



APPENDIX E

Review of Labour Cost Escalation Issues under National Electricity Rules January 2012



Review of labour cost escalation issues under National Electricity Rules

A report prepared for Powerlink in the context of its 2013-17 Revised Revenue Proposal

January 2012

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Executive Summary

Powerlink has asked Synergies to critically assess and provide advice in relation to the Australian Energy Regulator's (AER's) Draft Decision to reject Powerlink's real labour forecasts for the 2013-17 regulatory control period and substitute its own forecasts generated by its consultant based on an alternative measure of labour costs.

Our main conclusions in relation to the AER's Draft Decision are that:

- the Average Weekly Ordinary Time Earnings (AWOTE) wage series is a better series for wage forecasting purposes than the Labour Price Index (LPI) series;
- the real wage and labour productivity forecasts developed by Deloitte Access Economics (DAE) and accepted without amendment by the AER have not been adequately substantiated; and
- it is inconsistent with Chapter 6A of the National Electricity Rules (the NER) to make labour productivity adjustments to real wages forecasts in the manner proposed by the AER.

These issues are discussed briefly below.

Choice of wages series

In general, we consider that the AWOTE series is preferable to the LPI series on the basis that:

- it represents a comprehensive wage series. AWOTE includes base rates of pay, penalty rates, bonuses and incentive payments, amongst other things, and is therefore likely to reflect the actual labour costs faced by a TNSP over time;
 - conversely, LPI excludes the impact of changes in the quality and quantity of work and changes in the composition of the workforce (including the proportions of skilled and unskilled workers) and therefore provides a measure of underlying price movements rather than actual labour costs; and
- unlike the LPI series, AWOTE is available at the State sectoral level. In the absence of LPI data at this level, DAE constructs its LPI estimates for the Queensland Electricity, Gas, Water, and Waste Services (EGWWS) sector, on the basis of separate Australian Bureau of Statistics (ABS) State LPI and industry LPI series, as well as applying adjustments for movements in published AWOTE figures;¹

¹ Deloitte Access Economics (2011a), Forecast Growth in Labour Costs, Queensland and Tasmania, (August), p 111.

- this approach introduces unnecessary complexity to the wage forecasting process and lacks transparency because DAE does not reveal exactly how it constructs its sectoral LPI estimates.

Further, rejection of AWOTE on the grounds of its short term volatility would not appear to be a logical or reasoned basis to reject a wage series or to prefer one series over another. The AWOTE series appears to provide a reliable measure of labour cost trends over the medium to long-term and is therefore suitable for use in regulatory forecasting. Wage forecasts for a regulatory control period (typically five years) are not required to extrapolate any historical short-term volatility.

Professor Mangan's Report provides a detailed assessment of the AWOTE and LPI series.²

Basis of AER's proposed real labour cost forecasts

Our assessment of the DAE model and accompanying report³ for its Queensland EGWWS forecasts identifies a number of fundamental deficiencies. In particular, we consider that the model:

- fails to provide adequate recognition of the specific labour market conditions facing Powerlink;
- lacks sufficient transparency to enable an adequate review of the model parameters and outputs;
- fails to adequately account for institutional labour market factors in deriving labour cost forecasts;
- develops forecasts that do not appear plausible given expected labour market conditions in Queensland and, in particular, Central Queensland over the 2013-17 period; and
- provides insufficient information on the derivation of its EGWWS labour productivity estimates to understand the basis of the forecasts.

It appears reasonable to conclude from the data we have reviewed that DAE's EGWWS forecasts appear to be systematically under-estimating nominal wages

² Professor John Mangan (2012), Labour Cost Report: Report undertaken for Powerlink Queensland regarding Labour Cost Escalators in the Australian Energy Regulator's Powerlink Draft Decision (November 2011) (January).

³ Deloitte Access Economics (2011a).

growth at an Australia-wide level.⁴ We are not able to assess what has happened at the Queensland level because the Australian Bureau of Statistics does not publish an LPI series for the EGWWS sector. As a result, the predictive performance of DAE's LPI forecasts cannot be adequately assessed against published data.

