Attachment H.1

SAPN H.1_ Frontier Economics_Review of AER's Preliminary Decision on Labour Escalation Rates

03 July, 2015

Review of AER's Preliminary Decision on Labour Escalation Rates

A REPORT PREPARED FOR SA POWER NETWORKS

July 2015

Review of AER's Preliminary Decision on Labour Escalation Rates

Contents

Contents

Review of AER's Preliminary Decision on Labour Escalation Rates

Figures

Tables

Executive summary

In its 2015-2020 Regulatory Proposal to the Australian Energy Regulator (AER) SA Power Networks proposed forecasts of labour cost escalation rates developed by Frontier Economics (Frontier) using Enterprise Bargaining Agreement (EBA) outcomes. The AER subsequently rejected SA Power Networks' forecast labour escalation rates in its Preliminary Decision in April 2015, substituting it with forecasts very close to those made by Deloitte Access Economics' (DAE's) of the Wages Price Index (WPI) for the South Australian Electricity, Gas, Water and Waste Services (EGWWS) industry sector.

SA Power Networks has engaged the authors of this report to consider and provide an opinion on the key arguments that the AER has relied upon to support its use of a WPI-based approach to forecasting labour cost escalation rates. The key arguments that the AER has advanced are the following:

1. SA Power Networks' forecasts of labour cost escalation rates captures only a subset of its electricity labour, whilst the AER's forecasts captures all electricity labour and labour from other similar sectors.
2. The benchmark EBA wage increases for private electricity service providers proposed by SA Power Networks do not represent the current market conditions for electricity workers.
3. SA Power Networks has forecast an increase in real wages over the regulatory period (of 1.73% p.a. on average). The AER would expect there to be an increase in productivity to offset any real increase in prices. However, SA Power Networks has forecast a 0% rate of productivity over the regulatory period.
4. Although no EGWWS WPI data are published by the Australian Bureau of Statistics (ABS) for South Australia, and although DAE's forecasts are based on imputed values, those forecasts still represent the best forecast of the South Australian EGWWS industry available to the AER.
5. Consistency demands that the same labour cost index be used for forecasting labour cost escalation rates and for estimating the rate of productivity. The AER has used the WPI to estimate the productivity assumption. Therefore, the WPI should also be used to forecast labour cost escalation rates.

In our view, none of these arguments withstand scrutiny for the reasons we summarise below. As such, we believe that the AER has erred by rejecting the

EBA-based forecasts of labour cost escalation rates, and adopting instead DAE's forecasts of the EGWWS WPI for South Australia.[1]

Coverage of EBAs

Contrary to the AER's assertion that EBA outcomes are unrepresentative of the wage outcomes for privately-owned electricity networks, we understand from SA Power Networks that approximately 95% of its workforce is covered by its EBA agreement.

By asserting that its EGWWS WPI-based forecasts of labour cost escalation rates reflect "labour from other similar sectors", the AER implies that electricity distribution network service providers (DNSPs) and other members of the EGWWS have comparable labour requirements. This is not the case. We show using ABS Census data that there is very weak overlap between occupations employed by DNSPs and other constituents of the EGWWS. The occupations employed by DNSPs overlap most closely with the occupations employed by transmission network services providers (TNSPs). There is no reason to assume (as the AER apparently does) that industries with very different labour requirements should experience very similar labour price movements over time.

Extent to which EBA forecasts represent current market conditions

The AER claims that EBA forecasts of labour escalation rates are unrepresentative of current market conditions because:

- the gap between EBA rates used to develop SA Power Networks' forecasts and the EGWWS WPI, over the period June 2013 to June 2014, is large (i.e. estimated to be 1.5% by the AER); and
- it is unlikely that wage increases in other EGWWS industries would be sufficiently different to those relating to the "electricity industry" to account fully for this difference.

The AER's analysis is misleading because it has compared EBA rates for privately-owned electricity networks with rates implied by an EGWWS index that reflects privately-owned **and** publicly-owned electricity networks. Our analysis shows that particularly in recent years, the rate of change in labour costs experienced by privately-owned and publicly-owned networks have diverged significantly.

---

1 Note that the arguments advanced by the AER relate generally to the merits of the WPI-based forecasts relative to EBA-based forecasts of labour cost escalation rates. Hence, our review of the AER's arguments should be read in that general context.

When expressed on a more comparable basis, the gap between EBA rates (for privately-owned and publicly-owned electricity networks) and the EGWWS WPI is just **0.4%**. We concluded from this that:

- it is very plausible that wage increases in other EGWWS industries do account for the observed gap; and
- there is no evidence that EBA rates are not out of line with current market conditions.

Relationship between changes in labour costs and productivity

The AER argues that SA Power Networks' forecast of rising real labour costs is inconsistent with its forecast of zero productivity over the regulatory period. Specifically, the AER considers that rising productivity should offset any real increases in the price of labour. In support of this view, the AER cites research by Professor Jeff Borland for Envestra, which showed that for the Australian economy as a whole (and over a period of a decade), the average rate of change in Average Weekly Ordinary Time Earnings (AWOTE) had been approximately equal to the rate of change in CPI plus the rate of change in labour productivity.

The AER has inferred incorrectly from that research by Professor Borland that any difference between EBA and WPI outcomes in the EGWWS industry must be due to productivity growth that is reflected in the EBA outcome but not in the WPI outcome.

In this report we have updated the analysis performed by Professor Borland using the most recent data available and find that the relationship between the rate of change in AWOTE, CPI and productivity still holds well at the economy-wide level. However, we also find that the result does not hold at the EGWWS level: the average rate of increase in AWOTE for the EGWWS industry is **above** the sum of the rates of increase in CPI and labour productivity.

This analysis demonstrates empirically that, contrary to the AER's assumption, changes in labour prices **at the industry level** need not be offset perfectly by changes in productivity. Findings at the economy-wide level do not necessarily generalise to the industry level. Hence, the AER assumes too much when it argues that SA Power Networks' forecasts of positive changes in real labour costs are inconsistent with its forecast of flat productivity over the regulatory period.

The AER has also argued that consistency demands that the same labour cost index be used when forecasting labour cost escalation rates and when estimating the rate of productivity. We agree that it is desirable to strive for such consistency. However, we note that the AER's analysis of productivity for DNSPs (which made use of the EGWWS WPI) indicated declining productivity over the period 2006 to 2013. When developing its forecast of productivity over the regulatory period, the AER effectively sets aside its estimate of historical productivity and assumed an annual rate of productivity of 0%. In other words,

the AER's forecast rate of productivity does not actually make use of the EGWWS WPI. Hence, the AER has argued for a level of consistency and precision that it does not achieve in practice.

Quality of DAE's forecasts

Historically, the difference between the average EBA rates for all electricity networks and the rate of change in the national EGWWS WPI has been quite modest. However, over the forthcoming regulatory period, DAE has forecast the EGWWS WPI to fall to a level that is unprecedentedly low compared to EBA rates. In none of the previous 11 years has the difference between the rate of change in EBA and in WPI been as large as DAE is predicting for the next five years. DAE has offered no plausible explanation for this forecast divergence between EBA and WPI rates:

- There is no evidence of a sudden acceleration in labour productivity growth in this industry.
- There is no evidence that the rates of pay increase for workers not covered by EBAs are lagging behind rates of pay increase for workers that are covered by EBAs.
- There is no indication of a change in market conditions for workers in the EGWWS industry that is reflected in the WPI but not yet being fully reflected in EBA outcomes. DAE asserts that wage growth in the utilities sector is expected to soften over the near term because the utilities sector competes for workers with the resources (i.e. mining sector), and that competition is waning due to the recent economic downturn in the resources sector. However, we demonstrate using ABS Census data that there is very weak overlap in the occupations employed by electricity networks and industries within the mining sector. Therefore, DAE's claim that future changes in labour costs for electricity networks would be driven by demand for workers by the mining sector, is untenable.

So it remains unexplained why DAE is forecasting a sudden and significant decline in the EGWWS WPI over the forthcoming regulatory period.

Further doubts are raised about DAE's forecasts when one compares its own analysis of the EGWWS WPI conducted at different points in time. The AER has published two sets of forecasts derived by DAE recently: one set of forecasts in February 2013 and the most recent in February 2015. Two main features are evident when these two analyses are compared. First, in the 2015 report DAE concludes that the actual rates of increase in WPI in 2012-13 and 2013-14 were about 1 percentage point higher than it had forecast in its 2013 report. In other words it underestimated the rate of increase in the South Australian EGWWS WPI in those years. Second, and notwithstanding the forecast error just described, in its most recent 2015 forecasts DAE has (without explanation) made

substantial downward revisions to forecast growth in WPI in the EGWWS industry in South Australia for 2015-16 and 2016-17.

We sought to investigate DAE's analysis further by considering whether the data and modelling techniques could shed light on why DAE predicts the rate of change in the WPI to drop so significantly over the next five years. We did this by first examining the DAE's February 2015 report to the AER. However, there was insufficient detail or explanation in that report to understand (and to be able to replicate):

- DAE's method for imputing 'historical' values of the EGWWS WPI for South Australia (since these data for South Australia are not published by the ABS); and
- DAE's method for forecasting that WPI over the regulatory period.

We therefore sought from DAE (via a request from SA Power Networks to the AER) the data and model code used by DAE to develop its WPI forecasts, as well as any documentation that DAE had provided separately to the AER on its forecasting model. DAE declined to provide the information on the grounds that the information was commercially sensitive and, in the case of some of the data, obtained in confidence from the ABS. Instead, DAE offered a very high level explanation of its data and models. However, this was not of sufficient detail for us to interrogate properly DAE's work.

The AER has evidently accepted forecasts from its adviser DAE that stakeholders (and presumably the AER itself) cannot test. It is impossible for any researcher outside DAE to reproduce its estimates of the EGWWS WPI series for South Australia, or its forecasts of that index over the regulatory period. In our view, this fails completely the AER's principle of transparency as set out in the AER's Expenditure forecast assessment guideline. DAE's analysis is a 'black box' and should not be relied upon by the AER.

1 Introduction

1.1 Background

In order to develop its expenditure proposals for the 2015-2020 regulatory period, SA Power Networks must forecast the rate at which internal labour costs will change over each year of the regulatory period. This rate is referred to as the labour cost escalation rate.

SA Power Networks engaged Frontier Economics (Frontier) in May 2014 to provide an opinion on the approach followed by the Australian Energy Regulator (AER) in determining labour cost escalation rates, in the SP AusNet decision, which was finalised in January 2014; and to develop a suitable forecast of labour cost escalation rates that may be employed in its expenditure proposals.

As a result of that engagement, Frontier developed forecasts of labour cost escalation rates for SA Power Networks derived using the historical Enterprise Bargaining Agreements of privately-owned electricity networks in Australia. In August 2014, Frontier provided SA Power Networks with a report that set out those forecasts and explained the bases for those forecasts. That report was submitted by SA Power Networks to the AER, along with its regulatory proposal for the 2015-2020 period.

The AER subsequently rejected SA Power Networks' real labour escalation rates in its Preliminary Decision in April 2015, substituting it with Deloitte Access Economics' (DAE's) forecast of the Wages Price Index (WPI) for the Electricity, Gas, Water and Waste Services (EGWWS) industry sector.

1.2 Instructions

SA Power Networks has engaged Frontier and Professor Jeff Borland to consider and provide and opinion on the key arguments that the AER has relied upon to support its use of a WPI-based approach to forecasting labour cost escalation rates, in particular:

1. SA Power Networks' forecasts of labour cost escalation rates captures only a subset of its electricity labour, whilst the AER's forecasts captures all electricity labour and labour from other similar sectors.
2. The benchmark EBA wage increases for private electricity service providers proposed by SA Power Networks do not represent the current market conditions for electricity workers.
3. SA Power Networks has forecast an increase in real wages over the regulatory period (of 1.73% p.a. on average). The AER would expect there to be an increase in productivity to offset any real increase in prices. However, SA

Power Networks has forecast a 0% rate of productivity over the regulatory period.

4. Although no EGWWS WPI data are published by the Australian Bureau of Statistics for South Australia, and although DAE's forecasts are based on imputed values, those forecasts still represent the best forecast of the South Australian EGWWS industry available to the AER.
5. Consistency demands that the same labour cost index be used for forecasting labour cost escalation rates and for estimating the rate of productivity. The AER has used the WPI to estimate the productivity assumption. Therefore, the WPI should also be used to forecast labour cost escalation rates.

Our instructions are reproduced in Appendix B of this report.

1.3 Authors of this report

The authors of this report are Dinesh Kumareswaran and Professor Jeff Borland.

