Attachment 2.4

Benchmark Study of Contractor Profit Margins (2005-2014)

A report by K Lowe Consulting

2016/17 to 2020/21 Access Arrangement Information

Australian Gas Networks

Benchmark Study of Contractor Profit Margins (2005-2014)

A report for Australian Gas Networks

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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 12 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 Australian Gas Networks (AGN) to:

- update the benchmark study of contractor profit margins that was originally undertaken for AGN in 2007 and was subsequently updated in 2010, 2012 and 2014; and
- use the results of this study to assess the consistency of the margin payable by AGN to APA for the provision of asset management services under the three Operating and Management Agreements (OMAs) that AGN and APA have entered into, with the margins earned by other contractors providing asset management services.[1]

I understand the results of this study will be provided to the Australian Energy Regulator (AER) for consideration during the 2016/17–2020/21 South Australian gas access arrangement review. A brief overview of the results of this study is set out below.

1.1 Background to the benchmark study

The benchmark study of contractor profit margins was originally undertaken in 2007[2] to assess the consistency of the margins payable by AGN (formerly Envestra) under its OMAs with the margins 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 margin payable by AGN was assessed.

The results of the initial study revealed that the majority of contractors providing asset management services in competitive markets earn margins in excess of their directly incurred

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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 (EBIT ÷ 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.

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 arising under their contractual arrangements;
- 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 have been updated on three occasions since the study was originally completed in 2007, with the most recent update occurring in mid-2014.[4,5,6] Like the original study, the results of these three updates have confirmed that:

- asset management service providers expect to earn a positive EBIT margin; and
- 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 for asset management services.

1.2 Latest results of the benchmark study

This latest study into the margins earned by contractors and the overall EBIT margin benchmark indicates the following:

- In the last five years (2010-2014), the average EBIT margin earned by the 22 contractors in the sample was 6.3%, while the EBIT margin benchmark ranged from 5.3%-7.3%.
- In the last ten years (2005-2014), the average EBIT margin earned by the 22 contractors in the sample was 6.6%, while the EBIT margin benchmark ranged from 5.9%-7.3%.

While there is currently little difference between the five and ten year EBIT margin benchmarks (5.3%-7.3% vs 5.9%-7.3%), I have had recourse to both measures when assessing the consistency of the margin payable by AGN with the margins earned by other contractors.

1.3 OMA EBIT equivalent margin vs EBIT margin benchmark

I understand from the information I have been provided that under the terms of the OMAs, APA is required to provide AGN a range of asset management related services. In return for the provision of these services, AGN is required to pay APA:

- all the expenses it *reasonably* incurs in the provision of the services;
- a Network Management Fee (NMF) equal to 3% of AGN's network revenues; and

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

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

6 Expert report of Katherine Lowe (KLC), *Contractor Profit Margins (Benchmark Study: 2004-2013)*, May 2014, p2.

- an incentive payment if APA is able to achieve a real reduction in controllable costs or new customer connection costs.

Drawing on information contained in AGN's annual reports and data that AGN has provided on the incentive payments it has made to APA over the last ten years, I have converted the NMF and incentive payment components of the OMA price structure into an EBIT equivalent margin. The results of this conversion reveal the following:

- Over the last five years (2009-2014), AGN has paid APA an EBIT equivalent margin of **5.7%,** which is ***lower*** than the sample average (6.3%) and towards the ***lower end*** of the EBIT margin benchmark range (5.3%-7.3%).
- Over the last ten years (2005-2014), AGN has paid APA an EBIT equivalent margin of **5.8%,** which is ***lower*** than the sample average (6.6%) and ***below*** the lower bound of the EBIT margin benchmark range (5.9%-7.3%).

In short, the results indicate that the NMF and incentive payments paid by AGN to APA are at the *lower end* of the range of margins earned by other contractors providing comparable asset management services to those procured under the OMAs. I am therefore of the opinion that the margin paid by AGN is consistent with the 'prudent service provider acting efficiently, in accordance with accepted good industry practice' principle embodied in rules 79(1)(a) and 91(1) of the National Gas Rules (NGR).

1.4 Structure of the report

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

- Chapter 2 provides an overview of the OMAs that AGN has entered into;
- Chapter 3 describes the methodology that has been used in the benchmark study;
- Chapter 4 sets out the EBIT margins earned by the contractors included in the sample and assesses the consistency of the margin payable by AGN under the OMA with the EBIT margin benchmark;
- 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. Operating and Management Agreements

I understand that AGN has entered into the following OMAs with APA:

- Queensland, South Australian and Northern Territory OMA – Amendment and Restatement Deed – Operating and Management Agreement, 2 July 2007; and
- Victorian and Albury OMA – Amendment and Restatement Deed – Operating and Management Agreement (Stratus), 2 July 2007.
- NSW (Wagga Wagga) OMA – In late 2010 Envestra acquired Country Energy's Wagga Wagga gas distribution network and shortly thereafter entered into the NSW (Wagga Wagga) – Operating and Management Agreement (8 April 2011) with APA.

Further detail on the services procured by AGN under these OMAs, the OMA pricing mechanism and APA is provided below.

2.1 Services procured by AGN

Under the terms of the OMAs, APA is required to provide the following services to AGN's South Australian distribution network: [7]

- provide all services, labour and materials necessary to operate and maintain each network (including periodic pipeline replacement);
- assist AGN 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 AGN's networks through both increased utilisation and expansion;
- plan, design and construct network extensions;
- 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 AGN a budget for each financial year and prepare a report that compares its actual performance with budgeted performance.

2.2 Pricing mechanism

The pricing mechanism in the OMAs allows APA to recover the following: [8,9]

- all expenses it *reasonably* incurs in the provision of the services;
- government charges;

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

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

[9] Under the contract AGN is also required to pay the costs and expenses incurred by APA consequent upon employees being made redundant.

- the costs associated with acquiring system use gas;
- an incentive payment equal to 33% of the value of any annual real reductions that APA can achieve in:
  - controllable costs per GJ; and
  - costs per connection of new customers; and
- a Network Management Fee (NMF) equal to 3% of AGN's network revenues.

Notable features of this pricing mechanism include:

- The cost pass-through component, which is subject to both a 'reasonably incurred' test and a 5% budget constraint. [10] These two aspects of the price mechanism limit the exposure of AGN and users of its distribution networks to any significant cost overruns.
- The capital and operating expenditure based incentive mechanisms, which 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 efficiency gains are passed through immediately to AGN via lower operating costs and to users at the next regulatory reset.
- 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 AGN's joint objective of minimising costs and maximising network growth (or revenue). Further insight into the purpose of the NMF can be found in the following extracts taken from the Australian Competition Tribunal's (Tribunal) *Application by Envestra Limited (No. 2)* [2012] ACompT 3 (herein referred to as the 'SA decision'):[11]

  > "…the NMF was a payment required to access the management services of APA."
  >
  > "… the NMF is not a one-off cost to improve the efficiency of the management of the network. It is a fee that must be paid every year in order to have access to the efficiencies offered by APA. If the NMF is required to be paid in one year in order to access the efficiencies provided by APA, unless circumstances change, the NMF will have to be paid in the following year, and the year after, in order to ensure APA continues to manage the network. APA may well refuse to operate the network if Envestra ceased paying the fee. In this sense, it is not appropriate to think of the NMF as a once-off efficiency improving mechanism."

The latter two of these components of the pricing mechanism represent the margin payable by AGN to its asset management service provider, APA.

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[10] Clause 3.3(e) of the OMA states that APA shall not, without the prior consent of AGN, 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% 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% 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.

[11] *Application by Envestra Limited (No. 2)* [2012] ACompT 3, paras 261 and 264.

2.3 Asset management service provider

APA has an interest in a large number of assets in its own right and provides asset management services to 57 assets in Australia, nine of which are owned by AGN.[12] The remaining 48 assets that APA services include (see Table 2.1):

- 39 gas pipelines and one ethane pipeline;
- two electricity interconnectors and two power stations;
- two coal seam methane processing plants;
- a number of reticulated LPG systems; and
- two gas storage facilities.

Putting aside the potential for any economies of scope to arise from the non-gas pipeline assets, the large number of gas pipelines serviced by APA and its geographic coverage (i.e. it has assets in the same geographic areas as AGN assets) means that it is able to access significant economies of scale, specialist expertise and other efficiencies.

[12] The nine assets owned by AGN include the South Australian Gas Network, the Queensland Gas Network, the Victorian Gas Network, the Albury Gas Network, the Wagga Wagga Gas Network, the Riverland Pipeline System, the Mildura System, the Palm Valley to Alice Springs Pipeline and the Alice Springs Distribution Network.