There has also been a fundamental inadequately substantiated shift in DAE's assumption regarding labour productivity growth in the EGWWS sector between 2007 - at the time of the Australian Energy Regulator's (AER's) last Powerlink revenue determination - and 2011. DAE's expectation of labour productivity growth for the EGWWS sector is now strongly positive over the forecast horizon (of around 7 years) compared to being negative in 2007. This fundamentally changed assumption is critical because of the large impact it has on the AER's substitute annual real labour cost forecasts, making growth in them negative for all but one year of the 2013-17 period. This has the effect of reducing Powerlink's operating and capital expenditure forecasts by around \$63 million and \$104 million (in \$2011-12) respectively over the next regulatory control period.

However, we cannot determine from DAE's documentation how the large labour productivity adjustments have been calculated, nor is the data series revealed or its reliability commented upon.⁵ We note also that Powerlink sought clarification from the AER concerning the data, source, methodology and model/s used to establish the labour productivity forecasts. In response, the AER indicated that it did not have the information requested and DAE considered the information confidential and therefore unavailable to Powerlink.

Given DAE's labour productivity forecasts underpin the AER's substitute real labour cost escalators in its Draft Decision, we consider the AER's lack of transparency on this issue is contrary to the AER's substantiation obligations under Section 6A.14.2 of the NER.

Labour productivity adjustments

Regardless of our concerns about the size and basis of the AER's proposed labour productivity adjustments, we consider that it is inappropriate under the NER for the AER to apply broad sectoral (EGWWS and Construction) labour productivity adjustments to Powerlink's real wage forecasts for its internal and external labour costs.

⁴ Similarly, DAE's previous forecasts of Mining and Construction sector wages also appear to under-estimate actual wages growth.

⁵ Deloitte Access Economics (2011a), Forecast Growth in Labour Costs, Queensland and Tasmania, (August).

Rather, in determining the efficiency of Powerlink's operating and capital expenditure forecasts, the AER could be expected to make this assessment having regard to:

- Powerlink's historical expenditure;
- the scope and resourcing of its proposed future expenditure programs, including the labour components;
- comparable TNSP efficiency, including any soundly based TNSP-specific efficiency benchmarking; and
- business and/or electricity network-specific forward-looking labour cost drivers.

In terms of the proposed labour productivity adjustment, we also see the significant potential for double counting of labour productivity improvements in Powerlink's capital expenditure forecasts. This is because the AER's capital expenditure consultant identified a number of efficiencies, which may have related to Powerlink's management of its labour resources in delivering specific programs/projects. However, the AER's labour productivity adjustment has been applied on top of these other efficiencies. Similarly, to the extent labour productivity improvements are incorporated in Powerlink's proposed 'economy of scale factor' in its operating expenditure forecasting model, there is clear potential for double counting of forecast operating expenditure efficiencies.

At a minimum, we believe that the AER's proposed productivity adjustments should be removed on the grounds that they are not soundly based. In the absence of probative material as to expected labour efficiencies/productivity improvements that Powerlink could reasonably be expected to achieve in the 2012-17 period beyond those identified in its Revenue Proposal, we do not think there is a logical or reasoned basis for any further adjustments to Powerlink's own real labour cost forecasts.

Expert witness statement

We confirm that we have undertaken this engagement having regard to the Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia.

This report reflects our opinion in relation to the AER's determination of real labour cost escalators for the 2012-17 regulatory control period as set out in its Powerlink Draft Decision⁶ and is based on our specialised knowledge of economic regulation.

⁶ Australian Energy Regulator (2011), Powerlink Transmission determination 2012-13 to 2016-17, Draft Decision, (November).

We confirm that we have made all 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.

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1 Introduction

We have been asked by Powerlink to undertake the following tasks to critically assess:

- the Australian Energy Regulator's (AER's) Draft Decision in relation to the real labour cost aspects of Powerlink's Revenue Proposal for the 2013-17 regulatory control period;⁷and
- the basis of Deloitte Access Economics (DAE's) real labour cost forecasts⁸, which the AER accepted without amendment in its Draft Decision..

In undertaking our assessment, we have had regard to the following labour cost-related documents released in relation to recent AER determinations made under the NER and the National Gas Rules (the NGR):

- AER - 'Envestra Access arrangement proposal for the Qld gas network, Final Decision, 1 July 2011 to 30 June 2016' (June 2011)
- DAE - 'Response to Professor Borland' (April 2011)
- DAE - 'Response to the BIS Shrapnel reports of March 2011' (April 2011)
- DAE - 'Response to the Economic Insight report of March 2011' (April 2011)
- Envestra - 'BIS Shrapnel Real Cost Escalation Forecasts 2015-16 - Queensland and South Australia, Final Report' (March 2011)
- Professor Jeff Borland - 'Labour Cost Escalation Report for Envestra Limited' (March 2011)
- Economic Insights - 'Review of AER Draft Decisions on Envestra Queensland's and Envestra South Australia's Input Price Escalators' (March 2011)
- Envestra - 'Queensland Access Arrangement Information' (March 2011).
- AER,

The purpose of this report is to provide our opinion on the AER's proposed substitute real labour cost forecasts for Powerlink drawing upon our labour market and regulatory experience, including prior AER decisions under the NER.

