

Jemena Gas Networks (NSW) Ltd

2015-20 Access Arrangement Information

Appendix 6.8

K Lowe – EBIT margin benchmarking report

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**Contractor Profit Margins
(Benchmark Study: 2004-2013)**

A report for JGN

May 2014

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CONSULTING**

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1. Introduction and Summary of Findings

My name is Katherine Lowe and I am the Director of K Lowe Consulting (KLC). I have over 11 years' 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.

I have been asked by Jemena Gas Networks (JGN) to:

- update the benchmark study of contractor profit margins that was originally undertaken in 2007 and which I last updated in 2012; and
- use the results of this study to assess the consistency of the Management Margin payable to ZNX (2) Pty Ltd (Zinfra) under the Southern Region Field Services Agreement (FSA), with the margins earned by contractors providing asset management services¹ and the relevant provisions of the National Gas Rules (NGR).

A brief overview of the benchmark study and the results of my assessment are set out below.

1.1 Background to the benchmark study

The benchmark study of contractor profit margins was originally undertaken in 2007² to assess the consistency of the margins specified in regulated service providers' outsourcing contracts with those earned by other contractors providing asset management services. To ensure the assessment was undertaken in a standardised manner, the following methodology was employed:

- Step 1: A set of contractors providing asset management services in Australia were identified.
- Step 2: The margins earned by each of the contractors identified in Step 1 were calculated using the earnings before interest and tax (EBIT) margin metric.³
- Step 3: The 95% confidence interval for the true EBIT margin population mean was estimated and became the benchmark against which the margins payable by regulated service providers were assessed.

The results of this initial study revealed that over the period 2002-2006, the 95% confidence interval for the true population mean (the EBIT margin benchmark) ranged from 4.3%-6.7%.⁴ At a more fundamental level, the results of the study revealed that the majority of contractors providing asset management services in competitive markets earn margins in excess of their

¹ The term 'asset management services' is used throughout this report to refer to the following types of services: capital works; engineering; design; construction; operations and maintenance; procurement; and project management services.

² NERA, *Benchmarking contractor's profit margins*, 28 March 2007 and NERA, *Allen Consulting Group's (ACG) Review of NERA's Benchmarking of Contractors' Margins Critique*, October 2007.

³ An EBIT margin ($\text{EBIT} \div \text{Revenue}$) is an accounting based metric and has been used to ensure that margins are measured in a standardised manner. The EBIT component of this metric provides an *ex post* measure of the amount the contractor receives that is in *excess* of its directly incurred expenses, overheads, depreciation and amortisation and so provides a measure of the funds available to a contractor to pay taxes, recover a return on physical and intangible assets and self-insure against any asymmetric risks arising under its contracts. In some cases it may also reflect the allowance paid to the contractor to align its interests with the asset owner's and/or the contractor's ability to access economies of scale, scope and other synergies not otherwise available to other competitors in the market.

⁴ NERA, *ACG's Review of NERA's Benchmarking of Contractors' Margins Critique*, October 2007, p.iv.

directly incurred expenses, overheads and a return of capital (i.e. a positive EBIT margin) and that, consistent with predictions of economic theory, such margins will tend to reflect:

- a return on any physical and/or intangible assets used in provision of the service;
- any allowance required by the contractor to self-insure against asymmetric risks;
- any margin paid to the contractor to align its incentives with the asset owner's; and/or
- the contractor's ability to access economies of scale, scope and/or other synergies not otherwise available to other participants in the market.

The results of the benchmark study were updated in 2010⁵ (2005-2009 EBIT margin benchmark: 5.4%-7.4%) and again in 2012⁶ (2007-2011 EBIT margin benchmark: 5.4%-7.2%). Like the 2007 study, the results of these two updates confirmed that contractors providing asset management services expect to earn positive EBIT margins and that a 'prudent service provider acting efficiently, in accordance with accepted good industry practice' should reasonably expect to pay such a margin if entering into an outsourcing contract.

1.2 Latest results of the benchmark study

In the two years that have elapsed since I last updated the benchmark study, there has been some movement in the margins earned by contractors and the overall EBIT margin benchmark, with the latest results indicating that:

- over the last five years (2009-2013), the average EBIT margin earned by contractors in the sample was 6.2% while the EBIT margin benchmark ranged from 5.1% to 7.3%; and
- over the last ten years (2004-2013), the average EBIT margin earned by the contractors in the sample was 6.3% while the EBIT margin benchmark ranged from 5.4% to 7.2%.

While there is currently little difference between the five and ten year EBIT margin benchmarks (5.1%-7.3% vs 5.4%-7.2%), I have had recourse to both measures when assessing the consistency of the margin payable to Zinfra with the margins earned by other contractors. The results of this assessment are summarised below.

1.3 Zinfra Management Margin vs EBIT margin benchmark

I understand from the information I have been provided⁷ that Zinfra, a subsidiary of JGN's parent company, SGSP (Australia) Assets Pty Ltd, was formed in 2012 to provide asset management services to Jemena group assets and a number of external clients. Shortly thereafter, Zinfra entered into the Southern Region⁸ FSA with Jemena Asset Management Pty Ltd (JAM).

Under the terms of this agreement, which has an initial term of seven years (1 July 2013 – 30 June 2020), Zinfra is required to:

⁵ Expert report of Katherine Lowe (NERA), *Benchmark Study of Contractor Profit Margins*, September 2010, pv.

⁶ Expert report of Katherine Lowe (NERA), *Benchmark Study of Contractor Profit Margins (2002-2011)*, March 2012, p.ii.

⁷ Southern Region Field Services Agreement (Contract No: 2013-0134).

⁸ The Southern Region of the JGN network includes all areas south of the Harbour Bridge and the Parramatta River.

- provide construction work and repair and maintenance services in the Southern Region of JGN’s network, either in its own capacity or through sub-contracting arrangements; and
- manage⁹ and support the delivery and completion of the opex and capex work program in the Southern Region.

In return for the provision of this latter category of services, JAM, on behalf of JGN, is required to pay Zinfra:

- a Management Fee c-i-c
- c-i-c
- a Management Margin c-i-c
- c-i-c

When expressed on an EBIT equivalent basis, the Management Margin c-i-c c-i-c is equal to c-i-c which falls *within* the EBIT margin benchmark range for both sample periods (c-i-c vs 5.1%-7.3% and 5.4%-7.2%). It can therefore be considered *consistent* with the margins earned by other contractors providing asset management services.

It is beyond the scope of this report to determine whether the overall price payable to Zinfra under the Southern Region FSA satisfies rules 79(1)(a) and 91(1) of the NGR. However, what is clear from the results of the benchmark study is that the margin payable to Zinfra is in line with the margin that a ‘prudent service provider acting efficiently, in accordance with accepted good industry practice’ should reasonably expect to pay in entering into such an arrangement. I am therefore of the opinion that the Management Margin is consistent with the principles embodied in rules 79(1)(a) and 91(1).

1.4 Structure of the report

Further detail on the benchmark study and my assessment of the margin payable to Zinfra can be found in the remainder of this report, which I have structured as follows:

- Chapter 2 provides an overview of the methodology I have employed when undertaking the benchmark study;
- Chapter 3 sets out the EBIT margins earned by the contractors included in the sample and the overall EBIT margin benchmark for the 2004-2013 and 2009-2013 sample periods;
- Chapter 4 assesses the consistency of Zinfra’s Management Margin with the EBIT margin benchmark;

⁹ The management services Zinfra is required to perform under the FSA include: program management; scoping, estimating and scheduling; procurement and logistics; contract management; subcontractor management; quality management; risk management; environmental management; health and safety management; reporting, record keeping and record management; emergency response management and incident investigations; and any other management services required to complete the contract work.

¹⁰ c-i-c

¹¹ c-i-c

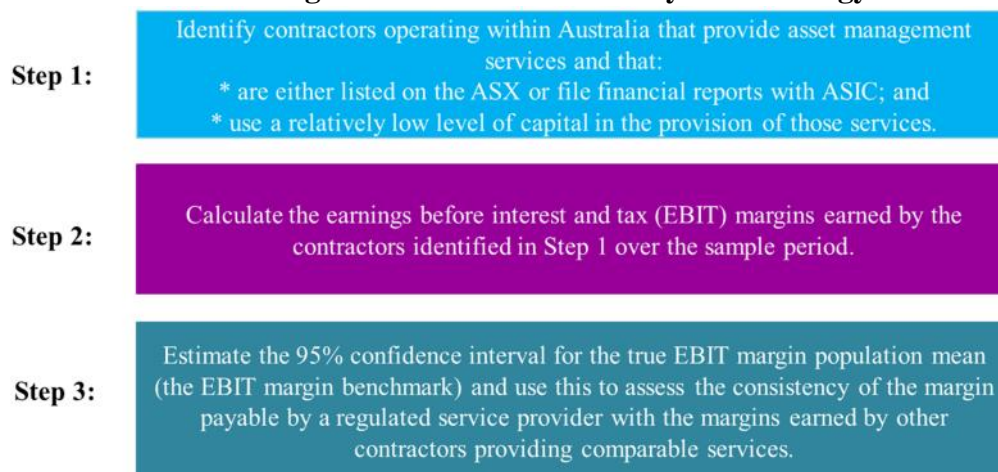
- Appendix A provides an overview of the companies included in the study; and
- Appendix B sets out the material I have relied upon in the preparation of this report.

Finally, it is worth noting that I have read, understood and complied with the Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia (Practice Note CM 7) when preparing this report. I can also confirm that the opinions set out in this report are wholly or substantially based upon my economic and applied finance expertise. A statement of my compliance with Practice Note CM 7 is set out in Appendix C.

2. Benchmark Study Methodology

The benchmark study of contractor profit margins was originally undertaken to assess the consistency of the margin specified in regulated service providers' outsourcing contracts with those earned by other contractors providing asset management services. The methodology underlying the benchmark study was therefore developed to enable the margin payable by a regulated service provider to be compared with the margins earned by other contractors in a standardised manner. The key steps in this methodology are depicted in Figure 2.1.

Figure 2.1: Benchmark Study Methodology



The remainder of this chapter provides further detail on the key elements of this methodology and addresses the concerns previously raised by the AER about this study.

2.1 Step 1: Identify the set of contractors to include in the sample

To determine which entities to include in the study I have, in the first instance, sought to identify contractors (either companies or business units within companies) operating within Australia that provide asset management services, such as engineering, construction, design, operating and maintenance, capital works, procurement and/or project management services.

The contractors I have identified that are currently providing these types of services and that are either listed on the Australian Securities Exchange (ASX), or file financial reports (Form 388) with the Australian Securities and Investment Commission (ASIC), are set out in Table 2.1.