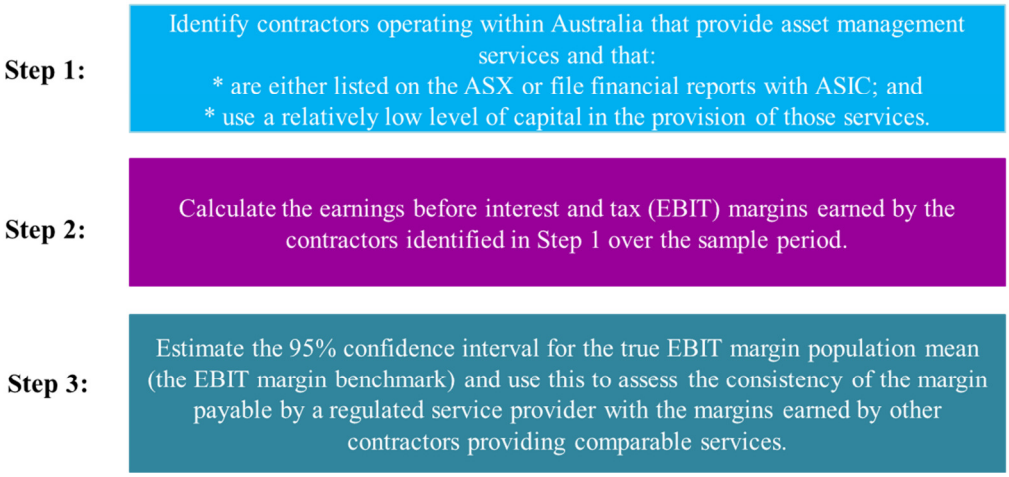
Table 2.1: Assets serviced by APA *excluding* those owned by AGN

		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
	D	Central Ranges Network	APA
Vic	T	Principal Transmission System (PTS)	APA
SA	T	SEA Gas Pipeline	APA (50%) and REST Superannuation Fund (50%)
		SESA Pipeline	APA
Qld	T	Roma to Brisbane (RBP)	APA
		Carpentaria Gas Pipeline (CGP)	APA
		Berwyndale to Wallumbilla Pipeline (BWP)	APA
		South West Queensland Pipeline (SWQP) and QSN Link	APA
	D	Allgas Gas Network	Energy Infrastructure Investments, APA 19.9% interest
WA	T	Goldfields Gas Pipeline	APA 88.2%
		Mid-West Pipeline	APA 50%
		Pilbara Pipeline System	APA
		Kalgoorlie to Kambalda Lateral	APA
		Telfer Gas Pipeline	Energy Infrastructure Investments, APA 19.9% interest
		Parmelia Gas Pipeline	APA
		Wiluna Gold Gas Lateral	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
		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
		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
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
Dandenong LNG Facility (Vic) and Mondarra Gas Storage Facility (WA)			APA

3. Benchmark Study Methodology

The benchmark study of contractor profit margins was originally undertaken to assess the consistency of the margin payable under AGN's OMAs with the margins earned by other contractors providing asset management services. The methodology underlying the benchmark study was therefore developed to enable the margin payable by AGN to be compared with the margins earned by other contractors in a standardised manner. The key steps in this methodology are depicted in Figure 3.1.

Figure 3.1: 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.

3.1 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 3.1.

Table 3.1: Contractors Providing Asset Management Services

Ausenco Ltd	
Bechtel Australia Pty Ltd	
Cardno Ltd	
Coffey International Ltd	
Clough Ltd (acquired by Murray & Roberts Ltd in December 2013)	
Downer EDI Ltd	Rail business unit
	Mining and Resources business unit
	Downer Infrastructure Australia and Downer Infrastructure NZ 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 (acquired by Jacobs Engineering in March 2014)	
Monadelphous Group Ltd	
SKILLED Group Ltd	Engineering and Marine Services unit
SMEC Holdings Ltd	
Tenix Alliance Pty Ltd (acquired by Downer EDI in October 2014)	
Transfield Services Ltd	
Thomas & Coffey Ltd (acquired by the SKILLED Group in January 2014)	
United Group Ltd	UGL Engineering business unit
WorleyParsons Ltd	Hydrocarbons business unit
	Infrastructure business unit (amalgamated with Power business unit in 2014)
	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 3.1 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 the ratio of depreciation plus amortisation to revenue) in excess of 3.5%.[13]

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 6.1% over the sample period. The total number of contractors included in the sample is therefore 22. Further detail on each of the entities included in the sample is contained in Appendix A.

Before moving on, it is worth noting that the sample of entities has changed in the following ways since the study was last carried out in mid-2014:

- Clough Ltd was acquired by Murray & Roberts in late 2013;
- SKM was acquired by Jacobs Engineering in early 2014;

[13] 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 prepared over time. The rationale for adopting this threshold is explained on page 12 of the Expert report of Katherine Lowe (NERA), *Benchmark Study of Contractor Profit Margins (2002-2011)*, March 2012.

- Thomas & Coffey was acquired by the SKILLED Group in early 2014; and
- WorleyParsons has merged its Power and Infrastructure business units.

The consolidation that has occurred in the last year was repeated, to a lesser extent, in 2012-13 when a number of companies, such as Downer EDI and the United Group, decided to restructure their business units. To ensure that the size of the sample is not compromised by this consolidation, I have included the following contractors into the sample:

- Cardno Ltd;
- Coffey International Ltd;
- Monadelphous Group Ltd; and
- SKILLED Group Ltd (Engineering and Marine Services business unit).

3.2 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.

3.2.1 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 forms[14] and may also be designed to recover different allowances.[15] 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.

[14] 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.

[15] 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.

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 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.[16] 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.[17]

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 comparable contractor services.[18] The revenue and profits derived from these joint ventures

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[16] 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.

[17] 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 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.

[18] Examples of such arrangements from the list of comparable companies used in the sample include:

can therefore be assumed to be directly attributable to the provision of contractor services. To ensure that the margins earned through 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 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.[19] 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 3.1);
- whether the contracts include penalty clauses and/or performance guarantees that may be invoked if the contractor fails to satisfy its obligations under the contract;[20]
- whether the contract includes any incentive payment that is made to align the contractor's incentives with the asset owner's;
- 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).[21]

- 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.

[19] 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.

[20] 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.

[21] The importance of this factor can be seen in the following examples:

- In SMEC Holdings' 2013 financial statements, the reduction in its 2013 earnings was attributed to 'tough market conditions' a 'slowdown in infrastructure development in Australia' and mining.
- In Thomas & Coffey's 2013 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.

Box 3.1: 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.

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,[22] 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.

Furthermore, the concerns raised by the AER about this aspect of the study have been 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'. [23] 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.

…

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.

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

23 ibid.

Put simply, the use of the EBIT margin metric overcomes the definitional issues cited by the AER in response to earlier studies.

3.2.2 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:

- ten year measurement period, extending from 2005 to 2014; and
- five year measurement period, extending from 2010 to 2014, to reflect more recent market conditions.

3.3 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:

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

Where:

β_{est} is the sample mean

$t_{\frac{\alpha}{2}}$ 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.:

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

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.

4. Results of the Benchmark Study

Drawing on the financial statements published by the 22 contractors included in the sample, I have calculated the EBIT margins earned by each contractor over the last ten years (2005-2014) and then estimated both the five year (2010-2014) and ten year (2005-2014) EBIT margin benchmarks. The results of this analysis are set out below, while Appendix A contains further detail on the EBIT margin calculations.

4.1 EBIT margins earned by the sample of contractors

Figure 4.1 and Table 4.1 set out the EBIT margins earned by each of the contractors included in the sample over the last ten years (2005-2014). Drawing on the information in this table and figure, 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 2005-2014 Clough's EBIT margin ranged from -15.2% to 7.3%. Over the same period, Ausenco (-6.8% to 11.9%), Bechtel (-2.7% to 18%), Fluor (-0.2% to 7.1%), Hatch (6.1% to 18.1%) and KBR (3.1% to 14%) also experienced a considerable degree of variation in their EBIT margins. This variation is not surprising given the EBIT margin is an *ex post* and not an *ex ante* metric and could, as noted in section 3.2.1, reflect:
  - the type of pricing mechanism used by these contractors;
  - the effect of any penalties or performance guarantees in their contracts;[24]
  - 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, Cardno, Lend Lease (Construction), Monadelphous and Downer EDI (Downer Aust. and Downer NZ), 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 Worley Parsons, Cardno and Coffey International 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 Worley Parsons, Cardno and Coffey International to earn

[24] For example, the negative margins earned by Clough between 2004 and 2007 appear to have stemmed from an Engineering, Procurement and Construction 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 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

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.