The remaining sections of this report are structured as follows:

⁷ Australian Energy Regulator (2011a).

⁸ Deloitte Access Economics (2011a).

- Section 2 briefly assesses the choice between the Australian Bureau of Statistics' Average Weekly Ordinary Time Earnings (AWOTE) and Labour Price Index (LPI) series for wage forecasting purposes under the NER.
- Section 3 provides our view on the DAE wage forecasting methodologies and model results and substantiation of these results.
- Section 4 discusses the use of labour productivity measures to adjust wage series having particular regard to the regulatory assessment of capital and operating expenditure forecasts under the NER.

2 Choice of wage series for forecasting purposes

2.1 Introduction

This section briefly assesses relevant considerations regarding the choice between the AWOTE and LPI series as the basis of labour cost forecasts for transmission network service providers (TNSPs) under Chapter 6A of the NER. A thorough review of the characteristics of the two series and their relative merits is provided in Professor Mangan's report.⁹

The AER appears to have settled on using the LPI series to establish its labour cost forecasts for electricity transmission and distribution determinations. However, its application of a labour productivity adjustment to the LPI forecasts has not been consistent.¹⁰

2.2 Key features of each series

DAE has raised supporting arguments for the use of LPI over AWOTE in generating wage forecasts.^{11,12} BIS Shrapnel¹³, Economic Insights¹⁴ and Professor Borland¹⁵ have raised counter arguments in favour of AWOTE.

The key differences between the AWOTE and LPI series are in relation to the reflection of the impact of skill and compositional changes in the workforce in the respective wages series over time. Economic Insights has characterised these key differences as follows:¹⁶

AWOTE shows average employee earnings from working the standard number of hours per week and includes agreed base rates of pay, over-award payments, penalty rates and other allowances, commissions and retainers, bonuses and

⁹ Mangan, J. (2012).

¹⁰ Refer to Economic Insights (2011), p 7, which notes that no such labour productivity adjustment was made by the AER (2010) in its 'Victorian Electricity Distribution Network Service Providers, Distribution Determination 2011-2015, Final Decision, Appendices (October).

¹¹ Deloitte Access Economics (2011b), Productivity measures to adjust LPI and AWOTE - Australian Energy Regulator (November).

¹² Deloitte Access Economics (2011c), Response to the BIS Shrapnel reports of March 2011, (April).

¹³ BIS Shrapnel, (2010), Labour Cost Escalation Forecasts to 2016-17 - Australia and Queensland, (November)

¹⁴ Economic Insights (2011), Review of AER Draft Decisions on Envestra Queensland's and Envestra South Australia's Input Price Escalators - Report prepared for Envestra Ltd (March).

¹⁵ Borland, J. (2011), Labour Cost Escalation Report for Envestra Limited (March).

¹⁶ Economic Insights (2011), Review of AER Draft Decisions on Envestra Queensland's and Envestra South Australia's Input Price Escalators - Report prepared for Envestra Ltd (March).

incentive payments (including profit share schemes), leave pay and salary payments made to directors. It excludes overtime payments, termination payments and other payments not related to the reference period.

The LPI, on the other hand, is a measure of changes in wage and salary costs based on a weighted average of a surveyed basket of jobs. It excludes bonuses and also excludes the impact of changes in the quality or quantity of work performed and compositional effects such as shifts between sectors and within firms. It is a notional measure of ‘underlying’ labour prices rather than a reflection of the labour prices firms actually face.

As a result, AWOTE can be seen as a measure of average labour costs reflecting employee earnings. In contrast, the LPI is a wage inflation (or wage ‘price’) series, which attempts to remove the effect of skill and compositional changes over time. In this way, the two series are quite different in what they are measuring and have different purposes. This raises the question of which is the better series for wage forecasting purposes under Chapter 6A.