Dinesh has nearly 12 years of experience as an industrial economist. He has worked full time as a consulting economist with Frontier since 2009. He has advised regulators and regulated businesses in Australia and abroad on matters involving economic regulation, including the principles of best practice regulation, asset valuation, regulatory depreciation, cost of capital, and expenditure forecasting, and benchmarking and efficiency analysis. Between 2003 and 2008 Dinesh was employed as an Economist and then a Senior Economist at the New Zealand Commerce Commission. During that time he worked in the areas of competition economics as well as network regulation. Between 2010 and 2012, Dinesh lectured part-time a MSc course on financial economics for regulated industries at the Imperial College Business School, London.

Jeff Borland is Truby Williams Professor of Economics at the University of Melbourne. His academic research on topics relating to the Australian labour market includes: determination of individual earnings; earnings inequality; employment and unemployment; trade unions; and effects of regulations on labour market outcomes in Australia. Jeff was invited to prepare the review paper on the Australian labour market for the Reserve Bank of Australia's 2011 decadal review of the Australian economy. In 2010 he was Visiting Professor of Australian Studies at Harvard University. Between 1996 and 1998 he was a Visiting Fellow at the Centre for Economic Policy Research at the Australian National University. In 1997 he was awarded the Australian Academy of Social Sciences Medal for Excellence in Scholarship in the Social Sciences, and in 2002 was made a Fellow of the Academy of Social Sciences. Jeff holds a PhD in Economics from Yale. He has acted as a consultant on labour market and microeconomics issues to organisations such as the OECD, IMF, ACCC, New

Zealand Treasury, and Productivity Commission. Jeff has previously advised Envestra on the forecasting of labour cost escalation rates.

The authors' CVs are provided in Appendix C to this report.

By reason of the above, the authors have wide experience in the area of network regulation, including experience advising on the cost allowances to regulated businesses, and labour economics.

The authors have been assisted in the preparation of this report by Andrew Newnham. Andrew is a consultant in Frontier's energy practice. Andrew holds a Bachelor of Economics (Honours) degree from Monash University. He has previously advised Australian electricity distribution network service providers on methodologies for forecasting labour cost escalation rates.

The authors confirm that all the opinions expressed in this report are their own.

The authors have read, understood and complied with Practice Note CM7 dated 1 August 2011 concerning expert witnesses.

1.4 Structure of this report

The remainder of this report is organised as follows:

- Section 2 deals with the question of the representativeness of EBA-based forecasts, and EGWWS WPI-based forecasts, of the labour cost escalation rates for electricity distribution network service providers (DNSPs).
- Section 3 addresses the question of the link between EBA rates and productivity.
- Section 4 provides some remarks on the quality and reliability of DAE's forecasts of labour cost escalation rates.

2 Representativeness of EBA and WPI forecasts of labour cost escalation rates

On the question of the representativeness of EBA-based forecasts vs. WPI-based forecasts of labour cost escalation the AER suggests that "there is no clearly preferable methodology to forecast the labour price":[2]

- Either an EGWWS wage price index (WPI) forecast or SA Power Networks' use of benchmark EBAs could be reasonable forecasts of the labour price.
- SA Power Networks' methodology captures a subset of its electricity labour meanwhile the AER's measure captures all electricity labour in addition to labour from other similar industries.
- In this circumstance there is no clearly preferable methodology to forecast the labour price.

The AER fails entirely to recognise the significant limitations of EGWWS WPI-based forecasts of labour escalation rates for electricity networks, and also fails to recognise the significant advantages of EBA-based forecasts. In doing so, the AER draws a false equivalence between EBA-based and WPI-based forecasts, and gives the misleading impression that neither of these approaches can be identified as clearly superior for the present circumstances.

In our view, that is not the case. The EBA-based approach is clearly better, conceptually and in practice, than the EGWWS WPI based approach.

We have previously set out, in reports for SA Power Networks, CitiPower and Powercor, the strengths and weaknesses of the two approaches. We recap that discussion below, and also address a number of claims that the AER makes about EBA-based and WPI- based forecasts.

2.1 EBA-based forecasts are more representative of the labour requirements of electricity networks than WPI-based forecasts

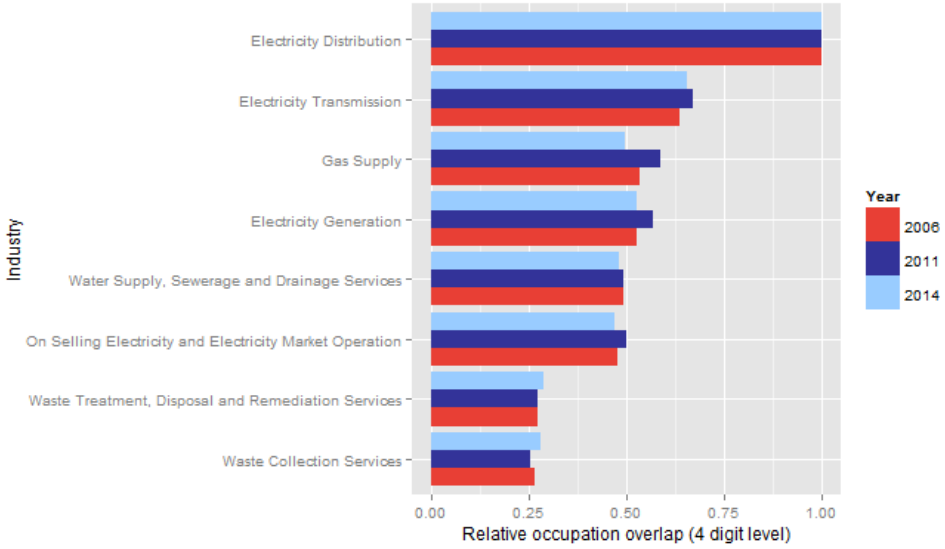
In section 2.2.1 of our August 2014 report to SA Power Networks, we explained that the EGWWS Division covers a very diverse set of industries, each with a very different set of labour requirements. Further, we explained that there is no reason to presume, without evidence, that two businesses engaged in dissimilar activities should have similar labour costs or experience similar rates of change in labour costs over time.

---

2 SA Power Networks preliminary decision, p.7-50.

In section 2.3.2 of our February 2015 report for CitiPower and Powercor, we showed using Census data (from 2006 and 2011) and ABS Labour Force Survey data (from 2014) that there is very little overlap between the occupations within DNSPs and non-electricity-network members of the EGWWS. A summary of the key results of our analysis are reproduced below in Figure 1.

Figure 1: Occupation overlap in the EGWWS division for 2006, 2011 and 2014



Source: Frontier analysis of COPS and ABS census data

The results using the three datasets we analysed were very similar. We found that:

- The occupation mix of non-DNSP firms within the EGWWS is generally very different from the labour mix of DNSPs.
- The firms within the EGWWS with the most comparable workforce to DNSPs are TNSPs, with roughly 64% overlap in occupations between the two.
- The firms within the EGWWS with the poorest overlap with DNSPs are Waste Services firms, with only around 25% of occupations within the latter overlapping occupations within DNSPs. This suggests strongly that labour cost changes for Waste Services firms and Electricity Distribution businesses would be quite different.

On the basis of the degree of overlap in occupations within the EGWWS, the EGWWS WPI is very unlikely to be representative of the labour costs of DNSPs. There are many disparate industries within the EGWWS Division and the degree of overlap in occupations between DNSPs and other industries within the EGWWS Division is very low.

Representativeness of EBA and WPI forecasts of labour cost escalation rates

In our view, this is very strong evidence that the AER's assumption over the suitability of the EGWWS industry as a benchmark for an efficient NSP is inappropriate.

By contrast, the EBA-based forecasts that SA Power Networks proposed were based on the EBA rates of electricity networks alone, and are therefore likely to be much more representative of the its labour requirements than the AER's WPI-based forecasts.

As we noted in section 2.3.3 of our August 2014 report to SA Power Networks, in our view, the AER must not accept forecasts of cost escalation rates that fail to reflect the costs that a prudent operator would require to achieve the opex and capex objectives.

As the analysis above shows, a forecasting approach based on the EGWWS WPI would reflect expectations about changes in labour costs for a wide range of businesses (including electricity generators, retailers and market operators; gas networks; water businesses and providers of waste management services) that are not electricity distribution businesses.

The key risk with such an approach is that it would prevent electricity distribution businesses from recovering prudently-incurred, efficient costs, to the extent that the changes in labour costs faced by non-DNSP members of the EGWWS Division differ from the labour cost changes faced by DNSPs. Under those circumstances, the approach used by the AER would fail to satisfy the opex and capex objectives under the NER.

In our view, a better approach would be to determine labour cost escalation rates on the basis of the average EBA outcomes of a suitably defined comparator group.

2.2 The AER's benchmark for determining labour cost escalation rates

The AER's 'benchmark' for determining labour cost escalation rates is quite ambiguous. It refers in a number of places in its preliminary decision to "electricity workers" and "the electricity sector". This is very loose language because it is entirely unclear whether the AER is referring to employees of electricity networks, or other industries within the 'electricity supply' subdivision within the EGWWS Division, which includes:

- Electricity generators;
- Market operators;
- Electricity retailers; and
- Electricity wholesalers.

Firms in all of these subdivisions have very different labour requirements to electricity networks. As Figure 1 shows, the occupations within the electricity generation, market operation and onselling subdivisions of the EGWWS Division overlap weakly with the occupations with the electricity distribution subdivision of the EGWWS Division.

In our view, when forecasting the labour cost escalation rates for DNSPs, the AER should not adopt a benchmark that is as broad as 'the electricity sector'.

2.3 Coverage of EBAs

The AER argues that SA Power Network's forecasts of labour cost escalation rates are not representative of the labour costs of a privately-owned NSP because:

- a significant proportion of some privately-owned NSPs' internal workforces are not covered by EBAs; and
- outsourced labour is not covered by the NSP's EBA.

On the first of these points, the AER states that:[3]

> …a privately owned distribution service providers' benchmark EA does not reflect a significant proportion of its in-house labour. We based this on our analysis of each distribution service provider's Category Analysis RINs and the number of staff covered in its EA. We note less than half of the staff of CitiPower, Powercor and AusNet Services staff are employed under their respective EAs. Further, the privately owned distribution service providers outsource a large proportion of their opex

The AER fails to mention SA Power Networks amongst this list of privately owned networks. As we noted in our August 2014 report, we are advised by SA Power Networks that approximately 95% of its workforce is covered by its EBA agreement.

Clause 3 of SA Power Networks' most recent EBA states that the agreement is binding on:[4]

- All employees covered by Appendix 1A (i.e. all employees on SA Power Networks' structured salary scale). We are advised by SA Power Networks that this covers approximately 90% of its salaried employees.
- All employees covered by Appendix 1B (i.e. all employees on SA Power Networks' structured wage scale). We are advised by SA Power Networks that this covers 100% of its waged employees.

3 SA Power Networks preliminary decision, p.7-51.

4 Utilities Management Pty Ltd Enterprise Agreement 2014, p.2.

In addition, Clause 7.6 (Attachment 2) of SA Power Networks' EBA provides that its EBA rates do extend to at least some outsourced labour. Specifically, the agreement provides that SA Power Networks must:[5]

> …instruct its contractors who provide supplementary labour for the purposes described below, that the total rate (eg Enterprise Agreement rate plus regularly paid allowances), paid by the contractor to the supplementary labour workers is equivalent to, as a minimum, the total Utilities Management rate comprised of the Enterprise Agreement rate of pay, (being the minimum pay point for the appropriate grade for 'Appendix 1A' employees), and regularly paid allowances for the classifications appropriate to the duties being performed.
>
> This instruction will apply when supplementary labour is provided for all positions and duties therein covered by Appendix 1A and 1B of this attachment in order to cover:
>
> - the absence of Utilities Management employees on leave;
> - temporary vacancies;
> - peak workloads in areas normally staffed by Utilities Management employees.

Clause 7.6 (Attachment 2) provides for exclusions to some outsourced labour:[6]

> This instruction will not apply to:
>
> - contractors or subcontractors to Utilities Management who are engaged on defined projects or contracts; or
> - workers engaged on contracts for service.

SA Power Networks did not seek in its proposal to have EBA-based forecasts applied to such outsourced labour. We understand that SA Power Networks proposed separate forecasts of labour cost escalation rates for 'contracted construction and labour services'. Table B.8 of the AER's preliminary decision showed, the forecast rates for contracted construction and labour services proposed by SA Power Networks were generally lower than the rates for all other types of labour (see Table 1). SA Power Networks' proposal was comprehensive and consistent in the sense that:

- It sought an EBA-based escalation rate to be applied to workers that are covered by EBA outcomes; and
- A separate escalation rate was applied to its contracted services costs.

