



Gas Distributor Benchmarking Report

Envestra

South Australia
and Queensland

28 September 2010



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1 EXECUTIVE SUMMARY

1.1 Introduction

This report has been prepared to assist Envestra to present its case for the forthcoming gas distribution regulatory price reset in South Australia and Queensland.

Benchmarking is a tool used to help evaluate whether the performance of the subject business is reasonable, when compared on an informed basis against other like businesses. Benchmarking needs to be approached with caution as each distributor is unique and will differ from other distributors in its network characteristics, which impacts on the expenditure required.

1.2 Approach

The benchmarking was carried out at a high level, utilising the same key performance indicators (KPIs) that were contained in the October 2007 report by WorleyParsons.

The data for this benchmarking study was primarily sourced from regulatory Performance Reports, consultants' reports, Access Arrangements Information provided by distributors and Gas Access Arrangement Review Final Decisions. Where the data is available, this report utilises actual costs as reported by the distributors; where actual costs are not available, allowed regulatory costs have been used.

In order to allow better comparisons, one component of Opex has been excluded from the benchmarks – Unaccounted For Gas (UAFG). All costs quoted in this report have been converted to real 1 December 2009 dollars utilising conversion factors provided by Envestra.

1.3 High-Level Benchmarks

As did WorleyParsons in its October 2007 report, Marksman Consulting Services Pty Ltd (Marksman) has utilised a range of Capex and Opex indicators that concentrate on costs, but which exclude an analysis of service levels provided.

Whilst both costs and service levels need to be considered to evaluate the overall level of performance of an organization, it is nonetheless valid to review and comment on either one of these dimensions. Marksman was engaged to analyse whether the costs were reasonable and has done so – an assessment of the service levels provided is not intended to be, and therefore is not, included in this report. Differences in service levels would not be expected to significantly impact costs as gas distribution businesses typically provide a very high quality of service to customers with few interruptions.

1.4 Conclusions

Based on the relative position of Envestra SA over the range of indicators, Marksman concludes that the levels of Capex and Opex by Envestra SA over the current Access Arrangement period are reasonable, from a cost perspective only.

It is difficult to draw meaningful conclusions in regard to the efficiencies of Envestra Queensland's historical Capex and Opex, as Envestra Queensland's operating conditions are so different. The most comparable gas business is Allgas, and for some measures Envestra compares favourably with Allgas, for other measures it is the other way round or they are much the same. Marksman concludes that Envestra Queensland's Capex and Opex has historically been commensurate with that of Allgas.

2 INTRODUCTION

2.1 Purpose of Report

Marksman was engaged by Envestra Limited to prepare a report, benchmarking the performance of Envestra South Australia and Envestra Queensland against other large Australian gas distributors, similar to the report prepared by WorleyParsons in October 2007 which formed part of the material provided by the Victorian gas distributors to the Essential Services Commission Victoria (ESCV) in support of their Access Arrangement Information submissions.

This report aims to assist Envestra to prepare its case for the forthcoming gas distribution regulatory price reset in South Australia and Queensland, and may form part of Envestra's Access Arrangement Information submission to the Australian Energy Regulator.

2.2 Benchmarking Issues

Benchmarking is a tool used to help evaluate whether the performance of the subject business is reasonable, when compared on an informed basis against other like businesses. The difficulty is that each distributor is unique and will differ from other distributors in its network characteristics, such as the size of the network, customer numbers, operating environment, climate, geographic considerations, age and condition of the network and customer mix etc. Each of these network characteristics will have an impact in some way on the requirements for capital and operating expenditure, making it difficult to make definitive expenditure comparisons.

This issue is generally addressed by use of either or both of the following approaches:

- Benchmark against businesses with similar characteristics; and
- Normalise the data to account for the differing characteristics.

There are differences in network characteristics among the businesses in the sample, as shown in Table 8.10. In particular, it is relevant to note that Envestra Queensland has low customer density and low energy density, so it could be expected that Envestra Queensland will have higher benchmarked Capex and Opex, due to the lack of economies of scale.

3 SCOPE & METHODOLOGY

3.1 Terms of Reference

The terms of reference for this report are as follows:

“Envestra wishes to engage you to prepare a report benchmarking the cost performance of Envestra’s South Australian and Queensland networks against large Australian gas distributors.

The material submitted by Envestra to the Essential Services Commission of Victoria in respect of the 2008-2012 Victorian access arrangement review included a benchmarking report by WorleyParsons. It is envisaged that your report will undertake a similar analysis to that set out in the WorleyParsons benchmarking report.”

A full copy of the Terms of Engagement is included in Section 8.7.

3.2 Scope

The benchmarking was carried out at a high level, utilising the same key performance indicators (KPIs) that were contained in the October 2007 report by WorleyParsons¹.

3.3 Reference Year & Inflation Factors

All costs quoted in this report have been converted to real 2009 dollars utilising conversion factors supplied by Envestra Limited, as detailed in Section 8.5.

3.4 Cost Exclusions

Unaccounted For Gas (UAFG) has been excluded from all of the Opex benchmarks because, in Victoria, UAFG is not included in the distributor’s costs (a different mechanism is in place to account for UAFG).

FRC costs have been included for all distributors for this report, with the exception of Envestra Queensland and Allgas Queensland. For these two distributors, the Queensland Competition Authority has allowed a pass-through mechanism for the recovery of FRC costs, on the basis that reliable cost information was not available at the time the current Access Arrangement Final Decision was made. This will result in the costs for these two distributors being slightly understated in comparison with the other distributors. As FRC did not start in Queensland until July 2007, any actual costs would be small (FRC was available for larger customers).

3.5 Data Sources

The data for this benchmarking study was primarily sourced from regulatory Performance Reports, consultants’ reports, Access Arrangements Information provided by distributors and Gas Access Arrangement Review Final Decisions. Details of data sources are contained in Section 8.2.

Where the data is available, this report utilises actual costs as reported by the distributors; where actual costs are not available, allowed regulatory costs have been used (albeit in limited cases only). Although the use of actual costs is preferred, it should be noted that WorleyParsons made the observation that the use of allowed regulatory costs made little difference²:

¹ Review of Victorian Gas Distributor Access Arrangements – Further Benchmarking Report, WorleyParsons, October 2007

² Review of Victorian Gas Distributor Access Arrangements – Further Benchmarking Report, WorleyParsons, October 2007, Page 18.

“These relativities are very similar to those contained in the earlier report. The use of actual costs rather than those allowed by Regulators does not significantly change the position; if anything, it reinforces the conclusions drawn in the earlier report.”

Gas distributors included in the benchmarking study are shown in the following table:

Table 3-1: Gas Distributors by State

STATE	GAS DISTRIBUTOR
Victoria	Envestra
	MultiNet
	SP AusNet
New South Wales	Jemena
Queensland	Envestra
	Allgas Energy
South Australia	Envestra
ACT	ActewAGL
Western Australia	WA Gas Networks

3.6 Treatment of Data

The available data has been presented in either calendar year or financial year format, depending on the jurisdiction. In the absence of other information, to convert the calendar year data to financial year one would need to make the assumption that half of the expenditure for the calendar year in question would fall in the last half of the preceding financial year and half in the first half of the next financial year – this would reduce the validity of the data. Further, this approach would result in the loss of one year’s data (i.e. five years of calendar year data would be converted to four years of financial year data). For these reasons, Marksman has adopted the normal approach of using a mixture of calendar year and financial year data, but noting which is which.

3.7 Conduct of the Review

The data collection, data analysis and preparation of the report were all carried out by Ian Marks (Director of Marksman), whose CV is contained in Section 8.3.

Ian Marks has conducted the review in accordance with the Federal Court’s Practice Note CM7, entitled “Expert Witnesses in the Federal Court of Australia”, which comprises the code of conduct for expert witnesses in the Federal Court of Australia (the Code of Conduct). A detailed statement in regard to the Code of Conduct is contained in Section 8.6.

4 RANGE OF PERFORMANCE INDICATORS

As did WorleyParsons in its October 2007 report, Marksman has utilised a range of Capex and Opex indicators that concentrate on costs, but which exclude an analysis of service levels provided.

Whilst both costs and service levels need to be considered to evaluate the overall level of performance of an organization, it is nonetheless valid to review and comment on either one of these dimensions. Marksman was engaged to analyse whether the costs were reasonable and has done so – an assessment of the service levels provided is not intended to be, and therefore is not, included in this report. Differences in service levels would not be expected to significantly impact costs as gas distribution businesses typically provide a very high quality of service to customers with few interruptions. For this reason, regulators have generally not sought to develop and apply service incentive schemes (eg. S Factors) to gas distributors.