2.3 Choosing between the two series

2.3.1 Interpretation of relevant NER requirements

The AER is required under the NER to take into account a TNSP’s labour costs in assessing the prudence and efficiency of its operating and capital expenditure forecasts. For example, the AER must accept an operating expenditure (and capital expenditure) forecast if it represents, amongst other things:¹⁷

a realistic expectation of the demand forecast and cost inputs required to achieve the *operating expenditure [capital expenditure] objectives*

In assessing a TNSP’s operating and capital expenditure forecasts the AER must have regard to, among other things:¹⁸

the relative prices of operating and capital inputs

and:¹⁹

¹⁷ National Electricity Rules, Section 6A.6.6(c)3.

¹⁸ National Electricity Rules, Section 6A.6.6(e)6.

¹⁹ National Electricity Rules, Section 6A.6.6(e)8.

whether the total labour costs included in the capital and operating expenditure forecasts for the *regulatory control period* are consistent with the incentives provided by the applicable *service target performance incentive scheme* in respect of the *regulatory control period*

Having regard to these provisions, in our view, the most important issue is that a wages series is chosen for forecasting purposes that is likely to accurately reflect the labour costs of a TNSP. In this regard, both the LPI and AWOTE series are based on the EGWWS sector not simply the electricity industry, or even the more refined electricity transmission sub-sector. As a result, there will always be an element of judgement required in determining whether past movements in the broader EGWWS sectoral wages series are representative of a TNSP's circumstances and, when forecasting based on one of these series, what electricity transmission-specific or localised labour market factors need to be considered.

However, the terminology in the NER does not define 'labour costs' (including clarifying their scope or whether these costs should be assessed on a per unit of output or aggregate unadjusted basis) nor make reference to the productivity of labour or capital inputs (including whether any adjustments to wages series should be made in this regard). Rather the AER's assessment of the (undefined) efficiency of all labour and capital costs of achieving the defined operating and capital expenditure objectives is the key issue.

In addition, the preferred wages series must be consistent with the service performance incentives facing the TNSP. We take this to mean that the chosen measure of labour costs must be consistent with the operating and capital expenditure programs the TNSP has established to meet or exceed its reliability-focussed service performance targets. This is potentially an important issue that is discussed further in section 4 of our report.

In our view, the relevant Rules requirements identified above provide the AER with a relatively high degree of discretion in terms of assessing the prudence and efficiency of a TNSP's labour cost forecasts.

Having regard to the NER requirements, we have assessed each of the two wages series on the following criteria:

- comprehensiveness; and
- availability.

These criteria are discussed further below.

Comprehensiveness of wages series

In our view, the AWOTE series is a more comprehensive index for assessing shifts in real labour costs and, as a result, is more likely to provide a realistic expectation of the actual labour input costs faced by a TNSP over time. This is because in addition to base rates of pay, the series includes penalty rates, bonuses and incentive payments amongst other things. It will also reflect situations where promotions are given to employees in order to achieve a higher salary, which is likely to be important in tight labour markets. These costs are likely to be of relevance to TNSPs generally and Powerlink, in particular, in the 2013-17 period because such labour market conditions are expected to be present. Professor Mangan's Report discusses these reasonably expected conditions at length.

AWOTE also recognises compositional-induced labour productivity effects. Professor Mangan's Report demonstrates that such effects are operationally important to Powerlink. In contrast, LPI excludes the impact of changes in the quality and quantity of work performed and compositional effects. Hence, it measures underlying labour price movements rather than actual labour costs faced by businesses.

Where compositional productivity is important the LPI becomes a less reliable series. As BIS Shrapnel has argued:²⁰

BIS Shrapnel considers the LPI to be a measure of underlying wage inflation in the economy or in a specific industry, as the LPI only measures changes in the price of labour, or wage rates, for specific occupations or job classifications, which are then aggregated into a measure of the collective variations in wage rates made to the current occupants of the same set of specific jobs. The LPI, therefore, reflects pure price changes, but does not measure variations in the quality or quantity of work performed. The LPI also does not reliably measure the changes in total labour costs which a particular enterprise or organisation incurs, because the LPI does not reflect the changes in the skill levels of employees within an enterprise or industry.

Moreover, given the nature of its construction it is difficult to see why it can be justified to further adjust the LPI series by applying a labour productivity estimate as proposed by DAE/AER. This issue is discussed further in sections 3 and 4 of our report.