Figure 4.1: Margins Earned by Contractors

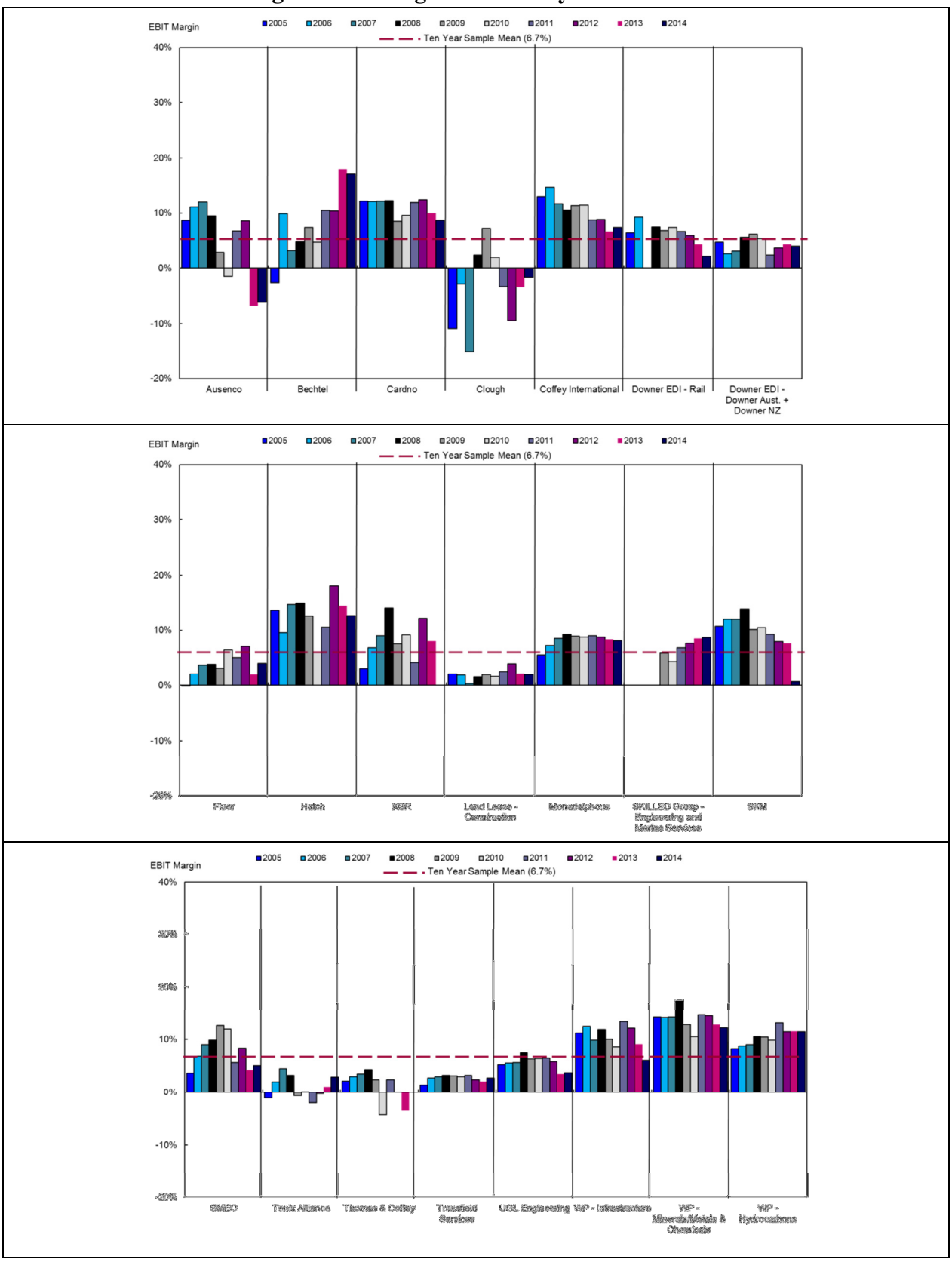


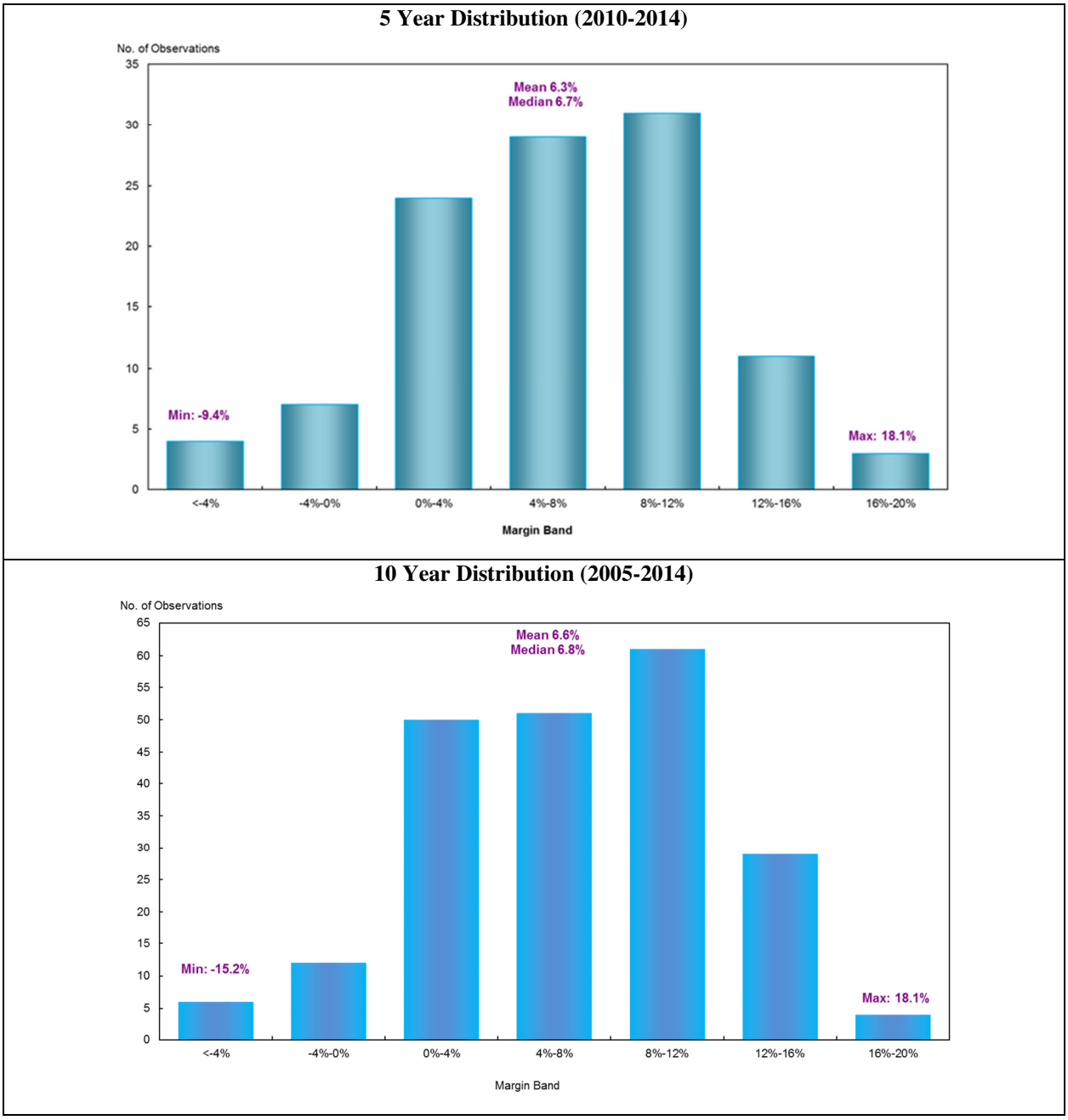
Table 4.1: EBIT Margins Earned by the Sample of Contractors (2005-2014)