5 HIGH LEVEL KEY PERFORMANCE INDICATORS

In the following sections, the gas distributors are identified by the following abbreviations:

- JN Jemena Gas Networks, NSW
- AQ Allgas, Queensland
- EQ Envestra, Queensland
- ES Envestra, South Australia
- EV Envestra, Victoria
- MV MultiNet Gas, Victoria
- SV SPI Networks (Gas), Victoria
- AC ActewAGL, ACT
- WA WA Gas Networks

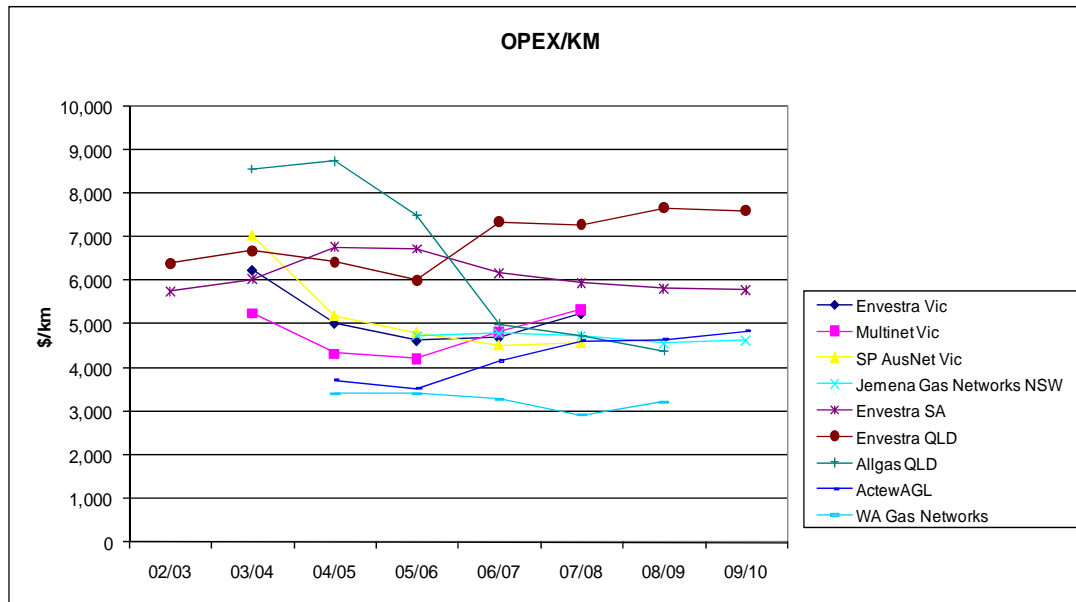
In the following section, graphs have been included showing performance indicators over time for all of the distributors.

5.1 Key Performance Indicators

Opex/km

This is a measure commonly used by regulators to gauge the relative efficiency of distributors. The Opex/km over time is shown in the following figure:

Figure 5.1: Opex/km

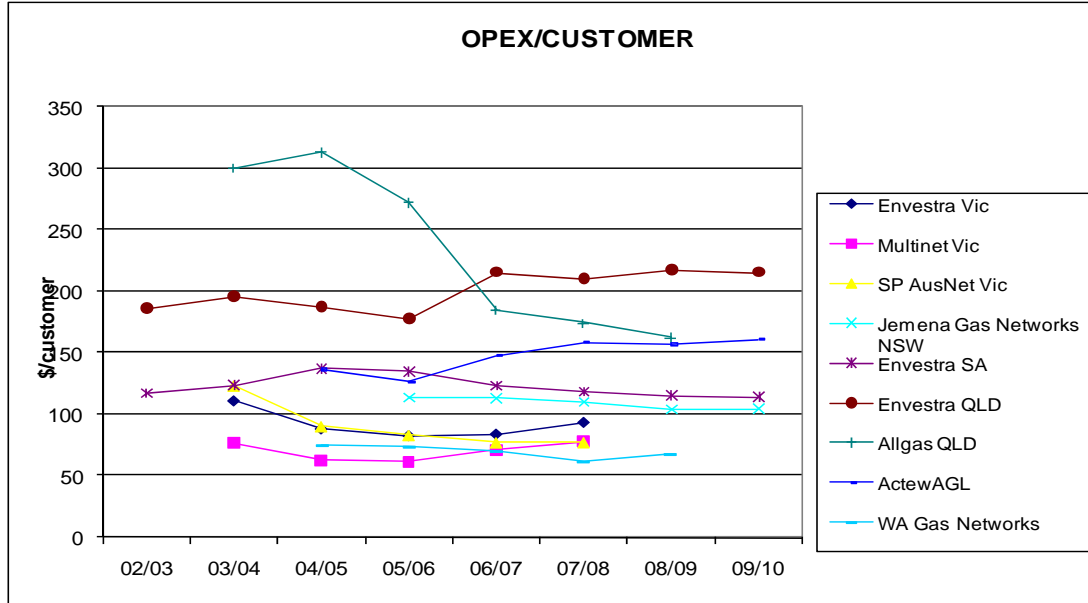


It can be seen that Envestra SA has historically been towards the middle of the range and has been decreasing over the last five years. Envestra Queensland has historically moved from the middle to the top of the range.

Opex/Customer

This is another measure commonly applied by regulators to assess relative efficiency. The Opex/customer over time is shown in the following figure:

Figure 5.2: Opex/Customer

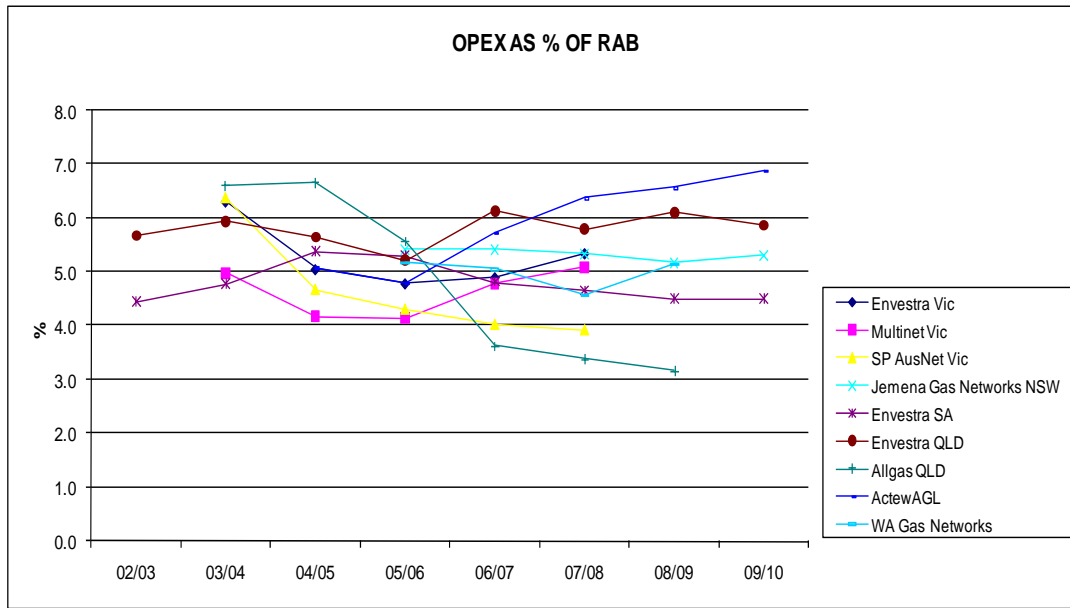


It can be seen that Envestra South Australia has historically been at the bottom end of the middle of the range, whereas Envestra Queensland has historically been towards or at the top of the range.

Opex as Percentage of Regulated Asset Base

Expressing expenditure as a proportion of the Regulated Asset Base (RAB) is a commonly used tool to normalise data between distributors, on the basis that the more assets there are in the network (and hence higher RAB), the greater the need for both Opex and Capex. Opex as a percentage of RAB over time is shown in the following figure:

Figure 5.3: Opex/RAB

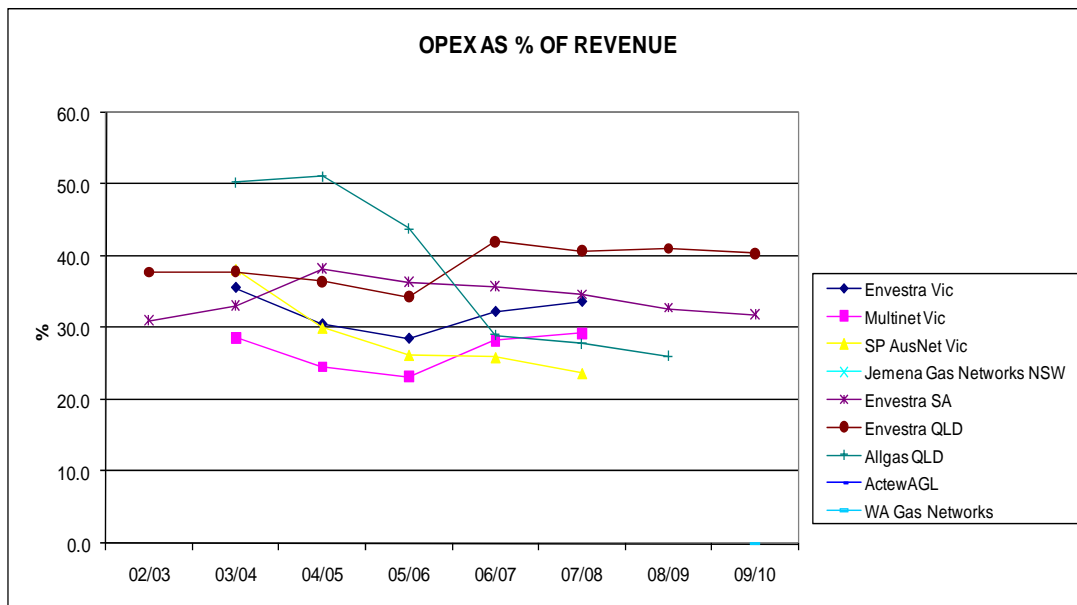


It can be seen that Envestra South Australia has historically been at the lower end of the mid range and has compared favourably against two of the Victorian gas distributors. Envestra Queensland has historically been towards the high end of the range.

Opex as a Percentage of Revenue

Opex as a percentage of revenue over time is shown in the following figure:

Figure 5.4: Opex/Revenue



It can be seen that Envestra SA has historically been in the middle of the range, whereas Envestra Queensland has been at the top of the range over the last four years.