In our view, compositional change is a legitimately incurred labour cost for TNSPs. The key issue under Chapter 6A is whether a TNSP is efficiently incurring such costs. This issue is discussed in section 2.3.2 of our report.

²⁰ BIS Shrapnel (2012) Labour Cost Escalation Forecasts to 2016-17, Australia and Queensland (January), p 23.

Availability

As noted by DAE, the LPI is published separately by State and by sector but not on a State-based sectoral basis. That is, there is no published LPI for the Queensland EGWWS sector. Rather, DAE appears to derive 'reasonable' estimates of LPI for the Queensland EGWWS sector using the two published LPI series for Queensland and on the basis of published AWOTE estimates. Specifically, DAE notes that:²¹

...the overall AWOTE data itself is not consistent with the LPI data for Australia ..., so rather than using the raw data, to obtain a State by industry LPI we have used the deviations in the AWOTE growth from State AWOTE averages and applied a consistent ratio to the known State LPIs.

Given percentage changes in DAE's sectoral LPI estimates are based on the AWOTE series, this approach seems to further complicate the derivation of wage growth forecasts.

Moreover, there is no way for Powerlink or any other TNSP to understand the predictive performance of DAE's constructed LPI forecasts because the actual State-based EGWWS LPI data is not reported by the ABS. In other words, the predictive performance of the DAE forecasts cannot be tested, or otherwise subjected to evaluation because they have no basis of comparison.

In terms of the ABS wage series, DAE argues that the ABS moving to less frequent releases of its AWOTE series (from quarterly to six monthly) in the near future underscores its preference for the LPI series for wage forecasting purposes.²² In our view, the move to six monthly reporting has no implications for the quality of the AWOTE series produced, merely that it is somewhat less timely. This may make wage forecasting a little more difficult because less up-to-date data will be available when a forecast is being prepared. However, the availability of quarterly wage data is not in itself a reason to reject use of the AWOTE series to develop medium term labour cost forecasts because a single quarter of data should not be a key driver of medium term (ie five year) forecasts. The volatility issue is discussed further in section 2.3.2 of our report.

²¹ Deloitte Access Economics (2011a), p111.

²² Deloitte Access Economics (2011a), p 11.

2.3.2 Suitability for regulatory forecasting

Volatility of AWOTE series

DAE argues that the AWOTE series is particularly volatile and is therefore not suitable for wage forecasting purposes, including because of difficulties in smoothing this volatility.²³ However, this argument is somewhat undermined by its use of volatile sectoral ABS labour productivity data, which it forecasts and then uses to adjust its real wage forecasts to derive LPI-based real labour cost forecasts for the AER.²⁴ In doing so, DAE notes it addresses the volatility inherent in this data by taking 'an average productivity trend across the past two years' prior to developing its forecasts.²⁵

Leaving these consistency issues to the side, we acknowledge the volatility of the AWOTE series on a quarterly basis and somewhat less so on an annual basis. However, in our view, the most important consideration for any wage series chosen as the basis for wage forecasting purposes under the NER is that it reliably reflects the expected efficient labour costs faced by a TNSP over the medium to long-term.

Observed short-term volatility in a wages series is a second order concern because wage forecasts for a regulatory control period (typically five years) are not required to, nor need attempt to, extrapolate any historical short-term volatility.

Rather we would expect wage forecasts based on the LPI and AWOTE series to be broadly comparable, on average, over a five year or longer period, except for the impact of the wider range of factors affecting the AWOTE series. This includes expected compositional labour force change, which will result in higher growth of the AWOTE series over time as the average skill level of workers increases. However, it is unlikely that a robust set of AWOTE forecasts would attempt to predict any yearly volatility in these factors beyond a medium-term trend assumption. For example, medium term AWOTE forecasts would make reasonable assumptions about the likelihood of compositional change having regard to history and expected future industry trends. However, a credible medium term set of forecasts would be unlikely to include a sharp increase in a single year unless there was a very sound basis for that prediction.

Finally, as discussed above, it appears that DAE makes use of changes in (smoothed) AWOTE data to escalate its LPI data. This potentially undermines DAE's arguments

²³ Deloitte Access Economics (2011a), pp 1-2; Deloitte Access Economics (2011c), pp 4-5.

²⁴ The volatility is reflected in the ABS published labour productivity data series for the EGWWS sector (calculated as industry gross value added divided by industry employment).