Contractor		Annual										Average Over Period	
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2005-14	2010-14
Ausenco		8.7%	11.1%	11.9%	9.5%	2.9%	-1.6%	6.8%	8.6%	-6.8%	-6.2%	4.5%	0.2%
Bechtel		-2.7%	9.9%	3.2%	4.9%	7.4%	4.8%	10.4%	10.4%	18.0%	17.2%	8.4%	12.1%
Cardno		12.1%	12.0%	12.2%	12.2%	8.5%	9.6%	11.9%	12.4%	10.0%	8.7%	11.0%	10.5%
Clough		-10.8%	-2.8%	-15.2%	2.5%	7.3%	1.9%	-3.4%	-9.4%	-3.4%	-1.7%	-3.5%	-3.2%
Coffey International		12.9%	14.6%	11.7%	10.6%	11.3%	11.4%	8.8%	8.9%	6.7%	7.4%	10.4%	8.6%
Downer EDI	Rail	6.4%	9.3%	n.a.	7.5%	6.8%	7.4%	6.7%	5.9%	4.4%	2.2%	6.3%	5.3%
	Infrastructure Australia + NZ	4.8%	2.7%	3.2%	5.7%	6.2%	5.4%	2.5%	3.7%	4.4%	4.0%	4.3%	4.0%
Fluor		-0.2%	2.2%	3.8%	3.9%	3.2%	6.5%	5.1%	7.1%	1.9%	4.1%	3.8%	4.9%
Hatch		13.5%	9.6%	14.6%	14.8%	12.5%	6.1%	10.5%	18.1%	14.4%	12.6%	12.7%	12.3%
KBR		3.1%	6.8%	9.0%	14.0%	7.6%	9.2%	4.2%	12.1%	8.1%	n.a.	8.2%	8.4%
Lend Lease - Construction		2.2%	1.8%	0.3%	1.5%	1.9%	1.6%	2.5%	4.0%	2.2%	1.9%	2.0%	2.4%
Mondalphous		5.6%	7.3%	8.5%	9.3%	8.9%	8.7%	9.0%	8.8%	8.3%	8.2%	8.3%	8.6%
SKILLED	Engineering and Marine Services	n.a.	n.a.	n.a.	n.a.	5.9%	4.4%	6.8%	7.7%	8.5%	8.7%	7.0%	7.2%
SKM		10.7%	12.0%	12.0%	13.8%	10.1%	10.5%	9.2%	7.9%	7.6%	0.6%	9.4%	7.2%
SMEC		3.7%	6.8%	9.0%	9.9%	12.6%	11.9%	5.6%	8.4%	4.3%	5.1%	7.7%	7.1%
Tenix Alliance		-1.1%	2.0%	4.5%	3.2%	-0.7%	0.1%	-2.1%	-0.3%	1.1%	2.9%	1.0%	0.4%
Thomas & Coffey		2.2%	3.0%	3.5%	4.3%	2.4%	-4.3%	2.4%	0.0%	-3.6%	n.a.	1.1%	-1.4%
Transfield Services		1.4%	2.7%	3.0%	3.3%	3.2%	3.0%	3.3%	2.4%	2.0%	2.7%	2.7%	2.7%
United Group	UGL Engineering	5.2%	5.6%	5.6%	7.5%	6.3%	6.4%	6.5%	5.8%	3.5%	3.7%	5.6%	5.2%
Worley Parsons	Infrastructure	11.2%	12.5%	9.9%	11.9%	10.1%	8.6%	13.4%	12.1%	9.1%	6.0%	10.5%	9.8%
	Mining, Metals and Chemicals	14.2%	14.1%	14.2%	17.5%	12.8%	10.5%	14.6%	14.5%	12.8%	12.2%	13.7%	12.9%
	Hydrocarbons	8.3%	8.7%	9.0%	10.5%	10.5%	9.9%	13.1%	11.5%	11.5%	11.4%	10.4%	11.5%
Summary Statistics													
Mean		5.3%	7.2%	6.7%	8.5%	7.2%	6.0%	6.7%	7.3%	5.7%	5.6%	6.6%	6.3%
Median		5.2%	7.3%	8.7%	9.3%	7.3%	6.4%	6.7%	8.2%	5.6%	4.6%	6.8%	6.7%
Minimum		-10.8%	-2.8%	-15.2%	1.5%	-0.7%	-4.3%	-3.4%	-9.4%	-6.8%	-6.2%	-15.2%	-9.4%
Maximum		14.2%	14.6%	14.6%	17.5%	12.8%	11.9%	14.6%	18.1%	18.0%	17.2%	18.1%	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.

The overall distribution of EBIT margins earned by the sample of contractors over the last five to ten years is illustrated in Figure 4.2.

Figure 4.2: Distribution of Margins



As Figure 4.2 reveals, the breadth of the range of EBIT margins has diminished over the last five years (-15.2% to 18.1% vs -9.4% to 18.1%) while the mean and median have remained broadly the same over the two sample periods (mean: 6.6% vs 6.3% and median: 6.8% vs 6.7%).

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

- over 50% of the observed EBIT margins in both sample periods have fallen in the 4% to 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.

4.2 EBIT margin benchmarks

Drawing on the EBIT margin estimates contained in Table 4.1, 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 (2005-2014) and the last five years (2010-2014). The results of this analysis are set out in Table 4.2.

Table 4.2: Five and Ten Year EBIT Margin Benchmarks: 95% Confidence Interval for Population Mean

Parameter	5 Year Benchmark 2010-2014	10 Year Benchmark 2005-2014
Sample mean (β_{est})	6.3%	6.6%
Sample standard deviation (s)	5.3%	5.3%
Number of observations in sample (n)	108	213
95% confidence interval for population mean*	**5.3% to 7.3%**	**5.9% to 7.3%**

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

As the results in this table reveal, there is little difference between the five and ten year EBIT margin benchmark estimates (5.3% to 7.3% vs 5.9% to 7.3%). I have nevertheless had recourse to both measurement periods when assessing the consistency of the margin payable by AGN to APA with the margins earned by other contractors. The results of this assessment are set out below.

4.3 Conversion of the OMA margin to an EBIT equivalent margin

Before the margin paid by AGN to APA under the OMA 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 APA for the provision of services, i.e.:

$$Equivalent\ EBIT\ margin = \frac{NMF + Incentive\ Payments}{Revenue\ Received\ by\ APA\ under\ the\ OMAs}$$

$$= \frac{3\% \times AGN\ Revenue + Incentive\ Payments}{Payments\ made\ by\ AGN\ to\ APA\ for\ services\ under\ the\ OMAs}$$

Table 4.3 sets out the steps that have been taken to calculate the implied EBIT margin over the period 2005-2014.

Table 4.3: Equivalent EBIT Margin 2005-2014 ($000)

		Annual									
	Formula	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
AGN Revenue (Services)[1]	A	$296,617	$314,185	$311,800	$331,700	$372,900	$382,200	$424,200	$468,600	$507,500	$554,400
Payments for operation and management of the networks[1]	B	$79,994	$80,711	$84,026	$89,878	$89,364	$92,495	$99,290	$103,301	$108,881	$106,190
Payments for capital expenditure relating to the networks[1]	C	$82,609	$91,295	$108,431	$111,840	$110,570	$100,290	$131,185	$187,078	$215,272	$260,378
Incentive payments[2]	D	$945	$1,302	$91	$1,485	$1,463	$1,333	$3,802	$0	$814	$1,674
Calculation of Equivalent EBIT Margin											
Revenue earned by APA	E=B+C	**$162,603**	**$172,006**	**$192,457**	**$201,718**	**$199,934**	**$192,785**	**$230,475**	**$290,379**	**$324,153**	**$366,568**
EBIT earned by APA (Network Management Fee + Incentive Fee)	F=3%xA+D	**$9,844**	**$10,728**	**$9,445**	**$11,436**	**$12,650**	**$12,799**	**$16,528**	**$14,058**	**$16,039**	**$18,306**
OMA Equivalent EBIT Margin	**G=F/E**	**6.1%**	**6.2%**	**4.9%**	**5.7%**	**6.3%**	**6.6%**	**7.2%**	**4.8%**	**4.9%**	**5.0%**

Sources:

1. AGN, Annual Reports, 2005-2014.
2. Incentive payment data provided by AGN in a spreadsheet entitled, 140820 – NMF Incentive Fee Rev 10 Year Summary for KLC.xlsx.

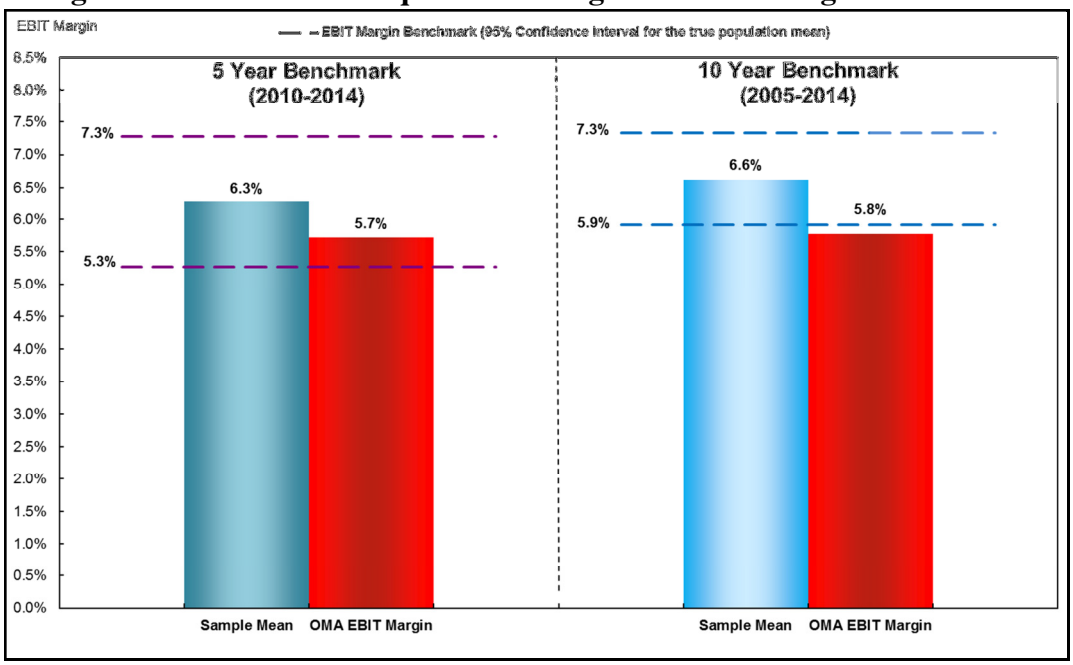
When expressed on an EBIT equivalent basis, the average margin paid by AGN to APA has been approximately:

- 5.7% over the last five years (2010-2014); and
- 5.8% over the last ten years (2005-2014).

