**Professor Jeff Borland**

# Recommendations for methodology for forecasting WPI

**Report for Envestra Limited, SP AusNet, APA GasNet and MultiNet Gas**
**October 2012**

## 1. Introduction

I have been commissioned by Envestra Ltd, SP AusNet, APA GasNet and MultiNet Gas to provide advice on '…your opinion, as an expert, as to an appropriate methodology for forecasting changes in WPI for the purposes of real labour cost escalation over the access arrangement period, being from 2013 to 2017, which are arrived at on a reasonable basis and represent the best forecast or estimate possible in the circumstances ('the test')'.

My terms of reference are attached to this report.

I note that the ABS has recently made the decision to discontinue publication of non-wage and labour price indexes. Wage price indexes are unaffected by the reductions and will continue to be produced. To reflect the change in content, the ABS now publish the Wage Price Index (WPI). The ABS catalogue number has remained the same (6345.0).

An outline of my report is as follows:
- Section 2 describes my relevant experience and background;
- Section 3 lists relevant source materials;
- Section 4 provides an overview of my main arguments;
- Section 5 presents forecasts of changes in WPI made by BIS Shrapnel (BIS) and Deloitte Access Economics (DAE) for the utilities/EGWWS sectors in Victoria and Australia from 2013 to 2017;
- Section 6 presents analysis of the accuracy of previous forecasts of changes to LPI made by BIS and DAE;
- Section 7 discusses theory relevant to determining an optimal approach to forecasting changes to WPI;
- Section 8 covers other matters relevant to establishing an optimal approach to forecasting changes to WPI that have been raised by the Australian Energy Regulator (AER); and
- Section 9 contains concluding remarks.

## 2. Relevant experience and background

My current position is Professor of Economics at University of Melbourne. I have worked at University of Melbourne since 1988, and have held the position of Professor since 2001. In 2010 I was visiting Professor of Australian Studies at Harvard University. I have also held visiting positions at University of Iowa, University of Wisconsin-Madison, and Australian National University. My main area of research expertise is on the operation of labour markets in Australia. I have published research papers on topics

including wage determination, unemployment, earnings inequality, and trade unions. These publications have been in leading international and Australian journals such as Industrial and Labor Relations Review, British Journal of Industrial Relations, Economica, Economic Record, Australian Economic Review and Journal of Economic Surveys. I am a Fellow of the Academy of Social Sciences in Australia (2002), and in 1997 was awarded the Medal for Excellence in Scholarship in the Social Sciences by the Academy. I have undertaken consulting projects for agencies including the OECD, IMF, Productivity Commission, ACCC, Commonwealth Grants Commission, and Commonwealth Department of Education, Employment and Workplace Relations.

**3. Relevant source material**

In preparing this report I have read and drawn on the following source materials:

Access Economics (2007), Labour cost indices for the energy sector, Report prepared for the Australian Energy Regulator, 12 April.
Access Economics (2009), Forecast growth in labour costs, Report prepared for the Australian Energy Regulator, 16 September.
Access Economics (2010), Forecast growth in labour costs: March 2010, Report prepared for the Australian Energy Regulator, 16 March.
Armstrong, J. (2005), 'The forecasting canon: Generalizations to improve forecasting accuracy', Foresight, 1, 29-35.
Australian Energy Regulator (2012), Access arrangement draft decision, Envestra Ltd 2013-17, Part 3 Appendices, September.
Bates, J. and C. Granger (1969), 'The combination of forecasts', Operations Research, 20, 451-68.
BIS Shrapnel (2007), Long term forecasts, 2007-2022.
BIS Shrapnel (2009), Long term forecasts, 2009-2024.
BIS Shrapnel (2010), Long term forecasts, 2010-2025.
BIS Shrapnel (2012a), Real cost escalation forecasts to 2017 – Victoria and NSW, Prepared by BIS Shrapnel for the Victorian Gas Distributors, Envestra Limted, SP-AusNet and Multinet Gas Pty Ltd.
BIS Shrapnel (2012b), Labour cost escalation forecasts to 2016/17 – Australia and Queensland, Report prepared by BIS Shrapnel for Powerlink Queensland.
Borland, Jeff (2011), Labour cost escalation report for Envestra Ltd., March.
Borland, Jeff (2012), Labour cost escalation: Choosing between AWOTE and LPI, Report prepared for Envestra Ltd., March.
Clemen, Robert (1989), 'Combining forecasts: A review and annotated bibliography', International Journal of Forecasting, 5, 559-83.
Deloitte Access Economics (2011), Forecast growth in labour costs: Queensland and Tasmania, Report prepared for the Australian Energy Regulator, 15 August.
Deloitte Access Economics (2012), Forecast growth in labour costs in Victoria, Report prepared for the AER, 28 May 2012.
Kennedy, Peter (2008), A Guide to Econometrics (Sixth edition; Blackwell).