²⁵ Deloitte Access Economics (2011a), p100.

regarding AWOTE's unsuitability for forecasting purposes due to its volatility and the difficulty in satisfactorily smoothing this volatility which creates what DAE refers to as 'jumping off' problems at the beginning of the forecast period.²⁶

Further to our previous comments about the availability of quarterly AWOTE data, the 'jumping off' problem is one that applies in relation to forecasting any economic variable, which is the need to apply judgement and expertise in interpreting the significance of the latest available data (whether quarterly, six monthly or annual). Hence, we do not think it is likely that the final quarterly data observation should drive a set of five year forecasts. In our view, a significant level of judgement is ultimately relied upon in establishing labour cost forecasts and it should not be simply a case of mechanically 'cranking' a model to project forward a published ABS data series (we would expect both BIS Shrapnel and DAE to agree with this point). There are many forward-looking localised labour market and State-based economic considerations that need to be taken into account in developing a medium term labour cost forecast for a TNSP.

Consequently, we would judge the quality of a labour cost forecast on how well it appears to take into account the full range of relevant considerations. We think the debate about the 'problem' of AWOTE's short term volatility that has arisen in the context of AER determinations over the past year appears to have lost sight of the constant need to exercise reasonable judgement in developing labour cost forecasts.

Compositional labour force change issue

The AER and DAE consider it inappropriate to compensate TNSPs for the cost impact of compositional change in their workforces.²⁷ The AER's main concern appears to be that if it adopts a wages series that recognises compositional changes this may create an incentive for TNSPs to employ more highly skilled workforces than required on the assumption that the associated higher costs will be recoverable through higher regulated prices.

In our view, the use of the AWOTE series for wage forecasting purposes need not create any such incentive. This is because the AER has the discretion under Chapter 6A to assess whether a TNSP has an imbalanced workforce (ie it is employing an overly highly skilled workforce). The key issue is that the AER must undertake a business-specific assessment having regard to a TNSP's specific circumstances, including prevailing and expected localised labour market conditions, because there may be

²⁶ Deloitte Access Economics (2011), p 9.

²⁷ For example, refer to: Australian Energy Regulator (2011a (2011b), pp 3-4.

good reasons for that TNSP to employ a more highly skilled workforce than other TNSPs. In other words, it may be prudent and efficient for the TNSP to do so but this can only be assessed on a case-by-case basis.

For example, as both BIS Shrapnel²⁸ and DAE²⁹ have noted, where tight labour market conditions exist, a TNSP may be required to promote staff more rapidly as part of a skilled labour retention strategy. In addition, over time, a TNSP may need a more highly skilled labour force because of the need to maintain increased reliability standards. These are clearly decisions that the TNSP has control over but the prevailing and expected labour market conditions may be the primary driver of the decisions. It is not clear to us then why the preferred wages series for forecasting purposes should exclude the impact of these factors. Moreover, the AER's presumption that the higher associated costs of a more skilled workforce are fully offset by labour productivity improvements in every situation (and so there is no impact on unit labour costs) reflects a theoretical rather than practical approach to economic regulation for the electricity network sector, where output is difficult to measure and the AER has not specified what it is in this case.³⁰ This output measurement issue is discussed further in section 4 of our report.

In our view, assuming a TNSP had decided to employ a more highly skilled labour force than might reasonably be expected, under Chapter 6A, it would need to substantiate why the average cost of its operating and capital expenditure programs was higher than comparable TNSPs because of its labour force composition and what benefits were being accrued in terms of program delivery and service performance. Ultimately, the TNSP must demonstrate the prudence and efficiency of its decisions, including those in relation to the composition of its labour force, in presenting its operating and capital expenditure forecasts to the AER.

As a result, we consider that the cost impact of compositional labour force change is a legitimate cost facing TNSPs and should be taken into account in the assessment of capital and operating expenditure forecasts under Chapter 6A. Consequently, we see no reason for AWOTE to be rejected as a suitable wage series for forecasting purposes on these grounds.

²⁸ BIS Shrapnel (2011), Real Cost Escalation Forecasts to 2015/16 – Queensland and South Australia, Final Report (March), pp A1-2.

²⁹ Deloitte Access Economics (2011a), p 107.

³⁰ Australian Energy Regulator (2011), pp 56-57.