Opex/GJ

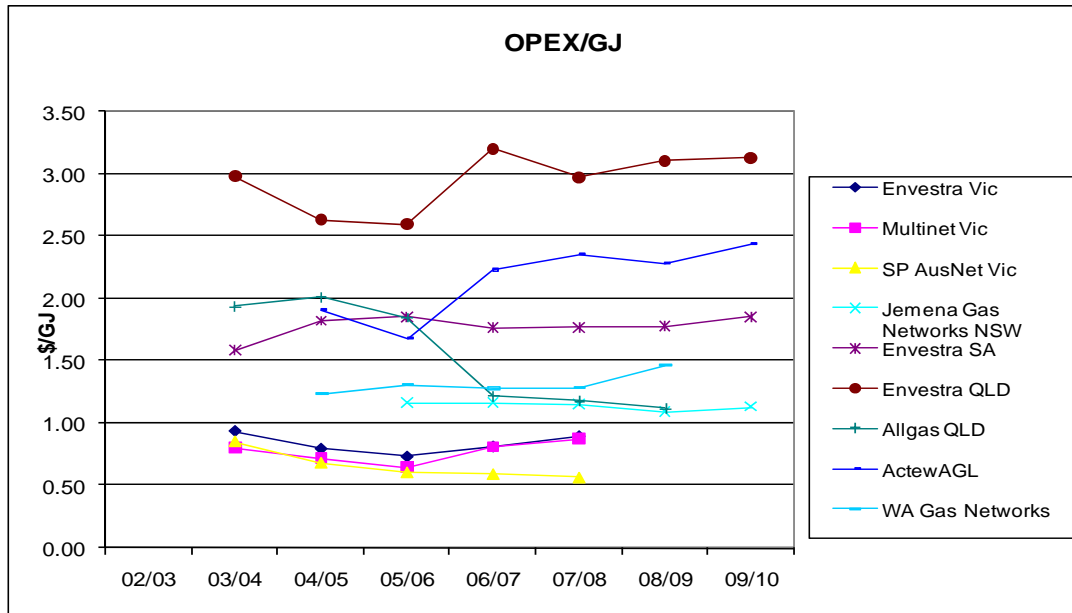
Opex/GJ delivered is a KPI that is often applied in benchmarking studies. Marksman notes and

agrees with the following comments made by WorleyParsons³:

WorleyParsons considers that such a measure does little to assist in assessing relative efficiencies between distributors in different geographic regions. This is because a gas distributor has little influence over the volume of gas delivered (volumes are affected by factors such as temperature, level of gas penetration, mix of customer types etc.) and Opex does not vary significantly with changes in consumption.

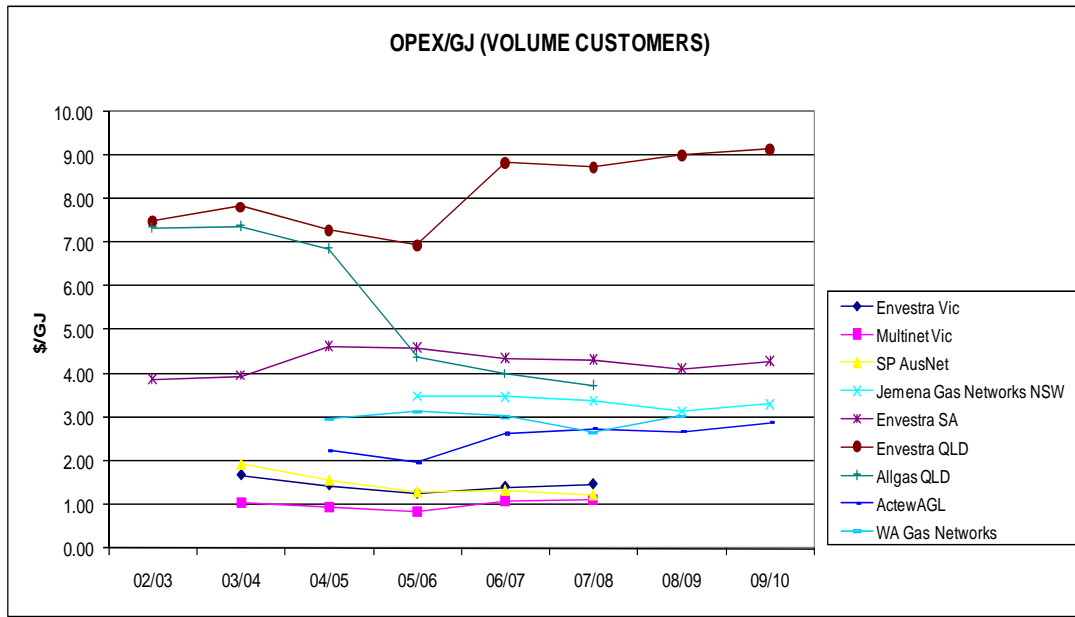
Nevertheless, Marksman has included Opex/GJ over time and Opex/GJ (Volume Customers) in the following figures for completeness:

Figure 5.5: Opex/GJ



³ Review of Victorian Gas Distributor Access Arrangements – Further Benchmarking Report, WorleyParsons, October 2007, Page 13.

Figure 5.6: Opex/GJ Volume Customers

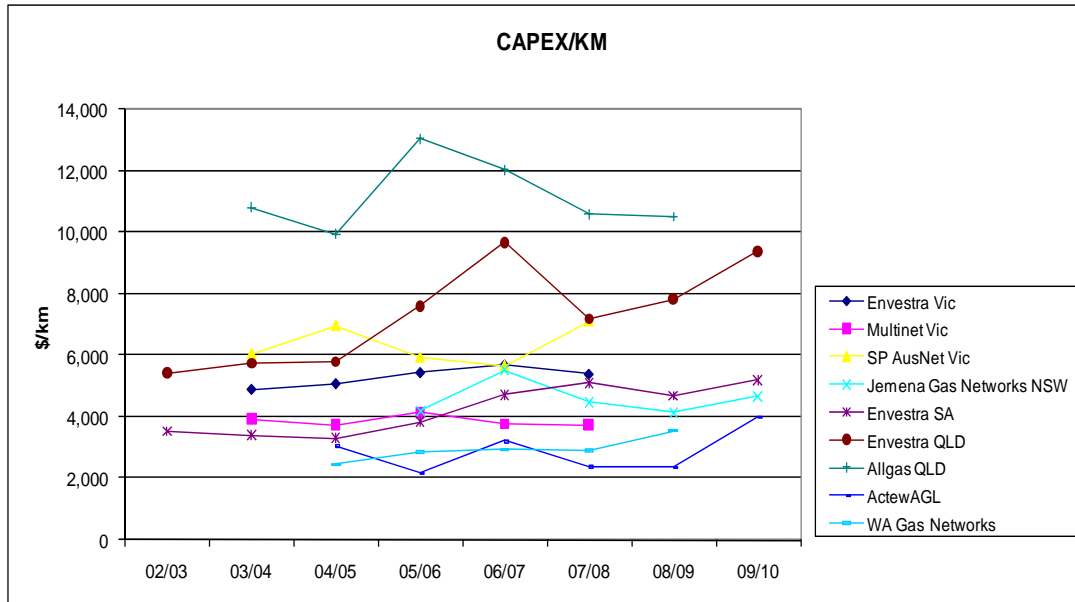


It can be seen for both of these measures that Envestra SA has historically been in the middle of the range, whereas Envestra Queensland has consistently been at the top of the range.

Capex/km

This is another commonly used measure and Capex/km over time is shown in the following figure:

Figure 5.7: Capex/km

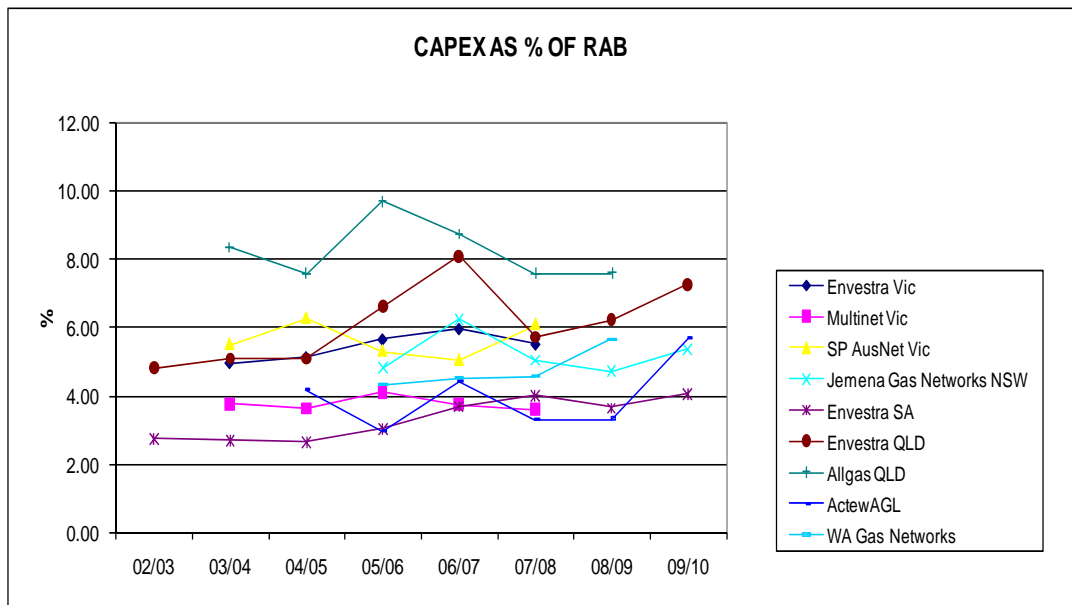


It can be seen that Envestra SA has historically been towards the bottom of the range, whereas Envestra Queensland has historically been towards the top of the range.