Table 2.1: Contractors Providing Asset Management Services

Ausenco Ltd	
Bechtel Australia Pty Ltd	
Clough Ltd	
Downer EDI Ltd	Rail business unit
	Mining and Resources business unit
	Downer Australia and Downer New Zealand business units
Fluor Australia Pty Ltd	
Hatch Associates Pty Ltd	
KBR Holdings Ltd	
Lend Lease Corporation Ltd	Construction business unit
Sinclair Knight Merz (SKM) Holdings Ltd	
SMEC Holdings Ltd	
Tenix Alliance Pty Ltd	
Transfield Services Ltd	
Thomas & Coffey Ltd	
United Group Ltd	UGL Engineering and UGL Operations and Maintenance business units
WorleyParsons Ltd	Hydrocarbons business unit
	Power business unit
	Infrastructure & Environment business unit
	Minerals/Metals & Chemicals business unit

The second matter I have considered when developing the sample, is the extent to which the entities listed in Table 2.1 utilise capital in the delivery of their services. Holding all other things constant, a contractor that utilises a relatively high proportion of capital in the delivery of its services will require a higher margin (i.e. because they require a higher return on capital) than a contractor with a lower capital requirement. I have therefore excluded those entities with an average capital intensity measure (measured as ratio of depreciation plus amortisation to revenue) in excess of 3.5%.¹²

The application of this filter resulted in the removal of just one of the entities listed above, the Downer EDI Mining and Resources business unit, which had an average capital intensity measure of 5.7% over the sample period. The total number of contractors included in the sample is therefore 19. Further detail on each of the entities included in the sample is contained in Appendix A.

Before moving on, it is worth noting that while this sample consists of the same companies as earlier studies, the overall size of the sample is slightly smaller because Downer EDI and United Group^{13,14} have undergone a restructure and merged a number of their business units.

¹² The 3.5% measure was used in both the 2010 and 2011 benchmark studies and has been retained in this case to ensure some degree of consistency in the way in which the benchmark study is over time. The rationale for adopting this threshold is explained on page 12 of Expert report of Katherine Lowe (NERA), *Benchmark Study of Contractor Profit Margins (2002-2011)*, March 2012.

¹³ In both 2012 and 2013, Downer EDI underwent a restructure and a number of the old business units (i.e. Infrastructure Works and Engineering Consulting Services) were consolidated and then divided between Australia and New Zealand to form the Downer Australia and Downer NZ business units. To enable a comparable assessment of the margins earned by these business units over time, it has been necessary to combine:

- the Infrastructure and Engineering Consulting Services' financial results up to 2011; and

2.2 Step 2: Calculate the margins earned by each of the contractors

Once the sample of contractors has been identified, the margins earned by each of these contractors must be calculated. Further detail on the margin metric and measurement period I have used to calculate the margins earned by these contractors is provided below.

2.2.1 Margin metric

The margin to be paid under an outsourcing contract, which may be defined explicitly (e.g. in a cost pass-through contract) or implicitly (e.g. in a fixed price contract), can take a variety of forms¹⁵ and may also be designed to recover different allowances.¹⁶ To overcome these definitional issues and to ensure the margins earned by the contractors included in the sample are compared on a like-for-like and standardised basis, I have used the accounting based earnings before interest and tax (EBIT) margin metric:

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

The EBIT element of this metric measures the difference between revenue and operating expenses (directly incurred expenses *plus* depreciation and amortisation *plus* overheads) and so provides a measure of the funds available to a contractor to pay taxes and to recover:

- a return on any physical and/or intangible assets used in provision of the service;
- any allowance required by the contractor to self-insure against asymmetric risks; and
- any margin paid to the contractor to align its incentives with the asset owner's.

If the contractor is able to access economies of scale, scope and/or other synergies not otherwise available to other competitors in the market, a component of the EBIT margin may also reflect this ability.

The revenue element of this margin metric standardises the EBIT profit measure for the scale of operations, by measuring the funds available for these purposes on a 'per unit of revenue' basis.

One of the principal benefits of the EBIT margin metric is that it enables costs, income and margins to be measured in a more standardised manner and therefore overcomes the definitional issues and other complexities that may otherwise affect a study based on the

▪ the Downer Australia and Downer NZ business units financial results from 2012 onwards.

¹⁴ On 1 July 2012, United Group underwent a restructure and a number of the old business units (i.e. Resources, Rail and Infrastructure) were consolidated before forming two new business units, UGL Engineering and UGL Operations and Maintenance. To enable a comparable assessment of the margin earned by these business units over time, it has been necessary to combine:

- the Resources, Rail and Infrastructure financial results up to 2011; and
- UGL Engineering and UGL Operations and Maintenance financial results from 2012 onwards.

¹⁵ For example, the margin may be expressed as a percentage of the costs incurred by the contractor, a percentage of the asset owner's revenue or any other metric that the parties agree.

¹⁶ For example, one contract may allow the contractor to recover overheads as an explicit cost while another contract may assume that such costs are recovered through the margin.

margins specified either implicitly or explicitly in outsourcing contracts. Another advantage of using EBIT margins, as opposed to the margins specified in outsourcing contracts, is that comparable information can be obtained for a large number of contractors from annual reports and financial reports filed with ASIC.

Although the EBIT margin metric has a number of positive attributes, some care must be taken to ensure that the calculation of the margin is not distorted by the inclusion of 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 sought to exclude 'Other Income' when deriving the EBIT margin for each of the entities included in the sample.¹⁷ Where possible, 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

While these sources of income have been excluded from the EBIT margin calculations, the income generated through joint venture arrangements has, where possible, been retained in the calculation because these arrangements are typically entered into for the purposes of providing contractor services.¹⁹ The revenue and profits derived from these joint ventures can therefore be assumed to be directly attributable to the provision of contractor services. 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 profit generated by these joint ventures are

¹⁷ It has not been possible to exclude this source of income from the Downer EDI, United Group or Lend Lease EBIT margins, because each of these companies reports their segment results on an 'other income' inclusive basis and no breakdown has been provided of this source of income by business unit. It is worth noting though that 'other income' accounted for just 0.1-2% of the revenue generated by these three contractors in 2013. I would not therefore expect the inclusion of this form of income to have a significant effect on the results.

¹⁸ The exceptions to this are set out below:

- Both Downer EDI and Lend Lease report their segment results on a 'share of net profits of associates' inclusive basis and have not provided a breakdown of the profit and/or revenue derived by associates by segment (business unit). It has not been possible therefore to exclude this source of income from these two contractors' EBIT margins.
- WorleyParson's segment revenue and EBIT is also reported on a 'share of net profits of associates' inclusive basis. However, a breakdown has been provided of the profit derived by each business unit but not the revenue derived from this source. It has therefore been possible to exclude the profit from the EBIT measure but not from revenue. The WorleyParsons EBIT margin estimates presented in this report, will therefore understate the actual EBIT margins earned (i.e. because the revenue component of the margin metric will be higher than what it would otherwise have been if this source of revenue was excluded).
- Tenix Alliance's EBIT margin also includes the revenue generated and the expenses incurred through its alliance with SP AusNet, T-Squared, up until 2008. 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. They have therefore been included in the EBIT margin.

¹⁹ Examples of such arrangements from the list of comparable companies used in the sample include:

- Ausenco, which has entered into a number of joint ventures, including an arrangement with WorleyParsons to project manage the Alpha Coal Project.
- Clough, which has entered into a number of joint ventures, including arrangements with Transfield to construct compression facilities in Queensland and Kellogg to design and construct process plant facilities in Gorgon.
- Downer EDI, which has a number of joint venture arrangements, including an arrangement with Clough to construct the pipelines, compression facilities and associated infrastructure for Santos' GLNG project in Gladstone.
- WorleyParsons, which has entered into a number of joint ventures, including an arrangement with Transfield to provide engineering, procurement, construction, maintenance and shutdown services in the oil and gas, petrochemical, power and utilities sectors.

required. In those cases where these two pieces of information were not reported, the joint venture income has been *excluded* from the derivation of the EBIT margin.

One final point that must be borne in mind with the EBIT margin metric is that it may be subject to a significant degree of inter-year variability, because it is an *ex post* measure not an *ex ante* measure (i.e. it is the margin the contractor actually earned rather than the margin it expected to earn when entering into the contract). It therefore reflects the realisation of both positive and adverse events on earnings.²⁰ The EBIT margins earned by contractors may also vary markedly over time and/or across contractors depending on:

- the pricing mechanisms used by the contractor (e.g. fixed price or cost pass-through mechanisms – see Box 2.1);
- whether the contracts include penalty clauses and/or performance guarantees;²¹
- any other contractual risks the contractor may be exposed and the extent to which it can diversify these risks across other contracts in its portfolio; and
- the conditions prevailing in the downstream markets in which the contractors operate (e.g. if conditions in the mining sector deteriorate this may affect the availability of work and/or the margins that can be earned by contractors operating in this sector).²²

While I understand the AER has previously questioned the weight that can be placed on this study given the degree of variability exhibited by the EBIT margins earned by individual contractors,²³ as the preceding points highlight, the variability simply reflects:

- the conditions and risks to which contractors are exposed; and
- the fact that the EBIT margin is an *ex post* not an *ex ante* metric.

²⁰ To the extent these events differ from what was anticipated at the time the contract was entered into, the EBIT margin may differ from the expected (*ex ante*) margin. Consider for example a contractor that enters into a fixed price contract. If the contractor expected its costs to be \$100 and also expected to earn a 10% margin it would set the price at \$110. If the actual costs the contractor incurred were \$90 rather than \$100, the margin actually earned would be 22%, which is higher than the expected margin. Conversely, if the costs incurred are more than anticipated, the margin would be lower than expected and could even be negative if out-turn costs exceed the fixed price specified in the contract.

²¹ Performance guarantees and/or penalty clauses are another factor that can cause the actual margin received by a contractor to differ from the margin it expected to earn when it entered into the contract and may give rise to a negative margin if the contractor fails to adhere to the relevant provisions.

²² The importance of this factor can be seen in the following examples:

- In SMEC Holdings' latest financial statements, the reduction in SMEC's 2013 earnings has been attributed to 'tough market conditions' a 'slowdown in infrastructure development in Australia' and mining.
- In Thomas & Coffey's latest financial report, the reduction in earnings was attributed to the following factors:
'Brought about by the high Australian dollar and lower commodity prices, cost reduction initiatives by companies within the coal mining sector materially reduced demand for maintenance expenditure on operating plant and equipment. These economic conditions also meant that further capital expenditure by the coal mining sector, beyond projects already underway, dramatically reduced. As a significant section of the business is focused on the coal mining sector, both in NSW and Queensland, overall performance was detrimentally impacted.'

...

By the end of the year, the lower Australian dollar had improved the operating conditions for a number of customers whose products are exported. Some early, but still embryonic, signs of improved market conditions were starting to appear. However, customers remain cautious and price/margin pressure remains tight.'

See, SMEC Holdings, 2012-13 Form 388, pp. 3-4 and Thomas & Coffey Ltd, Financial Report – 30 June 2013, pp. 2-3.

²³ See for example, AER, Draft Decision – Access arrangement Envestra Ltd 2013-17, Part 1, September 2012, Appendix E, p106.

The concerns raised by the AER about this aspect of the study are therefore, in my opinion, misguided and have been appropriately addressed by using a sufficiently large sample and long measurement period.