4.4 OMA EBIT equivalent margin vs EBIT margin benchmark

To determine whether the margin paid by AGN to APA (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 2005-2014 (ten year) and 2010-2014 (five year) EBIT margin benchmarks set out in Table 4.2. The results of this comparison are set out in Figure 4.3.

Figure 4.3: OMA EBIT Equivalent Margin vs EBIT Margin Benchmark



Drawing on the comparison set out in Figure 4.3, the following observations can be made about the margin payable to APA under the OMA over the two sample periods:

- **2010-2014** – the average EBIT margin earned by the 22 contractors in the sample over the last five years was 6.3%, while the 95% confidence interval surrounding this estimate ranged from 5.3% to 7.3%. Over the same period, the mean OMA EBIT margin was 5.7%, which was 0.6% ***lower*** than the sample average and toward the lower end of the 95% confidence interval.
- **2005-2014** – the average EBIT margin earned by the 22 contractors in the sample over the last ten years was 6.6%, while the 95% confidence interval surrounding this estimate ranged from 5.9% to 7.3%. Over the same period, the mean OMA EBIT margin was 5.8%, which was 0.8% ***lower*** than the sample average and ***below*** the lower bound of the 95% confidence interval.

These results confirm that the implied EBIT margin paid by AGN to APA is *in line* with, if not somewhat lower than, the margins received by other contractors that supply asset management services under contract to third parties.

While I recognise that a benchmark study of this nature cannot, in and of itself, be relied upon to demonstrate the compliance of an outsourcing contract with the National Gas Rules (NGR), it *can* be used to assess whether the margin payable under an outsourcing contract is consistent with the margins earned by other contractors providing comparable asset management services to third parties. It can therefore be used to determine whether the margin component of an outsourcing contract's pricing structure is consistent with the 'prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost' principle embodied in rules 79(a) and 91(1) of the NGR. In AGN's case the benchmark study shows that the NMF and incentive fees paid to APA are:

- consistent with the margins earned by other contractors over the last five years; and
- lower than the margins earned by other contractors over the last ten years.

I am therefore of the opinion that the NMF and incentive fees payable under the OMA are consistent with the principles embodied in rules 79(1)(a) and 91(1) of the NGR.

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)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Revenue[1,2]	$83,216	$158,642	$353,841	$604,711	$429,396	$510,322	$547,455	$618,235	$453,247	$356,443
EBIT[1,2]	$7,252	$17,641	$42,257	$57,523	$12,521	-$7,921	$37,245	$53,291	-$30,697	-$22,041
EBIT Margin[1,2]	**8.7%**	**11.1%**	**11.9%**	**9.5%**	**2.9%**	**-1.6%**	**6.8%**	**8.6%**	**-6.8%**	**-6.2%**
Capital Intensity	**0.7%**	**1.1%**	**0.9%**	**1.6%**	**3.0%**	**2.3%**	**1.7%**	**1.6%**	**3.5%**	**2.7%**

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)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Revenue[1,2]	$535,581	$232,259	$201,955	$351,713	$456,890	$677,700	$2,030,839	$4,192,608	$4,900,506	$5,479,060
EBIT[1,2]	-$14,321	$23,037	$6,555	$17,214	$33,783	$32,317	$211,694	$434,279	$882,735	$941,523
EBIT Margin[1,2]	**-2.7%**	**9.9%**	**3.2%**	**4.9%**	**7.4%**	**4.8%**	**10.4%**	**10.4%**	**18.0%**	**17.2%**
Capital Intensity	**1.2%**	**2.2%**	**2.4%**	**1.8%**	**1.2%**	**0.8%**	**0.6%**	**0.9%**	**1.2%**	**1.5%**

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.

Cardno Ltd

Company Snapshot

Corporate structure:	Cardno Ltd is an Australian listed company (ASX Code: CDD).
Services provided:	Engineering, planning, surveying, geotechnical, environmental, project management and consulting services.
Sectors serviced:	Energy, resources, water, transportation and defence in Australia and a number of other locations around the world.

EBIT Margin ($000)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Revenue[1]	$99,107	$185,819	$264,171	$396,176	$512,584	$473,752	$827,665	$959,949	$1,191,927	$1,305,465
EBIT[1]	$12,032	$22,324	$32,117	$48,229	$43,694	$45,322	$98,550	$118,697	$119,208	$113,622
EBIT Margin[1]	**12.1%**	**12.0%**	**12.2%**	**12.2%**	**8.5%**	**9.6%**	**11.9%**	**12.4%**	**10.0%**	**8.7%**
Capital Intensity	**3.2%**	**1.9%**	**2.0%**	**2.0%**	**2.1%**	**1.8%**	**1.4%**	**1.7%**	**2.0%**	**2.0%**

Source: Cardno Annual Reports.

Notes: 1. Excludes 'other income'.

Clough Ltd (Murray & Roberts Pty Ltd)

Company Snapshot

Corporate structure:	Clough Ltd was a publicly listed company on the ASX until late 2013 when it was acquired by Murray & Roberts Pty Ltd (a South African engineering and construction company). Murray & Roberts is still trading as Clough Ltd in Australia and is therefore required to file financial statements on an annual basis with ASIC using Form 388. The EBIT margin analysis in this case has therefore been calculated using the Clough Ltd annual reports up to 2012 and the Form 388 in 2013 and 2014
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)

	2005[3]	2006[3]	2007[3]	2008	2009	2010	2011[4]	2012[4]	2013[4]	2014[4]
Revenue[1,2]	$625,213	$912,951	$723,945	$600,180	$626,230	$644,825	$829,154	$1,056,441	$1,509,753	$1,718,991
EBIT[1,2]	-$67,806	-$25,960	-$110,089	$14,936	$45,542	$12,101	-$27,946	-$99,599	-$51,520	-$29,244
EBIT Margin[1,2]	**-10.8%**	**-2.8%**	**-15.2%**	**2.5%**	**7.3%**	**1.9%**	**-3.4%**	**-9.4%**	**-3.4%**	**-1.7%**
Capital Intensity	**2.0%**	**1.7%**	**2.4%**	**0.9%**	**1.2%**	**0.5%**	**0.5%**	**0.3%**	**0.4%**	**0.7%**

Source: Clough Annual Reports and Form 388 filing.

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. If this income was included the EBIT margin would be higher. The decision to exclude this source of income may therefore be viewed as conservative.

Coffey International Ltd

Company Snapshot

Corporate structure:	Coffey International Ltd is an Australian listed company (ASX Code: COF).
Services provided:	Engineering, geotechnical, environmental, project management and consulting services.
Sectors serviced:	Energy, resources, water, transportation and property in Australia and a number of other locations around the world.

EBIT Margin ($000)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Revenue[1]	$168,450	$251,462	$362,709	$558,571	$808,574	$750,191	$662,846	$667,595	$686,594	$624,945
EBIT[1]	$21,752	$36,682	$42,333	$58,947	$91,762	$85,464	$58,024	$59,163	$45,931	$46,326
EBIT Margin[1]	**12.9%**	**14.6%**	**11.7%**	**10.6%**	**11.3%**	**11.4%**	**8.8%**	**8.9%**	**6.7%**	**7.4%**
Capital Intensity	**0.7%**	**1.4%**	**1.9%**	**1.8%**	**1.5%**	**1.6%**	**1.5%**	**1.4%**	**1.4%**	**1.5%**

Source: Coffey International Annual Reports.

Notes: 1. Excludes 'other income'.