5 Utilities Management Pty Ltd Enterprise Agreement 2014, p.62.

6 Utilities Management Pty Ltd Enterprise Agreement 2014, p.62.

Table 1: Forecast real price growth proposed by SA Power Networks (%)

	2015–16	2016–17	2017–18	2018–19	2019–20
SA Power Networks					
Labour	1.66	1.66	1.77	1.77	1.77
Contracted construction and labour services	0.50	0.90	1.10	1.40	1.80
Materials	0.71	0.12	0.01	-0.02	0.02
Land	5.96	5.96	5.96	5.96	5.96
Overall	1.06	1.33	1.58	1.72	1.89

Excerpt from: SA Power Networks preliminary decision, Table B.8

2.4 Extent to which EBA forecasts represents current market conditions

One of the reasons the AER gives for dismissing the EBA-based forecasts proposed by SA Power Networks is because it considered that the escalation rates implied by the EBA-based forecasts do not represent current market conditions for electricity workers.

The AER's reasoning rests on three claims by the AER:[7]

- The AER notes that the difference between the average EBA rates used in Frontier Economics' sample and the EGWWS WPI from June 2013 to June 2014 is approximately 1.5%.
- The AER considers that the difference between the benchmark EA wage increases and the EGWWS WPI could be due to wages in other EGWWS industries and/or electricity workers not covered by an EA rising less than workers under an EA.
- The AER says that it is unlikely that "wage increases in other EGWWS industries are likely to be sufficiently different to the electricity industry to fully account for the 1.5 per cent difference between the EA and EGWWS WPI".

The AER's analysis on this point is incorrect. It has made a false comparison between the EBA rates in the sample we used as the appropriate comparator group for SA Power Networks and the WPI. This is because the comparator sample we used to forecast labour cost escalation rates for SA Power Networks was based on the EBA rates for **privately-owned** electricity networks. By contrast, the AER's figure for the EGWWS WPI for the period June 2013 to

7 SA Power Networks preliminary decision, p.7-52.

June 2014 (which it says is 3.0%) appears to be based on the national EGWWS WPI.

The AER is not making a like-with-like comparison because it is comparing the average EBA rate for privately-owned electricity networks to a national EGWWS WPI, which includes privately-owned **and** publicly-owned electricity networks. A more appropriate comparison would be the average EBA rate for all electricity networks in Australia against the national EGWWS WPI:

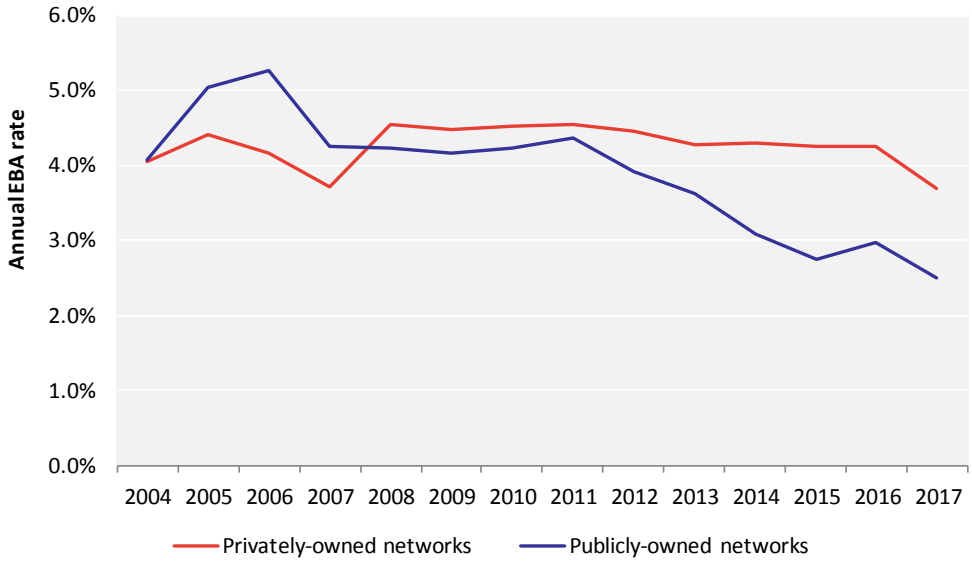
- The EBA data we have collected show that in 2013-14, the average EBA rate (measured on a financial year basis) for all electricity networks in Australia was **3.6%**.
- ABS data show that rate of change over 2013-14 (measured on a financial year basis) in the national EGWWS WPI was **3.2%**.[8]

When expressed on a more comparable basis, the gap between EBA rates (for all electricity networks) and the EGWWS WPI is much narrower than is suggested by the AER. Hence, it is very plausible that wage increases in other EGWWS industries do account for the observed gap, and there is no evidence that EBA rates are not out of line with current market conditions.

We note, however, that there has been a material divergence in EBA rates of privately-owned and publicly-owned NSPs in recent years (see Figure 2). This wedge may have arisen, in part, because of the effect of several State Governments introducing caps on public sector workers. In our view, the appropriate comparator group for SA Power Networks remains the group comprising all privately owned electricity networks in Australia.

[8] This figure differs from the figure of 3.0% quoted by the AER. The AER appears to have calculated, using quarterly data, the change in the national EGWWS WPI between June 2013 and June 2014. We have reported the annual rate of change in the national EGWWS WPI (measured on a financial year basis), for the year 2013-14, published by the ABS in Table 5a, file 6345.0 Wage Price Index, Australia. Our rate matches the rate reported by DAE in Table 3.1 (p.29) of its February 2015 report to the AER.

Figure 2: Average EBA rates of privately-owned and publicly-owned NSPs in Australia



Source: EBA data collected from Fair Work Commission; authors' calculations

Representativeness of EBA and WPI forecasts of labour cost escalation rates

3 Link between EBA rates and productivity

The AER notes that SA Power Networks has forecast an increase in real wages over the regulatory period, but has also forecast a 0% rate of productivity over the regulatory period. The AER argues that:[9]

- it would expect there to be an increase in productivity to offset any real increase in price; and
- zero productivity in conjunction with SA Power Networks' labour forecast is not likely to lead to an estimate consistent with the opex criteria.

In order to support its argument, the AER cites as evidence research that Professor Jeff Borland undertook for Envestra.[10] The AER concludes that since labour costs make up a majority of opex, it considers the rate of change excluding output growth should be approximately equal to CPI unless there is a decline in non-labour productivity.

The AER argues that consistency demands that the same labour cost index be used when forecasting labour cost escalation rates and when estimating the rate of productivity.[11] As the AER has used the WPI for deriving its estimates of productivity for the industry, it considers that the WPI should also be used when forecasting the labour cost escalation rates.

This section comments on:

- the AER's interpretation of Professor Borland's analysis of the relationship between changes in labour costs, productivity and CPI; and
- the consistency that the AER seeks to achieve when estimating productivity and forecasting the rate of change in labour costs.

3.1 AER's interpretation of Professor Borland's analysis

The AER argues that a difference between EBA and EGWWS WPI outcomes can be explained by growth in labour productivity at SA Power Networks.[12] It cites as evidence in support of this argument research undertaken for Envestra by Professor Jeff Borland. In our opinion it is not valid for the AER to apply

9 SA Power Networks preliminary decision, p.7-54

10 Professor Jeff Borland, Labour cost escalation: choosing between AWOTE and LPI, March 2012.

11 SA Power Networks preliminary decision, p.7-54.

12 SA Power Networks preliminary decision, p.7-54

that evidence in support of the argument it seeks to make. Doing so involves a misunderstanding of the purpose for which Professor Borland presented the evidence; and wrongly seeks to draw industry-level inferences from aggregate-level data.

The previous research by Professor Borland made the point that in the Australian economy over the previous decade the rate of change in Average Weekly Ordinary Time Earnings (AWOTE) had been approximately equal to the rate of change in CPI plus the rate of change in labour productivity; whereas the rate of change in WPI was less than that sum. The AER inferred from that research by Professor Borland that any difference between EBA and WPI outcomes in the EGWWS industry must be due to productivity growth that is reflected in the EBA outcome but not in the WPI outcome.

The context in which the research by Professor Borland was presented was to make the conceptual point that the AER was incorrect to consider an appropriate measure of the change in labour costs at an enterprise to be: the rate of growth in WPI minus the rate of growth in labour productivity.

In his previous research Professor Borland argued that an appropriate measure of labour costs should be net of growth in labour productivity. This is because productivity growth may increase wages paid to workers, but will also increase the amount of output they produce. Professor Borland argued further that the problem with the AER's approach to measuring labour costs was that, by its construction, the change in WPI already excludes some components of productivity change (such as due to changes in the skill composition of the workforce). Professor Borland's reasons for this argument were explained in detail in his previous research. What follows from the argument is that taking the measure of the increase in labour costs to be the rate of increase in WPI minus productivity growth will underestimate the increase in labour costs at an enterprise since there would be double-subtracting of some component of productivity change.

The numerical analysis in the previous research by Professor Borland was designed to illustrate the point that the WPI measure will exclude some components of changes in productivity. At the economy-wide level over the past decade the rate of increase in AWOTE was approximately equal to the sum of the rates of increase in CPI and labour productivity. However the rate of increase in WPI was less than that sum. Since WPI and AWOTE should equally reflect increases in the CPI, it follows that the WPI measure is only partially reflecting increases in labour productivity; in other words, part of the increase in labour productivity has already been removed in construction of the WPI measure.

The earlier research by Professor Borland has been updated for this report. It is shown in Table 2 that the economy-wide relation previously found to exist still holds. The average rate of increase in AWOTE is approximately equal to the

Link between EBA rates and productivity

sum of the rates of increase in CPI and labour productivity through to the end of 2014.

However as part of the updated analysis we have also considered the relation between AWOTE, CPI and labour productivity in the EGWWS industry. It can be seen that the same relation does not hold. The average rate of increase in AWOTE is **above** the sum of the rates of increase in CPI and labour productivity.

This analysis demonstrates empirically that it is not necessary that a difference between EBA and WPI outcomes in the EGWWS industry would be explained by positive productivity growth at SA Power Networks.

Table 2: Rates of growth, December 1997 to December 2014

	All Industries	EGWWS
WPI	3.5%	3.8%
AWOTE	4.4%	4.4%
Labour productivity	1.6%	-2.3%
CPI	2.8%	2.8%

Source: ABS, authors' calculations

That there does not need to be a relation at the industry-level between changes in wages and labour productivity can also be established at a conceptual level.

An enterprise that seeks to attract workers must match the net gain that those workers can obtain from other jobs available to them. The net gain from a job can be thought of as being equal to the wage minus the disutility from the job, where the disutility combines the opportunity cost of obtaining necessary skills and disamenities associated with the job (such as remote location).

Suppose that a worker has a set of skills that makes him/her qualified to work in a job in either industry A or industry B. Suppose that the disutility from the job is the same in both industry A and B. (Note that this assumption is not necessary; it just simplifies the example). It follows that we would expect the wage for the job to be equal in both industries. If that were not the case, then all the workers would prefer to be in the industry offering the higher wage. The resulting movement in workers would equalise the wages.

To begin with, suppose that the worker has the same productivity in both industries. Then a change occurs that lowers the productivity of the worker in Industry A, while keeping the worker's productivity the same in Industry B (for example, perhaps government regulations restrict the range of activities that workers in Industry A are able to do).

Despite the reduced productivity of the worker in Industry A, enterprises in that industry will still need to pay the same wage as before to attract the worker. Nothing has changed about the wage being offered by enterprises in Industry B to the worker, so enterprises in Industry B will need to match that wage. This implies a higher cost of labour to enterprises in Industry A, which will necessitate some short-term adjustment such as increasing the price of its output or seeking to raise labour productivity. What is important is that the wage the worker earns in Industry A is independent of the reduction in labour productivity. Over the longer-term what happens will depend on whether the decline in labour productivity in Industry A is permanent or is reversed.

This conceptual analysis demonstrates that at the industry level it is not necessary that the rate of change in wage measures such as AWOTE or EBA will be directly related to the sum of the rates of change in CPI and labour productivity.

3.2 Demand-supply imbalances

Economic theory suggests the quantity of labour supplied and demanded in a market is a key determinant of the price of that labour. In the short-run at least, a shortage of workers in a sector may mean that labour prices in that sector rise more quickly than productivity, or vice versa.[13]

The AER says that "There is no evidence to suggest that there is a supply and demand imbalance in electricity labour."[14] It is unclear what evidence the AER has considered. However, the AER's adviser, DAE, makes three key assertions in its February 2015 report in this regard:

1) that the "utilities" (in reference to the EGWWS Division) and "resources" (i.e. mining) sectors compete for workers;

2) that the recent downturn in the resources sector has released significant quantities of labour, which has weakened the degree of competition for workers between the utilities and resources sectors – and this trend will continue over the outlook period; and

3) as a result, wage gains in the utilities sector are expected to slow.

Specifically, DAE states:[15]

> In particular, competition for workers with some of the same skills as those in the utilities sector is now waning:

---

13 In this context, a shortage of workers means a shortage of people with required skills to perform specific roles, not a shortage of people willing to work (although this may also cause a shortage of workers).