Another concern the AER has previously raised about this study is that margins may be payable ‘for a number of different purposes, including the recovery of the cost of overheads and return on assets’ and as a consequence the study ‘may not be undertaken on a like-for-like basis’.²⁴ While I would agree that the margins specified in *outsourcing contracts* can be designed to recover a range of different costs, the same cannot be said for the EBIT margin metric, because:

- it is calculated using accounting based information, not contractual information; and
- it treats costs and revenue in a standardised manner and therefore provides a consistent measure of the margins contractors receive in *excess* of their directly incurred expenses, overheads and depreciation/amortisation.

Put simply, the use of the EBIT margin metric overcomes the definitional issues cited by the AER. The concerns raised by the AER in this context are therefore in my view erroneous and cannot be relied upon to dismiss the results of the study.

Box 2.1: Influence of pricing mechanisms on margins

The margin to be paid under an outsourcing contract can take a variety of forms and may be defined explicitly or implicitly depending on the contract pricing mechanism. Two of the most basic pricing mechanisms are:

- *Fixed price mechanism* – under a fixed price contract the margin is equal to the difference between the actual expenditure the contractor incurs and the fixed price specified in the contract. Since the margin earned by a contractor operating under a fixed price contract depends on the costs it incurs in the delivery of the services, the margin may vary from year to year and may even be negative if actual expenditure is higher than the contract payment. In circumstances where the fixed price contract operates over a number of years, the potential for outturn costs to diverge from the forecast used to derive the fixed fee is heightened and so the margins may exhibit considerable volatility over the duration of the contract.
- *Cost pass-through mechanism* – under a cost pass-through contract the margin payable to the contractor will usually be defined explicitly in the contract. It is important to recognise with these types of contracts that while a margin may be defined explicitly the *actual* margin the contractor receives 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 received by the contractor will also depend on whether the margin is specified as a fixed dollar amount or expressed as a percentage of a specified variable (e.g. contractor’s costs (a cost plus mark-up mechanism) or the profits/revenue generated by the asset owner). The margin received by a contractor operating under a cost pass-through contract may therefore vary from year to year depending on the way in which the margin is calculated.

2.2.2 Measurement period

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, I have used both a:

²⁴ *ibid.*

- a ten year measurement period, extending from 2004 to 2013; and
- a five year measurement period, extending from 2009 to 2013, to reflect more recent market conditions.

2.3 Step 3: Consistency of the margin payable by the service provider

Before an assessment of the consistency of the margin payable by a service provider with the margins earned by other contractors can be undertaken, the following must occur:

1. The 95% confidence interval for the true EBIT margin population mean (the EBIT margin benchmark) must be estimated having regard to the sample mean, the sample deviation and the size of the sample, as set out in the formula below:

$$S_{est} \pm t_r \frac{se(S_{est})}{2} = S_{est} \pm t_r \frac{s}{2\sqrt{n}}$$

Where:

S_{est} is the sample mean

t_r is the critical t statistic for the defined level of confidence (i.e. 1.99)

s is the sample standard deviation

n is the number of observations

2. The margin payable by the service provider under its outsourcing arrangement must be expressed on an EBIT equivalent basis, i.e.:

$$\frac{\text{Contractor's EBIT}}{\text{Contractor's Revenue}} = \frac{\text{Revenue earned by contractor} - \text{direct expenses} - \text{overheads} - \text{return of capital}}{\text{Contractor's Revenue}}$$

Once these two parameters have been estimated, the consistency of the margin payable by the service provider with the margins earned by other contractors can be assessed using the following decision making rule:

- If the margin payable by the service provider (expressed on an EBIT equivalent basis) falls *within* the EBIT benchmark range, it can be considered *consistent* with the margins earned by other contractors.
- If, on the other hand, the margin *exceeds* the upper bound of the EBIT benchmark range, the difference between the margin and the upper bound should be deemed *inconsistent* with the margins earned by other contractors.

3. Results of the Benchmark Study

Drawing on the financial statements published by the 19 contractors included in the sample, I have calculated the EBIT margins earned by each contractor over the last ten years (2004-2013) and then estimated both the five year (2009-2013) and ten year (2004-2013) EBIT margin benchmarks. The results of this analysis are set out below. Further detail on the EBIT margin calculations and the information I have used to calculate these margins can be found in Appendix A.

3.1 EBIT margins earned by the sample of contractors

Figure 3.1 and Table 3.1 set out the EBIT margins earned by the each of the contractors included in the sample over the last ten years (2004-2013).

Figure 3.1: Margins Earned by Contractors

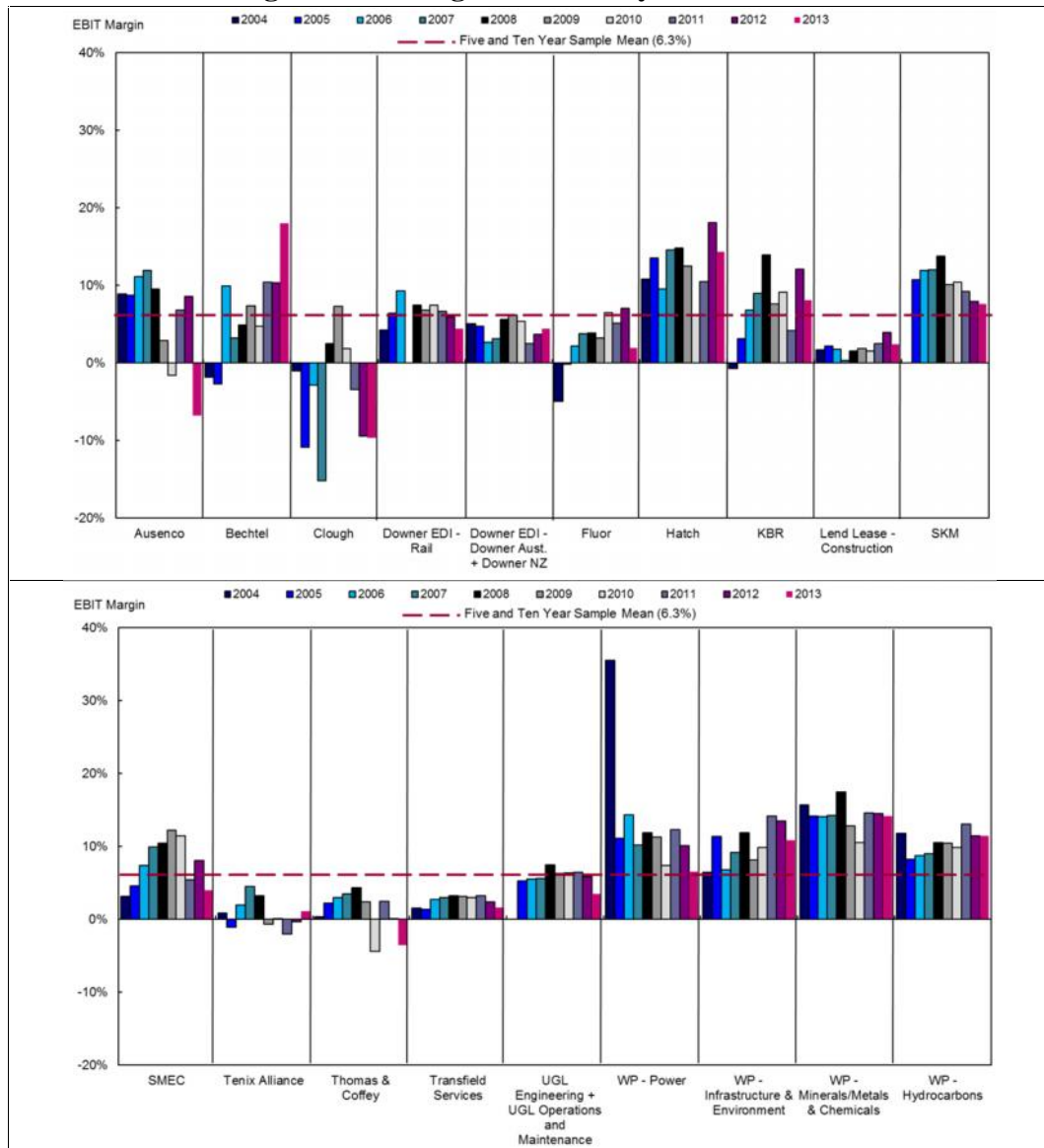


Table 3.1: EBIT Margins Earned by the Sample of Contractors (2004-2013)

Contractor		Annual										Average Over Period	
		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004-13	2009-13
Ausenco		8.9%	8.7%	11.1%	11.9%	9.5%	2.9%	-1.6%	6.8%	8.6%	-6.8%	6.0%	2.0%
Bechtel		-1.8%	-2.7%	9.9%	3.2%	4.9%	7.4%	4.8%	10.4%	10.4%	18.0%	6.5%	10.2%
Clough		-1.0%	-10.8%	-2.8%	-15.2%	2.5%	7.3%	1.9%	-3.4%	-9.4%	-9.7%	-4.1%	-2.7%
Downer EDI	Rail	4.2%	6.4%	9.3%	n.a.	7.5%	6.8%	7.4%	6.7%	5.9%	4.4%	6.5%	6.3%
	Downer Australia + Downer NZ	5.1%	4.8%	2.7%	3.2%	5.7%	6.2%	5.4%	2.5%	3.7%	4.4%	4.4%	4.5%
Fluor		-4.9%	-0.2%	2.2%	3.8%	3.9%	3.2%	6.5%	5.1%	7.1%	1.9%	2.9%	4.8%
Hatch		10.8%	13.5%	9.6%	14.6%	14.8%	12.5%	6.1%	10.5%	18.1%	14.4%	12.5%	12.3%
KBR		-0.7%	3.1%	6.8%	9.0%	14.0%	7.6%	9.2%	4.2%	12.1%	8.1%	7.3%	8.2%
Lend Lease - Construction		1.7%	2.2%	1.8%	0.3%	1.5%	1.9%	1.6%	2.5%	4.0%	2.4%	2.0%	2.5%
SKM		n.a.	10.7%	12.0%	12.0%	13.8%	10.1%	10.5%	9.2%	7.9%	7.6%	10.4%	9.1%
SMEC		3.1%	4.6%	7.4%	9.9%	10.5%	12.2%	11.5%	5.4%	8.0%	4.0%	7.7%	8.2%
Tenix Alliance		0.9%	-1.1%	2.0%	4.5%	3.2%	-0.7%	0.1%	-2.1%	-0.3%	1.1%	0.8%	-0.4%
Thomas & Coffey		0.4%	2.2%	3.0%	3.5%	4.3%	2.4%	-4.3%	2.4%	0.0%	-3.6%	1.0%	-0.6%
Transfield Services		1.5%	1.4%	2.7%	3.0%	3.3%	3.2%	3.0%	3.3%	2.4%	1.6%	2.5%	2.7%
United Group	UGL Engineering + UGL Operations and Maintenance	n.a.	5.2%	5.6%	5.6%	7.5%	6.3%	6.4%	6.5%	5.8%	3.5%	5.8%	5.7%
Worley Parsons	Power	35.5%	11.1%	14.4%	10.2%	11.9%	11.3%	7.4%	12.3%	10.1%	6.6%	13.1%	9.5%
	Infrastructure	6.5%	11.4%	6.8%	9.2%	11.9%	8.2%	9.8%	14.1%	13.5%	10.9%	10.2%	11.3%
	Mining, Metals and Chemicals	15.7%	14.2%	14.1%	14.2%	17.5%	12.8%	10.5%	14.6%	14.5%	14.2%	14.2%	13.3%
	Hydrocarbons	11.8%	8.3%	8.7%	9.0%	10.5%	10.5%	9.9%	13.1%	11.5%	11.5%	10.5%	11.3%
Summary Statistics													
Mean		5.7%	4.9%	6.7%	6.2%	8.4%	7.0%	5.6%	6.5%	7.0%	5.0%	6.3%	6.2%
Median		3.1%	4.8%	6.8%	7.3%	7.5%	7.3%	6.4%	6.5%	7.9%	4.4%	6.4%	6.5%
Minimum		-4.9%	-10.8%	-2.8%	-15.2%	1.5%	-0.7%	-4.3%	-3.4%	-9.4%	-9.7%	-15.2%	-9.7%
Maximum		35.5%	14.2%	14.4%	14.6%	17.5%	12.8%	11.5%	14.6%	18.1%	18.0%	35.5%	18.1%

Notes: EBIT estimates calculated using information contained in publicly available annual reports and statutory accounts filed with ASIC (Form 388). See Appendices A and B for more detail.

