Sydney Airport, Melbourne Airport and Dalrymple Bay Coal Terminal expansion project. SKM has undertaken projects in a number of countries including Australia, New Zealand, Chile, Dubai, the UK, Malaysia, Hong Kong, Thailand and India. The description of infrastructure assets serviced by SKM indicates that its operations extend beyond network infrastructure services. SKM has therefore only been included in the All Infrastructure sample.

A.21 SKM is not listed on the ASX but it is required to file financial statements on an annual basis with ASIC using Form 388. The financial results contained in these 388 forms have therefore been used to calculate the EBIT margins in the table below. It is worth noting in this context that the EBIT margin calculations for 2006-2008 include the income generated and the expenses incurred by SKM through its joint venture arrangements. It should also be noted that up until 2004 SKM reported its revenue net of project expenses. This practice changed in 2005 when SKM began reporting project expenses separately. Without any way of addressing this shortcoming, the EBIT margins for SKM have only been calculated from 2005.

Table A.9: SKM EBIT Margin (\$000)

	2002 ^a	2003 ^a	2004 ^a	2005	2006	2007	2008	2009
Revenue	n.a.	n.a.	n.a.	\$561,263	\$715,043	\$865,647	\$1,064,394	\$1,135,971
EBIT	n.a.	n.a.	n.a.	\$60,143	\$85,511	\$103,843	\$147,003	\$114,747
EBIT Margin	n.a.	n.a.	n.a.	10.7%	12.0%	12.0%	13.8%	10.1%
Capital Intensity	n.a.	n.a.	n.a.	1.7%	1.9%	2.0%	1.8%	2.3%

Source: Form 388 filings with ASIC.

*Between 2002 and 2004 SKM reported its revenue net of project expenses. Since this treatment would have resulted in an inflated estimate of the EBIT margin, these data points have been excluded from the sample.

A.10. SMEC Holdings Limited

A.22 SMEC Holdings Limited provides engineering, project management, asset management, environmental studies and economic development services across a range of industries including the energy, transport, mining, urban development and water sectors. SMEC's clients and projects have included the Westlink M7 project, the World Bank, the Asian Development Bank and the Murray Darling Basin Commission. The description of infrastructure assets serviced by SMEC indicates that its operations extend beyond network infrastructure services. SMEC has therefore only been included in the All Infrastructure sample.

A.23 SMEC Holdings is not listed on the ASX but it is required to file financial statements on an annual basis with ASIC using Form 388. The financial results contained in these 388 forms have therefore been used to calculate the EBIT margins in the table below. The EBIT margins contained in this table include both the revenue derived and expenses incurred by SMEC Holdings through its joint venture arrangements.

Table A.10: SMEC EBIT Margin (\$000)

	2002	2003	2004	2005	2006	2007	2008	2009
Revenue	\$122,296	\$122,862	\$106,855	\$112,037	\$141,652	\$190,267	\$270,630	\$372,276
EBIT	\$5,577	\$6,091	\$3,346	\$5,137	\$10,459	\$18,834	\$28,308	\$43,746
EBIT Margin	4.6%	5.0%	3.1%	4.6%	7.4%	9.9%	10.5%	11.8%
Capital Intensity	0.9%	0.7%	0.8%	1.2%	1.2%	1.4%	1.8%	1.6%

Source: Form 388 filings with ASIC.

A.11. Tenix Alliance Pty Ltd

A.24 Tenix Alliance provides infrastructure maintenance and engineering services to the gas, electricity, water, wastewater, transport and telecommunications industries. Tenix Alliance operates both independently and through a number of alliances in both Australia and New Zealand. Tenix Alliance's clients have included SP AusNet, Eraring Energy, Country Energy, Powerco, Western Power, Powerlink, Electranet and the Redbank Power Station. The services provided by Tenix can broadly be characterised as network infrastructure services. Tenix has therefore been included in both the All Infrastructure sample set and the Network Infrastructure sub set.

A.25 Tenix Alliance is not listed on the ASX but it is required to file financial statements on an annual basis with ASIC using Form 388. The financial results contained in these 388 forms have therefore been used to calculate the EBIT margins in the table below. The EBIT calculations contained in this table include the revenue generated and the expenses incurred by Tenix Alliance through its alliance with SP AusNet, T-Squared.

While this alliance has been classified as an associate arrangement, the profits do not relate to an equity ownership. Rather they reflect the profit generated through the provision of contractor services and could be better characterised as a joint venture arrangement. The revenue generated and expenses incurred as a result of this arrangement have therefore been included in the derivation of the EBIT margin.