14 SA Power Networks preliminary decision, p.7-54.

15 DAE, Forecast growth in labour costs in NEM regions of Australia, February 2015, p.3.

- The competition for utilities sector workers from the resources sector has dissipated and will decrease further over the outlook period. In February 2015, on the back of plummeting oil prices, global resources services provider Halliburton announced an 8% cut to its global workforce joining Baker Hughes and Schlumberger in similar moves. Australia's resources sector is following global cost reductions and the subsequent reduced competition for workers will slow wage gains in the utilities sector.

The implication is that large quantities of labour released from the resources sector, as a result of the recent fall in commodity prices, could keep downward pressure on labour costs in the utilities sector.

There are a number of problems with this claim:

- DAE provides no evidence that labour in the utilities sector is significantly substitutable for labour in the resources sector (or vice versa). This is an unsupported assertion.
- Even if the occupations within the sectors were closely substitutable, labour is generally not perfectly mobile. Most mining activity in Australia occurs in States other than South Australia. Some workers may be unwilling to relocate to find work in their chosen industry (e.g. because the costs of relocation may outweigh the benefits of doing so).
- DAE refers vaguely to the "utilities sector" (which we presume refers to the EGWWS Division) as though all utilities have the same labour requirements. Generalisations about the labour requirements of an entire ANZSIC Division, especially one as diverse as the EGWWS, are inappropriate for the reasons we discuss in section 2.1. It is more appropriate to consider the extent to which labour is substitutable between DNSPs and the various classes of the mining sector.

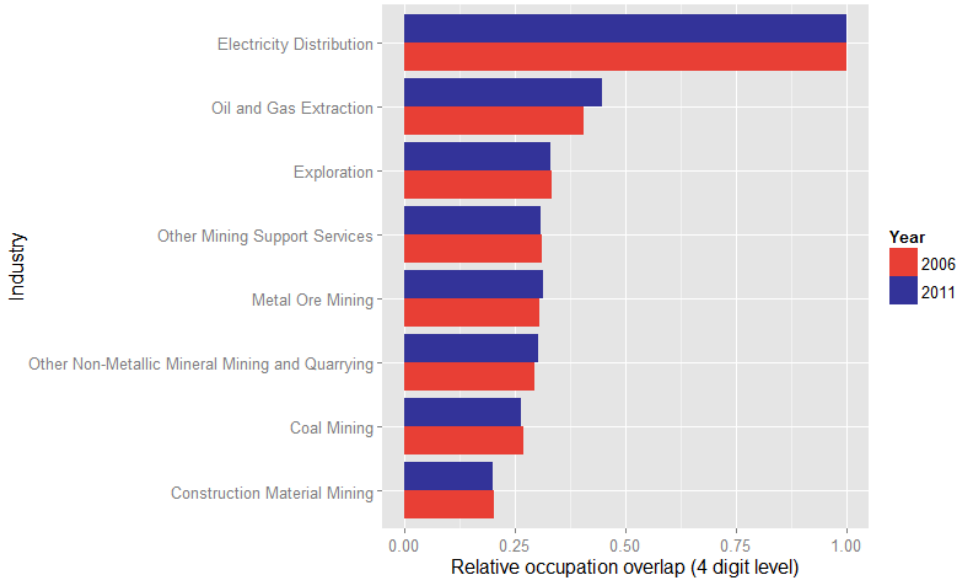
We can examine empirically the degree of substitutability of labour between the Electricity Distribution class and classes in the Mining Division by looking at similarities in the compositions of their labour forces. This analysis is analogous to that presented in section 2.1. The greater the overlap in occupations between classes, the greater would be the degree of substitutability (and competition) of labour between the industries.

The ABS collects data on headcount of workers by occupation and industry in the five-yearly Census. The most recent Census was conducted in 2011. We compare the relative occupation overlap between the Electricity Distribution class and all other classes classified under the Mining Division.[16] Our analysis of these data suggests that there is very little overlap in the occupations employed by DNSPs and by the mining industry. Figure 3 presents the results of our

16 We analyse these data using the methodology described in our February 2015 report to CitiPower and Powercor.

analysis graphically, where a value of 1 represents a perfect overlap of occupations with the Electricity Distribution class, and a value of 0 represents no overlap of occupations.

Figure 3: Occupation overlap in the Mining division for 2006 and 2011



Source: Frontier analysis of ABS Census data

Clearly, there is little overlap in occupations with the electricity distribution industry in any class of the Mining Division. The Oil and Gas class had the greatest overlap with Electricity Distribution (44.68%) in 2011, and the Construction Material Mining class had the least overlap with Electricity Distribution (20.18%) in 2011.

Furthermore, the majority of the overlaps shown above are for occupations not unique to electricity distribution or to mining. Appendix A contains a list of occupations that account for more than half of the overlap in 2011 shown in Figure 3. Apart from electricians (accounting for around 17% of the total overlap), this list is dominated by general office roles such as HR managers, accountants, and general clerks. This is important for several reasons:

- There is no reason to believe that labour of this kind (with the exception of electricians) being released from the mining industry is more likely to be absorbed by DNSPs than any employers in any other industry.
- Workers in these general roles are less likely to be more mobile than the specialist workers required by DNSPs. This is because the premium that specialised labour can command may be sufficient to offset the disamenity associated with relocating to a new State.

Link between EBA rates and productivity

- In addition, by virtue of their general skills, workers in general occupations may be able to move relatively easily (i.e. without significant retraining) into similar roles in other industries. As such, general workers are more likely to search for roles in new industries within their home State than incur the costs of relocating to South Australia in search of employment at electricity networks.
- The specialist occupations required by DNSPs are roles that require significant investment in training. This requires time and money. If workers in the general occupations want to move into more specialist roles at DNSPs, they would likely have to retrain. This would mean some lag between the release of general labour from the mining industry and the absorption of those workers as specialist labour by DNSPs.

These findings indicate that the claims made by DAE are weak. In our view, labour is not as substitutable between the mining industry and electricity networks as DAE and the AER suggest. This, in turn, could mean that, particularly in the short-run, labour costs could rise more quickly than productivity if there are demand-supply imbalances in the electricity networks industry.

3.3 Need for consistency when forecasting labour cost escalation rates and the rate of productivity

The AER argues that consistency demands that the same labour cost index be used when forecasting labour cost escalation rates and when estimating the rate of productivity.[17] The AER notes that its benchmarking analysis uses the EGWWS WPI to measure both historical opex price growth and productivity growth. Therefore, says the AER, the WPI should also be used to forecast labour cost escalation rates.

We agree that it is desirable to strive for consistency when forecasting labour cost escalation rates and productivity rates. However, in our view, the AER is aiming for a false level of consistency.

We note that the AER's benchmarking analysis using the EGWWS WPI found productivity for DNSPs to be declining over the period 2006 to 2013.[18] However, when developing its **forecast** of productivity, the AER has essentially set aside its estimates of historical productivity and assumed an annual rate of productivity of 0%. As the AER's forecast rate of productivity bears no resemblance to the historical rate of productivity estimated using the EGWWS WPI, the AER

17 SA Power Networks preliminary decision, p.7-54.

18 SA Power Networks preliminary decision, p.7-65.

cannot claim that its forecast rate of productivity is consistent with the use of the EGWWS WPI. The AER is arguing for a level of consistency and precision that it does not achieve in practice.

Link between EBA rates and productivity

4 Quality and reliability of forecasts by DAE

This section provides some remarks on the quality and reliability of DAE's forecasts of labour cost escalation rates.

4.1 Difference between the AER's and SA Power Networks' forecasts

In this section we describe differences in estimates of increases in the price of labour made by the AER and SA Power Networks. Table B.8 of the AER's Preliminary Decision for SA Power Networks describes its estimates of real price increases for labour and those of SA Power Networks. The nominal estimates of increases in the price of labour are available from the report by Frontier Economics for SA Power Networks. These estimates are reported in the top three rows in Table 3. The fourth row of Table 3 reports the differences between the AER and SA Power Networks estimates of real increases in the price of labour. The difference is 1.77% in 2015-16, and about 1.25% in the years between 2016-17 and 2019-20.

Table 3: Real and nominal forecasts of labour cost escalation rates by the AER, DAE and SA Power Networks

	2015-16	2016-17	2017-18	2018-19	2019-20
SA Power Networks – Nominal increase	4.25%	4.25%	4.37%	4.37%	4.37%
SA Power Networks – Real increase	1.66%	1.66%	1.77%	1.77%	1.77%
AER – Real increase	-0.11%	0.40%	0.42%	0.51%	0.56%
Difference between SA Power and AER real	**1.77%**	**1.26%**	**1.25%**	**1.26%**	**1.21%**
DAE – Nominal increase	2.4%	3.0%	3.0%	3.1%	3.1%
DAE – Real increase	0%	0.20%	0.50%	0.60%	0.70%
Difference between SA Power and DAE nominal	**1.66%**	**1.46%**	**1.27%**	**1.17%**	**1.07%**

Source: AER Draft Determination 7-57; DAE (2015, p.98); authors' calculations

DAE has prepared estimates of the nominal and real price increases for labour in the utility sector in South Australia.[19] These are reported in the fifth and sixth rows of Table 3. The real increases estimated by DAE are close to those specified by the AER. The seventh row of Table 3 reports the differences

19 DAE, Forecast growth in labour costs in NEM regions of Australia, February 2015.

between the DAE and SA Power Networks estimates of real increases in the price of labour. These are quite close to the differences between the AER and SA Power Networks estimates.

We draw two main conclusions from Table 3. First, the AER appears to have based its estimates of labour price increases in the utilities sector in South Australia on the estimates from the February 2015 DAE report. Second, the main source of difference between the AER/DAE and SA Power Networks estimates of real increases in the price of labour is their different estimates of nominal increases in the price of labour (rather than different assumptions on the rate of price inflation used to adjust from nominal to real increases in the price of labour).

This means that the main issue of contention between SA Power Networks and AER/DAE is what will be the nominal rate of increase in the price of labour over the forecast period.

4.2 Historical relation between EBA outcomes and WPI for EGWWS

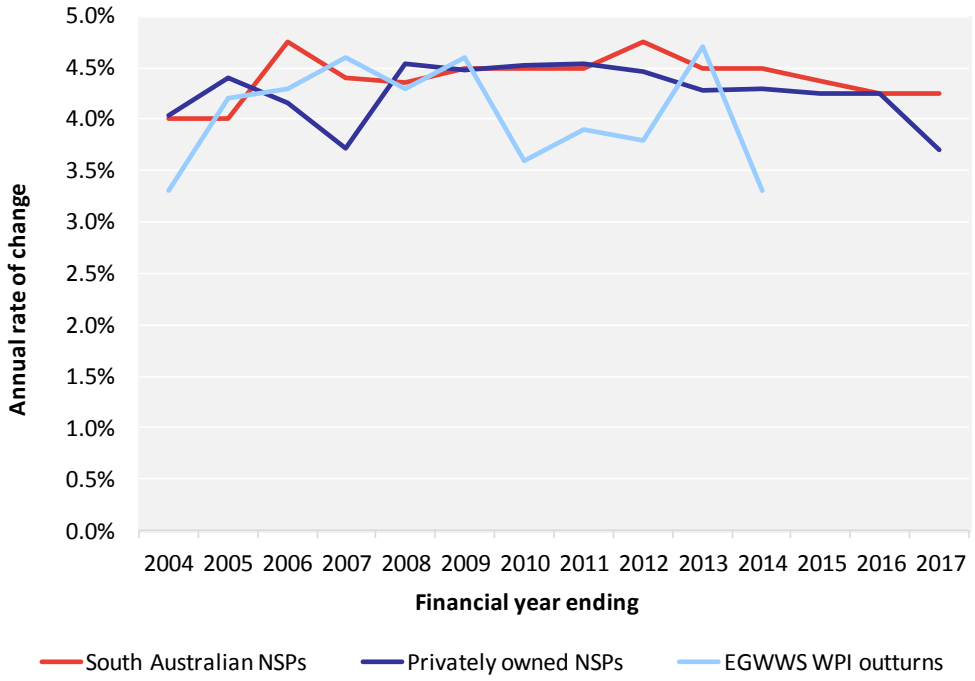
Figure 4 shows annual rates of change in EBA outcomes and in the national WPI for private sector EGWWS. EBA outcomes are shown both for all privately-owned NSPs in Australia and South Australian NSPs.

Over the period 2003-04 to 2013-14 the EBA outcomes and changes in WPI have been very close. The average rate of increase in WPI is 4.1% and the EBA outcomes for all private NSPs and South Australian NSPs are respectively 4.3% and 4.4%.