Drawing on the information in Table 3.1 and Figure 3.1, the following observations can be made about the EBIT margins earned by the sample of contractors over the last ten years:

- *EBIT margins can be subject to a significant degree of inter-year variation.*

For example, over the period 2004-2013 WorleyParsons – Power’s EBIT margin ranged from 6.6% to 35.5%. Over the same period, Ausenco (-6.8%-11.9%), Bechtel (-2.7%-18%), Clough (-15.2%-7.3%), Fluor (-4.9%-7.1%), Hatch (6.1%-18.1%) and KBR (-0.7%-14%) also experienced a considerable degree of variation in their EBIT margins. This variation is not, in my opinion, surprising given the EBIT margin is an *ex post* not an *ex ante* metric and could, as I noted in section 2.2, reflect:

- the type of pricing mechanism used by these contractors;
- the effect of any penalties or performance guarantees in their contracts;²⁵
- the ability these contractors have to diversify contract specific risks; and
- the conditions prevailing in the downstream markets in which these contractors operate.

In contrast to the inter-year variability exhibited by these entities, other contractors, like Transfield Services (1.4%-3.3%), 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.

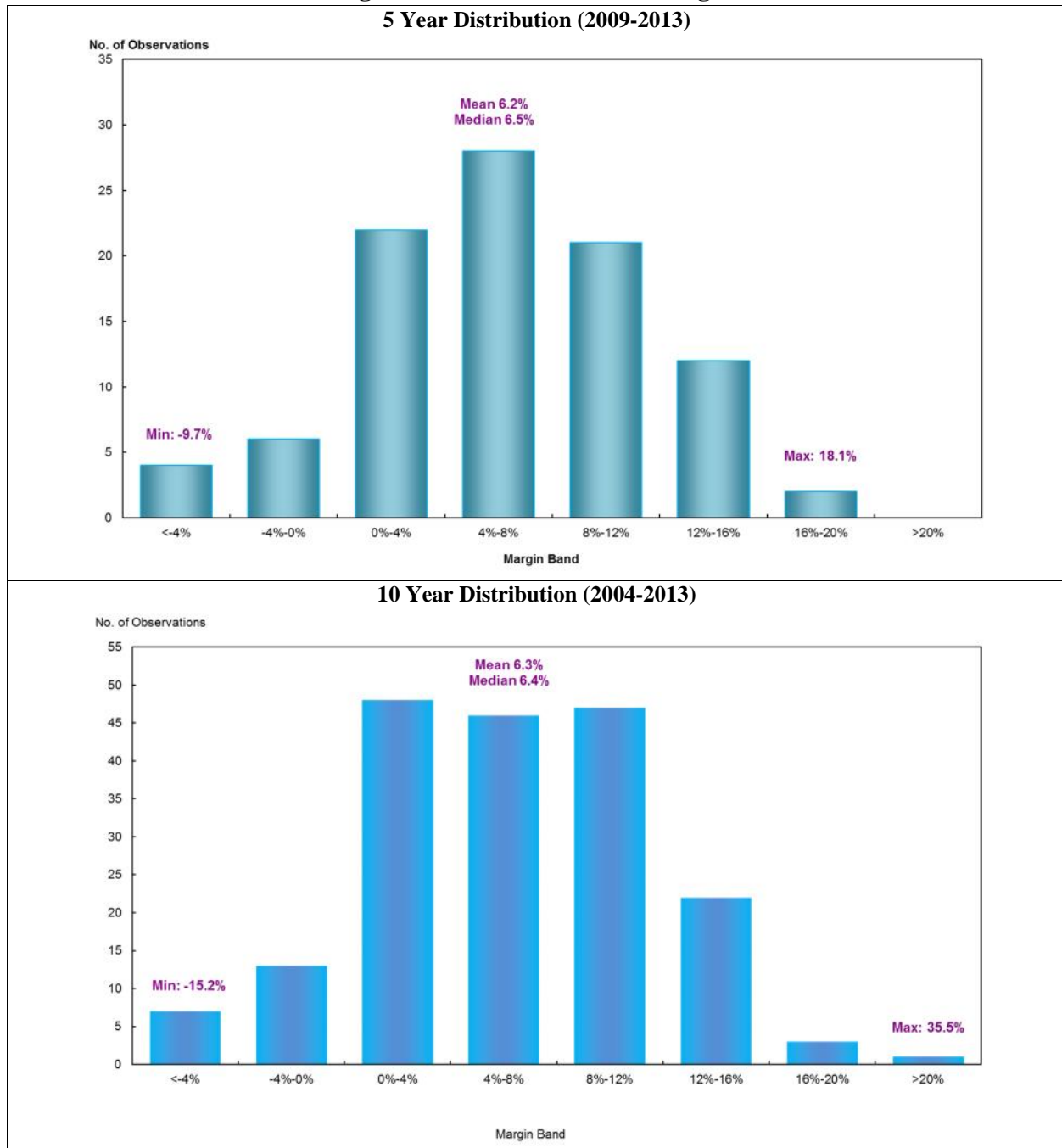
- *EBIT margins can vary markedly across contractors.*

For example, the EBIT margins earned by both SKM and WorleyParsons (across all of its business segments) have been consistently *higher* than the five and ten year sample averages, while the margins earned by Lend Lease - Construction, Tenix Alliance, Thomas & Coffey and Transfield Services have been consistently *lower*. The ability of SKM and WorleyParsons to earn consistently superior returns may reflect the fact that they are more efficient (i.e. are able to achieve greater economies of scale and scope) than their counterparts, or are better able to diversify their contract-specific risks.

The overall distribution of EBIT margins earned by the sample of contractors over the last ten years and the last five years is illustrated in Figure 3.2.

²⁵ For example, the negative margins earned by Clough between 2004 and 2007 appear to have stemmed from an Engineering, Procurement and Construction (EPC) contract that it entered into with Origin Energy in 2002. Under the terms of this contract Clough was required to construct an offshore platform, onshore processing facility and linking pipelines. In late 2004, Origin announced that the performance related provisions had been triggered under the contract following delays in the delivery of the project. The arbitration provisions under the contract were then triggered and Clough was required to pay Origin \$250 million in damages for delays and rectification work. The outstanding claims were settled at the end of the 2006/07 financial year. *See* Clough, Annual Reports 2005-2007 and Herald Sun, *Clough liable for BassGas*, 5 June 2007

Figure 3.2: Distribution of Margins



As Figure 3.2 reveals, the breadth of the range of EBIT margins has diminished over the last five years (falling from -15.2%-35.5% to -9.7%-18.1%), while the mean and median have remained broadly the same over the two sample periods (mean: 6.3% vs 6.2% and median: 6.4% vs 6.5%).

Two other interesting points to note from this figure are that around:

- approximately 90% of the observed EBIT margins in both sample periods have been positive; and
- approximately 50% of the observed EBIT margins in both sample periods have fallen in the 4-12% range.

These two observations are consistent with the findings of the earlier studies. They also support the more general proposition that asset management service providers expect to earn positive EBIT margins and that a ‘prudent service provider acting efficiently, in accordance with accepted good industry practice’ should reasonably expect to pay such a margin if entering into an outsourcing contract.

3.2 EBIT margin benchmarks

Drawing on the EBIT margin estimates contained in Table 3.1, I have used standard statistical techniques to calculate the 95% confidence interval for the true population mean for both the entire ten year sample period (2004-2013) and the last five years (2009-2013). The results of this analysis are set out in Table 3.2.

**Table 3.2: Five and Ten Year EBIT Margin Benchmarks:
95% Confidence Interval for Population Mean**

Parameter	5 Year Benchmark 2009-2013	10 Year Benchmark 2004-2013
Sample mean (S_{est})	6.2%	6.3%
Sample standard deviation (s)	5.5%	6.0%
Number of observations in sample (n)	95	187
95% confidence interval for population mean*	5.1%-7.3%	5.4%-7.2%

$$* S_{est} \pm t_{\alpha} \frac{se(S_{est})}{2} = S_{est} \pm t_{\alpha} \frac{s}{2\sqrt{n}}$$

As the results in this table reveal, there is little difference between the five and ten year EBIT margin benchmark estimates (5.1%-7.3% vs 5.4%-7.2%). I have nevertheless had recourse to both measurement periods when assessing the consistency of the margin payable to Zinfra with the margins earned by other contractors. The results of this assessment are set out in the following chapter.

4. Consistency of Zinfra Margin with EBIT Margin Benchmarks

I understand from the information I have been provided²⁶ that Zinfra, a subsidiary of JGN's parent company, SGSP (Australia) Assets Pty Ltd, was formed to provide asset management services to Jemena group assets and a number of external clients and in 2012 entered into the Southern Region²⁷ FSA with JAM.

The initial term of the FSA is seven years (1 July 2013 – 30 June 2020), but provision has been made in the contract for the term to be extended by a further three years. Under the terms of the FSA, Zinfra is required to:

- provide construction work and repair and maintenance services in the Southern Region of JGN's network, either in its own capacity or through sub-contracting arrangements; and
- manage and support the delivery and completion of the opex and capex work program in the Southern Region by providing the following project management related services:²⁸
 - program management;
 - scoping, estimating, scheduling, procurement and logistics services;
 - contract management and subcontractor management;
 - quality and risk management;
 - environmental, health and safety management;
 - reporting, record keeping and record management;
 - emergency response management and incident investigations; and
 - any other management services required to complete the contract work.