Capex as Percentage of Regulated Asset Base

This is another commonly used measure and Capex as a percentage of RAB over time is shown in the following figure:

Figure 5.8: Capex/RAB

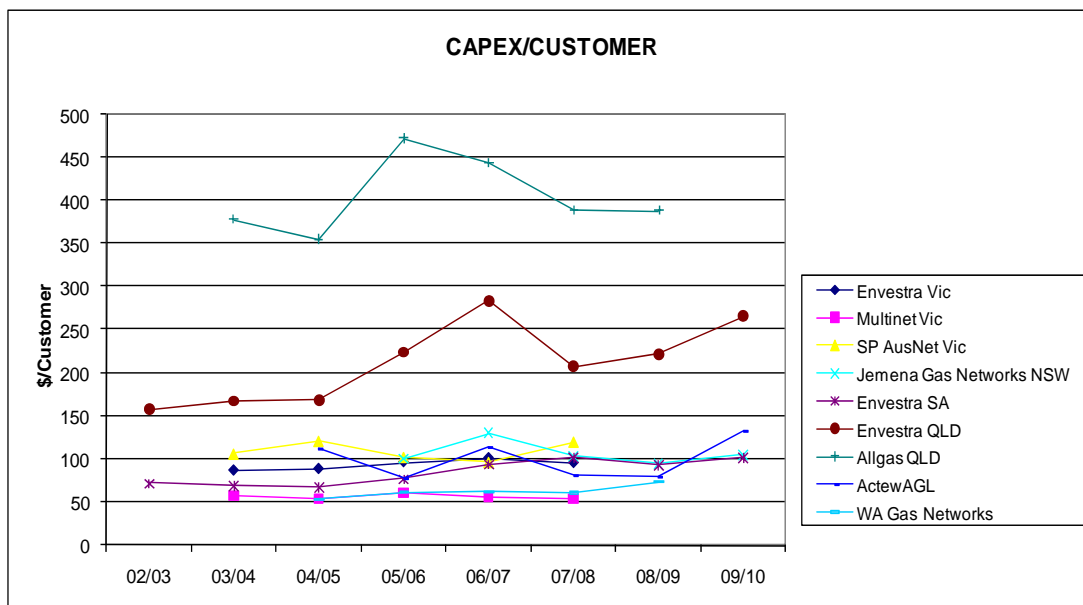


It can be seen that Envestra SA has historically been at the bottom of the range, whereas Envestra Queensland has been towards the top of the range.

Capex/Customer

This is another standard measure and Capex/customer over time is shown in the following figure:

Figure 5.9: Capex/Customer



It can be seen that Envestra SA has historically been towards the bottom of the range, comparing favourably to two of the three Victorian distributors. Envestra Queensland has historically been in the middle of the range, comparing favourably against Allgas Queensland.

Capex/GJ Delivered

Capex/GJ delivered is another high level KPI that is often applied. As with Opex/GJ previously discussed, Marksman considers that such a measure does little to assist in assessing relative

efficiencies between distributors; nevertheless, Capex/GJ and Capex/GJ (Volume Customers) have been included for completeness in the following figures:

Figure 5.10: Capex/GJ Delivered

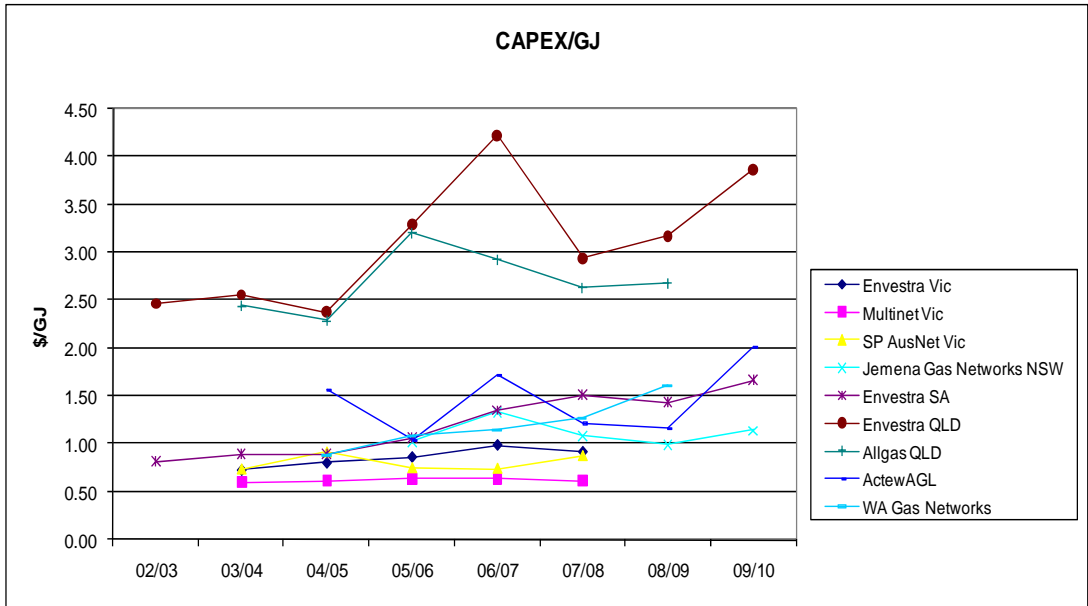
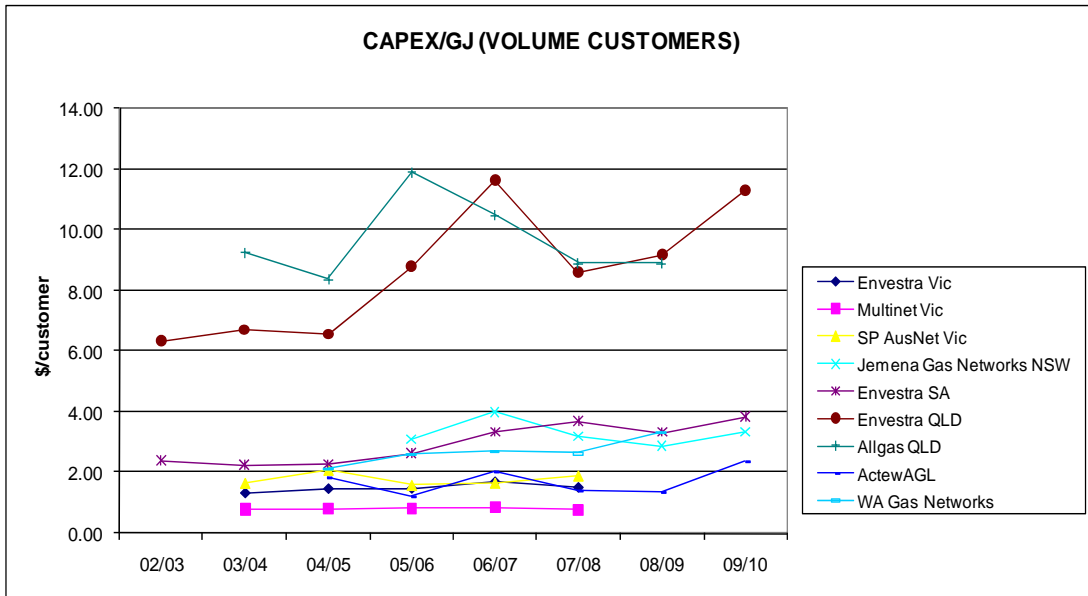


Figure 5.11: Capex/GJ (Volume Customers)

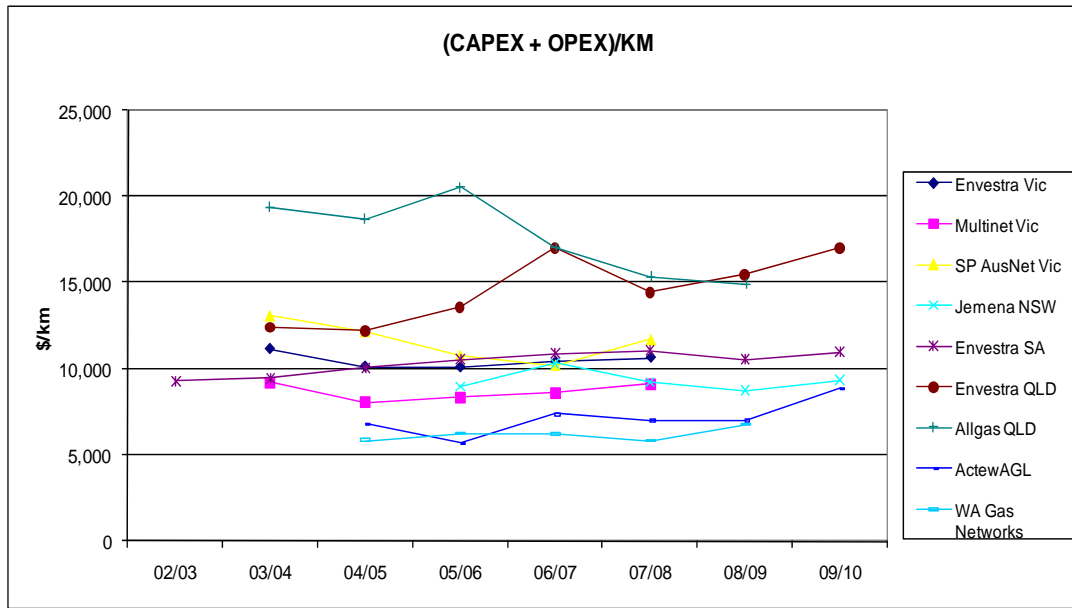


It can be seen for both of these measures that Envestra SA has historically been towards the bottom end of the range. Envestra Queensland has historically been at the top end of the range, along with Allgas Queensland.