Table A.11: Tenix Alliance EBIT Margin (\$000)

	2002	2003	2004	2005	2006	2007	2008	2009
Revenue	\$211,739	\$194,456	\$220,568	\$261,720	\$387,557	\$455,942	\$583,774	\$619,830
EBIT	-\$488	\$5,735	\$1,885	-\$2,907	-\$7,596	\$20,538	\$18,770	-\$4,303
EBIT Margin	-0.2%	2.9%	0.9%	-1.1%	2.0%	4.5%	3.2%	-0.7%
Capital Intensity	3.5%	4.0%	3.3%	1.3%	1.0%	0.9%	0.8%	0.7%

Source: Form 388 filings with ASIC.

A.12. Thomas & Coffey Ltd

A.26 Thomas & Coffey Ltd is an Australian listed company that provides operating, maintenance, construction and asset management services to the energy, mining, manufacturing, health care, defence and property services sectors. Thomas & Coffey operates in Australia and its clients have included EnergyAustralia, Xstrata, Macquarie Bank, Integral Energy, BlueScope Steel, OneSteel and Wesfarmers. The description of infrastructure assets serviced by Thomas & Coffey indicates that its operations extend beyond network infrastructure services. Thomas & Coffey has therefore only been included in the All Infrastructure sample.

A.27 The calculation of Thomas & Coffey's EBIT margin is set out in the table below.

Table A.12: Thomas & Coffey EBIT Margin (\$000)

	2002	2003	2004	2005	2006	2007	2008	2009
Revenue	\$92,086	\$117,776	\$174,588	\$160,785	\$175,983	\$219,249	\$281,004	\$398,883
EBIT	-\$3,699	\$1,499	\$625	\$3,503	\$5,283	\$7,704	\$12,124	\$9,700
EBIT Margin	-4.0%	1.3%	0.4%	2.2%	3.0%	3.5%	4.3%	2.4%
Capital Intensity	1.4%	0.9%	0.8%	0.7%	0.7%	1.0%	1.1%	0.9%

Source: Thomas & Coffey Annual Reports.

A.13. Transfield Services Limited

A.28 Transfield Services Ltd is an Australian listed company that provides operating, maintenance, asset and project management services across the transport, energy, water, telecommunications, facilities management, defence and complex process industries. Transfield Services operates across Australia, New Zealand, the US, South East Asia, India and Canada and its clients have included Woodside Energy, Water Corporation of WA, BlueScope Steel, Caltex, Shell, Santos and the NSW Roads and Traffic Authority. The description of infrastructure assets serviced by Transfield Services indicates that its operations extend beyond network infrastructure services. Transfield Services has therefore only been included in the All Infrastructure sample.

A.29 Prior to 2007, Transfield Services provided the asset management related services described above and also owned, or had an interest in, a number of major infrastructure assets including the Townsville Power Station, Kemerton, Collinsville

and Kwinana power stations and the Macarthur and Yan Yean water filtration plants. Following a restructure in June 2007, these infrastructure assets were spun off into the Transfield Services Infrastructure Fund while the asset management services were retained by Transfield Services. To calculate the EBIT margin of most relevance to the current consideration, the segment data for the Operations and Maintenance Outsourcing Service business unit has been used for the period 2002-2007 while the financial results for the entire business have been used from 2008.

A.30 The table below sets out the EBIT margin calculations for Transfield Services.

Table A.13: Transfield Services – Services EBIT Margin (\$000)

	2002	2003	2004	2005	2006	2007	2008	2009
Revenue	\$756,664	\$958,043	\$1,172,135	\$1,436,265	\$1,782,696	\$2,290,914	\$2,996,637	\$3,387,981
EBIT	\$16,527	\$14,432	\$17,598	\$19,505	\$28,549	\$40,552	\$65,504	\$65,954
EBIT Margin	2.2%	1.5%	1.5%	1.4%	1.6%	1.8%	2.2%	1.9%
Capital Intensity	1.2%	1.0%	1.0%	1.1%	1.5%	2.0%	2.1%	2.2%

Source: Transfield Services Annual Reports

A.14. United Group Limited

A.31 United Group Limited is an Australian listed company that provides operating, maintenance, facilities management, engineering and corporate real estate services to the transport, resources, energy, water, wastewater and commercial sectors. United Group operates in Australia, New Zealand, the US, Asia and the UK and its clients have included Sydney Water, RailCorp, QR, Connex, Yarra Trams, Caltex, and the NAB.