In return for the provision of the project management services, JAM, on behalf of JGN, is required to pay Zinfra:

- A Management Fee c-i-c

c-i-c

c-i-c

²⁶ Southern Region Field Services Agreement (Contract No: 2013-0134).

²⁷ The Southern Region of the JGN network includes all areas south of the Harbour Bridge and the Parramatta River.

²⁸ The management services to be provided by Zinfra are set out in schedules R and Y of the FSA.

²⁹ c-i-c

³⁰ c-i-c

c-i-c

- A Management Margin

c-i-c

The remainder of this chapter sets out my assessment of the consistency of the Management Margin with the margins earned by other contractors providing asset management services.

4.1 Conversion of the Management Margin to an EBIT equivalent margin

Before the Management Margin can be compared with the margins earned by other contractors, it must be converted to an EBIT equivalent margin. That is, it must be expressed as a percentage of the total revenue received by Zinfra for the provision of management services

c-i-c

c-i-c

Using the formula set out above and the Management Fee to apply from 1 July 2013 (c-i-c real 1 July 2013),³⁴ I have estimated the EBIT equivalent Management Margin to be

c-i-c

³¹ Southern Region FSA (Contract No: 2013-0134), Definitions, p14.

³² c-i-c

³³ Southern Region FSA (Contract No: 2013-0134), section 29.

³⁴ Southern Region FSA (Contract No: 2013-0134), Item 3, pxii.

³⁵ c-i-c

4.2 Zinfra Management Margin vs EBIT margin benchmark

To determine whether the Management Margin (expressed on an EBIT equivalent basis) is consistent with the margins earned by other contractors providing asset management services, I have compared it with both the 2004-2013 (ten year) and 2009-2013 (five year) EBIT margin benchmarks set out in Table 3.2. The results of this comparison are set out in c-i-c

c-i-c

As c-i-c reveals, the Management Margin (assuming all KPIs are satisfied) c-i-c but well within the EBIT benchmark range for these two measurement periods (c-i-c vs 5.1%-7.3% and 5.4%-7.2%). The Management Margin can therefore be considered consistent with the margins earned by other contractors providing asset management services.

It is beyond the scope of this report to determine whether the overall price payable to Zinfra under the Southern Region FSA satisfies rules 79(1)(a) and 91(1) of the NGR. However, what is clear from the results set out above is that the margin payable to Zinfra is in line with the margin that a 'prudent service provider acting efficiently, in accordance with accepted good industry practice' should reasonably expect to pay in entering into such an arrangement. I am therefore of the opinion that the Management Margin is consistent with the principles embodied in rules 79(1)(a) and 91(1).

Appendix A: Companies Included in the Sample

The tables below provide an overview of the companies that have been included in the sample and also set out the EBIT margins and capital intensity measures that have been calculated having recourse to the statutory accounts prepared by each entity.

Ausenco Ltd										
Company Snapshot										
Corporate structure:	Ausenco Ltd is an Australian listed company (ASX Code: AAX).									
Services provided:	Construction, engineering, operations solutions, project management and process control services.									
Sectors serviced:	Energy, environmental, minerals, metals and process infrastructure sectors in Australia and a number of other locations around the world.									
EBIT Margin (\$000)										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Revenue ^{1,2}	\$78,392	\$83,216	\$158,642	\$353,841	\$604,711	\$429,396	\$510,322	\$547,455	\$618,235	\$453,247
EBIT ^{1,2}	\$6,966	\$7,252	\$17,641	\$42,257	\$57,523	\$12,521	-\$7,921	\$37,245	\$53,291	-\$30,697
EBIT Margin^{1,2}	8.9%	8.7%	11.1%	11.9%	9.5%	2.9%	-1.6%	6.8%	8.6%	-6.8%
Capital Intensity	0.5%	0.7%	1.1%	0.9%	1.6%	3.0%	2.3%	1.7%	1.6%	3.5%
Source: Ausenco Annual Reports.										
Notes: 1. Excludes 'other income'. 2. Includes the income generated through joint venture arrangements to 2006 only due to reporting limitations.										
Bechtel Australia Pty Ltd										
Company Snapshot										
Corporate structure:	Bechtel Australia Pty Ltd is the Australian subsidiary of US based, Bechtel Corporation. Because Bechtel is not a listed entity in Australia, it is not required to make its annual reports publicly available. However, it is required to file financial statements on an annual basis with ASIC using Form 388. The EBIT margin analysis has therefore been based on the information contained in these forms.									
Services provided:	Construction, engineering, procurement and project management services.									
Sectors serviced:	Energy, chemicals, mining, minerals, transport and telecommunications.									
EBIT Margin (\$000)										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Revenue ^{1,2}	\$691,121	\$535,581	\$232,259	\$201,955	\$351,713	\$456,890	\$677,700	\$2,030,839	\$4,192,608	\$4,900,506
EBIT ^{1,2}	-\$12,635	-\$14,321	\$23,037	\$6,555	\$17,214	\$33,783	\$32,317	\$211,694	\$434,279	\$882,735
EBIT Margin^{1,2}	-1.8%	-2.7%	9.9%	3.2%	4.9%	7.4%	4.8%	10.4%	10.4%	18.0%
Capital Intensity	0.9%	1.2%	2.2%	2.4%	1.8%	1.2%	0.8%	0.6%	0.9%	1.2%
Source: Form 388 filings with ASIC.										
Notes: 1. Excludes 'other income'. 2. Between 2004 and 2009, Bechtel reported the 'share of net profit of joint ventures' but provided no breakdown of the revenue and expenses associated with those arrangements, so it has not been possible to calculate the revenue or EBIT margin associated with these arrangements over this period. From 2010, no joint venture arrangements have been reported.										

Clough Ltd

Company Snapshot

Corporate structure:	Clough Ltd is an Australian listed company (ASX Code: CLO).
Services provided:	Construction, engineering, operating and maintenance services and project management services.
Sectors serviced:	Energy, chemicals, mining, minerals and water sectors in Australia and a number of other locations around the world.

EBIT Margin (\$000)

	2004	2005 ³	2006 ³	2007 ³	2008	2009	2010	2011 ⁴	2012 ⁴	2013 ⁴
Revenue ^{1,2}	\$803,411	\$625,213	\$912,951	\$723,945	\$600,180	\$626,230	\$644,825	\$829,154	\$1,056,441	\$1,645,139
EBIT ^{1,2}	-\$8,398	-\$67,806	-\$25,960	-\$110,089	\$14,936	\$45,542	\$12,101	-\$27,946	-\$99,599	-\$159,326
EBIT Margin^{1,2}	-1.0%	-10.8%	-2.8%	-15.2%	2.5%	7.3%	1.9%	-3.4%	-9.4%	-9.7%
Capital Intensity	2.7%	2.0%	1.7%	2.4%	0.9%	1.2%	0.5%	0.5%	0.3%	0.3%

Source: Clough Annual Reports.

Notes: 1. Excludes 'other income' and the revenue and profit derived from associates. 2. Includes the income generated through Clough's joint venture arrangements. 3. Includes the effect of a dispute with Origin Energy in relation to the BassGas project and the final settlement paid by Clough to Origin. 4. Excludes the value of 'recharges to jointly controlled entities', because it is unclear what this source of revenue reflects. It is worth noting that if the value of these recharges was included, the EBIT margin would be 3.8% in 2011, 2.1% in 2012 and 4.2% in 2013. The decision to exclude this source of income may therefore be viewed as conservative.

Fluor Australia Pty Ltd

Company Snapshot

Corporate structure:	Fluor Australia Pty Ltd is the Australian subsidiary of US based company, Fluor Corporation. Because Fluor is not a listed entity in Australia, it is not required to make its annual reports publicly available. However, it is required to file financial statements on an annual basis with ASIC using Form 388. The EBIT margin analysis has therefore been based on the information contained in these forms.
Services provided:	In Australia, Fluor provides construction, engineering, operating and maintenance, procurement and project management services.
Sectors serviced:	Energy, chemicals, mining, minerals and transport.

EBIT Margin (\$000)

	2004 ⁴	2005	2006	2007	2008	2009	2010	2011	2012	2013
Revenue ^{1,2,3}	\$163,203	\$215,685	\$184,334	\$244,992	\$372,992	\$498,261	\$624,641	\$1,026,711	\$2,120,419	\$2,753,667
EBIT ^{1,2,3}	-\$8,020	-\$355	\$4,011	\$9,220	\$14,546	\$15,983	\$40,483	\$52,630	\$150,292	\$52,753
EBIT Margin^{1,2}	-4.9%	-0.2%	2.2%	3.8%	3.9%	3.2%	6.5%	5.1%	7.1%	1.9%
Capital Intensity	0.9%	0.1%	0.3%	0.5%	0.4%	0.6%	0.5%	0.2%	0.1%	0.1%

Source: Form 388 filings with ASIC.

Notes: 1. Excludes 'other income'. 2. No reference has been made in the Form 388 filings to associate arrangements, so it assumed that the revenue and EBIT estimates exclude the effect of any such arrangements. 3. Includes the income generated through Fluor's joint venture arrangements. 4. Includes the effect of a settlement paid to Anaconda Nickel.

Downer EDI Ltd

Company Snapshot

Corporate structure:	Downer EDI Ltd is an Australian listed company (ASX Code: DOW).
Services provided:	Construction, engineering, operating and maintenance and project management services.
Sectors serviced:	Energy, mining and minerals, rail, road, telecommunications and water sectors in Australia and a range of other locations around the world.
Business units included in the sample:	<p>Downer EDI currently consists of the following business units:</p> <ul style="list-style-type: none"> ▪ Rail, which provides design, manufacture, refurbishment and maintenance services to the above rail industry. ▪ Downer Australia, which provides engineering, construction and project management services to a number of sectors in Australia. ▪ Downer NZ, which provides construction, development, operations and maintenance, and project management services. ▪ Mining and Resources, 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. <p>The capital intensity measure of the latter of these business units averaged 5.7% over the sample period so has been excluded from the study.</p> <p>In relation to the other three business units, it is worth noting that in 2012 and 2013, Downer EDI underwent a restructure and a number of the old business units (i.e. Infrastructure Works and Engineering Consulting Services) were consolidated and then separated into the Downer Australia and Downer NZ business units. To enable a comparable assessment of the margin earned by these business units over time, the Infrastructure and Engineering Consulting Services' financial results have been combined up to 2011 and from 2012 onwards the Downer Australia and Downer NZ business units have been combined.</p>