Newbold, P. and D. Harvey (2002), 'Forecast combination and encompassing' in M. Clements and D. Hendry (eds) A Companion to Economic Forecasting (Oxford: Blackwell), pages 268-83.

**4. Overview of main arguments**

In my report I make the following points:

(a) There is a relatively large difference between forecasts made by BIS and DAE of changes to WPI in the utilities/EGWWS sector in Victoria for 2013 to 2017. Hence which measure is chosen can have a substantial impact on the size of real labour cost escalation over the access arrangement period (section 5);

(b) Comparison of past forecasts of changes to LPI made by DAE and BIS against data on actual changes to LPI shows that: (i) There is no basis for concluding that forecasts made by DAE have had lower forecast error than those made by BIS; and (ii) A forecast that is an average of the DAE and BIS forecasts is associated with lower forecast error than using either the DAE or BIS forecasts (section 6); and

(c) Statistical theory supports that an average of the DAE and BIS forecasts is likely to be a superior approach to forecasting changes to WPI compared to using either the DAE or BIS forecasts (section 7).

On the basis of this analysis my recommendation is that the AER should use an average of the forecasts made by DAE and BIS as the best forecast of changes to WPI for the purposes of real labour cost escalation.

**5. Forecasts of WPI for utilities/EGWWS sectors in Victoria, 2013 to 2017**

Below (Table 1) I present forecasts of changes to WPI made by DAE and BIS for the utilities/EGWWS sector from 2013 to 2017. It is apparent that there is a relatively large difference between the forecasts. Over the 5-year period from 2013 to 2017 there is an average difference of 0.5 per cent per annum for Victoria and 1.1 per cent per annum for Australia. Hence which measure is chosen can have a substantial impact on the size of real labour cost escalation over the access arrangement period.

**Table 1: Forecasts of changes to WPI for utilities/EGWWS by DAE and BIS**

| Australia – Utilities/EGWWS (nominal) | 2013 | 2014 | 2015 | 2016 | 2017 | Average | Source |
|---|---|---|---|---|---|---|---|
| DAE | 4.0 | 3.8 | 3.6 | 3.4 | 3.8 | 3.6 | DAE (2012), Table vi |
| BIS | 4.3 | 4.8 | 5.0 | 4.7 | 4.5 | 4.7 | BIS (2012a), Table 1a |
| | | | | | | | |
| Victoria – Utilities/EGW | 2013 | 2014 | 2015 | 2016 | 2017 | Average | |
| DAE | 4.2 | 3.8 | 3.6 | 3.4 | 3.8 | 3.8 | DAE (2012), Table vi |
| BIS | 3.9 | 4.4 | 4.7 | 4.3 | 4.3 | 4.3 | BIS (2012a), Table 1a |

**6. Comparison of past forecasts of changes to LPI made by DAE and BIS**

In this section I compare forecasts of changes in LPI for Australia made by AE/DAE and BIS against actual changes in LPI.

I use LPI forecasts for Australia (all industries) as this gives the largest sample for making comparisons on a consistent basis between the AE/DAE and BIS forecasts. Inferences drawn on forecast accuracy from economy-wide measures of LPI should also apply at the level of disaggregated industries and states, since there is necessarily a high degree of correlation between industry-level and economy-wide forecasts of changes to LPI.

Table 2 is based on reports by AE/DAE and BIS that I have used in my previous reports on labour cost escalation (Borland, 2011, 2012). Table 3 is based on information on forecasts presented in a BIS Shrapnel report (2012b) (also used by the AER (2012, Table C4)).

To construct the tables I have used the following approach:

(a) To obtain forecasts of changes to LPI by AE/DAE and BIS I use the most up-to-date forecasts of the initial financial year in the set of years over which the forecasts are made; however, I do not use forecasts made later than the end of September in the initial financial year over which forecasts are made (in order that not too much of the initial financial year over which the forecast is being made should already have elapsed).

(b) I obtain an average forecast for each financial year as the average of the AE/DAE and BIS forecasts.