Total Expenditure/km

As there are often trade-offs between Capex and Opex (e.g. a decision not to spend Capex to replace CI mains will result in higher Opex), it is useful to present total expenditure (i.e. Capex plus Opex) per km. Total expenditure/km over time is shown in the following figure:

Figure 5.12: Total \$/km

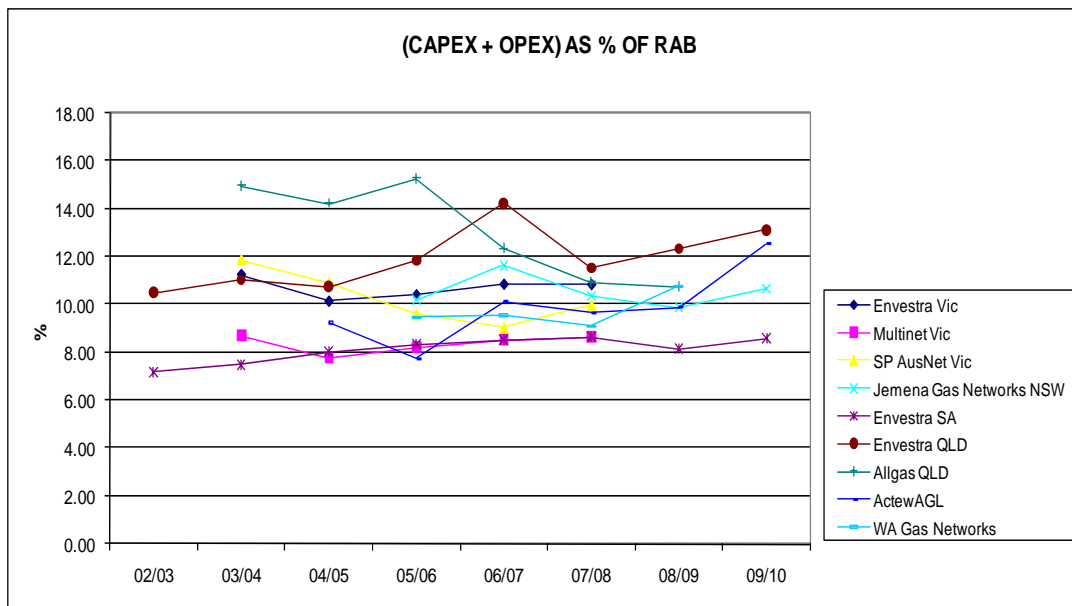


It can be seen that Envestra SA has historically been in the middle of the range. Envestra Queensland has moved from middle of the range to top of the range, a position it shares with Allgas Queensland.

Total Expenditure as % of RAB

Expressing total expenditure as a percentage of RAB is a commonly used normalisation technique. There are trade-offs between Capex and Opex and use of the RAB takes into account the relative size of the networks. The distributors' relative positions are shown in the following figure:

Figure 5.13: Total Expenditure as a % of RAB



It can be seen that Envestra SA has historically been at the bottom of the range, whereas Envestra Queensland has moved from middle to top of the range.

5.2 Composite Measures

In its September 2007 report⁴, WorleyParsons observed that:

It can be seen that there is a significant relationship between customer density and energy density, with higher customer densities associated with higher energy densities. This suggests the use of customer density and energy density as normalisation factors.

In a similar vein, Parsons Brinckerhoff Australia Pty Ltd (PBA)⁵ utilised a composite measure, made up of length of mains, customer numbers and energy delivered, to account for the different network characteristics, and concluded that such a composite measure was a valid approach.

Marksman has utilised a composite measure composed of length of mains, number of customers and volume sales. Volume sales has been utilised (rather than total sales), as it is considered that contract sales have a lesser impact on Capex and Opex than volume sales. The composite measure was calculated as a product of the length of mains, the number of customers and the consumption of volume customers, expressed as a per unit of the highest composite factor.

By way of explanation, the calculation of the composite factor is shown for three fictitious distributors with the following characteristics:

	Length of Mains (km)	Customers	Volume Sales (TJ)
Distributor A	10,000	150,000	20,000
Distributor B	5,000	100,000	10,000
Distributor c	8,000	125,000	15,000

The product of length of mains, number of customers and volume sales is 30×10^{12} for Distributor A, 5×10^{12} for Distributor B and 15×10^{12} for Distributor C. The composite factor is then calculated by dividing each product by 30×10^{12} (as this is the highest value), giving composite factors for Distributors A, B and C of 1, 0.17 and 0.5 respectively.

The 2007/08 year was used for this comparison, as this was the most recent year for which a complete set of data was available (2008 calendar year data was used for the three Victorian distributors).

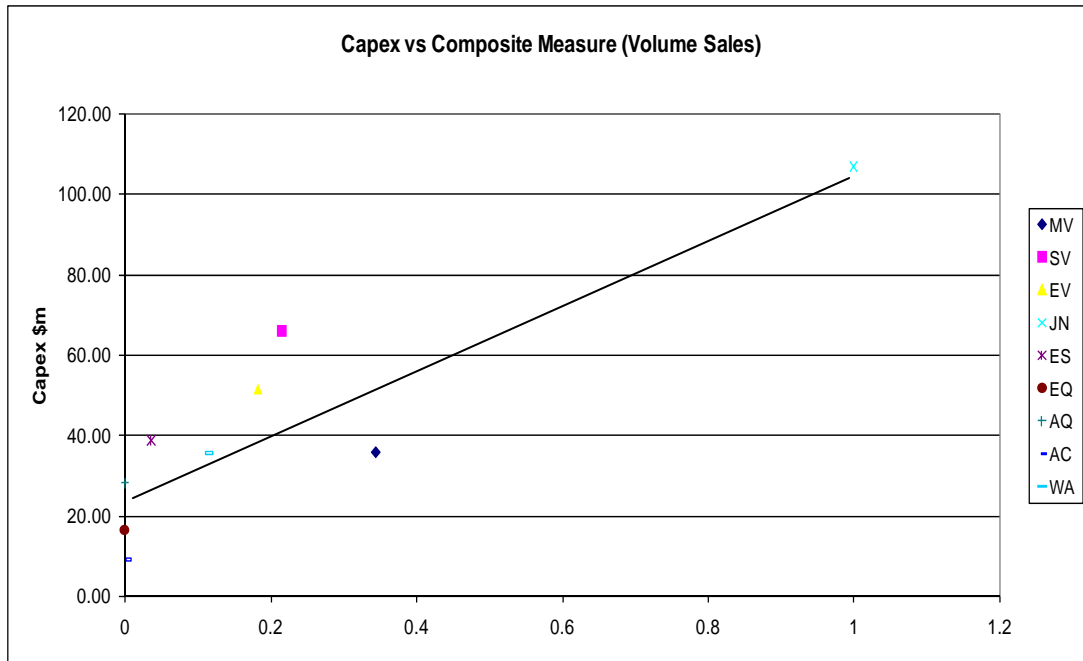
For both Capex and Opex plotted against the composite factor, each distributor should lie in a band around the line of best fit. A significant variation above the line would indicate expenditure higher than the benchmark, and similarly, significant variations below the line would indicate expenditure lower than the benchmark.

The comparison of Capex versus the composite measure is shown in the following figure:

⁴ Review of Victorian Gas Access Arrangements – Benchmarking, March 2007, Page 16

⁵ Review of JGN Capital Expenditure 20010-11 – 2014-15 Jemena Gas Networks Access Arrangement Review, 26 August 2009, Page 16

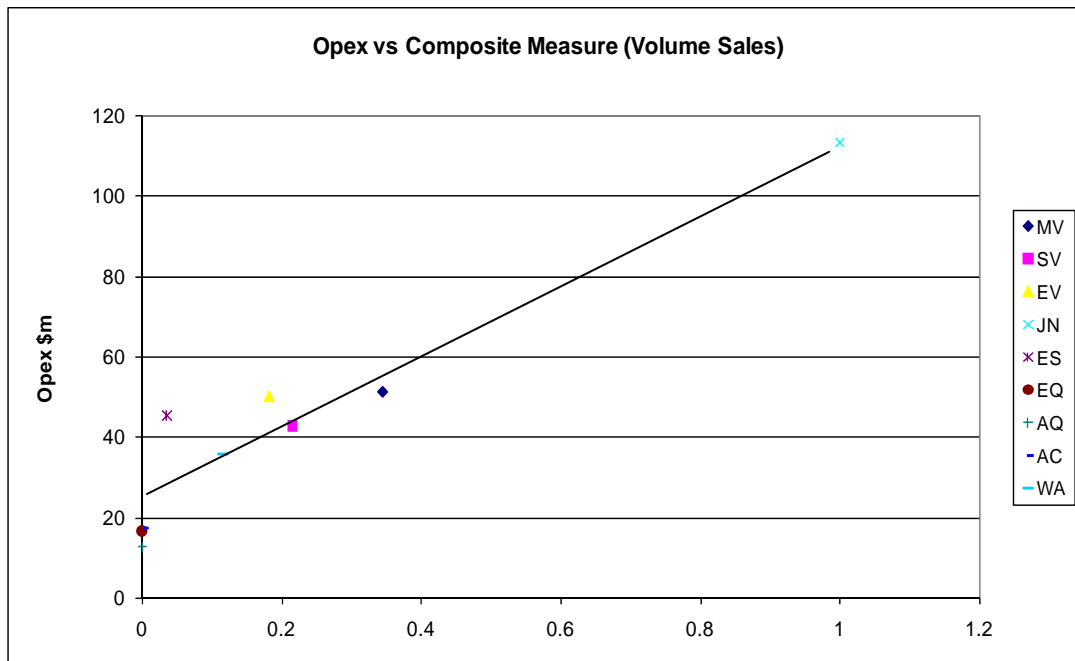
Figure 5.14: Capex Versus Composite Measure



It can be seen that Envestra SA lies slightly above the line and Envestra Queensland lies slightly below the line, indicating the level of Capex for both businesses is consistent with that of other gas distributors.