EBIT Margin - Rail, Downer Australia and Downer NZ (Infrastructure and Engineering) Business Units (\$000)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	<i>Rail</i> ²									
Revenue ¹	\$409,911	\$360,918	\$348,904	\$0	\$613,072	\$888,925	\$1,046,757	\$1,126,317	\$1,284,394	\$1,335,742
EBIT ¹	\$17,342	\$23,258	\$32,389	n.a.	\$45,904	\$60,765	\$77,926	\$75,034	\$76,377	\$59,021
EBIT Margin¹	4.2%	6.4%	9.3%	n.a.	7.5%	6.8%	7.4%	6.7%	5.9%	4.4%
Capital Intensity	2.6%	1.3%	1.5%	n.a.	1.2%	0.8%	0.6%	0.5%	0.6%	0.6%
	<i>Downer Australia-and Downer NZ (Infrastructure and Engineering Consulting Services business unit)</i> ^{3,4}									
Revenue ¹	\$1,854,452	\$2,183,465	\$2,727,759	\$3,733,178	\$3,914,926	\$4,043,893	\$3,974,981	\$4,160,567	\$4,636,190	\$5,242,647
EBIT ¹	\$94,401	\$104,403	\$73,235	\$118,778	\$221,719	\$251,347	\$215,420	\$104,167	\$172,929	\$230,338
EBIT Margin¹	5.1%	4.8%	2.7%	3.2%	5.7%	6.2%	5.4%	2.5%	3.7%	4.4%
Capital Intensity	2.2%	1.6%	1.7%	1.8%	1.8%	2.0%	2.0%	1.8%	1.5%	1.2%

Source: Downer EDI Annual Reports

Notes: 1. Based on the notes in Downer EDI's annual reports, it would appear that the EBIT and revenue data reported by Downer EDI includes other income and the profit and revenue derived from both joint ventures and associates (jointly referred to by Downer EDI as 'Equity Accounted Investments'). Because Downer EDI does not separately report other income or the profit and revenue derived by associates on a segment basis, it has not been possible to exclude these sources of income from the calculations. It is worth noting though that 'other income' accounted for less than 0.1% of the total revenue earned by Downer EDI in 2013 and that Downer EDI has significant more joint venture arrangements than associates (28 vs 4). I would not therefore expect the inclusion of these two sources of income to have a significant effect on the EBIT margin estimates. 2. 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 Downer Australia and Downer NZ – Infrastructure and Engineering business segment data for 2007. 3. Between 2004 and 2011, Infrastructure and Engineering Consulting Services' have been combined while in 2012 and 2013 Downer Australia and Downer NZ have been combined. 4. 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.

Hatch Associates Pty Ltd

Company Snapshot

Corporate structure:	Hatch Associates is the Australian subsidiary of Canadian based company, Hatch. Because Hatch is not a listed entity in Australia, it is not required to make its annual reports publicly available. However, it is required to file financial statements on an annual basis with ASIC using Form 388. The EBIT margin analysis has therefore been based on the information contained in these forms.
Services provided:	Construction, engineering, IT consulting and project management services.
Sectors serviced:	Energy, mining and minerals, metallurgical, manufacturing and infrastructure sectors.

EBIT Margin (\$000)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Revenue ^{1,2}	\$255,613	\$350,355	\$358,572	\$386,631	\$481,330	\$435,233	\$338,678	\$445,927	\$675,948	\$633,321
EBIT ^{1,2}	\$27,654	\$47,423	\$34,344	\$56,277	\$71,412	\$54,508	\$20,693	\$46,910	\$122,312	\$91,071
EBIT Margin^{1,2}	10.8%	13.5%	9.6%	14.6%	14.8%	12.5%	6.1%	10.5%	18.1%	14.4%
Capital Intensity	0.9%	0.7%	0.7%	0.7%	0.8%	1.3%	1.3%	1.0%	0.6%	0.7%

Source: Form 388 filings with ASIC.

Notes: 1. Excludes 'other income', the 'share of net profit of associates'. 2. While it would appear from the Form 388 filings that Hatch may at times have been involved in some joint venture arrangements (e.g. 2004 and 2005), no breakdown has been provided of the revenue and expenses associated with those arrangements. It has not therefore been possible to calculate the revenue or EBIT margin associated with these arrangements. The revenue and EBIT estimates in this table therefore *exclude* the effect of joint venture arrangements.

KBR Holdings Ltd (Australia)

Company Snapshot

Corporate structure:	KBR Holdings Ltd is an Australian subsidiary of the US based company, KBR. Because KBR is not a listed entity in Australia, it is not required to make its annual reports publicly available. However, it is required to file financial statements on an annual basis with ASIC using Form 388. The EBIT margin analysis has therefore been based on the information contained in these forms.
Services provided:	In Australia, KBR provides construction, engineering, operating and maintenance, procurement and project management services.
Sectors serviced:	Energy, chemicals, mining, minerals, transport, water, wastewater and manufacturing sectors.

EBIT Margin (\$000)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Revenue ^{1,2}	\$333,640	\$264,271	\$279,997	\$356,409	\$492,257	\$408,794	\$375,729	\$480,190	\$1,406,153	\$1,999,531
EBIT ^{1,2}	-\$2,317	\$8,303	\$19,160	\$32,039	\$68,702	\$31,085	\$34,487	\$20,115	\$170,602	\$161,650
EBIT Margin^{1,2}	-0.7%	3.1%	6.8%	9.0%	14.0%	7.6%	9.2%	4.2%	12.1%	8.1%
Capital Intensity	1.1%	1.1%	1.1%	0.9%	0.8%	1.2%	1.5%	1.2%	0.4%	0.2%

Source: Form 388 filings with ASIC.

Notes: 1. Excludes 'other income' and the 'share of net profit of associates'. 2. While it would appear from the Form 388 filings that KBR Holdings has interest in a number of joint ventures, no breakdown has been provided of the revenue and expenses associated with those arrangements. It has not therefore been possible to calculate the revenue or EBIT margin associated with these arrangements. The revenue and EBIT estimates in this table therefore *exclude* the effect of joint venture arrangements.

Lend Lease Corporation

Company Snapshot

Corporate structure:	Lend Lease is an Australian listed company (ASX Code: LLC).
Services provided:	Construction, development, investment management and infrastructure development services.
Sectors serviced:	Energy, infrastructure, water, transport, roads and bridges, retail, government, residential and commercial sectors.
Business units included in the sample:	Lend Lease currently consists of the Construction (provides construction, engineering and project management services), Development (develops accommodation, mixed-use, retail, commercial and healthcare facilities), Investment Management (provides property and infrastructure investment management and property management services and also manages Lend Lease's ownership interests in property and infrastructure investments) and Infrastructure Development (arranges, manages and invests in Public Private Partnerships) business units. Of the four business units, the only one that could be characterised as an asset management service provider is the Construction business unit. It is therefore the only business unit that has been included in the study.

EBIT Margin – Construction Business Unit (\$000)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Revenue ¹	\$7,691,900	\$8,183,800	\$9,572,200	\$12,056,700	\$12,426,800	\$12,422,000	\$8,530,800	\$7,335,000	\$10,475,800	\$10,548,800
EBIT ¹	\$130,300	\$178,800	\$171,300	\$40,300	\$191,400	\$236,900	\$132,300	\$185,700	\$416,600	\$256,700
EBIT Margin¹	1.7%	2.2%	1.8%	0.3%	1.5%	1.9%	1.6%	2.5%	4.0%	2.4%
Capital Intensity	0.6%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.3%	0.6%	0.6%

Source: Lend Lease Annual Reports.

Notes: 1. Based on the notes contained in Lend Lease's annual report, it would appear that the EBIT and revenue data reported by Lend Lease includes 'other income' and the profit and revenue derived from both joint ventures and associates (jointly referred to by Lend Lease as 'Equity Accounted Investments'). Because Lend Lease does not separately report other income or the profit and revenue derived by associates on a segment basis, it has not been possible to exclude these two sources of income from the calculations. It is worth noting though that 'other income' accounted for less than 2% of the total revenue earned by Lend Lease in 2013 and that associates accounted for just 15% of the total profit derived from equity accounted investments (i.e. the remaining 85% was derived from joint ventures). I would not therefore expect the inclusion of these two sources of income to have a significant effect on the EBIT margin estimates.

SKM Holdings Ltd

Company Snapshot

Corporate structure:	SKM Holdings was recently acquired by US based, Jacobs Engineering. Because SKM is not a listed entity in Australia, it is not required to make its annual reports publicly available. However, it is required to file financial statements on an annual basis with ASIC using Form 388. The EBIT margin analysis has therefore been based on the information contained in these forms.
Services provided:	Construction, design, engineering, environmental planning, geotechnical engineering, and project management services.
Sectors serviced:	Energy, mining, minerals, transport, infrastructure, defence, property and water sectors in Australia and a number of other locations around the world.

EBIT Margin (\$000)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Revenue ^{1,2}	n.a.	\$561,263	\$715,043	\$865,647	\$1,064,394	\$1,135,971	\$986,004	\$1,082,968	\$1,288,973	\$1,320,676
EBIT ^{1,2}	n.a.	\$60,143	\$85,511	\$103,843	\$147,003	\$114,747	\$103,064	\$99,770	\$102,271	\$101,000
EBIT Margin^{1,2}	n.a.	10.7%	12.0%	12.0%	13.8%	10.1%	10.5%	9.2%	7.9%	7.6%
Capital Intensity	n.a.	1.7%	1.9%	2.0%	1.8%	2.3%	2.0%	1.8%	1.9%	2.0%

Source: Form 388 filings with ASIC. Notes: 1.Excludes 'other income' and the 'share of net profit of associates'. 2. While it would appear from the Form 388 filings that SKM has interest in a number of joint ventures, no breakdown has been provided of the revenue and expenses associated with those arrangements. It has not therefore been possible to calculate the revenue or EBIT margin associated with these arrangements. The revenue and EBIT estimates in this table therefore *exclude* the effect of joint venture arrangements.

SMEC Holdings Ltd

Company Snapshot

Corporate structure:	SMEC Holdings Ltd is an unlisted Australian public company. Because SMEC is not a listed entity in Australia, it is not required to make its annual reports publicly available. However, it is required to file financial statements on an annual basis with ASIC using Form 388. The EBIT margin analysis has therefore been based on the information contained in these forms.
Services provided:	Construction supervision, engineering, operations and maintenance, project management, quality assurance and training services.
Sectors serviced:	Energy, mining, transport, urban development and water sectors

EBIT Margin (\$000)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 ³
Revenue ^{1,2}	\$106,855	\$112,037	\$141,652	\$190,267	\$270,630	\$359,020	\$398,894	\$419,785	\$421,685	\$486,177
EBIT ^{1,2}	\$3,346	\$5,137	\$10,459	\$18,834	\$28,308	\$43,746	\$45,737	\$22,701	\$33,853	\$19,620
EBIT Margin^{1,2}	3.1%	4.6%	7.4%	9.9%	10.5%	12.2%	11.5%	5.4%	8.0%	4.0%
Capital Intensity	0.8%	1.2%	1.2%	1.4%	1.8%	1.7%	1.5%	1.7%	2.2%	2.0%

Source: Form 388 filings with ASIC.

Notes: 1. Excludes 'other income' and the share of profit from associates. 2. Includes the income generated through SMEC's joint venture arrangements. 3. Reduction in EBIT attributed to slowdown in spending on infrastructure and mining.