(c) I obtain data on the actual change in LPI from the Australian Bureau of Statistics (catalogue no.6345.0).

(d) I calculate the absolute prediction error as the difference between the actual change in LPI and the respective forecast. (There are a variety of measures of forecast accuracy. The absolute prediction error is generally accepted as a widely applicable and robust measure, and has the advantage of being easy to interpret. It makes the implicit assumption that the 'cost' of forecast error is proportional to the size of the error. See Kennedy, 2008, page 334).

In the tables, an individual panel shows forecasts by AE/DAE and BIS that relate to the same forecast period. Different panels show forecasts with different starting dates. In each panel I have shown the actual change in LPI (for any period up to 2011-12), as well as the forecasts made by AE/DAE and BIS, and the associated absolute prediction error. A column on the right-hand side of the tables shows the average forecast rate of change in LPI, and average absolute prediction error (for those time periods for which it can be calculated).

In my opinion, on the basis of this historical evidence, there are two main findings:

1. There is no reason to regard forecasts of LPI by DAE to be preferable to those of BIS. In Table 2 the average absolute prediction errors for both AE/DAE and BIS are very similar; and Table 3 shows that in the majority of cases BIS forecasts have been associated with a smaller average absolute prediction error than those of AE/DAE.

2. In almost all cases where I have been able to examine forecasts made over at least a 2-year horizon, using the average of the AE/DAE and BIS forecasts is associated with a lower average absolute prediction error than using either the AE/DAE or BIS forecasts. In Table 2 the composite AE/DAE+BIS average forecast has the lowest average absolute prediction error in each case in panels A to C. In Table 3 the composite AE/DAE+BIS average forecast has the lowest average absolute prediction error for forecasting LPI changes in the utilities sector (by some margin).

My findings appear generally consistent with those of the AER which has concluded (2012, p.106) 'For the forecast series commencing 2006 to 2011 included in the analysis, the average of DAEs and BIS Shrapnel's forecasts had the lowest mean absolute error on three occasions, DAE's forecasts on two and BIS Shrapnel's once.'

I do not believe that the recent changes made by the ABS to switch to publishing WPI in place of LPI will not affect the conclusions I have drawn from analysing the performance of LPI forecasts.

**Table 2: Forecasts of nominal changes to LPI by AE/DAE and BIS, Australia**

| **Panel A** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2007- | 2008- | 2009- | 2010- | 2011- | Average | Source |

| | 08 | 09 | 10 | 11 | 12 | | |
|---|---|---|---|---|---|---|---|
| Actual change | 4.2 | 4.1 | 3.1 | 3.8 | 3.6 | 3.8 | ABS (6345.0) |
| BIS – Forecast | 4.3 | 3.6 | 4.0 | 4.5 | 4.6 | 4.4 | BIS (2007), p.64 |
| BIS – Absolute prediction error (APE) | 0.1 | 0.5 | 0.9 | 0.7 | 1.0 | 0.6 | |
| AE – Forecast | 4.6 | 4.4 | 4.0 | 4.3 | 5.0 | 4.5 | AE (2007), p.67 |
| AE – Absolute prediction error (APE) | 0.4 | 0.3 | 0.9 | 0.5 | 1.4 | 0.7 | |
| **BIS+AE** – Forecast | 4.45 | 4.0 | 4.0 | 4.4 | 4.8 | 4.3 | |
| **BIS+AE** – Absolute prediction error (APE) | 0.25 | 0.1 | 0.9 | 0.6 | 1.2 | 0.6 | |

| **Panel B** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | Average | |
| Actual change | 3.1 | 3.8 | 3.6 | | | | ABS (6345.0) |
| BIS – Forecast | 2.7 | 3.2 | 3.6 | 4.1 | 3.9 | 3.5 | BIS (2009), p.64 |
| BIS – APE | 0.4 | 0.6 | 0 | | | 0.3 | |
| AE – Forecast | 3.5 | 3.9 | 3.9 | 3.9 | 3.7 | 3.8 | AE (2009), p.29 |
| AE - APE | 0.4 | 0.1 | 0.3 | | | 0.3 | |
| **BIS+AE** – Forecast | 3.1 | 3.55 | 3.75 | | | | |
| **BIS+AE** - APE | 0 | 0.25 | 0.15 | | | 0.1 | |