A.32 United Group reports its financial results on a segment basis with the primary business segments being:

- § the Infrastructure business, which provides construction, engineering, operational and maintenance services to clients in the transport, energy, water and wastewater sectors. The services provided by this business unit can broadly be characterised as network infrastructure services. This business unit has therefore been included in both the All Infrastructure sample set and the Network Infrastructure sub set;
- § the Rail business, which provides design, engineering, manufacturing, maintenance and asset management services to clients in the above rail industry. The description of infrastructure assets serviced by this business unit indicates that its operations extend beyond network infrastructure services. This business unit has therefore only been included in the All Infrastructure sample;
- § the Resources business, which provides asset management, engineering, maintenance, construction, manufacturing and project management services to clients in the oil, gas, petrochemicals, chemicals and minerals industries. The description of infrastructure assets serviced by this business unit indicates that its operations extend beyond network infrastructure services. This business unit has therefore only been included in the All Infrastructure sample; and
- § the Services business, which provides outsourcing services including facilities management, corporate real estate, human resources, financial and accounting

services across a range of industries. The services provided by this business are essentially non-infrastructure based services and so this business unit has been excluded from the benchmark study.

- A.33 United Group underwent a restructure in 2005 and so the segment based EBIT data is only reported from 2005. The EBIT margins appearing in this table include the effect of revenue generated and expenses incurred by each of the various business units through their joint venture arrangements. It is worth noting in this context that the joint venture income reported by the United Group relate to both the Infrastructure and Services segments. It has therefore been necessary to apportion the revenue and expenses between these two segments using the proportion of the total net profit of joint ventures accounted for by these two business units as weights.

Table A.14: United Group EBIT Margin (\$000)

	2002	2003	2004	2005	2006	2007	2008	2009
<i>Rail</i>								
Revenue	n.a.	n.a.	n.a.	\$534,898	\$960,424	\$1,060,321	\$1,138,595	\$1,420,801
EBIT	n.a.	n.a.	n.a.	\$33,157	\$50,251	\$46,612	\$89,115	\$81,433
EBIT Margin	n.a.	n.a.	n.a.	6.2%	5.2%	4.4%	7.8%	5.7%
Capital Intensity	n.a.	n.a.	n.a.	1.4%	0.7%	0.8%	0.6%	0.5%
<i>Infrastructure</i>								
Revenue	n.a.	n.a.	n.a.	\$286,879	\$577,994	\$821,505	\$857,741	\$1,159,704
EBIT	n.a.	n.a.	n.a.	\$14,136	\$36,641	\$51,141	\$52,164	\$73,312
EBIT Margin	n.a.	n.a.	n.a.	4.9%	6.3%	6.2%	6.1%	6.3%
Capital Intensity	n.a.	n.a.	n.a.	0.6%	1.6%	1.2%	1.1%	0.6%
<i>Resources</i>								
Revenue	n.a.	n.a.	n.a.	\$315,216	\$479,598	\$403,462	\$493,166	\$729,419
EBIT	n.a.	n.a.	n.a.	\$14,838	\$30,515	\$39,731	\$51,450	\$57,303
EBIT Margin	n.a.	n.a.	n.a.	4.7%	6.4%	9.8%	10.4%	7.9%
Capital Intensity	n.a.	n.a.	n.a.	1.5%	0.5%	1.2%	1.5%	1.3%

Source: United Group Annual Reports.

A.15. WorleyParsons Limited

- A.34 WorleyParsons is an Australian listed company that provides engineering, design, operating, maintenance, asset and project management services to the energy, resource, complex process, water and wastewater industries. The company operates across fourteen countries including Australia, New Zealand, Asia, the US, Canada and Europe. WorleyParson's Australian clients have included Alcoa, BHP Billiton, Fortescue, WMC Resources, ExxonMobil, Shell, Mobil, OneSteel, Zinifex, FMG and Woodside.