Tenix Alliance Pty Ltd

Company Snapshot

Corporate structure:	Tenix Alliance Pty Ltd is an unlisted Australian company. Because Tenix is not a listed entity in Australia, it is not required to make its annual reports publicly available. However, it is required to file financial statements on an annual basis with ASIC using Form 388. The EBIT margin analysis has therefore been based on the information contained in these forms.
Services provided:	Construction, engineering and operations and maintenance services.
Sectors serviced:	Energy, mining, transport, water, wastewater and telecommunications sectors in Australia, New Zealand and the Pacific.

EBIT Margin (\$000)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Revenue ^{1,2,3}	\$220,568	\$261,720	\$387,557	\$455,942	\$583,774	\$619,830	\$495,989	\$592,482	\$741,049	\$932,120
EBIT ^{1,2,3}	\$1,885	-\$2,907	\$7,596	\$20,538	\$18,770	-\$4,303	\$623	-\$12,180	-\$2,289	\$10,488
EBIT Margin^{1,2,3}	0.9%	-1.1%	2.0%	4.5%	3.2%	-0.7%	0.1%	-2.1%	-0.3%	1.1%
Capital Intensity	3.3%	1.3%	1.0%	0.9%	0.8%	0.7%	1.0%	1.8%	1.3%	1.2%

Source: Form 388 filings with ASIC.

Notes: 1. Excludes 'other income'. 2. Excludes the 'share of net profit of associates' from 2008. Prior to 2008, the EBIT margin includes the revenue generated and the expenses incurred through Tenix Alliance's 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. They have therefore been included in the EBIT margin. 3. While it would appear from the Form 388 filings that Tenix may have had an interest in a number of joint ventures or alliances over the last five years, no breakdown has been provided of the revenue and expenses associated with those arrangements. It has not therefore been possible to calculate the revenue or EBIT margin associated with these arrangements. The revenue and EBIT estimates in this table therefore *exclude* the effect of these arrangements.

Thomas & Coffey Ltd

Company Snapshot

Corporate structure:	Thomas & Coffey Ltd is an Australian listed company (ASX Code: THO), which was acquired by Skilled Group on 12 February 2014.
Services provided:	Construction, engineering, operating and maintenance and project management services.
Sectors serviced:	Energy, chemicals, mining, metals and water sectors

EBIT Margin (\$000)

	2004	2005	2006	2007	2008	2009	2010 ³	2011	2012	2013 ⁴
Revenue ^{1,2}	\$174,588	\$160,785	\$175,983	\$219,249	\$281,004	\$398,883	\$333,039	\$197,965	\$226,419	\$194,882
EBIT ^{1,2}	\$625	\$3,503	\$5,283	\$7,704	\$12,124	\$9,700	-\$14,486	\$4,821	\$64	-\$6,957
EBIT Margin^{1,2}	0.4%	2.2%	3.0%	3.5%	4.3%	2.4%	-4.3%	2.4%	0.0%	-3.6%
Capital Intensity	0.8%	0.7%	0.7%	1.0%	1.1%	0.9%	1.2%	1.7%	1.4%	1.4%

Source: Thomas & Coffey Annual Reports.

Notes: 1. Excludes 'other income'. 2. Thomas & Coffey has not reported earning any income from joint venture arrangements or associates, so these estimates are assumed to exclude the effect of these types of arrangements. 3. Includes the effect of 'substantial loss' on the Newcastle Coal Infrastructure Group project, which resulted in an after-tax write down of \$7-9 million. 4. Losses attributed to deteriorating economic conditions and a write down of tax losses.

Transfield Services Ltd

Company Snapshot

Corporate structure:	Transfield Services Ltd is an Australian listed company (ASX Code: TSE).
Services provided:	Operating and maintenance, infrastructure development and project management services.
Sectors serviced:	Energy, mining, chemicals, manufacturing, water, transport, telecommunications and facilities management in Australia and a number of other locations around the world.

EBIT Margin (\$000)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 ³
Revenue ^{1,2}	\$1,172,135	\$1,436,265	\$2,014,540	\$2,754,066	\$3,660,500	\$4,316,691	\$3,505,386	\$3,533,863	\$3,838,480	\$4,272,496
EBIT ^{1,2}	\$17,598	\$19,505	\$54,950	\$82,985	\$119,726	\$136,456	\$105,397	\$115,357	\$91,320	\$68,612
EBIT Margin^{1,2}	1.5%	1.4%	2.7%	3.0%	3.3%	3.2%	3.0%	3.3%	2.4%	1.6%
Capital Intensity	1.0%	1.1%	1.3%	1.6%	1.7%	1.8%	1.6%	1.9%	2.5%	2.6%

Source: Transfield Services Annual Reports

Notes: 1. Excludes 'other income' and the 'share of net profit of associates'. 2. Includes the income generated through Transfield's joint venture arrangements. 3. Lower margin attributed to poor market conditions and the 'end of the boom' in Australian minerals investment.

United Group Ltd

Company Snapshot

Corporate structure:	United Group Limited is an Australian listed company (ASX Code: UGL).
Services provided:	Construction, engineering, operating and maintenance, project management, and corporate real estate services.
Sectors serviced:	Energy, water, transport, defence and commercial sectors.
Business units included in the sample:	<p>United Group currently consists of the following business units:</p> <ul style="list-style-type: none"> ▪ UGL Engineering, which provides engineering, construction and project management services to the energy, water, transport and defence sectors. ▪ UGL Operations and Maintenance, which provides operations and maintenance services to infrastructure assets. ▪ DTZ Property, which provides property related services such as facilities management, corporate services, valuation and building consultancy services. <p>The services provided by the latter of these business units cannot be classified as asset management services, so it has been excluded from the sample.</p> <p>The UGL Engineering and UGL Operations & Maintenance business units are therefore the only ones that have been included in the study.</p> <p>On 1 July 2012, United Group underwent a restructure and a number of the old business units (i.e. Resources, Rail and Infrastructure) were combined and then divided between UGL Engineering and UGL Operations and Maintenance. To enable a comparable assessment of the margin earned by these business units over time, the Resources, Rail and Infrastructure financial results have been combined up to 2011 and from 2012 onwards the UGL Engineering and UGL Operations and Maintenance units have been combined.</p>

EBIT Margin - UGL Engineering and UGL Operations & Maintenance Business Units (\$000)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Revenue ^{1,2}	n.a.	\$1,081,194	\$1,977,209	\$2,148,980	\$2,395,306	\$3,307,741	\$3,017,704	\$3,274,220	\$3,214,849	\$2,324,504
EBIT ^{1,2}	n.a.	\$56,653	\$110,040	\$120,854	\$180,057	\$209,003	\$193,509	\$212,120	\$188,060	\$81,644
EBIT Margin^{1,2}	n.a.	5.2%	5.6%	5.6%	7.5%	6.3%	6.4%	6.5%	5.8%	3.5%
Capital Intensity	n.a.	1.3%	0.9%	1.0%	1.0%	0.7%	1.0%	0.9%	0.8%	1.0%

Source: United Group Annual Reports.

Notes: 1. Based on the notes contained in United Group's annual report, it would appear that its reported EBIT and revenue includes 'other income' and the profit and revenue derived from both joint ventures and associates. Because United Group does not separately report other income or the profit and revenue derived by associates on a segment basis, it has not been possible to exclude these two sources of income from the calculations. It is worth noting though, that other income accounted for just 0.5% of the revenue earned by United Group in 2013 and associates accounted for 8% of its investment in joint ventures and associates. 2. Includes the revenue and profit generated through United Group's joint venture arrangements.

WorleyParsons Ltd

Company Snapshot

Corporate structure:	WorleyParsons is an Australian listed company (ASX Code: WOR).
Services provided:	Engineering, procurement, operating and maintenance and project management services.
Sectors serviced:	Energy, chemical, mining, mineral resource, water and wastewater sectors in Australia and other locations throughout the world.
Business units included in the sample:	<p>WorleyParsons currently consists of the following business units:</p> <ul style="list-style-type: none"> ▪ Power, which provides design, engineering, procurement and construction management services to the energy industry. ▪ Infrastructure and Environment, which provides infrastructure design, engineering and project services to the energy, transport and water sectors. ▪ Minerals and Metals, which provides process design and engineering services to the minerals and metals sectors. ▪ Hydrocarbons, which provides design, engineering, project management and other services to the oil, gas and petrochemical sectors. <p>Because each of these business units provides asset management services and have an average capital intensity measure below 3.5%, they have all been included in the sample.</p>

EBIT Margin (\$000)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
	<i>Power</i>									
Revenue ^{1,2}	\$1,577	\$191,420	\$320,518	\$528,100	\$488,600	\$545,800	\$508,600	\$511,100	\$579,300	\$548,900
EBIT ^{1,2}	\$560	\$21,213	\$46,080	\$53,700	\$57,900	\$61,500	\$37,800	\$62,900	\$58,500	\$36,000
EBIT Margin^{1,2}	35.5%	11.1%	14.4%	10.2%	11.9%	11.3%	7.4%	12.3%	10.1%	6.6%
Capital Intensity	0.0%	0.7%	0.6%	1.0%	1.0%	1.1%	1.8%	1.5%	0.7%	1.0%
	<i>Infrastructure and Environment</i>									
Revenue ^{1,2}	\$37,852	\$59,185	\$108,888	\$208,100	\$335,300	\$349,600	\$469,000	\$700,500	\$870,800	\$783,500
EBIT ^{1,2}	\$2,445	\$6,750	\$7,423	\$19,100	\$39,900	\$28,600	\$46,000	\$99,000	\$117,300	\$85,300
EBIT Margin^{1,2}	6.5%	11.4%	6.8%	9.2%	11.9%	8.2%	9.8%	14.1%	13.5%	10.9%
Capital Intensity	0.5%	1.0%	1.4%	0.9%	2.4%	1.8%	1.7%	1.9%	2.0%	0.8%
	<i>Mining and Minerals</i>									
Revenue ^{1,2}	\$95,364	\$159,819	\$186,042	\$259,900	\$418,500	\$582,500	\$562,200	\$643,200	\$893,700	\$937,400
EBIT ^{1,2}	\$14,949	\$22,664	\$26,221	\$37,000	\$73,300	\$74,400	\$59,300	\$94,100	\$129,400	\$133,100
EBIT Margin^{1,2}	15.7%	14.2%	14.1%	14.2%	17.5%	12.8%	10.5%	14.6%	14.5%	14.2%
Capital Intensity	0.4%	0.7%	0.6%	0.4%	1.3%	0.9%	1.3%	2.6%	2.5%	1.6%
	<i>Hydrocarbons</i>									
Revenue ^{1,2}	\$244,169	\$841,935	\$1,796,853	\$2,491,000	\$3,377,700	\$4,734,200	\$3,422,400	\$4,042,400	\$5,014,500	\$5,343,100
EBIT ^{1,2}	\$28,821	\$69,640	\$156,937	\$225,200	\$355,800	\$495,700	\$337,200	\$529,500	\$575,200	\$612,600
EBIT Margin^{1,2}	11.8%	8.3%	8.7%	9.0%	10.5%	10.5%	9.9%	13.1%	11.5%	11.5%
Capital Intensity	1.6%	1.0%	0.8%	1.0%	1.4%	1.5%	2.0%	1.4%	1.2%	1.4%

Source: WorleyParsons Annual Reports.