| **Panel C** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | | |
| Actual change | 3.8 | 3.6 | | | | | ABS (6345.0) |
| BIS - Forecast | 3.8 | 4.1 | 4.3 | 4.2 | 3.9 | 4.0 | BIS (2010), p.62 |
| BIS - APE | 0 | 0.5 | | | | 0.25 | |
| AE - Forecast | 3.7 | 3.9 | 3.5 | 3.6 | 3.7 | 3.7 | AE (2010), p.12 |
| AE - APE | 0.1 | 0.3 | | | | 0.2 | |
| **BIS+AE** - Forecast | 3.75 | 4.0 | | | | | |
| **BIS+AE** - APE | 0.05 | 0.4 | | | | 0.2 | |

| **Panel D** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | | |
| Actual change | 3.6 | | | | | | ABS (6345.0) |
| BIS - Forecast | 4.4 | 5.0 | 4.5 | 4.1 | 4.2 | 4.4 | BIS (2011), Table 2.1 |
| BIS - APE | 0.8 | | | | | | |
| DAE - Forecast | 4.1 | 4.6 | 4.1 | 3.9 | 3.3 | 4.0 | DAE (2011), Table 11 |
| DAE - APE | 0.5 | | | | | | |
| **BIS+DAE** - Forecast | 4.25 | | | | | | |
| **BIS+DAE** - APE | 0.65 | | | | | | |

**Table 3: Forecasts of nominal changes to LPI by AE/DAE and BIS, Australia**

| **Panel A** | | | | | |
|---|---|---|---|---|---|
| BIS (3/07); DAE (4/07) | 2007-08 | 2008-09 | 2009-10 | 2010-11 | Average |
| Actual - Utilities | 4.1 | 4.5 | 4.3 | 4.3 | |
| Actual – All industries | 4.1 | 4.1 | 3.1 | 3.8 | |
| BIS – Utilities forecast | 5.8 | 5.2 | 4.5 | 4.7 | |
| BIS – Utilities - Absolute prediction error | 1.7 | 0.7 | 0.2 | 0.4 | 0.75 |
| BIS – All industries - Forecast | 4.5 | 3.8 | 3.7 | 4.2 | |
| BIS – All industries - APE | 0.4 | 0.3 | 0.6 | 0.4 | 0.4 |
| DAE – Utilities - Forecast | 5.7 | 5.1 | 3.6 | 3.9 | |
| DAE – Utilities - APE | 1.6 | 0.6 | 0.7 | 0.4 | 0.8 |
| DAE – All industries - Forecast | 4.6 | 4.4 | 4.0 | 3.9 | |
| DAE – All industries - APE | 0.5 | 0.3 | 0.9 | 0.4 | 0.55 |
| **DAE+BIS – Utilities** - Forecast | 5.75 | 5.15 | 4.05 | 4.3 | |
| **DAE+BIS – Utilities** - APE | 1.65 | 0.55 | 0.25 | 0 | 0.6 |
| **DAE+BIS – All industries** | 4.55 | 4.1 | 3.85 | 4.25 | |
| **DAE+BIS – All industries** - APE | 0.45 | 0 | 0.75 | 0.45 | 0.45 |

| **Panel B** | | | | | |
|---|---|---|---|---|---|
| BIS (4/09); DAE (9/09) | 2009-10 | 2010-11 | | | Average |
| Actual - Utilities | 4.3 | 4.2 | | | |
| Actual – All industries | 3.1 | 3.8 | | | |
| BIS – Utilities - Forecast | 4.7 | 4.4 | | | |
| BIS – Utilities - APE | 0.4 | 0.2 | | | 0.3 |
| BIS – All industries - Forecast | 3.3 | 3.1 | | | |
| BIS – All industries - APE | 0.2 | 0.7 | | | 0.45 |
| DAE – Utilities - Forecast | 3.5 | 3.4 | | | |
| DAE – Utilities - APE | 0.8 | 0.8 | | | 0.8 |
| DAE – All industries - Forecast | 3.5 | 3.9 | | | |
| DAE – All industries - APE | 0.4 | 0.1 | | | 0.25 |
| **DAE+BIS – Utilities** - Forecast | 4.1 | 3.9 | | | |
| **DAE+BIS – Utilities** - APE | 0.2 | 0.3 | | | 0.25 |
| **DAE+BIS – All industries** – Forecast | 3.4 | 3.5 | | | |
| **DAE+BIS – All industries** – APE | 0.3 | 0.3 | | | 0.3 |

Source: My calculations based on BIS Shrapnel (2012b), Table 6.1.