Whilst the average EBA and WPI rates over this period have been close, the WPI series has diverged from the EBA outcomes in some years:

- In 2004-05 the rate of increase in WPI was approximately 0.7 percentage points below the EBA outcomes;
- In 2006-07 the EBA outcomes of privately-owned NSPs was approximately 0.9 percentage points below the rate of increase in the WPI;
- Between 2009-10 and 2011-12 the rate of increase in the WPI has, on average been 0.82 percentage points per year below EBA outcomes for South Australian NSPs and 0.74 percentage points per year below EBA outcomes for privately-owned NSPs; and
- In 2013-14 the rate of increase in WPI was approximately 1.2 percentage points below EBA outcomes for South Australian NSPs and 1 percentage point below EBA outcomes for privately-owned NSPs.

Figure 4: EBA rates vs. movements in EGWWS WPI (national)



Source: ABS, Frontier analysis

Notes: All data presented on a financial year basis; WPI data based on Total Hourly Rates of Pay Excluding Bonuses

The difference between forecasts of the real increase in labour costs between SA Power Networks and the AER is 1.77% in 2015-16 and then about 1.25% in future years (Table 3). The differences in 2015-16 and 2016-17 are particularly notable given that EBA outcomes are derived from data on actual EBA outcomes.

The comparison presented in Figure 4 suggests that the difference between EBA and WPI outcomes predicted by DAE would be unprecedented. In none of previous 11 years has the difference between rate of change in EBA and in WPI been as large as DAE is predicting for the next five years. The closest the spread between EBA and WPI outcomes has come to that forecast by DAE was in 2013-14, when the increase in the EGWWS WPI (for the private sector) fell below the EBA outcome for:

- South Australian NSPs by 1.2%; and
- all privately-owned NSPs by 1%.

If attention is restricted to the most recent five years, 2009-10 to 2013-14, the difference between the rate of increase in EBA and WPI outcomes has been

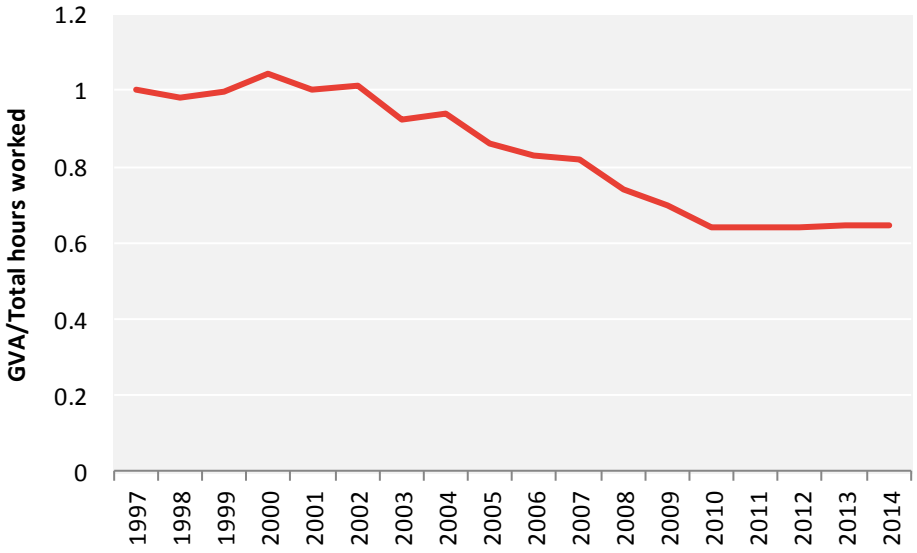
smaller (about 0.69%, relative to South Australian NSPs; 0.56% relative to privately-owned NSPs) than any of the differences in future years forecast by DAE.

The difference suggests that the AER/DAE should be able to identify a substantial structural change (or set of structural changes) that justify its forecast differences between WPI and EBA. What might be the possible structural changes?

In principle, one possible explanation might be a recent increase in the rate of productivity growth in the EGWWS industry. If such an increase had occurred, it would imply that a growing proportion of the increase in EBA would be offset by productivity growth, whereas this does not happen with WPI which has already (to a large degree) netted out the productivity effect. This could therefore account for a growing divergence between EBA and WPI.[20]

However, this potential explanation is at odds with available evidence. Figure 5 presents an index of labour productivity in EGWWS from 1997 to 2014. It is calculated by dividing the ABS series for annual gross value added (GVA) by industry for EGWWS by annual total hours worked in the industry. Labour productivity declined from 1997 to 2010, after which time it has been relatively stable. Importantly, there is no evidence of an acceleration in labour productivity growth which would be necessary to account for an increasing difference between EBA outcomes and WPI.

Figure 5: Index of labour productivity per hour worked, EGWWS, 1997 to 2014



Source: ABS; authors' calculations

[20] SA Power Networks preliminary decision, p.7-54.

Quality and reliability of forecasts by DAE

We note further that the AER similarly found a declining rate of productivity for DNSPs between 2006 and 2013, and assumed a forecast rate of productivity growth of 0% per annum in its Preliminary Decision for SA Power Networks.[21]

Hence increasing labour productivity does not seem a plausible explanation for the AER's estimates of rates of increase in WPI being so far below rates of increase in EBA.

A second potential explanation for the difference between the rate of increase in EBA outcomes and the AER's estimates of rates of increase in the WPI is that the rates of wage increases for workers in the EGWWS industry not covered by EBAs are increasingly falling behind rates of wage increases for workers covered by EBAs. Hence the WPI EGWWS measure, as an average of the rates of increase in wages for workers covered by the EBAs and not covered, would be below the rate of increase in wages.

No evidence is presented by the AER to support this explanation. More important, however, is that this explanation is not relevant to the case of SA Power Networks. In SA Power Networks' case, 95% of its workforce is covered by its EBA. Hence, if the reason why there is a difference between forecasts of rates of increase in WPI and EBA is due to compositional differences in workers covered by the WPI and EBA, it further establishes the importance of using the EBA measure in order to have a measure of labour costs that is representative of the labour costs faced by SA Power Networks.

A third potential explanation for the difference between the rate of increase in EBA outcomes and the AER's estimates of rates of increase in the WPI is a change in market conditions for workers in the EGWWS industry that is being reflected in WPI but not yet in EBA outcomes. In section 2.4 we have already discussed some issues relating to market conditions raised by the AER. The February 2015 DAE report also suggests two ways in which market adjustment may be occurring. First, it suggests that the rate of increase in WPI for utilities will decline relative to all industries. Second, it suggests that rate of increase in WPI for utilities in South Australia in the short-term will be lower than for utilities Australia-wide. Figure 6 below (reproduced from DAE's report) shows that according to DAE:

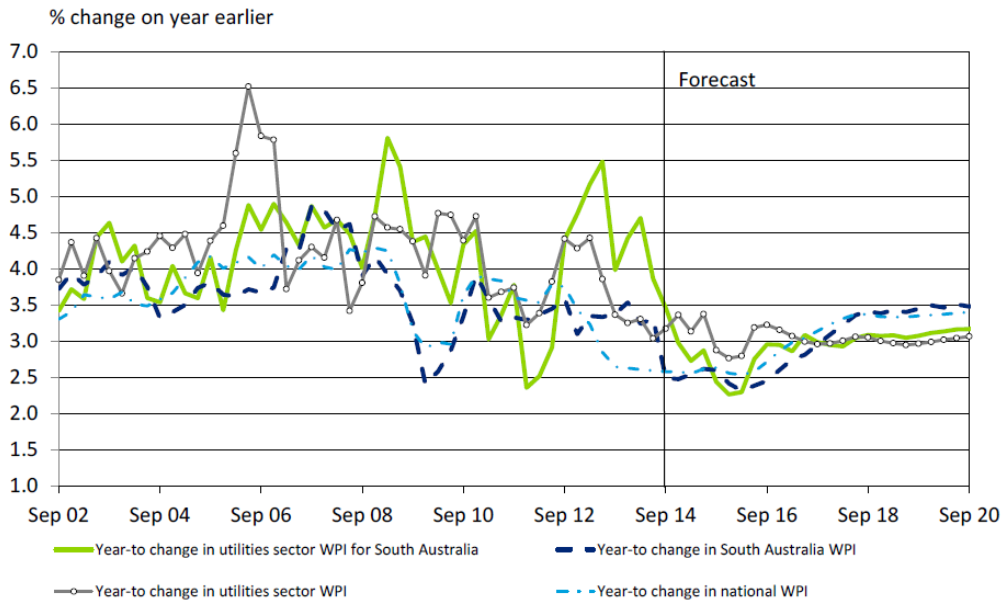
- WPI for EGWWS (Australia) is forecast to increase on average by about 3% per year, whereas the forecast for EGWWS (South Australia) is lower by about 0.5% per year till 2017 and then similar.
- WPI for All workers (Australia) and for All workers (South Australia) are forecast to increase on average by about 2.5% until 2017 and then jump to about 3.5%.

---

21 SA Power Networks preliminary decision, p.7-65.

- Notably, the forecast rate of increase in WPI for EGWWS (South Australia) shows an immediate 1.2% drop from the prior to forecast period.

Figure 6: DAE's South Australian utilities forecast comparison



Source: DAE, Forecast growth in labour costs in NEM regions of Australia, February 2015, Chart 7.5

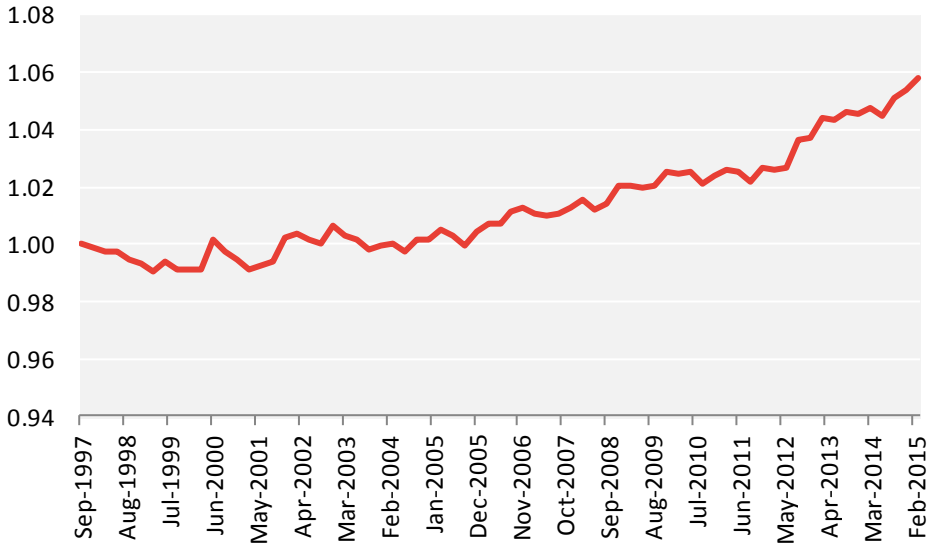
The DAE forecast is therefore based on two key assumptions:

- first, that the rate of increase in WPI for EGWWS will fall below the rate of increase in WPI for all industries; and
- second, that the rate of growth in WPI for EGWWS workers in South Australia will fall below the national rate of growth in WPI for utilities workers.

On the first assumption, there is no evidence thus far that WPI for EGWWS is decreasing relative to WPI for all industries. Figure 7 shows the ratio of WPI for EGWWS and all industries. The ratio is relatively constant at 1 from 1997 to 2006, but after that time has increased steadily. From March 2014 to March 2015 the ratio has increased from 1.047 to 1.057. So there are no apparent signs that the ratio is reversing.

Quality and reliability of forecasts by DAE

Figure 7: WPI in EGWWS relative to all industries



Source: ABS, authors' calculations

On the second assumption, there does not appear to be evidence to support the large relative decline in earnings for workers in the EGWWS industry in South Australia relative to the EGWWS industry for Australia predicted by DAE.

Table 4 shows EGWWS outcomes and predicted outcomes for South Australia and Australia from 2012-13 to 2019-20 from DAE's February 2015 report.

Table 4: Rates of increase in WPI for EGWWS workers – DAE report

	South Australia		Australia	
	Imputed	Forecast	Outturn	Forecast
2012-13	5.0%		4.2%	
2013-14	4.2%		3.2%	
2014-15		3.0%		3.3%
2015-16		2.4%		2.9%
2016-17		3.0%		3.1%
2017-18		3.0%		3.0%
2018-19		3.1%		3.0%
2019-20		3.1%		3.0%

Source: DAE, Forecast growth in labour costs in NEM regions of Australia, February 2015, pp. 11, 98

According to DAE, for 2012-13 and 2013-14 the (imputed) rates of increase in WPI for EGWWS for South Australia were respectively 0.8 and 1.0 percentage points above the national rate of increase in WPI for EGWWS. Then for 2014-15 and 2015-16 this pattern reverses with the rates of increase in WPI for EGWWS in South Australia predicted to be 0.3 and 0.5 percentage points below the national rate of increase in WPI for EGWWS. As has been noted above, DAE predicts that the rate of change in WPI for EGWWS in South Australia will decrease by a very large amount, 1.2% (from 4.2% to 3.0%), between 2013-14 and 2014-15.