Notes: 1. Excludes 'other income'. In relation to the 'share of net profits of associates', it would appear from the notes to WorleyParsons' segment results that this source of income has been included in both its EBIT and revenue in all years except 2005 and 2006. While it has been possible to deduct this source of profit from the EBIT measure, it has not been possible to make the same adjustment to revenue because the share of revenue derived from associates is not reported on a segment basis. The EBIT margin estimates in this table will therefore understate the actual EBIT margins earned by WorleyParsons (i.e. because the revenue component of the EBIT margin metric will be higher than what it would otherwise have been if this source of revenue was excluded). 2. It is unclear from WorleyParson's accounts if the income derived from joint venture arrangements has or has not been included in the segment financial results.

Appendix B: Material Relied Upon

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

EBIT Margin Data
For those companies listed on the ASX the annual reports have been obtained from either the company's website or the ASX website, while for those companies that are not listed on the ASX, the Form 388 filings have been purchased from Citec Confirm, an independent information vendor.
Ausenco, Annual Reports, 2004-2007 & 2009-2013 and Financial Report, 2008;
Bechtel Australia Pty Ltd, Form 388, 2003-2013;
Clough Ltd, Annual Reports, 2003-2013.
Downer EDI Limited, Annual Reports, 2003, 2008-2013 and Financial Reports, 2003-2007.
Fluor Australia Pty Ltd, Form 388, 2003-2013.
Hatch Associates Pty Ltd, Form 388, 2003-2013.
KBR Holdings Ltd (Australia), Form 388, 2003-2013.
Lend Lease Corporation Limited, Annual Consolidated Financial Report and Annual Report, 2004-2013.
Sinclair Knight Merz Holdings Ltd, Form 388, 2003-2013.
SMEC Holdings Limited, Form 388, 2003-2013.
Tenix Alliance Pty Ltd, Form 388, 2003-2013.
Thomas & Coffey Ltd, Annual Reports, 2003-2008 and Financial Report, 2009-2013.
Transfield Services Limited, Annual Reports, 2003-2007 & 2009-2013 and Financial Report, 2008 and 2010.
United Group Limited, Annual Reports, 2005-2013.
WorleyParsons Limited, Annual Reports, 2005-2013.
Other information relied up
AER, Draft Decision – Access arrangement Envestra Ltd 2013-17, Part 1.
Herald Sun, Clough liable for BassGas, 5 June 2007.
Thomas & Coffey, ASX Media Release – Market Update, 5 May 2010.
Prior reports
NERA, <i>Benchmarking contractor's profit margins</i> , 28 March 2007.
NERA, Allen Consulting Group's (ACG) Review of NERA's Benchmarking of Contractors' Margins Critique, October 2007.
Expert report of Katherine Lowe (NERA), <i>Benchmark Study of Contractor Profit Margins</i> , September 2010.
Expert report of Katherine Lowe (NERA), <i>Benchmark Study of Contractor Profit Margins (2002-2011)</i> , March 2012.
Information provided by Jemena
Southern Region Field Services Agreement (Contract No: 2013-0134).
JGN Presentation to AER: Evolution of JGN's operations and field services delivery and outsourcing arrangements (Commercial-in-confidence), 27/11/2013.

Appendix C: Compliance with Expert Witness Guidelines

I have read the Guidelines for Expert Witnesses in Proceedings of the Federal Court of Australia as set out in Practice Note CM7 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 D: Curriculum Vitae



Overview

I have over 10 years' experience as an economist working on energy, infrastructure regulation, pricing and competition matters. I hold a Master of Applied Finance (majoring in Corporate Finance) from Macquarie University, a Master of Economics from Sydney University and a Bachelor of Business (majoring in Finance and Economics) from the University of Technology Sydney.

Prior to establishing K Lowe Consulting, I was employed as:

- a Senior Consultant at NERA Economic Consulting for seven years (January 2005 – August 2012); and
- an economist within the Regulatory (Gas Group), Compliance and Merger divisions of the Australian Competition and Consumer Commission (ACCC) for three years (January 2002 – December 2004).

Over the last 12 years I have provided advice on a wide range of third party access, regulatory design, economic regulation, competition and public policy related matters arising in the gas, electricity, water, rail, ports and telecommunications industries, to a variety of clients including:

- policy makers, rule makers and regulators, such as the Ministerial Council on Energy (MCE), the Australian Energy Market Commission (AEMC), the Australian Competition and Consumer Commission (ACCC) and the Australian Energy Regulator (AER);
- gas producers and electricity generators, such as Origin Energy, the Cooper Basin Producers, the Gippsland Basin Producers, BG and International Power;
- gas pipeline, electricity networks and other infrastructure owners/operators, such as Jemena, Envestra, APA, Multinet, ActewAGL, United Energy, CitiPower/Powercor, TransGrid and SMIT Marine; and
- downstream users and prospective users of infrastructure, such as Xstrata, Santos, Fortescue and Optus.

Further detail on my qualifications, employment history and regulatory related project experience can be found below.

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

Work Experience

- 2012-** **K LOWE CONSULTING**
Director
- 2005-2012** **NERA ECONOMIC CONSULTING**
Senior Consultant
- 2002-2004** **AUSTRALIAN COMPETITION AND CONSUMER COMMISSION**
Associate Director – Gas Group (final position)
- 1998-2002** **MACQUARIE BANK**
Associate Economist – Asia (final position)

Gas and Electricity Regulatory Experience

- 2014** **ERA**
Review of ATCO Gas Australia’s proposed opex and capex
Worked in conjunction with EMCA to provide advice to the ERA on ATCO’s proposed opex and capex for the next access arrangement period.
- 2014** **JGN**
Margins Earned by Asset Management Service Providers
Retained to prepare an expert report on the margins earned by asset management service providers.
- 2013-14** **JGN**
Advice on marketing arrangements
Retained to assist JGN with the development of its marketing proposal for the 2015-2020 access arrangement review process

2013	<p>GGT</p> <p>Coverage of an expansion</p> <p>Retained to provide advice and draft a submission for GGT setting out why an expansion of the Goldfields Gas Pipeline should not form part of the covered pipeline.</p>
2013	<p>Confidential client</p> <p>Response to the AER's Draft Guidelines</p> <p>Retained to draft two responses to the AER's Draft Expenditure Incentive and Expenditure Assessment Guidelines.</p>
2012	<p>Murraylink</p> <p>Outsourcing Arrangements</p> <p>Retained to provide advice on Murraylink's outsourcing arrangement in the context of the AER's 2013-2018 determination.</p>
2011-12	<p>Envestra</p> <p>Outsourcing Arrangements</p> <p>Retained to prepare an expert report on the principles that should be applied when assessing the prudence and efficiency of outsourcing arrangements and to respond to the framework developed by the AER.</p>
2011-12	<p>APA</p> <p>Auction Design</p> <p>Assisted with the preparation of an expert report on alternative auction designs and the optimal auction design for the Roma to Brisbane Pipeline.</p>
2011-12	<p>Xstrata</p> <p>Price of Access to the Daly Waters to McArthur River Pipeline</p> <p>Retained to provide advice on asset valuation methodologies and the manner in which prior capital contributions would be recognised under the National Gas Rules.</p>
2010-2012	<p>Envestra</p> <p>Margins Earned by Asset Management Service Providers</p> <p>Retained to prepare a number of expert reports on the margins earned by asset management service providers.</p>
2011	<p>CitiPower and AEMO</p> <p>Regulatory Test</p> <p>Retained to prepare a report on the application of the regulatory test to the proposed augmentation for Melbourne Inner Suburbs and CBD Supply.</p>

- 2010** **CitiPower/Powercor**
Outsourcing Arrangements
Retained to provide advice on the factors that should be considered when assessing the prudence and efficiency of outsourcing arrangements.
- 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
Assisted with the preparation of a joint report (prepared with PWC) 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** **CitiPower/Powercor**
Total Factor Productivity
Assisted with the provision of advice to CitiPower and Powercor on TFP related issues arising from the AEMC's review into the use of TFP for the determination of prices and revenues.
- 2008** **TransGrid**
Review of Post-Tax Revenue Model and Roll Forward Model
Assisted with a review of TransGrid's post-tax revenue model and roll forward model and provided advice on the consistency between these models and the AER's guidelines.
- 2007** **Multinet**
Inflation Rate Estimates
Retained to provide advice on the appropriate inflation rate to utilise when setting tariff and revenue requirements under the Gas Code.
- 2007** **Multinet**
Review of Outsourcing Infrastructure Asset Management Contracts
Assisted with the preparation of an expert report that established a framework for assessing whether outsourcing contracts complied with the prudent and efficient service provider provisions of the Gas Code.

- 2007** **Envestra**
Review of Outsourcing Infrastructure Asset Management Contracts
 Assisted with the preparation of an expert report that established a framework for assessing whether outsourcing contracts complied with the prudent and efficient service provider provisions of the Gas Code. Also assisted with the preparation of a benchmark study of margins levied by asset management service providers.
- 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 Electricity Rules.
- 2007** **Powercor/CitiPower**
Advice on Related Party Outsourcing Arrangements
 Assisted with the preparation of advice on related party outsourcing arrangements.
- 2006** **Australian Energy Regulator**
Review revenue and tariff model submitted by gas transmission pipeline owner
 Audited the revenue and tariff model supplied by a gas transmission pipeline owner.

Gas and Electricity Rules Development

- 2012-13** **AEMC**
Transmission Frameworks Review
 Seconded to the AEMC to consider how the Optional Firm Access model could be taken forward.
- 2012** **AEMC**
Network Regulation Rule Change
 Retained to manage the transitional arrangement component of the AEMC's network regulation final determination and to draft the relevant sections of the determination.
- 2008** **AEMC**
Advice on the Gas Pipeline Regulatory Framework
 Retained to provide advice on a number of issues relating to access to transmission and distribution gas pipelines.

included the methodology employed to calculate the new base price, the appropriateness of the rate of return, the decision by the regulator to retrospectively bring to matters from the prior regulatory period.

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.

2007

Optus, Australia

Development of a Special Access Undertaking

Assisted with the preparation of advice on the pricing principles that should be incorporated into the Fibre to the Node Special Access Undertaking.

2007

Ministerial Council on Energy Smart Meter Working Group

Cost Benefit Analysis of Proposed Smart Meter Rollout

Assisted with the preparation of a report and the underlying analysis that examined 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.

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.

2003-04

Australian Competition and Consumer Commission

Gas Transmission Pipeline Regulation Group

While in the Gas Group, I worked on the proposed Moomba to Sydney Pipeline access arrangement and was responsible for carrying out the financial modelling, drafting the rate of return, demand and terms and conditions sections of the ACCC's Final Decision and Final Approval. Following the appeal of the ACCC's decision to the Australian Competition Tribunal, I was extensively involved in the preparation and briefing of the solicitors, counsel and the Tribunal.