- A.35 WorleyParsons reports its financial results on a segment basis with the primary business segments being:

§ the Power business, which provides design, engineering, procurement and construction management services to clients in the energy and electricity transmission network industries. The services provided by this business unit can broadly be characterised as network infrastructure services. This business unit has therefore been included in both the All Infrastructure sample set and the Network Infrastructure sub set;

§ the Infrastructure, which provides infrastructure related design, engineering and project services to the energy, transport, water, and waste water sectors. The services provided by this business unit can broadly be characterised as network infrastructure services. This business unit has therefore been included in both the All Infrastructure sample set and the Network Infrastructure sub set;

§ the Minerals and Metals business, which provides process design, engineering and other project services to the minerals and metals industries. The description of infrastructure assets serviced by this business unit indicates that its operations extend beyond network infrastructure services. This business unit has therefore only been included in the All Infrastructure sample; and

§ the Hydrocarbons business, which provides design, engineering, project management and other project services to clients in the oil, gas, refining and petrochemical industries. The description of infrastructure assets serviced by this business unit indicates that its operations extend beyond network infrastructure services. This business unit has therefore only been included in the All Infrastructure sample.

A.36 WorleyParsons was listed on the ASX on 28 November 2002 and its EBIT data has only been reported since 2004.

Table A.15: WorleyParsons EBIT Margin (\$000)

	2002	2003	2004	2005	2006	2007	2008	2009
<i>Power</i>								
Revenue	n.a.	n.a.	\$1,577	\$191,420	\$320,518	\$528,100	\$488,600	\$568,400
EBIT	n.a.	n.a.	\$560	\$21,213	\$46,080	\$53,700	\$57,900	\$55,300
EBIT Margin	n.a.	n.a.	35.5%	11.1%	14.4%	10.2%	11.9%	9.7%
Capital Intensity	n.a.	n.a.	0.0%	0.7%	0.6%	1.0%	1.0%	1.1%
<i>Infrastructure</i>								
Revenue	n.a.	n.a.	\$37,852	\$59,185	\$108,888	\$208,100	\$335,300	\$335,200
EBIT	n.a.	n.a.	\$2,445	\$6,750	\$7,423	\$19,100	\$39,900	\$27,100
EBIT Margin	n.a.	n.a.	6.5%	11.4%	6.8%	9.2%	11.9%	8.1%
Capital Intensity	n.a.	n.a.	0.5%	1.0%	1.4%	0.9%	2.4%	1.9%
<i>Minerals and Metals</i>								
Revenue	n.a.	n.a.	\$95,364	\$159,819	\$186,042	\$259,900	\$418,500	\$427,800
EBIT	n.a.	n.a.	\$14,949	\$22,664	\$26,221	\$37,000	\$73,300	\$71,900
EBIT Margin	n.a.	n.a.	15.7%	14.2%	14.1%	14.2%	17.5%	16.8%
Capital Intensity	n.a.	n.a.	0.4%	0.7%	0.6%	0.4%	1.3%	1.3%
<i>Hydrocarbons</i>								
Revenue	n.a.	n.a.	\$244,169	\$841,935	\$1,796,853	\$2,491,000	\$3,377,700	\$4,497,500
EBIT	n.a.	n.a.	\$28,821	\$69,640	\$156,937	\$225,200	\$355,800	\$448,600
EBIT Margin	n.a.	n.a.	11.8%	8.3%	8.7%	9.0%	10.5%	10.0%
Capital Intensity	n.a.	n.a.	1.6%	1.0%	0.8%	1.0%	1.4%	1.6%

Source: Worley Parsons Annual Reports.

A.16. Other contractors included in the original study

A.37 In the period following the completion of the original study in 2007, a number of contractors included have been acquired by other entities. For example, in late 2006 Agility was acquired by Alinta Ltd as part of the AGL-Alinta joint merger. The

Agility business was subsequently amalgamated with Alinta's own asset management arm, Alinta Asset Management Pty Ltd. In 2007 the assets owned by Alinta Ltd were sold to Babcock & Brown and Singapore Power and as a result of this transaction the eastern Australian asset management arm of Alinta was acquired by Singapore Power (Jemena Asset Management) while the Western Australian arm was acquired by Babcock & Brown. In 2007, Origin also decided to sell its asset management arm, Origin Energy Asset Management Ltd, to APA.

A.38 Given the change in ownership that has occurred with respect to these three contractors, it has not been possible to calculate EBIT margins for these entities for the period 2006-2009. These entities have therefore been excluded from the study.

A.39 While Alinta Asset Management, Agility and Origin have not been included in the updated study, for completeness the following table has been prepared which sets out the EBIT margins generated by the three contractors over the period 2002-2006.