In justification of its predictions DAE states:[22]

> Those results suggest a period of relatively soft growth in wages for utilities workers in South Australia, with much of that weakness emerging over the course of 2015. That weakness comes amid an easing of competition for workers emerging from both the construction and mining sectors, which will help to reduce wage pressures in the utilities.
>
> It is also a reflection of relatively weak business investment in the State. With businesses reluctant to expand their capacity, that suggests less demand for the electricity and gas needed to power growth in South Australia's industrial heartland.

Problems with the first contention, relating to increasing supply of labour to the EGWWS industry, have already been addressed in section 3.2. Furthermore, supply influences should affect the EGWWS in all states equally, so that this does not provide a valid explanation for why the rate of increase in WPI for EGWWS workers in South Australia should be less than for workers in the EGWWS nationwide.

No evidence is provided by DAE to support the second contention that slow business growth will cause a change in demand for electricity in South Australia in a way that will reduce earnings of EGWWS workers in South Australia relative to EGWWS workers nationwide.

Hence we conclude that market conditions do not provide a plausible explanation for the difference between rates of increase in EBA outcomes and the AER's forecasts of rates of increase in the WPI.

4.3 Assessment of the DAE forecasting methodology

Reviewing the available documentation suggests that there are two main steps in the DAE forecasting methodology. First, an historical series of WPI for EGWWS in South Australia is imputed. Second, that series and other information is used to forecast the future rate of growth in EGWWS in South Australia.

---

22 DAE, Forecast growth in labour costs in NEM regions of Australia, February 2015, p.92

The DAE method for step 1 is described in DAE's February 2013 report to the AER.[23] The DAE method for step 2 is not specified formally – although some background information is provided in chapter 7 and the appendices to DAE's February 2015 report to the AER.

In our opinion the DAE methodology fails completely the AER principle of transparency as set out in the AER's Expenditure forecast assessment guideline.[24]

> A technique that we or stakeholders are unable to test (sometimes referred to as a 'black box') is not transparent because it is not possible to assess the results in the context of the underlying assumptions, parameters and conditions. In our view, the more transparent a technique, the less susceptible it is to manipulation or gaming. Accordingly, we take an unfavourable view of forecasting approaches that are not transparent.

The reason for the failure can be simply stated: It would be absolutely impossible for any researcher outside DAE to reproduce their estimates of the ABS WPI series for EGWWS in South Australia.

- First, the description of the imputation process in step 1 is not sufficiently detailed to be replicable. To achieve transparency what is needed is to specify exactly the numerical formula, and the data, by which the historical series of WPI for EGWWS in South Australia was constructed.
- Second, the absence of information on the forecasting method in step 2 means that it would be impossible to recreate the forecasts even if DAE's imputed WPI series was available. To achieve transparency what is needed is to specify the exact forecasting method or econometric model(s) used to forecast future WPI growth in EGWWS in South Australia based on the imputed historical series.

DAE does acknowledge that the historical South Australian EGWWS WPI is imputed and that there is no guarantee that the imputed values would actually match what the ABS data would show were it to be released.[25] This means that it would be impossible for any researcher, or the AER, to assess how well DAE's forecasts perform against actual outturns (the usual way in which the reliability of forecasts is assessed) because the actual outturns can never be observed in practice.

It is also impossible to understand the reasons for, and to evaluate the reasonableness of, changes made by DAE over time to its forecasts of WPI in EGWWS in SA. Figure 8 below shows forecasts made by DAE in 2013 and 2015.

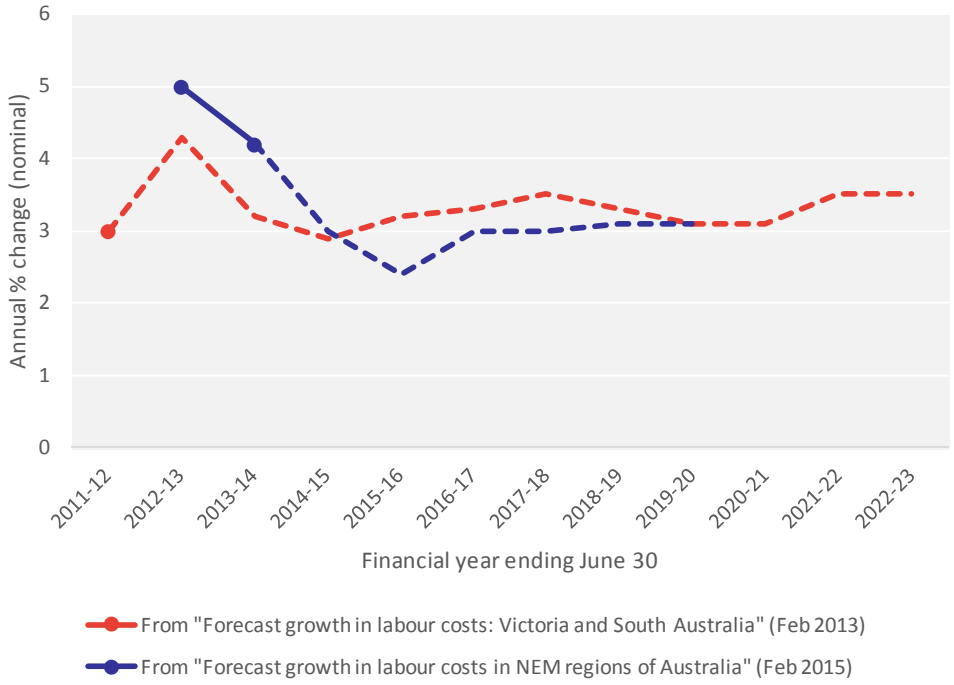
---

23 DAE, Forecast growth in labour costs: Victoria and South Australia, February 2013.

24 AER, Better Regulation: Expenditure forecast assessment guideline – explanatory statement, November 2013, p.87.

25 DAE, Forecast growth in labour costs in NEM regions of Australia, February 2015, p.101.

Figure 8: Comparison of DAE forecasts made in 2013 and 2015



Source: DAE, Forecast growth in labour costs: Victoria and South Australia, February 2013; DAE, Forecast growth in labour costs in NEM regions of Australia, February 2015

Notes: the dots represent values imputed by DAE, and the dashed lines represent DAE's forecasts

Two main features are evident from this Figure. First, in the 2015 report DAE concludes that the actual rates of increase in WPI in 2012-13 and 2013-14 were about 1 percentage point higher than it had forecast in its 2013 report. In other words, it underestimated the rate of increase in WPI in EGWWS in South Australia in those years. Second, and notwithstanding the forecast error just described, in its most recent 2015 forecasts DAE has made substantial downward revisions to forecast growth in WPI in the EGWWS industry in South Australia for 2015-16 and 2016-17. The 2015 forecast has been revised down compared to the 2013 forecast by 0.8 percentage points for 2015-16 (i.e. 25% reduction); by 0.3 percentage points in 2016-17; 0.5 percentage point in 2017-18; and 0.2 percentage point in 2018-19.

Without the details of the DAE forecasting method it is not possible to understand the basis on which theses change to forecasts have been made, so it is not possible to assess whether the revisions are reasonable. We were unable to find any discussion of the basis for the changes in DAE's 2015 report.

We sought from DAE (via a request from SA Power Networks to the AER) the data and model code used by DAE to develop its WPI forecasts, as well as any

Quality and reliability of forecasts by DAE

documentation that DAE had provided separately to the AER on its forecasting model. DAE declined to provide the information on the grounds that the information was commercially sensitive and, in the case of some of the data, obtained in confidence from the ABS. Instead, DAE offered a very high level explanation of its data and models. However, this was not of sufficient detail for us to interrogate properly DAE's work.

The AER has evidently accepted forecasts from its adviser DAE that stakeholders (and presumably the AER itself) cannot test. DAE's analysis is a 'black box' and should not be relied upon by the AER.

The method of using EBA to forecast labour costs is, by contrast, entirely transparent:

- First, data on historical (and some future) EBA average labour cost outcomes are derived from defined samples of EBAs that are available from a public source. After SA Power Networks submitted our August 2014 report to the AER, the AER requested the EBA data we used to produce our EBA-based forecasts of labour cost escalation rates. We supplied the AER with all the information it would need in order to replicate our analysis.
- Second, those data on average actual outcomes is used in a straightforward way to predict EBA outcomes beyond the period covered by existing EBAs.

5 Declaration

We have made all the inquiries that we believe are desirable and appropriate and that no matters of significance that we regard as relevant have, to our knowledge, been withheld from the Court.

Dinesh Kumareswaran

Jeff Borland

Appendix A: Occupations that represent the majority of overlap between DNSPs and employers within the Mining Division

Occupation
Electricians
General Clerks
Contract, Program and Project Administrators
Accountants
Accounting Clerks
Purchasing and Supply Logistics Clerks
Other Specialist Managers
Human Resource Managers
Office Managers
Management and Organisation Analysts
Occupational and Environmental Health Professionals
Other Miscellaneous Labourers
Metal Fitters and Machinists
Engineering Managers
Storepersons
Personal Assistants

Appendix A: Occupations that represent the majority of overlap between DNSPs and employers within the Mining Division

Appendix B: Instructions

SA Power Networks – Review of AER's Preliminary Decision on Labour Escalation Rates – Terms of Reference

19 May 2015

1 Overview

SA Power Networks seeks to engage Frontier Economics to provide an expert witness report to respond to the key arguments that the AER has relied upon to reject an Enterprise Bargaining Agreement (**EBA**) based approach to forecasting labour cost escalation rates.

2 Background and context

SA Power Networks engaged Frontier Economics in May 2014 to:

- Assess the suitability of the approach followed by the AER in the 2014-2017 SP AusNet transmission decision;
- Consider whether there is a suitable, alternative approach that improves upon potential weaknesses of the approach used in the 2014-2017 SP AusNet transmission decision;
- Apply that alternative approach to forecast labour cost escalation rates that could be used to develop SA Power Networks' expenditure proposals to the AER.

The AER subsequently rejected SA Power Networks' real labour escalation rates for its Preliminary Decision in April 2015, substituting it with Deloitte Access Economics' (**DAE**) forecast of the Wages Price Index (**WPI**) for the Electricity, Gas, Water and Wast Services (**EGWWS**) industry sector.

3 Scope of Engagement

SA Power Networks now wishes to engage Frontier Economics to provide an expert witness statement that may be submitted to the AER along with its revised revenue proposal. The report should consider and provide an opinion on the key arguments that the AER has relied upon to support its use of a WPI-based approach to forecasting labour cost escalation rates, in particular:

1. SA Power Networks' forecasts of labour cost escalation rates captures only a subset of its electricity labour, whilst the AER's forecasts captures all electricity labour and labour from other similar sectors.

2. The benchmark EBA wage increases for private electricity service providers proposed by SA Power Networks do not represent the current market conditions for electricity workers.

3. SA Power Networks has forecast an increase in real wages over the regulatory period (of 1.73% p.a. on average). The AER would expect there to be an increase in productivity to offset any real increase in prices. However, SA Power Networks has forecast a 0% rate of productivity over the regulatory period.

4. Although no EGWWS WPI data are published by the Australian Bureau of Statistics for South Australia, and although DAE's forecasts are based on imputed values, those forecasts still represent the best forecast of the South Australian EGWWS industry available to the AER.

5. Consistency demands that the same labour cost index be used for forecasting labour cost escalation rates and for estimating the rate of productivity. The AER has used the WPI to estimate the productivity assumption. Therefore, the WPI should also be used to forecast labour cost escalation rates.

4 Indemnity

SA Power Networks acknowledges that Prof. Jeff Borland will be undertaking this work in his personal capacity and not as a staff member of the University of Melbourne. SA Power Networks releases the University of Melbourne from any claim or liability in any kind or connection with the provider's performance or non-performance of that work.