The comparison of Opex versus the composite measure is shown in the following figure:

Figure 5.15: Opex Versus Composite Measure



It can be seen that Envestra SA lies slightly above the line and Envestra Queensland lies slightly below the line, indicating the level of Opex for both businesses is consistent with that of other gas distributors.

6 CONCLUSIONS

The position of Envestra SA relative to the other distributors is summarised in the following table:

Table 6-1: Relative Position of Envestra SA

INDICATOR	RELATIVE POSITION
Opex \$/km	Towards the middle of the range; decreasing over current AA period
Opex\$/customer	Bottom end of the middle range
Opex as % of RAB	Bottom end of the middle range
Opex as % of revenue	Middle of the range
Opex \$/GJ (Volume customers)	Middle of the range
Capex \$/km	Towards the bottom of the range
Capex as % of RAB	Bottom of the range
Capex \$/customer	Towards the bottom of the range
Capex \$/GJ (Volume customers)	Towards the bottom end of the range
(Capex +Opex) \$/km	Middle of the range
(Capex + Opex) as % of RAB	Bottom of the range
Capex vs. Composite Measure	Consistent with other gas distributors
Opex vs. Composite Measure	Consistent with other gas distributors

Based on the relative position of Envestra SA over the range of indicators, Marksman concludes that the levels of Capex and Opex by Envestra SA over the current Access Arrangement period are reasonable, from a cost perspective only. This analysis does not take service levels into account (service levels were outside the scope of this consultancy). It is not expected that differences in service levels would significantly impact costs of gas distribution businesses.

The position of Envestra Queensland relative to the other distributors is summarised in the following table:

Table 6-2: Relative Position of Envestra Queensland

INDICATOR	RELATIVE POSITION
Opex \$/km	Top of the range
Opex\$/customer	Top of the range
Opex as % of RAB	Towards the top of the range
Opex as % of revenue	Top of the range
Opex \$/GJ (Volume customers)	Top of the range
Capex \$/km	Towards the top of the range (favourable against Allgas)
Capex as % of RAB	Towards the top of the range (favourable against Allgas)
Capex \$/customer	Middle of the range (favourable against Allgas)
Capex \$/GJ (Volume customers)	Top of the range (together with Allgas)
(Capex + Opex) \$/km	Top of the range (together with Allgas)
(Capex + Opex) as % of RAB	Top of the range
Capex vs. Composite Measure	Consistent with other gas distributors
Opex vs. Composite Measure	Consistent with other gas distributors

It is difficult to draw meaningful conclusions in regard to the efficiencies of Envestra Queensland’s historical Capex and Opex, as Envestra Queensland’s operating conditions are so different. The most comparable gas business is Allgas, and for some measures Envestra compares favourably with Allgas, for other measures it is the other way round or they are much the same. Marksman concludes that Envestra Queensland’s Capex and Opex has historically been commensurate with that of Allgas.

This analysis does not take service levels into account (service levels were outside the scope of this consultancy). It is not expected that differences in service levels would significantly impact costs of gas distribution businesses.

7 GLOSSARY

AA	Access Arrangement
ECG	Energy Consulting Group
ESCOSA	Essential Services Commission of South Australia
ESCV	Essential Services Commission Victoria
GJ	giga joule
FRC	Full Retail Contestability
IPART	Independent Pricing and Regulatory Tribunal
KPI	Key Performance Indicator
PBA	Parsons Brinckerhoff Australia Pty Ltd
RAB	Regulatory Asset Base
QCA	Queensland Competition Authority
TJ	tera joule
UAFG	Unaccounted for Gas

8 APPENDICES

8.1 Data Tables

Table 8-1: Multinet Victoria

	2004	2005	2006	2007	2008
Opex\$/km	5,080	4,746	4,797	4,814	5,352
Opex\$/customer	73.7	69.2	70.2	70.7	77.8
Opex as % of RAB	4.8	4.6	4.7	4.8	5.09
Opex\$/GJ	0.77	0.78	0.73	0.81	0.88
Opex \$/GJ (<10TJ customers)	1.02	1.04	0.96	1.09	1.12
Capex \$/km	3,919	3,705	4,129	3,700	3,750
Capex as % of RAB	3.7	3.6	4.1	3.7	3.6
Capex \$/customer	56.9	54.0	60.4	54.4	54.5
Capex \$/GJ	0.60	0.61	0.63	0.62	0.61
Capex \$/GJ (<10TJ customers)	0.79	0.81	0.82	0.84	0.78
Opex as % of revenue	27.9	27.1	26.6	28.3	29.3
(Capex +Opex) \$/km	8,999	8,450	8,926	8,514	9,101

Table 8-2: SP AusNet Victoria

	2004	2005	2006	2007	2008
Opex\$/km	6,989	5,165	4,793	4,496	4,588
Opex\$/customer	122	89	82	76	77
Opex as % of RAB	6.3	4.6	4.3	4.0	3.9
Opex\$/GJ	0.85	0.68	0.60	0.59	0.57
Opex \$/GJ (<10TJ customers)	1.92	1.56	1.29	1.32	1.23
Capex \$/km	6,013	6,925	5,904	5,631	7,109
Capex as % of RAB	5.4	6.2	5.3	5.0	6.1
Capex \$/customer	105	120	102	96	120
Capex \$/GJ	0.73	0.91	0.74	0.74	0.88
Capex \$/GJ (<TJ customers)	1.65	2.09	1.59	1.66	1.91
Opex as % of revenue	38	30	26	26	24
(Capex +Opex) \$/km	13,002	12,089	10,697	10,127	11,697

Table 8-3: Envestra Victoria

	2004	2005	2006	2007	2008
Opex\$/km	6,259	5,032	4,633	4,700	5,255
Opex\$/customer	111.4	88.0	82.4	83.6	93.4
Opex as % of RAB	6.31	5.05	4.79	4.90	5.35
Opex\$/GJ	0.93	0.80	0.73	0.81	0.89
Opex \$/GJ (<10TJ customers)	1.68	1.45	1.25	1.41	1.47
Capex \$/km	4,902	5,087	5,449	5,697	5,395
Capex as % of RAB	4.94	5.11	5.64	5.94	5.49
Capex \$/customer	87	89	97	101	96
Capex \$/GJ	0.73	0.81	0.86	0.99	0.92
Capex \$/GJ (<10TJ customers)	1.32	1.47	1.47	1.71	1.51
Opex as % of revenue	35.7	30.5	28.5	32.3	33.7
(Capex +Opex) \$/km	11,161	10,120	10,082	10,398	10,651

Table 8-4: Allgas Queensland

	03/04	04/05	05/06	06/07	07/08	08/09
Opex\$/km	8,587	8,767	7,523	5,011	4,742	4,396
Opex\$/customer	300	313	272	185	174	162
Opex as % of RAB	6.61	6.67	5.58	3.63	3.39	3.17
Opex\$/GJ	1.94	2.02	1.85	1.22	1.18	1.12
Opex \$/GJ (<10TJ customers)	7.34	7.38	6.86	4.37	3.99	3.72
Capex \$/km	10,832	9,959	13,058	12,049	10,606	10,525
Capex as % of RAB	8.34	7.57	9.68	8.73	7.57	7.59
Capex \$/customer	379	356	472	444	389	389
Capex \$/GJ	2.45	2.29	3.21	2.93	2.64	2.68
Capex \$/GJ (<TJ customers)	9.26	8.38	11.91	10.51	8.92	8.91
Opex as % of revenue	50.3	51.2	43.9	29.1	27.9	26.1
(Capex +Opex) \$/km	19,418	18,725	20,580	17,060	15,348	14,921

Table 8-5: Jemena Gas Networks NSW

	2005/06	2006/07	2007/08	2008/09	2009/10
Opex\$/km	4,747	4,805	4,749	4,566	4,647
Opex\$/customer	114	113	110	104	105
Opex as % of RAB	5.41	5.42	5.33	5.17	5.31
Opex\$/GJ	1.16	1.16	1.15	1.09	1.13
Opex \$/GJ (<10TJ customers)	3.49	3.47	3.38	3.14	3.30
Capex \$/km	4,206	5,527	4,480	4,149	4,687
Capex as % of RAB	4.79	6.23	5.03	4.70	5.36
Capex \$/customer	100.7	130.3	104.0	94.9	105.4
Capex \$/GJ	1.03	1.34	1.09	0.99	1.14
Capex \$/GJ (<TJ customers)	3.09	4.00	3.18	2.85	3.33
Opex as % of revenue					
(Capex +Opex) \$/km	8,953	10,331	9,228	8,715	9,334

Table 8-6: Envestra South Australia

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Opex\$/km	5,761	6,038	6,780	6,731	6,176	5,964	5,828	5,797
Opex\$/customer	117	124	138	135	123	119	115	114
Opex as % of RAB	4.45	4.79	5.39	5.31	4.82	4.66	4.51	4.52
Opex\$/GJ	1.33	1.58	1.82	1.86	1.77	1.77	1.78	1.86
Opex \$/GJ (<10TJ customers)	3.88	3.96	4.64	4.59	4.37	4.33	4.13	4.28
Capex \$/km	3,533	3,406	3,306	3,835	4,710	5,095	4,692	5,197
Capex as % of RAB	2.73	2.70	2.63	3.03	3.68	3.98	3.63	4.05
Capex \$/customer	72	70	67	77	94	101	93	102
Capex \$/GJ	0.81	0.89	0.89	1.06	1.35	1.51	1.43	1.67
Capex \$/GJ (<TJ customers)	2.38	2.24	2.26	2.62	3.33	3.70	3.33	3.84
Opex as % of revenue	31.1	33.1	38.3	36.4	35.8	34.7	32.9	32.0
(Capex +Opex) \$/km	9,295	9,443	10,086	10,566	10,886	11,059	10,520	10,994