Table A.16: Agility, Alinta Asset Management and Origin Energy-Networks EBIT Margins 2002-2006 (\$000)

	2002	2003	2004	2005	2006
Agility					
Revenue	\$356,000	\$376,300	\$400,900	\$426,800	\$516,800
EBIT	\$40,200	\$47,800	\$52,100	\$61,200	\$70,200
EBIT Margin	11.3%	12.7%	13.0%	14.3%	13.6%
Capital Intensity	0.4%	0.5%	0.8%	0.9%	1.1%
Alinta Asset Management					
Revenue	n.a.	n.a.	\$337,159	\$461,708	\$667,213
EBIT	n.a.	n.a.	\$41,495	\$59,950	\$56,850
EBIT Margin	n.a.	n.a.	12.3%	13.0%	8.5%^a
Capital Intensity	n.a.	n.a.	0.5%	0.7%	1.2%
Origin Energy - Networks					
Revenue	\$125,382	\$149,270	\$168,098	\$158,742	\$171,745
EBIT	\$7,855	\$7,142	\$5,976	\$12,238	\$13,817
EBIT Margin	6.3%	4.8%	3.6%	7.7%	8.0%
Capital Intensity	1.9%	1.1%	1.4%	0.7%	0.4%

Source: AGL, Alinta and Origin Energy Annual Reports.

a. According to Alinta's 2006 annual report this margin was affected by the integration of Agility within the Asset Management business segment which resulted in one off integration costs of \$24.7 million (pre tax).

A.40 It is worth noting that if these entities had been retained in the sample then both the average EBIT margin and the 95 per cent confidence interval for the true population mean would have been higher than the estimates contained in Table 4.2 for both the 2002-2009²¹ and the 2005-2009²² sample periods.

²¹ The inclusion of these entities in the sample would have resulted in an average EBIT margin of 6 per cent for the 2002-2009 sample period and a 95 per cent confidence interval of 5.1 per cent to 6.9 per cent.

²² The inclusion of these entities in the sample would have resulted in an average EBIT margin of 6.6 per cent for the 2005-2009 sample period and a 95 per cent confidence interval of 5.7 per cent to 7.6 per cent.

Appendix B. Statement of Compliance with Expert Witness Guidelines

I have read the Guidelines for Expert Witnesses in Proceedings of the Federal Court of Australia and confirm that I have made all inquiries that I believe are desirable and appropriate and that no matters of significance that I regard as relevant have, to my knowledge, been withheld from the Court.

Appendix C. Materials Relied Upon

A list of the information that I have relied upon in the preparation of this report is set out below.

C.1. Information provided by Envestra

The following information has been provided by Envestra:

- § Amendment and Restatement Deed – Operating and Management Agreement, 2 July 2007, Envestra Limited and Origin Energy Asset Management Limited; and
- § Envestra spreadsheet entitled '100506 – Total Incentive Fees – History.xls'.

C.2. EBIT margin data

The list of annual reports and Form 388 filings that I have relied upon in the derivation of EBIT margins is set out below. It is worth noting in this context that where the company is listed on the ASX the annual reports have been obtained from either the company's website or the ASX website. For those companies that are not listed but are required to file a Form 388 with ASIC, the filings have been purchased from Citec Confirm, an independent information vendor.

The annual reports and Form 388 filings that have been relied upon include:

- § Ausenco, Annual Reports, 2004-2007 & 2009 and Financial Report, 2008;
- § Bechtel Australia Pty Ltd, Form 388, 2003-2009;
- § Clough Ltd, Annual Reports, 2003-2009;
- § Downer EDI Limited, Annual Reports, 2003, 2008 & 2009 and Financial Reports, 2004-2007;
- § Envestra, Annual Reports, 2003-2009;
- § Fluor Australia Pty Ltd, Form 388, 2003-2009;
- § Hatch Associates Pty Ltd, Form 388, 2003-2009;
- § KBR Holdings Ltd (Australia), Form 388, 2003-2009;
- § Lend Lease Corporation Limited, Annual Consolidated Financial Report, 2004-2009;
- § Sinclair Knight Merz Holdings Ltd, Form 388, 2003-2009;
- § SMEC Holdings Limited, Form 388, 2003-2009;
- § Tenix Alliance Pty Ltd, Form 388, 2003-2009;
- § Thomas & Coffey Ltd, Annual Reports, 2003-2008 and Financial Report, 2009;
- § Transfield Services Limited, Annual Reports, 2003-2007 & 2009 and Financial Report, 2008;
- § United Group Limited, Annual Reports, 2005-2009;

- § WorleyParsons Limited, Annual Reports, 2005-2009;
- § Alinta Ltd, Concise Annual Reports, 2005-2006;
- § The Australian Gas Light Company, Full Financial Reports, 2003-2006; and
- § Origin Energy, Annual Report, 2006 and Financial Statements, 2003-2005.