5 Contact Details

If you have any questions or queries in relation to this RFP document, please contact Trevor Gusling from SA Power Networks via the contact details below:

Trevor Gusling
Regulatory Strategy Manager
SA Power Networks
1 Anzac Highway Keswick SA 5035
Tel 0403 582 228
Email: trevor.gusling@sapowernetworks.com.au

Appendix C: CVs of authors

Dinesh Kumareswaran

Career

Jan 2009 to date	Consultant, Frontier Economics (London and Melbourne)
2007 – 2008	Senior Economist, New Zealand Commerce Commission
2003 – 2007	Economist, New Zealand Commerce Commission
2000 – 2003	Research Assistant, New Zealand Institute for the Study of Competition and Regulation

Education

2001 – 2003	MA Economics (Distinction), Victoria University of Wellington, New Zealand
1996 – 2001	BCA (Hons) Economics, Econometrics and Finance, Victoria University of Wellington, New Zealand

Selected experience in network regulation

Network utility regulation

- **Ergon Energy (2015) –** Led the Frontier team engaged by Ergon Energy's legal counsel to review the AER's first application of benchmarking analysis to set cost allowances for regulated electricity distribution network service providers (DNSPs) in Australia. Frontier demonstrated, using econometric modelling, that the AER had failed to account for large differences in operating circumstances between Ergon Energy and other DNSPs. These circumstances included: the sparsity of Ergon Energy's service area; the provision of significant subtransmission services (which are not provided by many other DNSPs in Australia); and harsh climate. Frontier illustrated how the AER could account for these factors either directly within its benchmarking model, or through 'special factor adjustments' outside the benchmarking model. Frontier provided a survey of how European regulators apply special factor adjustments and recommended that the AER consider similar approaches when setting allowances for DNSPs.

- **Networks NSW (2014-15) –** Managed a team that carried out a major review, on behalf of three electricity distribution networks in New South Wales (NSW), of the first ever economic benchmarking analysis undertaken by the Australian Energy Regulator (AER). The team brought to bear its extensive experience of undertaking benchmarking analysis in Europe when examining: the appropriateness of including networks from overseas jurisdictions in the Australian benchmarking exercise; the appropriateness of the econometrics techniques employed; the robustness and consistency of the data used by the AER; the extent to which the AER had accounted for large differences between the operating circumstances of the networks; and the way in which the AER applied the results from its benchmarking model to determine cost allowances for the regulated networks. Frontier proposed several ways in which the AER could improve its analysis in future.

- **CitiPower and Powercor Australia (2014-15)**. Dinesh recently led a team that developed forecasts of labour cost escalation rates for two distribution networks in Victoria, Australia. Frontier developed a methodology for forecasting future labour costs using historical enterprise (collective) bargaining agreements which, by definition, are more reflective of distributors' negotiated labour costs than broad labour cost indices that have historically been used by the Australian Energy Regulator (AER). Frontier showed successfully, using official Census data, that the labour cost indices used by the AER represent very poorly the labour costs of electricity networks. Instead, these indices capture the labour costs of a wide range of unrelated industries, including water networks, waste services firms, electricity generators and retailers. We also showed that the labour requirements of these unrelated industries correspond very poorly to the labour mix typically found within electricity distribution networks. Finally, Frontier showed that its proposed approach to determining labour cost escalation rates created very strong incentives for networks to improve efficiency over time.

- **IPART (2014) –** Advised the NSW regulator, IPART, on the regulatory treatment of leased assets. Sydney Water, a water business regulated by IPART, was advised by the NSW Auditor General that it should treat a number of its fixed leased assets as finance leases rather than operating leases. Unlike operating leases, finance leases grant the lessor the risks and benefits of ownership. At present IPART treats all leases held by regulated businesses as operating leases. In light of the Auditor General's opinion, Sydney Water sought clarification from IPART on how it would treat extant and future finance leases within the regulatory framework. Frontier advised IPART on different options for taking account of finance leases when setting allowed revenues. Our advice covered issues such as the valuation of

assets under finance leases, the return on these assets, regulatory depreciation, and the internally-consistent treatment of lease-related cash flows.

- **SA Power Networks (2014) –** Produced an expert witness statement that set out forecasts of labour cost escalation rates applicable to SA Power Networks. SA Power Networks used this advice to inform its proposal to the AER on expenditure forecasts, as part of the regulatory process to set the business's revenue allowances over the period 2015-2020.

- **Water Services Association of Australia (2014) –** Worked as part of a Frontier team advising WSAA on best practice regulation of urban water businesses in Australia. This involved surveying a wide range of approaches to economic regulation (e.g. incentive regulation using a building blocks framework, benchmarking and yardstick competition, and price monitoring), in a range of jurisdictions, and drawing lessons from these experiences to improve the way urban water businesses are regulated in Australia.

- **Vodafone New Zealand, Telecom New Zealand and CallPlus (2014)** – The New Zealand Commerce Commission is required, under the Telecommunications Act 2001, to set forward-looking prices for access to an Unbundled Copper Local Loop (UCLL) service using a Total Service Long-run Incremental Cost (TSLRIC) model. We prepared, on behalf of three key access seekers, Vodafone, Telecom and CallPlus, a submission to the Commission on the appropriate methodology for building a TSLRIC model consistent with the overarching objectives of the legislation in New Zealand. Our recommendations covered issues such as the use of bottom-up vs. top-down models, the appropriate level of network optimisation, asset valuation methodologies, regulatory depreciation and the cost of capital.

- **Electricity Networks Association of New Zealand (2013-14)** – Advised the ENA on techniques for forecasting the costs of electricity distribution businesses (EDBs) in New Zealand for the purposes of setting allowances under a Default Price-quality Price-path (DPP) regime. This assignment involved two key tasks: First, we advised on possible top-down models for forecasting costs that are independent of the forecasts that EDBs must provide the Commerce Commission under New Zealand's regulatory information disclosure regime. Second, we advised on ways in which EDBs' forecasts may be used by the Commission when setting allowances under a DPP framework. As part of this task, we explored the possible application of a menu regulation scheme, such as the Information Quality Incentive mechanism used by Ofgem and Ofwat in Great Britain.

Appendix C: CVs of authors

- **AGL Energy, Origin Energy and Energy Australia (2013-14) –** Undertook on behalf of the retailers a critical review of current distribution network service provider (DNSP) credit support scheme operating in the National Electricity Market (NEM), and provided recommendations on possible improvements. Australia's National Electricity Rules make provision for electricity retailers to provide credit support to DNSPs to cover losses in the event that retailers default. In 2012 the credit support arrangements were revised in such a way that a greater burden fell on the largest retailers, who also tend to be the least risky businesses. We examined the efficiency consequences of this change, and proposed amendments to the scheme aimed at improving the efficiency outcomes of the arrangements.

- **Vodafone UK (2013)** – Provided advice to Vodafone on Ofcom's proposed methodology for calculating Annual License Fees (ALFs) for radio spectrum. Ofcom proposed to set ALFs equal to the annuitized value (over 20 years) of observed auction-determined prices for 900MHz and 1800MHz spectrum. We reviewed the reasonableness of Ofcom's annuity calculations, including its discount rate assumptions, and made recommendations on possible improvements to its methodology.

- **National Ports Authority of South Africa (2013)** – Authored a report to the NPA on the principles of incentive regulation, and the economic rationale for moving away from the extant rate of return framework under which the NPA is currently regulated. The report also advised on: different approaches for the valuation of the regulatory asset base (including Depreciated Optimised Replacement Cost valuation, Historic Cost valuation and Market valuation); options for rolling forward the initial RAB value; and on the principles of Financial Capital Maintenance and Operating Capital Maintenance.

- **Brockman Mining Australia (2013)** – Reviewed and helped draft Brockman's submission to the Economic Regulation Authority (ERA) of Western Australia in relation to the ERA's determination on 'floor and ceiling' costs submitted by The Pilbara Infrastructure Pty Ltd (TPI). Brockman sought access to TPI's rail infrastructure in Western Australia. Under certain provisions of the Railways (Access) Code 2000, the ERA must determine TPI's floor and ceiling price of access before TPI beings commercial negotiations with Brockman on the terms of access.

- **National Ports Authority of South Africa (2011)** – Managed a team that advised NPA on preparing a response to a cost benchmarking study produced by the Ports Regulator of South Africa.

Appendix C: CVs of authors

- **National Ports Authority of South Africa (2010)** – Advised NPA on issues related the regulated cost of capital, and the treatment of working capital and opex in relation to its 2010/11 tariff review with the Ports Regulator of South Africa. Drafted a methodology for setting NPA's regulated port tariffs, which covered regulatory practice on issues such as RAB valuation, cost of capital and depreciation.

- **Centrica (2009)** – Advised on the implications of smart metering for asset stranding risk and cost of capital.

- **Sutton & East Surry Water (2009)** – Advised Sutton & East Surrey Water (SESW) on a regulatory appeal to the Competition Commission over an Ofwat determination to disallow a claim for an interim adjustment to price limits; assisted SESW on reviewing and responding to certain aspects of Ofwat's Draft Determination on Price Limits for 2010 to 2015.

- **New Zealand Dairy Markets (2008)** – Prepared the New Zealand Commerce Commission's submission to the Ministry of Agriculture and Forestry on the review of provisions under the Raw Milk Regulations.

Regulatory finance

- **TransGrid (2015) –** Advised the electricity transmission operator in NSW on the appropriateness of the Australian Energy Regulator's (AER's) proposed transitional arrangements before the full introduction of a trailing average approach to setting the cost of debt allowance for regulated networks. The AER recently revised its rate of return methodology. In doing so, the AER announced that it would adopt a trailing average approach to setting cost of debt allowances (similar to the approach used by Ofgem in Great Britain). However, the AER argued that it should phase this approach in to allow businesses sufficient time to align their debt management practices to the new methodology. Dinesh and Prof. Steven Gray authored a report on behalf of TransGrid explaining the circumstances in which such transitional arrangements would not be appropriate.

- **Commission de régulation de l'énergie (2014) –** Advised the French energy regulator, CRE, on the rate of return that should be applied when setting a third-party access price to nuclear electricity generation assets. In 2010, France introduced the Accès Régulé à l'Electricité Nucléaire Historique (ARENH) mechanism. Under the ARENH, CRE must determine a regulated tariff at which EDF (France's largest electricity utility) must supply a specified quantity of electricity produced by its nuclear power plants to alternative suppliers, if requested. The assignment involved estimating the

Appendix C: CVs of authors

cost of capital of EDF's nuclear generation assets, taking account of the asymmetric payoffs to EDF imposed by the regulatory arrangements.

- **Transpower New Zealand (2014)** – Supported Transpower New Zealand through a review by the Commerce Commission on the approach to estimating the cost of capital. In December 2010 the Commission published a detailed methodology ('Input Methodologies') for setting allowed rates of return for businesses regulated under Part 4 of the Commerce Act. Various aspects of the Input Methodologies were appealed in the High Court. The Major Electricity Users' Group appealed the Commission's practice of matching the allowed rate of return to the 75th percentile of the estimated WACC range. The Court did not uphold MEUG's appeal, but expressed doubt over the evidence base for the Commission's practice. At the request of a number of parties, the Commission commenced a review on the appropriate methodology for choosing a point estimate from its WACC range. Frontier produced a number of reports setting out the conceptual, empirical and regulatory evidence for choosing a WACC value above the midpoint of the range.

- **E-Control (2014)** – Estimated for the Austrian energy regulator the cost of capital for regulated energy networks.

- **Northern Powergrid (2014) –** Developed a submission on behalf of NPg in response to an Ofgem consultation on possible changes to its approach to estimating the cost of equity for the purposes of setting allowed returns. In November 2013, the UK's Competition Commission published its Preliminary Determination (PD) in relation to Northern Ireland Electricity's appeal against the Northern Ireland Authority for Utility Regulation's (NIAUR's) Final Determination on Northern Ireland's fifth Electricity Transmission and Distribution price controls. In its PD, the Commission departed significantly from the approach taken conventionally by UK regulators when determining allowed returns. The Commission is the UK's appeal body for regulatory decisions and therefore has a major role in influencing regulatory precedent. In light of the Commission's PD, Ofgem consulted on whether it should adapt its approach to setting allowed returns for electricity distribution networks as part of its RIIO ED1 price controls.

- **Australian Energy Regulator (2013) –** Advised the AER on the risks that Australian energy networks are exposed to and how these should be reflected in the AER's determination of the cost of capital. This work fed into the AER's work on defining the "benchmark efficient entity", an important part of its regulatory framework and element of its rate of return guidelines.

- **Northern Ireland Electricity (2013 – 2014) –** Supported NIE in its appeal to the UK's Competition Commission against the Northern Ireland Authority for Utility Regulation's (NIAUR's) Final Determination on Northern Ireland's fifth Electricity Transmission and Distribution price controls, RP5, particularly on issues related to the cost of capital/allowed rate of return. This work has involved responding to the Commission's information requests, preparation of submissions to the Commission on behalf of NIE, and supporting NIE through hearings before the Commission. Amongst other things, Frontier Economics: (a) estimated the premium that equity-holders would expect in order to invest in NIE rather than regulated energy networks in Britain, based on the observed premium between traded bonds issued by NIE and energy networks in Britain; and (b) conducted an econometric analysis of NIE's bond yields to demonstrate that its borrowing costs had not been influenced adversely by the weak financial position of its parent in Ireland, ESB.

- **Northern Ireland Electricity (2011 – 2012) –** Helped NIE to develop analysis and submissions to NIAUR on NIE's cost of capital in relation to RP5.