## 7. Relevant theory

Each forecast of the change in WPI made by DAE and BIS can be thought of as being equal to the actual change in WPI plus a forecast error. Suppose that the forecast error associated with any forecast made by DAE and BIS is regarded as being 'independent'; that is, knowing the forecast error made for example by DAE does not provide information about what the forecast error made by BIS is likely to be (and vice-versa). Then it follows that a forecast that is the average of the two forecasts will have a lower expected absolute prediction error than using either of the DAE or BIS forecasts. One way to think of this result is that, because the forecast errors are independent, taking the average of the DAE and BIS forecasts will tend to reduce the average size of the forecast error; that is, the forecast errors offset each other. Hence, the average of the DAE and BIS forecasts will be a better estimate of the actual change in WPI. The approach of taking an average, putting equivalent weight on the forecasts made by DAE and BIS, is optimal where it is considered that those forecasts are likely to be associated with equal-sized forecast errors (Bates and Granger, 1969, pages 452-53). This seems a reasonable assumption (for example, in Table 2 the BIS average absolute prediction error per annum is 0.3 per cent and for DAE is 0.35 per cent.) This discussion applies equally to combining forecasts of WPI for Victoria, as to combining forecasts of LPI for Australia.

A variety of statistical studies have endorsed the value of combining forecasts – on the basis of the theoretical justification and the practical outcome. For example, Newbold and Harvey (2002, p.280) conclude: 'In a world of increasingly complex technical methodology, much of it, one suspects, destined never to be used outside of academic econometrics, the combination of forecasts is a beautiful rarity – a simple idea, easily implemented, that works well and therefore is used in practice.' I note that the AER (2012, p.106) has also concluded that: 'This result [the superior performance of a combined AE/DAE+BIS forecast] is consistent with a significant body of literature concluding forecast accuracy can be improved by combining multiple forecasts'; in support of which statement they cite the study by Clemens (1989). Armstrong (2005) also summarises general principles designed to improve forecast accuracy, one of which is to combine competing forecasts.

## 8. Other issues to address

My interpretation of the AER report (2012, p.105 ) is that – apart from forecast accuracy – there is a further reason why the AER argues that the DAE forecast of WPI changes is to be preferred. This argument is that: (a) To be a valid measure for use in calculating real labour cost escalation WPI needs to be adjusted for productivity effects; (b) But for practical reasons this is not being done; (c) Hence, if the DAE forecasts are an under-estimate of the actual rate of increase in WPI, it doesn't matter, because this forecast error will offset the productivity adjustment that should have been made. In fact, the AER go further and argue that the forecast error is likely to be less than the labour productivity adjustment.

In previous reports (Borland, 2011; 2012) I have provided a detailed explanation and empirical evidence for why, as a matter of practice, any adjustment to LPI for changes in labour productivity should be minimal. There are two steps to this argument. First, I demonstrate that an appropriate measure of labour cost escalation would be to use LPI/WPI minus an adjusted measure of labour productivity (where the adjustment removes the change in labour productivity that is due to a worker composition effect; since this component is also excluded from the LPI/WPI) (Borland, 2012, section 4.1). I noted that this argument has been accepted by DAE (2011b, p.4): '...the fact that the LPI/WPI does not account for compositional productivity has implications for the productivity adjustments which need to be made to estimates of changes in labour cost.' Second, I show that the largest share of changes to labour productivity is explained by worker composition effects; so that the adjusted measure of labour productivity that would be subtracted from forecast changes to LPI/WPI is very small (see for example, Borland, 2012, section 6.1.2).

**9. Concluding comments**

In my opinion, the appropriate methodology for forecasting changes in WPI for the purposes of real labour cost escalation over the access arrangement period, being from 2013 to 2017, which are arrived at on a reasonable basis and represent the best forecast or estimate possible in the circumstances, is to use an equally-weighted average of the forecasts made by BIS and DAE. This opinion is based on analysis of the historical forecasting performance of DAE and BIS; and supported by statistical theory.

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

Jeffrey Ian Borland
November 8, 2012

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7 November 2012

**BY EMAIL**

Professor Jeff Borland
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Dear Professor Borland

**Victorian Gas Access Arrangement Review 2013-2017: Envestra, Multinet, SP AusNet and APA GasNet**

We act for Envestra Limited (**Envestra**), Multinet Gas (DB No. 1) Pty Ltd and Multinet Gas (DB No. 2) Pty Ltd (together, **Multinet**), SPI Networks (Gas) Pty Ltd (**SP AusNet**) and APA GasNet (Operations) Australia Pty Ltd (**APA GasNet**) (together the **Gas Businesses**) in relation to the Australian Energy Regulator's (**AER**) review of the Gas Access Arrangements for Victoria.