Table 8-7: Envestra Queensland

	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10
Opex\$/km	6,405	6,703	6,434	6,022	7,359	7,295	7,684	7,625
Opex\$/customer	186	195	187	177	215	210	217	215
Opex as % of RAB	5.69	5.95	5.65	5.22	6.14	5.80	6.11	5.87
Opex\$/GJ	2.91	2.98	2.63	2.60	3.20	2.98	3.11	3.13
Opex \$/GJ (<10TJ customers)	7.49	7.82	7.28	6.94	8.83	8.72	9.00	9.14
Capex \$/km	5,415	5,737	5,792	7,616	9,696	7,192	7,839	9,411
Capex as % of RAB	4.81	5.09	5.09	6.61	8.09	5.72	6.23	7.25
Capex \$/customer	157	167	168	224	284	207	222	266
Capex \$/GJ	2.46	2.55	2.37	3.29	4.22	2.93	3.17	3.86
Capex \$/GJ (<10TJ customers)	6.33	6.70	6.55	8.78	11.63	8.59	9.19	11.28
Opex as % of revenue	37.8	38.0	36.6	34.4	42.1	40.8	41.2	40.4
(Capex +Opex) \$/km	11,820	12,440	12,225	13,638	17,056	14,487	15,523	17,036

Table 8-8: ActewAGL Distribution

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Opex\$/km	3,725	3,530	4,163	4,632	4,658	4,853
Opex\$/customer	137	127	148	159	157	161
Opex as % of RAB	5.09	4.80	5.72	6.38	6.57	6.88
Opex\$/GJ	1.91	1.68	2.23	2.36	2.29	2.44
Opex \$/GJ (<10TJ customers)	2.23	1.96	2.62	2.73	2.66	2.87
Capex \$/km	3,061	2,176	3,211	2,387	2,353	4,003
Capex as % of RAB	4.18	2.96	4.42	3.29	3.32	5.68
Capex \$/customer	112.3	78.3	113.9	81.7	79.4	132.7
Capex \$/GJ	1.57	1.04	1.72	1.21	1.15	2.01
Capex \$/GJ (<TJ customers)	1.83	1.21	2.02	1.41	1.35	2.37
Opex as % of revenue	N/A	N/A	N/A	N/A	N/A	N/A
(Capex +Opex) \$/km	6,786	5,706	7,374	7,019	7,011	8,857

Table 8-9: WA Gas Networks

	2004/05	2005/06	2006/07	2007/08	2008/09
Opex\$/km	3,410	3,412	3,278	2,920	3,222
Opex\$/customer	75	74	70	61	67
Opex as % of RAB	N/A	5.17	5.05	4.58	5.14
Opex\$/GJ	1.24	1.30	1.28	1.28	1.47
Opex \$/GJ (<10TJ customers)	2.95	3.13	3.02	2.65	3.04
Capex \$/km	2,455	2,852	2,937	2,903	3,534
Capex as % of RAB	N/A	4.32	4.53	4.55	5.64
Capex \$/customer	54.0	61.7	62.4	61.0	73.7
Capex \$/GJ	0.89	1.09	1.15	1.28	1.61
Capex \$/GJ (<TJ customers)	2.13	2.62	2.71	2.64	3.33
Opex as % of revenue	N/A	N/A	N/A	N/A	N/A
(Capex +Opex) \$/km	5,865	6,265	6,214	5,823	6,756

8.2 Documents Accessed

WorleyParsons: Review of Victorian Gas Distributor Access Arrangements – Benchmarking Report, March 2007

WorleyParsons: Review of Victorian Gas Distributor Access Arrangements – Further Benchmarking Report, October 2007

Parsons Brinckerhoff Australia Pty Ltd (PBA): Review of JGN Capital Expenditure 20010-11 – 2014-15 Jemena Gas Networks Access Arrangement Review, 26 August 2009

ESCV: Gas Industry Comparative Performance Report 2002, June 2003

ESCV: Gas Distribution Businesses – Comparative Performance Report 2003, August 2004

ESCV: Gas Distribution Businesses – Comparative Performance Report 2004, July 2005

ESCV: Gas Distribution Businesses – Comparative Performance Report 2005, August 2006

ESCV: Gas Distribution Businesses – Comparative Performance Report 2006, October 2007

ESCV: Gas Distribution Businesses – Comparative Performance Report 2007, October 2008

ESCV: Gas Access Arrangement Review 2008-2012 Final Decision, 7 March 2008

ESCV: Review of Gas Access Arrangements 2008-2012 – Variations to the Access Arrangements of Envestra (Victoria) and Envestra (Albury): ESC Appeal Decisions E1 and E2, 25 March 2009

Darrall Cutting: ActewAGL Performance Benchmarking Study 2002-08, May 2009

SA Department of Transport, Energy & Infrastructure: Annual Report of the Technical Regulator Gas 2007-08

Allgas Energy: Gas Distribution Quality Annual Report – July 2003 to June 2004, September 2004

Allgas Energy: Gas Distribution Quality Annual Report – July 2004 to June 2005, September 2005

Allgas Energy: Gas Distribution Quality Annual Report – July 2005 to June 2006, September 2006

APT Allgas Energy: Gas Distribution Quality Annual Report – July 2006 to June 2007, September 2007

McLennan Magasanik Associates: Final Report to Queensland Competition Authority – Demand Forecasts for Allgas, 22 November 2005

McLennan Magasanik Associates: Final Report to Queensland Competition Authority – Update Demand Forecasts for Allgas, 19 April 2006

Energy Consulting Group: Allgas Energy Capital and Operating Expenditure Review for Queensland Competition Authority, 19 April 2006

Queensland Competition Authority: Final Decision Revised Access Arrangements for Gas Distribution Networks – Allgas Energy, May 2006

Queensland Competition Authority: Final Decision Revised Access Arrangements for Gas Distribution Networks–Envestra, May 06

Jemena: Access Arrangement Information for NSW Network

IPART: Revised Access Arrangement for AGL Gas Networks Final Decision, April 2005

AER: Victorian Gas Distribution Business Comparative Performance Report 2008, May 2010

8.3 CV Ian Marks

EDUCATION AND QUALIFICATIONS

1997 – Diploma of Company Director's Course, Australian Institute of Company Directors

1968 – Fellowship Diploma of Electrical Engineering, Royal Melbourne Institute of Technology

PROFESSIONAL AFFILIATIONS

Member, Institution of Engineers, Australia

Graduate, Australian Institute of Company Directors

PROFILE

Ian has extensive management experience, at middle, senior and general management levels, covering a diverse range of functions. He played a significant role in implementing extensive changes within the Electricity Supply industry in Victoria, including the disaggregation, corporatisation and privatisation of the industry; the establishment of new business units; work process redesign; the implementation of quality systems and culture change. He has a wide range of management and technical consulting experience in the energy sector. His strengths include highly developed analytical and problem solving skills, strong process and task orientation, good written and verbal communication skills and a highly effective team player. Ian is the director of his own company and has been a director of a number of other companies.

PROFESSIONAL EXPERIENCE

1999- MARKSMAN CONSULTING SERVICES PTY LTD

Director

Provided management and technical consulting services to a range of clients, including Regulators, electricity and gas Distribution Businesses, consulting engineers and national contracting companies. Assignments included strategic advice, regulatory cost reviews, project management, business planning, workshop facilitation, training, technical auditing, process redesign and asset sale due diligence.

Was a Principal Consultant on behalf of the AER in the recent review of Transend's proposed Capex and Opex as part of the electricity transmission regulatory price reset in Tasmania. Was a Lead Assessor on behalf of the QCA for the Opex and Capex review of Energex and Ergon Energy businesses as part of the 2004 regulatory price reset in Queensland. Was Lead Assessor for the ICRC for the Opex and Capex review of ActewAGL as part of the 2003 regulatory price reset. Assisted ESCOSA in the 2004 electricity price reset process in South Australia.

Was a Principal Consultant assisting Envestra to prepare for the current gas price resets in South Australia, Queensland and Victoria by providing a critical assessment of Opex and Capex past expenditure and forecasts, together with benchmarking of gas distributor expenditures.

Was a Lead Assessor in conducting due diligence assessments on behalf of potential purchasers of electricity distribution businesses in Victoria and South Australia.

Other tasks included benchmarking of business efficiency, organisational structure reviews, preparation and delivery of training programs, auditing of operations practices, preparation of operations audit guidelines, development of safety Guidelines, Bushfire Mitigation audits and development of policies and procedures

1994-1999 EASTERN ENERGY LIMITED, MELBOURNE, VICTORIA**1996-1999 General Manager Distributon/Network**

Initially took on role of General Manager Distribution and subsequently General Manager Network. Activities varied during this period, but responsibilities included:

Responsibilities

- Maintenance and operation of Eastern Energy's \$1.8b distribution network assets.
- Planning and development of the distribution network.
- Providing engineering and technical support to TUA group of companies.
- Setting design and maintenance standards and policies.
- Minimising the risk of bushfires and coordinating environmental activities and policies for TUA group of companies.
- Monitoring network performance and developing strategies for improvement.
- Ensuring Regulatory compliance and positively influencing the development of Regulations.
- Management of 350 personnel and capital budget of \$75M.