- **Sasol Gas (2012) –** Estimated the beta for Sasol's gas pipeline networks in South Africa. Beta is an input into the Capital Asset Pricing Model, which the National Energy Regulator of South Africa uses to set allowed rates of return for regulated networks such as Sasol Gas.

- **National Grid (2012) –** Helped National Grid (the owner of the UK's electricity and gas transmission networks) to develop its submissions to Ofgem on cost of capital issues in relation to the RIIO-T1 price control review.

- **Energiekamer (2011)** – Provided the Dutch energy regulator, EK, a second opinion on the methodology it used to estimate the cost of capital of GTS, the gas transmission operator in the Netherland. Subsequently, advised EK on areas in which to improve its WACC methodology for future price control periods.

- **CRE (2011)** – Advised the French energy regulator on the cost of capital of regulated gas and electricity transmission and distribution networks in France. This assignment involved detailed modeling of WACC for each of these network types.

- **Transnet Pipelines (2009 – 2011)** – Advised Transnet, owner of a South African petroleum pipeline network, on best practice for estimating the cost of capital for regulatory purposes. Helped prepare the company's 2010/11,

Appendix C: CVs of authors

2011/12 and 2012/13 tariff review applications to NERSA, the economic regulator of South Africa's energy sector.

- **Melbourne Water (2015) –** In preparation for the 2016 Victorian price review, Dinesh advised Melbourne Water on ways in which the rate of return methodology used by the Victorian regulator, the Essential Services Commission (ESC), could be improved, and the likely revenue impact of any methodological changes. At the 2013 price reset, the ESC indicated that it intended to review its rate of return methodology but subsequently had not done so. By comparison, most other Australian regulators have revised their methodologies significantly, in part due to recognition of the need to make their estimation approaches more resilient to the effects of global financial crises. A comparison of the methodologies used by different regulators in Australia suggests that the ESC's methodology is out of line with best regulatory practice. Dinesh's advice identified the areas for improvement and developed the economic arguments that would support the case for change.

- **ACT Industry Panel (2014) –** In June 2013 the Independent Competition and Regulatory Commission (ICRC) made a price direction in relation to water and sewerage services in the Australian Capital Territory (ACT). ACTEW Corporation Limited (ACTEW) sought a review of this price direction. The review process requires an Industry Panel (the Panel), to examine the price direction. The Panel has the power to confirm the original price direction made by the ICRC or substitute a new price direction for the original price direction. One of the issues that the Panel must consider, when conducting the review, is the appropriate WACC to use to calculate the return on capital in its building block model. The Panel undertook some work to estimate ACTEW's WACC and engaged Dinesh to provide a second opinion on this analysis.

- **State Water, New South Wales (2014) –** Drafted State Water's response to the ACCC's Draft Decision on the rate of return that State Water would be permitted to earn as part of the ACCC's decision on regulated charges in the Murray-Darling Basin. The response focused primarily on the need for consistency in treatment of the risk-free rate and the market risk premium, and the use of overseas water networks for the purposes of estimating State Water's beta.

- **State Water, New South Wales (2013) –** Helped State Water prepare its submission to the ACCC in relation to the regulated rate of return. In 2013, the ACCC assumed responsibility for determining State Water's regulated charges under the Water Charge Infrastructure Rules 2010. We assessed the ACCC's likely approach to, and estimate of, WACC by reviewing in detail the approach to WACC used by the AER (a division of the ACCC). We then

developed an independent estimate of State Water's WACC based on finance theory and regulatory precedent from other jurisdictions and sectors. State Water used our WACC estimate in its tariff application to the ACCC.

- **Sydney Catchment Authority (2013) –** Conducted, on behalf of SCA, an appraisal of proposals issued by IPART to alter its approach to estimating the cost of capital (particularly in the face of changing and uncertain financial market conditions). This assignment involved representing SCA at an IPART workshop on WACC, and assisting SCA with the drafting of subsequent submissions to IPART's draft WACC methodology.

- **Welsh Water (2013) –** Welsh Water has a unique capital structure amongst regulated water networks in the UK: it is funded mostly through debt, and through cash reserves from which distributions to customers through rebates may be made. It is essentially customer-owned so has no shareholders. As such, Welsh Water has no recourse to new equity finance. This means that preserving financial flexibility and a high credit rating is vital in order to ensure resilience against economic shocks since it cannot rely on equity injections to buffer against such shocks. Dinesh co-authored a report on behalf of Welsh Water that explained the value of such financial flexibility, and which argued that Ofwat should take this into account when setting its allowed rate of return at the 2014 price review.

- **Water UK (2012 – 2013) –** Developed for Water UK (the industry body that represents regulated water networks in the UK) a series of discussion pieces that on the future of financing of water networks in the UK. These discussion pieces were aimed at stimulating debate between stakeholders in the sector, and with policymakers, on the regulatory arrangements that need to be put in place ahead of PR14 to ensure the effective financeability of UK water networks going forward.

- **Sutton & East Surry Water (2009)** – Supported Sutton & East Surry Water during the 2009 price control review for the UK water industry by estimating the regulatory cost of capital for the business.

- **Institut Luxembourgeois de Régulation (2013) –** Estimated for the telecommunications regulator in Luxembourg, ILR, the cost of capital associated with the NGA telephony network owned by P&T Luxembourg, the incumbent fixed line operator. The assignment involved advising ILR on, among other things, methods (e.g. real options analysis) for quantifying the risk premium to be applied to NGA networks. (The quantification of these risk premia was mandated by the European Commission in 2010.) ILR employed the cost of capital estimates in a bottom-up cost model to assess the cost-reflectiveness of P&T Luxembourg's tariffs.

Appendix C: CVs of authors

- **Israel Ministry of Communications (2013) –** Estimated the WACC for Bezeq, the incumbent fixed line telephony operator in Israel. This WACC was used as an input into a LRIC model designed to calculate Bezeq's call termination charges.

- **Fair Trading Commission of Barbados (2011) –** Provided the Utility Regulation Department of the FTC an opinion on a PwC's estimates of Cable & Wireless's cost of capital. The FTC uses the cost of capital as an input into its LRIC model for setting access charges.

- **Telecommunication Authority of Trinidad & Tobago (2010) –** Advised the TATT on the cost of capital of regulated fixed line, mobile, fixed-mobile and cable TV concessionaires operating in Trinidad & Tobago.

- **Utilities Regulation and Competition Authority (2009)** – Advised the Bahamian utilities regulator on the appropriate cost of capital for fixed/mobile telephony and cable television companies.

- **CBH Group (2015) –** Developed, on behalf of CBH (a major Australian grain producer and access seeker to rail infrastructure in Western Australia) and its legal counsel, a submission to the Economic Regulation Authority (ERA) of Western Australia on the regulator's approach to estimating WACC. The submission focused on, amongst other issues, the ERA's approach to estimating the market risk premium, the estimation approach to beta, and the way in which the WACC ought to be used within the negotiate-arbitrate arrangements within the rail access regime.

- **Brockman Mining Australia (2013, 2015) –** Advised Brockman, a potential access seeker to rail infrastructure in Western Australia, on its submission to the Economic Regulation Authority (ERA) of Western Australia in relation to the ERA's approach to WACC under the Railways (Access) Code 2000. Subsequently, the ERA released a Revised Draft Decision on its proposed WACC methodology. Dinesh was engaged again by Brockman to help develop its submission to the ERA on the Revised Draft Decision. The submissions focused on the appropriateness of the beta estimates proposed by the ERA, the methodology used to estimate the market risk premium (and consistency between the methodologies used by the ERA in different sectors), the appropriateness of the ERA's credit rating assumption for the benchmark efficient entity (which affects the cost of debt allowance under the ERA's methodology).

- **National Ports Authority of South Africa (2011)** – Reviewed the methodology underpinning NPA's cost of capital calculations relating to its 2011/12 tariff application to the South African Ports Regulator.

Subsequently assisted NPA to respond to stakeholder submissions to the Ports Regulator on NPA's cost of capital proposals.

- **Office of Transport Regulation, NMa (2011) –** Advised the regulator in the Netherlands on the Dutch Pilotage's cost of capital. Dutch Pilotage is a price-controlled monopoly provider of harbour pilot services. NMa's first determination on the cost of capital for this operator was annulled by the Dutch courts on grounds that NMa had not motivated properly certain aspects of its methodology. The project involved addressing these points of methodology, one of which involved determining an approach to calculate an appropriate allowance for non-systematic risk.

Appendix C: CVs of authors

Professor Jeff Borland

Jeff Borland is Truby Williams Professor of Economics at the University of Melbourne. His main research interests are analysis of the operation of labour markets in Australia, program and policy evaluation and design, and Australian economic history. In 2010 he was Visiting Professor of Australian Studies at Harvard University. In 1997 he was awarded the Australian Academy of Social Sciences Medal for Excellence in Scholarship in the Social Sciences, and in 2002 was made a Fellow of the Academy of Social Sciences. He has acted as a consultant on labour market and microeconomics issues to organisations such as the OECD, IMF, ACCC, New Zealand Treasury, and Productivity Commission.

Qualifications

- B.Arts (Hons) in Economics and History, University of Melbourne
- PhD in Economics, Yale

Relevant Experience

- Teaching subject 'Labour economics' at University of Melbourne;
- Large volume of research activity and publications on topics relating to the Australian labour market including determination of individual earnings; earnings inequality; employment and unemployment; trade unions; and effects of regulations on labour market outcomes in Australia.
- Invited to prepare the review paper on the Australian labour market for the Reserve Bank's 2011 decadal review of the Australian economy.
- Invited to prepare the review chapter on 'Labour market and industrial relations' for the Cambridge Handbook of the Social Sciences in Australia in 2003.
- Extensive experience providing consulting services on labour market related issues: New Zealand Treasury, 2013, Prepared report on 'Recent developments in unemployment'; Business Council of Australia, 2012, Prepared report on 'Estimating the contribution of education to productivity as reflected in private and social returns to education'; Victorian Competition and Efficiency Commission, 2011, Prepared report on 'Labour force participation issues'; Australian Competition and Consumer Commission, 2003, Preparation of report on 'Comments on issues relating to ACCC authorization process for 'collective bargaining' agreements'; Commonwealth Department of Health and Ageing, 2002, Preparation of report on 'Mature age employment'.
- Extensive experience providing advice on labour market related policy issues: Advisory Board for Longitudinal Surveys of Australian Youth

(Commonwealth Department of Education, Science and Technology), 2001 – 2004; Fellow, Food Standards Australia and New Zealand, 2002-08; Chair, Academic Advisory group on 'Participation modeling project', Commonwealth Treasury, 2006-09; Skills Victoria – Member of Expert reference group, 2012-13.

- Publishes a monthly 'Snapshot' on the Australian labour market at: https://sites.google.com/site/borlandjum/labour-market-snapshots

Selected recent publications

- Borland, J. (2015), 'The Australian labour market: The more things change', Australian Economic Review, forthcoming.
- Borland, J. (2014), 'Dealing with unemployment: What should be the role of labour market programs?', Evidence Base, Issue 4, available at: https://journal.anzsog.edu.au/publications/25/EvidenceBase%202014Issue4Version1.pdf
- Borland, J. (2014), 'Microeconomic reform', ch.19 in G. Withers and S. Ville (eds.) Cambridge Handbook of Australian Economic History (Melbourne, Cambridge University Press).
- Borland, J. and A. Leigh (2014), 'Unpacking the beauty premium: What channels does it operate through and has it changed over time?', Economic Record 90, 17-32.
- Borland, J., Y. Tseng and R. Wilkins (2013), 'Does coordination of welfare services' delivery make a difference for extremely disadvantaged jobseekers: Evidence from the YP4 trial', Economic Record 89, 469-89.
- Borland, J. (2011), 'The Australian labour market in the 2000s: the quiet decade', pages 165-218 in H. Gerard and J. Kearns (ed.) The Australian Economy in the 2000s (Sydney, Reserve Bank of Australia).
- Borland, J. (2012), 'Industrial relations reform in Australia: Chasing a pot of gold at the end of the rainbow', Australian Economic Review, 45, 269-89.
- Borland, J. and Y. Tseng (2011), 'Does 'Work for the dole' work?: An Australian perspective on work experience programs', Applied Economics, 43, 4353-68.
- Borland, J. (2009), 'What happens to the Australian labour market in recessions?', Australian Economic Review, 42, 232-42.
- Borland, J. (2008), Microeconomics: Case studies and applications (Melbourne, Cengage, 1st edition; 2nd edition, 2013).

Appendix C: CVs of authors

FRONTIER ECONOMICS | BRISBANE | MELBOURNE | SYDNEY
Frontier Economics Pty Ltd 395 Collins Street Melbourne Victoria 3000
Tel: +61 (0)3 9620 4488 Fax: +61 (0)3 9620 4499 www.frontier-economics.com
ACN: 087 553 124 ABN: 13 087 553 124