C.3. Other material

- § AER, Draft Decision - Victorian electricity distribution network service providers - Distribution determination 2011-2015;
- § AER, Final Decision – Jemena Gas Networks Access arrangement proposal for the NSW gas networks – 1 July 2010 – 30 June 2015, June 2010;
- § APA, 2009 Annual Report;
- § APA website <http://www.apa.com.au/our-business/asset-management.aspx> and <http://www.apa.com.au/our-business/energy-investments.aspx>
- § Envestra, Prospectus, July 1997;
- § Letter from John Ferguson (APA) to Craig de Laine (Envestra), dated 24 June 2010.
- § NERA, Outsourcing by regulated businesses, 28 March 2007;
- § NERA, Benchmarking contractor's profit margins, 28 March 2007;
- § NERA, Allen Consulting Group's Review of NERA's Benchmarking of Contractors' Margins Critique, October 2007; and
- § Origin Energy, ASX Media Release – Origin Energy finalises sale of Network Business to APA, 2 July 2007.

Appendix D. Curriculum Vitae

Katherine Lowe

Senior Consultant

NERA Economic Consulting
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Melbourne VIC 3000
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Overview

Katherine Lowe has eight years experience as an economist working within the areas of energy, infrastructure regulation, securities litigation, competition, consumer protection, personal injury related liabilities and commercial macroeconomics.

Prior to joining NERA, Katherine was employed as an economist within the Economics Division of Macquarie Bank and the Compliance, Regulatory and Merger Divisions of the Australian Competition and Consumer Commission ('ACCC'). As a Research Assistant and Associate Economist in Macquarie Bank's Economic Division, Katherine examined macroeconomic trends within Australia and across Asia. In her capacity as an economist within the ACCC, Katherine's responsibilities included financial modelling, assessing asymmetric risks and rates of return, assessing forecast volumes, examining cost allocation methodologies and assessing anti-competitive practices.

Katherine has obtained a Bachelor of Business (majoring in Finance and Economics) from the University of Technology Sydney, a Master of Economics from the University of Sydney and a Master of Applied Finance from Macquarie University.

Qualifications

2003 - 2006	MACQUARIE UNIVERSITY Master of Applied Finance, majoring in Corporate Finance
2000-2001	UNIVERSITY OF SYDNEY Master of Economics
1994-1999	THE UNIVERSITY OF TECHNOLOGY SYDNEY Bachelor of Business Majoring in Finance and Economics

Career Details

2007-	NERA ECONOMIC CONSULTING Senior Consultant, Sydney
2005 -2006	NERA ECONOMIC CONSULTING Consultant, New York
2002-2004	AUSTRALIAN COMPETITION AND CONSUMER COMMISSION Associate Director/Senior Gas Analyst – Gas Group (final position)
1998-2002	Macquarie Bank Associate Economist - Asia (final position), Sydney

Project Experience

Energy and Infrastructure Regulation

2010	Jemena Outsourcing arrangements Retained to provide advice on the factors that should be considered when assessing the prudence and efficiency of outsourcing arrangements.
2009	Orion Asset valuation methodologies Retained to provide advice on the alternative asset valuation methodologies used by Australian regulators when establishing the opening value of the asset base.
2009	United Energy Depreciation methodologies Retained to provide advice on the alternative depreciation methodologies that may be used under the National Electricity Rules.
2009	Powercor Total Factor Productivity Retained to provide advice on the TFP related issues arising from the AEMC's review into the use of TFP for the determination of prices and revenues.

- 2009** **Freehills/Confidential Client**
Gas supply agreement arbitration
Retained to provide economic advice in an arbitration relating to the price that should apply following a price reset within a long term major gas supply agreement.
- 2009** **CitiPower/Powercor**
Connection of renewable generation
Retained to provide advice on the connection of renewable generation under the National Electricity Rules.
- 2008-09** **Clayton Utz/Confidential Client**
Gas supply agreement arbitration
Retained to provide economic advice in an arbitration relating to the price that should apply following a price reset within a long term major gas supply agreement.
- 2008-09** **Santos**
Development of Revenue and Tariff Models for Pipeline Access
Retained to provide advice on the alternative methods for calculating third party access tariffs and to develop revenue and tariff models for liquids pipelines.
- 2008** **BG**
Advice on Eastern Australia Gas Market
Retained to provide advice on operation of the Eastern Australia Gas Market.
- 2008** **AEMC**
Review of the Effectiveness of Retail Competition in South Australia
Retained to assist in the preparation of the AEMC's First Draft Report setting out the preliminary findings in its review of the effectiveness of retail competition in South Australia.
- 2008** **AEMC**
WACC Rule Change Proposals
Retained to provide advice on two rule change proposals submitted by the AER relating to the weighted average cost of capital.
- 2008** **DEWHA**
Energy Efficiency
Retained to undertake an international review of energy efficiency policies and policy frameworks.