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)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Revenue[1,2,3]	$215,685	$184,334	$244,992	$372,992	$498,261	$624,641	$1,026,711	$2,120,419	$2,753,667	$1,844,605
EBIT[1,2,3]	-$355	$4,011	$9,220	$14,546	$15,983	$40,483	$52,630	$150,292	$52,753	$75,538
EBIT Margin[1,2]	**-0.2%**	**2.2%**	**3.8%**	**3.9%**	**3.2%**	**6.5%**	**5.1%**	**7.1%**	**1.9%**	**4.1%**
Capital Intensity	**0.1%**	**0.3%**	**0.5%**	**0.4%**	**0.6%**	**0.5%**	**0.2%**	**0.1%**	**0.1%**	**0.2%**

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.

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:	Downer EDI currently consists of the following business units: ▪ Rail, which provides design, manufacture, refurbishment and maintenance services to the above rail industry. ▪ Downer Infrastructure Australia, which provides engineering, construction and project management services to a number of sectors in Australia. ▪ Downer Infrastructure NZ, which provides construction, development, operations and maintenance, and project management services in New Zealand. ▪ 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. The capital intensity measure of the latter of these business units averaged 6.1% over the sample period so has been excluded from the study. 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 split 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 Infrastructure Australia and NZ business units have been combined.

EBIT Margin ($000)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	Rail business unit [2]									
Revenue[1]	$360,918	$348,904	$0	$613,072	$888,925	$1,046,757	$1,126,317	$1,284,394	$1,335,742	$1,002,844
EBIT[1]	$23,258	$32,389	n.a.	$45,904	$60,765	$77,926	$75,034	$76,377	$59,021	$22,097
EBIT Margin[1]	**6.4%**	**9.3%**	**n.a.**	**7.5%**	**6.8%**	**7.4%**	**6.7%**	**5.9%**	**4.4%**	**2.2%**
Capital Intensity	**1.3%**	**1.5%**	**n.a.**	**1.2%**	**0.8%**	**0.6%**	**0.5%**	**0.6%**	**0.6%**	**0.8%**
	Downer Infrastructure Australia and Downer Infrastructure NZ business units[3,4]									
Revenue[1]	$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	$4,742,040
EBIT[1]	$104,403	$73,235	$118,778	$221,719	$251,347	$215,420	$104,167	$172,929	$230,273	$191,079
EBIT Margin[1]	**4.8%**	**2.7%**	**3.2%**	**5.7%**	**6.2%**	**5.4%**	**2.5%**	**3.7%**	**4.4%**	**4.0%**
Capital Intensity	**1.6%**	**1.7%**	**1.8%**	**1.8%**	**2.0%**	**2.0%**	**1.8%**	**1.5%**	**1.2%**	**1.3%**

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 the Infrastructure and Engineering Consulting Services' business units were 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)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Revenue[1,2]	$350,355	$358,572	$386,631	$481,330	$435,233	$338,678	$445,927	$675,948	$633,321	$520,327
EBIT[1,2]	$47,423	$34,344	$56,277	$71,412	$54,508	$20,693	$46,910	$122,312	$91,071	$65,467
EBIT Margin[1,2]	**13.5%**	**9.6%**	**14.6%**	**14.8%**	**12.5%**	**6.1%**	**10.5%**	**18.1%**	**14.4%**	**12.6%**
Capital Intensity	**0.7%**	**0.7%**	**0.7%**	**0.8%**	**1.3%**	**1.3%**	**1.0%**	**0.6%**	**0.7%**	**0.8%**

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)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014[3]
Revenue[1,2]	$264,271	$279,997	$356,409	$492,257	$408,794	$375,729	$480,190	$1,406,153	$1,999,531	n.a.
EBIT[1,2]	$8,303	$19,160	$32,039	$68,702	$31,085	$34,487	$20,115	$170,602	$161,650	n.a
EBIT Margin[1,2]	**3.1%**	**6.8%**	**9.0%**	**14.0%**	**7.6%**	**9.2%**	**4.2%**	**12.1%**	**8.1%**	**n.a.**
Capital Intensity	**1.1%**	**1.1%**	**0.9%**	**0.8%**	**1.2%**	**1.5%**	**1.2%**	**0.4%**	**0.2%**	**n.a.**

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. 3. At the time of writing KBR had not published its results.

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)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Revenue[1]	$8,183,800	$9,572,200	$12,056,700	$12,426,800	$12,422,000	$8,530,800	$7,335,000	$10,475,800	$11,466,900	$11,016,000
EBIT[1]	$178,800	$171,300	$40,300	$191,400	$236,900	$132,300	$185,700	$416,600	$251,400	$214,000
EBIT Margin[1]	**2.2%**	**1.8%**	**0.3%**	**1.5%**	**1.9%**	**1.6%**	**2.5%**	**4.0%**	**2.2%**	**1.9%**
Capital Intensity	**0.1%**	**0.1%**	**0.1%**	**0.1%**	**0.1%**	**0.2%**	**0.3%**	**0.6%**	**0.5%**	**0.5%**

Source: Lend Lease Annual Reports.

Notes: 1. Based on the notes 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.

Monadelphous Group Ltd

Company Snapshot	
Corporate structure:	Monadelphous Group Ltd is an Australian listed company (ASX Code: MND).
Services provided:	Maintenance, engineering, construction, industrial, planning and project management services.
Sectors serviced:	Energy and resources sectors.

EBIT Margin ($000)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Revenue[1,2]	$409,915	$556,373	$982,404	$973,882	$1,137,815	$1,275,420	$1,443,896	$1,897,490	$2,614,073	$2,329,589
EBIT[1,2]	$22,829	$40,452	$83,486	$90,320	$101,370	$111,494	$130,176	$166,152	$217,787	$190,250
EBIT Margin[1,2]	**5.6%**	**7.3%**	**8.5%**	**9.3%**	**8.9%**	**8.7%**	**9.0%**	**8.8%**	**8.3%**	**8.2%**
Capital Intensity	**1.3%**	**1.3%**	**1.1%**	**1.3%**	**1.3%**	**1.3%**	**1.7%**	**1.5%**	**1.1%**	**1.1%**

Source: Monadelphous Group Annual Reports. Notes: 1. Excludes 'Other Income'. 2. Because Monadelphous has only provided a breakdown of the revenue and expenses derived from joint ventures up to 2009, the estimates post 2010 do not include any provision for joint venture revenue or expenses.

SKILLED Group Ltd

Company Snapshot	
Corporate structure:	SKILLED Group is an Australian listed company (ASX Code: SKE) and acquired Thomas & Coffey in February 2014
Services provided:	Maintenance, engineering, asset management and offshore staff and management services.
Sectors serviced:	Energy, mining, metals, manufacturing, maritime and heavy industry sectors.
Business units included in the sample:	SKILLED Group currently consists of the following business units: ▪ Workforce Services, which provides flexible labour services. ▪ Technical Professionals Services, which provides IT, executive, medical and other trained casual, contract and permanent labour. ▪ Engineering and Marine Services, which provides maintenance and engineering services and offshore services (including the services previously provided by Thomas & Coffey. Of the business units listed above, the only one that is providing asset management services is the Engineering and Marine Services Unit. The other two business units have therefore been excluded from the sample.

EBIT Margin – Engineering and Marine Services Unit ($000)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Revenue[1]	n.a.	n.a.	n.a.	n.a.	$529,487	$457,358	$461,267	$452,060	$463,057	$614,092
EBIT[1]	n.a.	n.a.	n.a.	n.a.	$31,357	$20,205	$31,500	$34,716	$39,334	$53,369
EBIT Margin[1]	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**5.9%**	**4.4%**	**6.8%**	**7.7%**	**8.5%**	**8.7%**
Capital Intensity	**n.a.**	**n.a.**	**n.a.**	**n.a.**	**0.8%**	**1.0%**	**0.5%**	**0.4%**	**0.4%**	**0.8%**

Source: SKILLED Group Annual Reports. Notes: 1. Excludes 'Other Income'.

SKM Holdings Ltd (Jacobs Engineering)

Company Snapshot	
Corporate structure:	SKM Holdings was acquired by US based firm, Jacobs Engineering in March 2014. 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)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014[3]
Revenue[1,2]	$561,263	$715,043	$865,647	$1,064,394	$1,135,971	$986,004	$1,082,968	$1,288,973	$1,320,676	$1,386,875
EBIT[1,2]	$60,143	$85,511	$103,843	$147,003	$114,747	$103,064	$99,770	$102,271	$101,000	$8,358
EBIT Margin[1,2]	**10.7%**	**12.0%**	**12.0%**	**13.8%**	**10.1%**	**10.5%**	**9.2%**	**7.9%**	**7.6%**	**0.6%**
Capital Intensity	**1.7%**	**1.9%**	**2.0%**	**1.8%**	**2.3%**	**2.0%**	**1.8%**	**1.9%**	**2.0%**	**2.2%**

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 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. 3. The 2013-14 results were reported for a 66 week period ending on 26 Sep 2014.