Accomplishments

- Initiated and then co-implemented a major structural review of subsidiary company, reducing personnel numbers by 17% and saving \$3M per year.
- Established contestable metering business.
- Contributed to the strategic direction of two subsidiary companies through role as Director.
- Successfully managed the establishment of a former Division as a subsidiary company.
- Achieved substantial capital and operating budgets.
- Championed and oversaw the acquisition of a vegetation management company.
- Represented the business or the industry on a number of Committees and made presentations to conferences (including the preparation and presentation of a paper to an Asset Management conference in Wellington, New Zealand, as one of several international case studies).
- Championed TUA's accreditation to ISO 14001.

1994-1996 Manager Network Strategy

Responsibilities

- Planning the major development of Eastern Energy's \$1.8b distribution network assets, including complex design.
- Providing engineering and technical support to TUA group of companies.
- Setting design and maintenance standards and policies.
- Coordinating EE's bushfire mitigation and environmental activities, including the establishment of policies and guidelines for TUA group of companies.
- Sponsor of sections of TUA's Quality system.

Accomplishments

- Significantly contributed to the development of Eastern Energy's initial organisation structure through leadership of a high level review team.
- Established a "green fields" new Business Unit from several differing organisation units, including determining organisation structure and appointing staff.
- Achieved 25% personnel reductions through restructure and rationalisation of Business Unit.

- Led a review of properties, resources and workloads, resulting in the closure of 5 depot sites and the sale of a range of properties.
- Was heavily involved in the sale process when EE was privatised, through making high level presentations, fielding searching questions and providing information.
- Established and chaired a Workplace Health & Safety Committee.

1993-1994

ELECTRICITY SERVICES VICTORIA (ESV)

(State owned electricity distributor and retailer in nearly all of Victoria)

Customer Service Business Manager

Following on from the same role in SECV, reported to CEO of ESV. Was responsible for all activities within geographic territory including:

Responsibilities

- | | |
|---------------------------------|-----------------------|
| • Call Centre | • New connections |
| • Billing | • Public lighting |
| • Meter reading | • Maintenance |
| • Credit control | • Operations |
| • Front office customer contact | • Supply negotiations |
| • Construction | • Network planning |
| • Design | • Faults |

1969-1993

STATE ELECTRICITY COMMISSION OF VICTORIA

(Vertically integrated, state owned electricity utility)

Customer Service Business Manager – responsible for all activities in territory (commercial and technical); successfully established new Business Unit, including determining organisation structure and appointing staff.

Manager Customer Relations – Head Office role with marketing, customer policy and customer complaints responsibilities.

Development Engineer – design, drafting, survey, planning, sales and information technology systems.

Supply & Design Engineer – design, planning, supply negotiations, energy advisory services and electrical inspection.

System Planning Engineer – system planning and information technology systems.

Works programming & coordination – included responding to customer and Ministerial complaints.

Subtransmission planning & design – route selection, negotiations and line design.

Construction supervision

8.4 Network Characteristics 2007/2008

Network characteristics for the 2007/2008 year are shown in the following table:

Table 8-10: Network Characteristics 2007/2008

	Multinet Victoria	SP AusNet	Envestra Victoria	Jemena Gas Networks	Envestra SA	Envestra Queensland	Allgas	ActewAGL	WA Gas Networks
Km of distribution mains	9553	9282	9,289	23,837	7,577	2,281	2,628	3,759	12,225
Customers									
Volume			521,948	1,025,943	381,106	79,060	71,482	109,791	581622
Contract			233	430	150	69	106	38	171
Total	646100	551,097	522,181	1,026,373	381,256	79,129	71,588	109,829	581793
Consumption (TJ)									
Volume	45800	34,600	31,000	33,537	10,426	1909	3126	6,370	13,449
Contract	12575	40,700	22,700	64,606	15,075	3681	7443	1,020	14345
Total	58375	75,300	53,700	98,143	25,501	5590	10569	7,390	27,794
Customers/km	67.63	59.37	56.21	43.06	50.32	34.69	27.24	29.22	47.59
Energy density GJ/km	6111	8112	5781	4117	3366	2451	4021	1966	2274
Energy density volume customers	4794	3728	3337	1407	1376	837	1189	1695	1100

8.5 Inflation Factors

Real June 2001	Real June 2002	Real June 2003	Real June 2004	Real June 2005	Real June 2006	Real June 2007	Real June 2008	Real June 2009	Real June 2010	Real June 2011	Real June 2012	Real June 2013	Real June 2014	Real June 2015
1.259	1.229	1.199	1.170	1.143	1.109	1.067	1.048	0.998	0.986	0.962	0.938	0.915	0.893	0.871

Nominal 02/03	Nominal 03/04	Nominal 04/05	Nominal 05/06	Nominal 06/07	Nominal 07/08	Nominal 08/09	Nominal 09/10	Nominal 10/11	Nominal 11/12	Nominal 12/13	Nominal 13/14	Nominal 14/15
1.214	1.176	1.153	1.127	1.094	1.068	1.025	1.000	0.974	0.950	0.927	0.904	0.882

Nominal 2001	Nominal 2002	Nominal 2003	Nominal 2004	Nominal 2005	Nominal 2006	Nominal 2007	Nominal 2008
1.259	1.229	1.199	1.170	1.143	1.109	1.067	1.048

8.6 Compliance with the Code of Conduct

I, Ian Marks, the author of this report, have read the Code of Conduct and agree to comply with it.

I have made all the enquiries which I believe are desirable and appropriate and that no matters of significance which I regard as relevant have, to my knowledge, been withheld from the report.

Ian Marks
Director,
Marksman Consulting Services Pty Ltd

8.7 Terms of Engagement

JOHNSON WINTER & SLATTERY
L A W Y E R S

Partner: Anthony Groom +61 8 8239 7124
Email: anthony.groom@jws.com.au
Associate: Jessica Teoh +61 8 8239 7173
Email: jessica.teoh@jws.com.au
Our Ref: A3170

27 September 2010

Ian Marks
Marksman Consulting Services Pty Ltd
[]

Dear Mr Marks

Envestra Limited – South Australian and Queensland Access Arrangement Reviews

We act for Envestra Limited in relation to the AER's review of Envestra's Access Arrangement for South Australia and Queensland.

As you have discussed with Envestra, Envestra Limited wishes to engage you to prepare an expert report in connection with the AER's review of Envestra's Access Arrangement for South Australia and Queensland.

This letter sets out the matters which Envestra Limited wishes you to address in your report and the requirements that report must comply with to be capable of use in the AER review.

Terms of Reference

Envestra wishes to engage you to prepare a report benchmarking the cost performance of Envestra's South Australian and Queensland networks against large Australian gas distributors.

The material submitted by Envestra to the Essential Services Commission of Victoria in respect of the 2008-2012 Victorian access arrangement review included a benchmarking report by WorleyParsons. It is envisaged that your report will undertake a similar analysis to that set out in the WorleyParsons benchmarking report.

Use of Report

It is intended your report will be included by Envestra in its access arrangement submission to the AER. The report may be provided by the AER to its own advisers.

The report must be expressed so that it may be relied upon both by Envestra and by the AER.

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SYDNEY | PERTH | MELBOURNE | BRISBANE | ADELAIDE



The report will be reviewed by Envestra's legal advisers and will be used by them to provide legal advice to Envestra as to its rights and obligations under the National Gas Law and National Gas Rules. You will be required to work with these legal advisers and Envestra personnel to assist them prepare Envestra's access arrangement submission and submissions in response to the draft and final decisions made by the AER.

Compliance with the Code of Conduct for Expert Witnesses

Attached is a copy of the Federal Court's Practice Note CM 7, entitled "Expert Witnesses in the Federal Court of Australia", which comprises the code of conduct for expert witnesses in the Federal Court of Australia (**the Code of Conduct**).

Please read and familiarise yourself with the Code of Conduct and comply with it at all times in the course of your engagement by Envestra.

In particular, your report prepared for Envestra should contain a statement to the effect that the author of the report has read the Code of Conduct and agrees to comply with it.

Your report must also:

1. give details of the expert's qualifications and of the literature or other material used in making the report;
2. state all of the questions or issues that the expert has been asked to address;
3. state all of the factual premises upon which the report proceeds; and
4. otherwise comply with the Code of Conduct.

It is also a requirement that the report be signed by the expert and include a declaration that the expert has made all the inquiries which the expert believes are desirable and appropriate and that no matters of significance which the expert regards as relevant have, to the expert's knowledge, been withheld from the report.

Please also attach a copy of these terms of reference to the report.

Terms of Engagement

Your contract for the provision of the report will be directly with Envestra Limited. You should forward to Envestra Limited any terms you propose govern that contract as well as your fee proposal. Your invoices for the production of the report are to be addressed and sent to Envestra Limited.

Contact with us

We request that you contact us or Envestra Limited by telephone in the first instance to discuss any requests for the provision of data or your preliminary conclusions. All enquiries to Envestra Limited should be made to Craig de Laine on (08) 8418 1129 or craig.delaine@envestra.com.au.

Please sign a counterpart of this letter and forward it to Envestra Limited to confirm your acceptance of the engagement by Envestra.

Ian Marks
Marksman Consulting Services Pty Ltd

3

27 September 2010

Yours faithfully

Johnson Winter & Slattery

Enclosed: Federal Court of Australia Practice Note CM 7, "Expert Witnesses in Proceedings in the Federal Court of Australia"

Ian Marks.....

Signed and acknowledged on behalf of Marksman Consulting Services Pty Ltd

Date *28-9-2010*.....

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