- 2008** **TransGrid**
Review of Post-Tax Revenue Model and Roll Forward Model
Retained to review TransGrid's post-tax revenue model and roll forward model and to provide advice on the consistency between these models and the AER's guidelines.
- 2008** **Australian Energy Market Commission**
Update of Review of the Wholesale Gas and Electricity Markets and Implications for Retail Competition
Retained to update earlier reports prepared for the AEMC that provided an overview of the operation and structure of the wholesale gas and electricity markets within the National Electricity Market (NEM) jurisdictions.
- 2007** **Ministerial Council on Energy Smart Meter Working Group**
Cost Benefit Analysis of Proposed Smart Meter Infrastructure Rollout
Retained to provide advice on the consumer related effects of a smart meter and direct load control roll out. This entailed modelling the changes to the pattern of consumption and the overall level of demand flowing from the introduction of time of use tariffs, critical peak pricing and direct load control. Consideration was also given to the change in consumer surplus which was decomposed into the redistribution of surplus between consumers, retailers, generators and networks and the net societal loss or gain.
- 2007** **TransGrid**
Inflation Rate Estimates
Retained to provide advice on the appropriate inflation rate to utilise when setting tariff and revenue requirements under the National Gas Code.
- 2007** **Multinet**
Inflation Rate Estimates
Retained to provide advice on the appropriate inflation rate to utilise when setting tariff and revenue requirements under the National Gas Code.
- 2007** **Multinet**
Review of Outsourcing Infrastructure Asset Management Contracts
Retained to provide advice on the prudence of outsourcing contracts in the context of the National Gas Code.

- 2007** **Envestra**
Review of Outsourcing Infrastructure Asset Management Contracts
Retained to provide advice on the prudence of outsourcing contracts in the context of the National Gas Code and to benchmark operating margins levied by asset management service providers.
- 2007** **Australian Energy Market Commission**
Review of the Wholesale Gas and Electricity Markets and Implications for Retail Competition
Retained to provide an overview of the operation and structure of the wholesale gas and electricity markets within the National Electricity Market (NEM) jurisdictions and to identify the issues that the AEMC should consider when assessing the influence of the wholesale markets on competition within the retail gas market in each jurisdiction.
- 2007** **Ministerial Council on Energy**
Review of Chapter 5 of the National Electricity Rules
Retained to provide advice on the development of a national framework for connection applications and capital contributions in the context of the National Electricity Rules.
- 2007** **Powercor/CitiPower**
Advice on Related Party Outsourcing Arrangements
Retained to provide advice on the manner by which regulatory concerns surrounding related party outsourcing arrangements may be ameliorated.
- 2007** **Optus, Australia**
Development of a Special Access Undertaking
Provided advice on the pricing principles that should be incorporated into the Fibre to the Node Special Access Undertaking.
- 2006-07** **Middletons/Confidential Client**
Damages assessment
Retained to provide advice on forecast demand and supply conditions and prices for gas and ethane over a ten year period.
- 2006** **Freehills/South Australian Gas Producers, NSW and South Australia**
Gas supply agreement arbitration
Provided economic advice in an arbitration relating to the price that should apply following a price reset within a long term major gas supply agreement between the South Australian gas producers and a large retail customer in NSW and South Australia.