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)

	2005	2006	2007	2008	2009	2010	2011	2012	2013[3]	2014
Revenue[1,2]	$108,044	$138,173	$174,078	$251,039	$330,633	$365,688	$391,289	$408,027	$460,389	$465,120
EBIT[1,2]	$3,944	$9,435	$15,700	$24,821	$41,761	$43,688	$22,101	$34,162	$19,683	$23,674
EBIT Margin[1,2]	**3.7%**	**6.8%**	**9.0%**	**9.9%**	**12.6%**	**11.9%**	**5.6%**	**8.4%**	**4.3%**	**5.1%**
Capital Intensity	**1.2%**	**1.2%**	**1.6%**	**1.9%**	**1.8%**	**1.7%**	**1.8%**	**2.3%**	**2.1%**	**1.4%**

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 was until recently an unlisted Australian company, but in October 2014 it was acquired by Downer EDI. The last financial statement that Tenix Alliance submitted to ASIC (Form 388) covered the 2013-14 financial year, which is the final year of the sample period. So the EBIT margin analysis below is based on the information contained in the financial statements that Tenix Alliance submitted to ASIC between 2005 and 2014.
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)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Revenue[1,2,3]	$261,720	$387,557	$455,942	$583,774	$619,830	$495,989	$592,482	$741,049	$932,120	$791,162
EBIT[1,2,3]	-$2,907	$7,596	$20,538	$18,770	-$4,303	$623	-$12,180	-$2,289	$10,092	$23,038
EBIT Margin[1,2,3]	**-1.1%**	**2.0%**	**4.5%**	**3.2%**	**-0.7%**	**0.1%**	**-2.1%**	**-0.3%**	**1.1%**	**2.9%**
Capital Intensity	**1.3%**	**1.0%**	**0.9%**	**0.8%**	**0.7%**	**1.0%**	**1.8%**	**1.3%**	**1.2%**	**1.4%**

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 was a publicly listed Australian company until February 2014 when it was acquired by the SKILLED Group. Thomas & Coffey's financial results for the 2013-14 financial year have been amalgamated into the SKILLED Group's results, so it has not been possible to calculate an EBIT margin for 2014.
Services provided:	Construction, engineering, operating and maintenance and project management services.
Sectors serviced:	Energy, chemicals, mining, metals and water sectors.

EBIT Margin ($000)

	2005	2006	2007	2008	2009	2010[3]	2011	2012	2013[4]	2014
Revenue[1,2]	$160,785	$175,983	$219,249	$281,004	$398,883	$333,039	$197,965	$226,419	$194,882	n.a.
EBIT[1,2]	$3,503	$5,283	$7,704	$12,124	$9,700	-$14,486	$4,821	$64	-$6,957	n.a.
EBIT Margin[1,2]	**2.2%**	**3.0%**	**3.5%**	**4.3%**	**2.4%**	**-4.3%**	**2.4%**	**0.0%**	**-3.6%**	**n.a.**
Capital Intensity	**0.7%**	**0.7%**	**1.0%**	**1.1%**	**0.9%**	**1.2%**	**1.7%**	**1.4%**	**1.4%**	**n.a.**

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.

EBIT Margin ($000)

	2005	2006	2007	2008	2009	2010	2011	2012	2013[3]	2014
Revenue[1,2]	$1,436,265	$2,014,540	$2,754,066	$3,660,500	$4,316,691	$3,505,386	$3,533,863	$3,838,480	$4,091,200	$4,161,900
EBIT[1,2]	$19,505	$54,950	$82,985	$119,726	$136,456	$105,397	$115,357	$91,320	$83,600	$115,775
EBIT Margin[1,2]	**1.4%**	**2.7%**	**3.0%**	**3.3%**	**3.2%**	**3.0%**	**3.3%**	**2.4%**	**2.0%**	**2.7%**
Capital Intensity	**1.1%**	**1.3%**	**1.6%**	**1.7%**	**1.8%**	**1.6%**	**1.9%**	**2.5%**	**2.7%**	**2.4%**

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 (note that from 2013 Transfield has only reported a breakdown of its major joint venture arrangements, which accounted for 70-83% of the joint venture profits). 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:	United Group currently consists of the following business units: ▪ UGL Engineering, which provides engineering, construction and project management services to the energy, water, transport and defence sectors. ▪ DTZ Property, which provides property related services such as facilities management, corporate services, valuation and building consultancy services. 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. The UGL Engineering business unit is therefore the only one that has been included in the study.									
EBIT Margin - UGL Engineering Business Unit ($000)										
	2005	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Revenue[1,2]	$1,081,194	$1,977,209	$2,148,980	$2,395,306	$3,307,741	$3,017,704	$3,274,220	$3,214,849	$2,315,439	$2,261,738
EBIT[1,2]	$56,653	$110,040	$120,854	$180,057	$209,003	$193,509	$212,120	$188,060	$81,644	$84,069
EBIT Margin[1,2]	**5.2%**	**5.6%**	**5.6%**	**7.5%**	**6.3%**	**6.4%**	**6.5%**	**5.8%**	**3.5%**	**3.7%**
Capital Intensity	**1.3%**	**0.9%**	**1.0%**	**1.0%**	**0.7%**	**1.0%**	**0.9%**	**0.8%**	**1.0%**	**0.9%**
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:	WorleyParsons currently consists of the following business units: ▪ Infrastructure, 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. Each of these business units provides asset management services and has an average capital intensity measure below 3.5%, so they have all been included in the sample. Note that prior to 2013, WorleyParsons also had a Power business unit but this was combined with the Infrastructure business unit in 2013. To enable a comparable assessment of the margin earned by these business units over time, the financial results for these two business units have been combined up to 2013.

EBIT Margin ($000)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
					Infrastructure					
Revenue[1,2]	$250,605	$429,406	$736,200	$823,900	$895,400	$977,600	$1,211,600	$1,450,100	$1,024,900	$921,700
EBIT[1,2]	$27,963	$53,503	$72,800	$97,800	$90,100	$83,800	$161,900	$175,800	$93,300	$55,700
EBIT Margin[1,2]	**11.2%**	**12.5%**	**9.9%**	**11.9%**	**10.1%**	**8.6%**	**13.4%**	**12.1%**	**9.1%**	**6.0%**
Capital Intensity	**0.8%**	**0.8%**	**1.0%**	**1.6%**	**1.4%**	**1.8%**	**1.7%**	**1.5%**	**0.9%**	**2.5%**
					Mining and Minerals					
Revenue[1,2]	$159,819	$186,042	$259,900	$418,500	$582,500	$562,200	$643,200	$893,700	$1,096,300	$1,065,500
EBIT[1,2]	$22,664	$26,221	$37,000	$73,300	$74,400	$59,300	$94,100	$129,400	$140,400	$129,700
EBIT Margin[1,2]	**14.2%**	**14.1%**	**14.2%**	**17.5%**	**12.8%**	**10.5%**	**14.6%**	**14.5%**	**12.8%**	**12.2%**
Capital Intensity	**0.7%**	**0.6%**	**0.4%**	**1.3%**	**0.9%**	**1.3%**	**2.6%**	**2.5%**	**1.0%**	**1.1%**
					Hydrocarbons					
Revenue[1,2]	$841,935	$1,796,853	$2,491,000	$3,377,700	$4,734,200	$3,422,400	$4,042,400	$5,014,500	$5,491,700	$5,371,200
EBIT[1,2]	$69,640	$156,937	$225,200	$355,800	$495,700	$337,200	$529,500	$575,200	$633,300	$613,800
EBIT Margin[1,2]	**8.3%**	**8.7%**	**9.0%**	**10.5%**	**10.5%**	**9.9%**	**13.1%**	**11.5%**	**11.5%**	**11.4%**
Capital Intensity	**1.0%**	**0.8%**	**1.0%**	**1.4%**	**1.5%**	**2.0%**	**1.4%**	**1.2%**	**1.1%**	**1.0%**