The Gas Businesses wish to jointly engage you to prepare an expert report in connection with the AER's review of the Victorian Access Arrangements. The report will also be used by Envestra for the AER's review of Envestra's Access Arrangement for its Albury Distribution Network.

This letter sets out the matters which the Gas Businesses wish you to address in your report and the requirements with which the report must comply.

*Terms of Reference*

The terms and conditions upon which each of the Gas Businesses provides access to their respective networks are subject to five yearly reviews by the AER.

The AER undertakes that review by considering the terms and conditions proposed by each of the Gas Businesses against criteria set out in the *National Gas Law* and *National Gas Rules*.

The Gas Businesses wish to engage you to prepare an expert report which contains your opinion, as an expert, as to the appropriate methodology for forecasting changes in the Wage

Price Index for the purposes of real labour cost escalation over the access arrangement period, being from 2013 to 2017.

An appropriate methodology is one which complies with the requirements of the National Gas Rules, specifically Rule 74(2) which requires that a forecast or estimate:

(a) must be arrived at on a reasonable basis; and

(b) must represent the best forecast or estimate possible in the circumstances.

*Use of Report*

It is intended that your report will be included by each of the Gas Businesses in their respective responses to the AER's Draft Decisions in respect of their access arrangement revision proposals for their Victorian networks (and in the case of Envestra, Albury network) for the access arrangement period from 1 January 2013 to 31 December 2017. 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 the Gas Businesses and by the AER.

The AER may ask queries in respect of the report and you will be required to assist each of the Gas Businesses in answering these queries. The AER may choose to interview you and if so, you will be required to participate in any such interviews.

The report will be reviewed by the Gas Businesses' legal advisers and will be used by them to provide legal advice to the Gas Businesses as to their respective rights and obligations under the *National Gas Law* and *National Gas Rules*. You will be required to work with these legal advisers and the Gas Businesses' personnel to assist them to prepare the Gas Businesses' respective responses to the Draft Decisions and submissions in response to the Final Decisions made by the AER.

If any of the Gas Businesses choose to challenge any decision made by the AER, that appeal will be made to the Australian Competition Tribunal and the report will be considered by the Tribunal. The Gas Businesses may also seek review by a court and the report would be subject to consideration by such court. You should therefore be conscious that the report may be used in the resolution of a dispute between the AER and any or all of the Gas Businesses as to the appropriate level of the respective haulage tariffs. Due to this, the report will need to comply with the Federal Court requirements for expert reports, which are outlined below.

You must ensure you are available to assist the Gas Businesses until such time as the Access Arrangement Review and any subsequent appeal is finalised.

*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 Proceedings in the Federal Court of Australia*", which comprises the guidelines for expert witnesses in the Federal Court of Australia (**Expert Witness Guidelines**).

Please read and familiarise yourself with the Expert Witness Guidelines and comply with them at all times in the course of your engagement by the Gas Businesses.

In particular, your report prepared for the Gas Businesses should contain a statement at the beginning of the report to the effect that the author of the report has read, understood and complied with the Expert Witness Guidelines.

Your report must also:

1 contain particulars of the training, study or experience by which the expert has acquired specialised knowledge;

2 identify the questions that the expert has been asked to address;

3 set out separately each of the factual findings or assumptions on which the expert's opinion is based;

4 set out each of the expert's opinions separately from the factual findings or assumptions;

5 set out the reasons for each of the expert's opinions; and

6 otherwise comply with the Expert Witness Guidelines.

The expert is also required to state that each of the expert's opinions is wholly or substantially based on the expert's specialised knowledge.

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 that [the expert] believes are desirable and appropriate and that no matters of significance that [the expert] regards as relevant have, to [the expert's] knowledge, been withheld from the 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 the Gas Businesses. You should forward to each of the Gas Businesses any terms you propose govern that contract as well as your fee proposal.

Please sign a counterpart of this letter and forward it to each of the Gas Businesses to confirm your acceptance of the engagement by the Gas Businesses.

Yours faithfully

Johnson Winter & Slattery

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

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Signed and acknowledged by Professor Jeff Borland

Date 8/11/2012