- 2006** **Australasian Railway Association**
Assistance with the development of a submission in response to the Productivity Commission's road and rail review
Assisted in the review and evaluation of the Productivity Commission's draft report investigating road and rail pricing.
- 2006** **Australian Energy Regulator**
Review revenue and tariff model submitted by gas transmission pipeline owner
Undertook an audit of the revenue and tariff model supplied by a gas transmission pipeline owner.
- 2006** **Australasian Railway Association**
Comparative assessment of road and rail regulatory regimes
Assisted in the drafting of a comparative study of the regulatory approaches, and institutional structures adopted within the road and rail sectors. The aim of the study was to draw out relevant features and inconsistencies between road and rail infrastructure in each of the key jurisdictions in Australia.
- Antitrust***
- 2010** **Mallesons/Confidential Client**
Merger
Retained to provide economic advice on the likely effect of a proposed acquisition of gas transmission pipelines in eastern Australia on competition in the relevantly defined markets.
- 2010** **Norton Rose/Alinta**
Unconscionable conduct
Retained to provide advice on the risks faced by gas retailers when selling gas to retail customers.
- 2009** **DLA Phillips Fox /Fortescue**
Part IIIA - Access to Essential Infrastructure
Assisted in the preparation of expert reports on matters arising in interpreting the criteria for declaration under Part IIIA of the Trade Practices Act.

Securities

- 2008-09** **Freehills/Confidential Client**
Preliminary Estimate of Damages Associated with Potential Securities Class Action
Retained to provide preliminary estimates on the magnitude of damages associated with a potential shareholder class action arising from accounting misstatements and/or breach of the continuous disclosure obligations of an ASX listed entity. The work undertaken for this client entailed preparing background briefing papers, undertaking an event study, considering the fundamental value of the 'misleading' announcement and preparing a report setting out the preliminary estimates and the assumptions underlying those estimates.
- 2007** **Freehills/Telstra**
Shareholder damages assessment
Retained to provide advice on the damages estimates developed by the opposing experts in the context of a damages claim alleging that Telstra failed to disclose information to the ASX.
- 2005-06** **Mass Torts and Securities divisions**
Over 2005-06 Katherine worked within the New York office where she was principally involved in the examination of the expected personal injury related liabilities of major US companies arising from asbestos and other similar products. Katherine's responsibilities in this area included the construction of valuation models to measure the expected value of asbestos-related and welding rod related liabilities, as well as replicating the valuation models of other experts and drafting rebuttal reports to identify weaknesses in the assumptions and techniques employed by other experts.
- Over this period Katherine was also involved in a high profile securities class action, Polymedica. NERA's analysis in the Polymedica case resulted in a number of new factors being incorporated into the test for whether a market is operating efficiently.

Prior Work Experience

- 2003-04** **Australian Competition and Consumer Commission**
Gas Transmission Pipeline Regulation Group
Katherine primarily worked on a decision relating to the terms and conditions of access to a regulated gas pipeline. As part of this role, Katherine carried out the financial modelling required to estimate the overall revenue requirement of the pipeline and the associated tariffs and was also involved in the research, assessment and drafting of several aspects of the ACCC's Final Decision and Final Approval.

Following the appeal of the ACCC's Final Approval to the Australian Competition Tribunal, Katherine was extensively involved in the preparation and briefing of the solicitors, counsel and the Tribunal.

While working in this Group, Katherine also assessed the Ring Fencing arrangements put in place by service providers to establish whether or not the arrangements complied with provisions within the Gas Code. In addition, Katherine co-authored a paper which evaluated the level of responsibility to be taken by the CEO and Non-Executive Directors when signing Ring Fencing reports.

2002-03

**Australian Competition and Consumer Commission
Mergers and Asset Sales Branch**

Katherine was involved in the examination of proposed mergers to assess whether they would have the effect, or would be likely to have the effect, of substantially lessening competition. This role involved the practical assessment and application of economic theory to issues such as market definition, demand and supply side substitution possibilities, strategic and structural barriers to entry, countervailing power, and the likely effect of proposed mergers on prices and profit margins.

2002

**Australian Competition and Consumer Commission
Transport and Prices Oversight Branch**

Katherine predominantly worked on a price notification by Airservices Australia and also assisted in the assessment of a price notification by Australia Post. The Airservices Australia price notification required Katherine to assess the company's revenue requirements and the appropriate rate of return to be generated.

Katherine also assisted in drafting a chapter of the ACCC's Preliminary View entitled Australia Post's Productivity. This chapter examined Australia Post's historic and projected productivity growth to assess both the efficiency of Australia Post's current cost base and the reasonableness of its projected operating and maintenance costs. The chapter also examined the need to encourage Australia Post to continue to seek out efficiency gains and cost reductions by putting in place the necessary incentives.

1998-2002

Macquarie Bank

In her role at Macquarie Bank, Katherine assisted the Regional Economist, located in Hong Kong, with the research and analysis of commercially relevant economic and financial market information (such as GDP, inflation, unemployment, movements in currencies, stock markets, bond yields and structural reforms) and the preparation of reports for clients.

NERA

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