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, 2005-2007 & 2009-2014 and Financial Report, 2008.
Bechtel Australia Pty Ltd, Form 388, 2005-2014.
Cardno Ltd, Annual Reports, 2006-2014.
Coffey International Ltd, Annual Reports, 2006-2014.
Clough Ltd, Annual Reports, 2005-2012 and Form 388, 2013-2014.
Downer EDI Limited, Annual Reports, 2008-2014 and Financial Reports, 2005-2007.
Envestra, Annual Reports, 2005-2014.
Fluor Australia Pty Ltd, Form 388, 2005-2014.
Hatch Associates Pty Ltd, Form 388, 2005-2014.
KBR Holdings Ltd (Australia), Form 388, 2005-2014.
Lend Lease Corporation Limited, Annual Consolidated Financial Report and Annual Report, 2005-2014.
Monadelphous Group Ltd, Annual Reports, 2006-2014.
Sinclair Knight Merz Holdings Ltd, Form 388, 2005-2014.
SMEC Holdings Limited, Form 388, 2005-2014.
Tenix Alliance Pty Ltd, Form 388, 2005-2014.
Thomas & Coffey Ltd, Annual Reports, 2005-2008 and Financial Report, 2009-2013.
Transfield Services Limited, Annual Reports, 2005-2007 & 2009-2014 and Financial Report, 2008 and 2010.
United Group Limited, Annual Reports, 2005-2014.
WorleyParsons Limited, Annual Reports, 2005-2014.
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, *Benchmarking contractor's profit margins*, 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), *Benchmark Study of Contractor Profit Margins*, September 2010.
Expert report of Katherine Lowe (NERA), Benchmark Study of Contractor Profit Margins (2002-2011), March 2012.
Expert report of Katherine Lowe (KLC), Contractor Profit Margins (Benchmark Study: 2004-2013), May 2014.
Information provided by AGN
Spreadsheet entitled, 140820 – NMF Incentive Fee Rev 10 Year Summary for KLC.xlsx

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

Katherine Lowe

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Overview

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 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)

Project Experience

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.

2014 — **GDI (EII)**
Light regulation application
Retained to provide advice on GDI (EII)'s application for light regulation on its Queensland gas distribution network.

2014 — **Envestra**
Light regulation application
Retained to provide advice on Envestra's application for light regulation on its Queensland gas distribution network.

2014 — **ActewAGL**
Advice on transitional arrangements for gas distribution network
Retained to provide advice on the transitional arrangements applying to ActewAGL's gas distribution network and the likely implications of a recent decision by the Tribunal on the application of the interval of delay provisions in rule 92(3) of the NGR.

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	**Envestra** **Revocation of coverage application** Retained to provide advice on Envestra's application for coverage to be revoked on the Wagga Wagga gas distribution network.
2013	**GGT** **Coverage of an expansion** 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.
2013	**Confidential client** **Response to the AER's Draft Guidelines** Retained to draft two responses to the AER's Draft Expenditure Incentive and Expenditure Assessment Guidelines.
2012	**Murraylink** **Outsourcing Arrangements** Retained to provide advice on Murraylink's outsourcing arrangement in the context of the AER's 2013-2018 determination.
2007, 2010-12	**Envestra** **Outsourcing Arrangements** Retained to prepare an expert report on the principles that should be applied when assessing the prudency and efficiency of outsourcing arrangements and to respond to the framework developed by the AER and a number of expert reports on the margins earned by asset management service providers.
2011-12	**APA** **Auction Design** Assisted with the preparation of an expert report on alternative auction designs and the optimal auction design for the Roma to Brisbane Pipeline.
2011-12	**Xstrata** **Price of Access to the Daly Waters to McArthur River Pipeline** Retained to provide advice on asset valuation methodologies and the manner in which prior capital contributions would be recognised under the National Gas Rules.

2011	**CitiPower and AEMO** **Regulatory Test** Retained to prepare a report on the application of the regulatory test to the proposed augmentation for Melbourne Inner Suburbs and CBD Supply.
2007 and 2010	**CitiPower/Powercor, Jemena, Multinet** **Outsourcing Arrangements** Retained to provide advice on the factors that should be considered when assessing the prudency 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.
2009	**CitiPower/Powercor** **Connection of Renewable Generation** Retained to provide advice on the connection of renewable generation under the National Electricity Rules.
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 and TransGrid** **Inflation Rate Estimates** Retained to provide advice on the appropriate inflation rate to utilise when setting tariff and revenue requirements.

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.

Other Regulatory Experience

2014-15 **Independent Industry Panel**

Merits review of regulatory decision by the ICRC

Retained to work as part of a technical team that provided advice to an Industry Panel that was constituted to conduct a merits review of the Independent Competition and Regulatory Commission (ICRC) decision on water and sewerage charges in the ACT. The specific matters that I provided advice on were: the form of regulation and mechanisms that can be used to allocate risks between the service provider and customers; how the costs associated with large scale investments can be recovered; the calculation of the regulatory asset base; and the rate of return.

2014 **KWM (TMG Developments)**

Asset Valuation Techniques and Rate of Return

Retained to provide advice on regulatory asset valuation techniques and rate of return issues in the context of a dispute about the value of TMG's leasehold interest in parts of the Manly Wharf, which were compulsorily acquired by NSW Roads and Maritime Services.

2013 **Chorus**

Asset Valuation Techniques

Retained to carry out a scoping study on asset valuation techniques in a regulatory context.

2012 **ACCC**

NBN Pricing Structure

Worked as part of a team that was retained by the ACCC to provide advice on the allocative and dynamic efficiency of the various components of NBN Co's proposed price structure.

2011 **Kelly & Co**

Price of Access to Port Bonython Jetty

Assisted with the preparation of an expert report on matters relevant to the consideration of the price that should be paid for access to the Port Bonython Jetty, including the application of the cost of service based building block methodology.

2010 **Minter Ellison / UNELCO**

Review of Regulatory Decision by the Vanuatu Regulator

Assisted with the preparation of an expert report that addressed a range of matters arising from the Vanuatu regulator's decision on the base price to apply under four electricity concession contracts entered into by UNELCO and the Vanuatu Government. The matters considered 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 underlying analysis that examined consumer related effects of a smart meter and direct load control roll out.

Other Gas Sector Experience

2015 **ACCC**

Review of Eastern Australian Wholesale Gas Market

Retained to provide the ACCC with advice on gas sales agreements and gas transportation agreements as part of its broader review of competition in the Eastern Australian Wholesale Gas Market Review.

2015 **AEMC**

East Coast Gas Market and Pipeline Frameworks Review

Retained to provide the AEMC with advice on gas transportation and information provision as part of its broader review of the design of the Eastern Australian gas market.

2013 **AEMC**

Gas Market Scoping Study

Retained to provide the AEMC with an overview of the changes underway in the eastern Australian gas market and to identify areas of potential improvement in the market and regulatory arrangements

applying to the transportation segment of the supply chain and the facilitated markets.

2013 **King Wood Mallesons/Energy Australia**
Gas Transportation Agreement – New Tariffs
Retained to provide advice on how the tariffs to apply in an extension period should be determined given the principles set out in the National Gas Rules and the provisions contained in an existing gas transportation agreement.

2013 **King Wood Mallesons (Confidential client)**
Gas transportation agreement – rate of return provisions
Retained to provide advice on how the rate of return provisions in a new gas transportation agreement should be drafted.

2012-13 **APA**
Pipeline Coverage
Retained to provide advice and draft APA's submission in response to Kimberley-Clark's application for coverage of the South Eastern Pipeline System.

2012-13 **Herbert Smith Freehills/Cooper Basin Producers**
Wholesale Gas Price Arbitration
Retained to provide advice in the context of 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.

2012 **Allens/Gippsland Basin Gas Producers**
Wholesale Gas Price Arbitration
Retained to provide advice in the context of an arbitration relating to the price that should apply following a price reset within a long term major gas supply agreement between the Gippsland Basin producers and a large retail customer in NSW and Victoria.

2010-12 **Mallesons/APA**
Proposed Acquisition of Epic Energy by APA
Assisted in the preparation of a number of expert reports that were submitted to the ACCC on the likely effect of APA's proposed acquisition of Epic Energy's gas transmission pipelines in eastern Australia on competition in the relevantly defined markets.

2010 **Barclays Capital / Confidential Client**
Due Diligence Alinta Energy Ltd
Assisted with the provision of advice on the key industry related risks and issues facing Alinta Energy Ltd's gas and electricity assets during

the due diligence process associated with the proposed sale or recapitalisation of Alinta Energy Ltd.

2010 **Norton Rose/Alinta**
Unconscionable Conduct
Assisted in the preparation of an expert report on the risks faced by gas retailers when selling gas to retail customers and the demand and supply conditions prevailing in the Western Australian gas market(s).

2008-09 **Clayton Utz/Origin**
Wholesale Gas Price Arbitration
Assisted with the preparation of a number of experts report used in the context of an arbitration relating to the price that should apply following a price reset within a long term major gas supply agreement.

2008 **BG**
Advice on Eastern Australia Gas Market
Retained to provide advice on the operation of the Eastern Australia Gas Market.

2006 **Freehills/Cooper Basin Producers**
Gas Supply Agreement Arbitration
Assisted with the preparation of an expert report that was used in the context of an arbitration relating to the price that should apply following a price reset within a long term major gas supply agreement between the Cooper Basin producers and a large retail customer in NSW and South Australia.