2.4 Conclusion

In our view, the AWOTE series is a better series than LPI to use as the base to establish labour cost forecasts for TNSPs under the NER because:

- it is a more comprehensive series of labour costs and so is more likely to accurately provide a realistic expectation of the labour input costs required to provide prescribed transmission services; and
- it is published by the ABS for the Queensland EGWWS sector and so allows forecasts to be compared with actual data over time, promoting accountability of the AER and TNSPs in terms of their forecasting performance, which is important for the integrity of the Chapter 6A framework.

Our views are consistent with the views expressed by BIS Shrapnel, Professor Jeff Borland and Economic Insights (in their previously noted reports). Moreover, these arguments are also relevant to Powerlink's circumstances in Queensland. Professor Mangan's Report confirms the importance of compositional labour force changes to Powerlink using business-specific data.

We also consider that DAE's criticism of the volatility of the AWOTE series is overstated. The medium to long-term trends in the AWOTE series are of most importance from a wage forecasting perspective, not the short-term (quarterly or annual) fluctuations identified by AER/DAE.

Finally, we see no reason for AWOTE to be rejected as a suitable wage series for forecasting purposes under Chapter 6A on the grounds that it reflects the costs of compositional labour force change, because such costs are legitimate costs incurred by TNSPs. The prudence and efficiency of a TNSP's decisions in relation to compositional workforce issues is a relevant consideration for the AER in assessing that TNSP's proposed capital and operating expenditure forecasts.

3 Assessment of wage forecasting methodologies

This section provides an assessment of the DAE's wage-forecasting model and accompanying report prepared for Queensland and Tasmanian electricity network service providers.³¹

Due to the lack of detailed information provided by DAE about how the labour cost forecasts are generated in its model, our assessment is conducted at a relatively high level and is focussed on the supporting arguments for the forecasts.

Similarly, in the context of the recent determination of Envestra's real cost escalation forecasts and its efforts to understand DAE's wage-forecasting model, BIS Shrapnel noted that:³²

Descriptive background information that is provided in the report is not sufficient given the large number of variables that are considered in large scale macroeconomic models.

It appears that the AER has accepted DAE's forecasts without amendment in its Draft Decision for Powerlink.

3.1 DAE model – Summary of findings

Our assessment of the DAE model and accompanying report identifies a number of fundamental concerns. In particular, we consider that the model:

- fails to provide adequate recognition of the specific labour market conditions facing Powerlink;
- lacks sufficient transparency to enable an adequate review of the model parameters and outputs by Powerlink, or stakeholders more generally;
- fails to adequately account for institutional labour market factors in deriving labour price forecasts;
- develops real labour cost forecasts (excluding productivity adjustments) that do not appear plausible having regard to the expected labour market conditions in Queensland and, in particular, in Central Queensland during the 2012-17 period; and

³¹ Deloitte Access Economics (2011a).

³² BIS Shrapnel,

- provides insufficient information on the derivation of the labour productivity forecasts used to adjust its real LPI wage forecasts to understand the basis of these forecasts nor the resulting predominantly negative annual real labour cost percentage changes between 2012-13 and 2016-17.

These points are discussed further below.

3.1.1 Failure to recognise Powerlink's specific circumstances

DAE analyses the EGWWS sector as a whole for Queensland rather than considering the specific circumstances facing Powerlink. While this is partly a function of data limitations and understandable up to a point, the use of the aggregated EGWWS sector does not necessarily provide a good guide to the labour market position of electricity sector workers in isolation.³³ In other words, while forecasts based on the EGWWS sector could be a reasonable starting point, an electricity industry perspective must be brought into the development of forecasts for TNSPs.

Subsequent to the AER's 2007 Final Decision for Powerlink³⁴, the ABS expanded the 'old' Electricity, Gas and Water Supply sector to include waste services in the new EGWWS sector. We note BIS Shrapnel's analysis, which shows that between 1998-99 and 2008-09 this has had the effect of dampening wages growth in the new EGWWS sector by around 0.1 percentage points per annum using the LPI series or by 0.6 percentage points per annum using the AWOTE series due to the inclusion of workers with lower skill levels and lower demand.³⁵ As a result, using LPI wages forecasts based on the EGWWS sector is likely to be less relevant for the electricity sector than the old EGW sector, without adjustment being made to the series.

A more significant problem in our view is that skilled workers in the electricity sector are much closer in skill sets to workers in the mining and construction sectors rather than gas, water and waste services workers. In this regard, it is interesting to note that in its 2007 Final Decision, the AER used a composite index (constructed by DAE) comprising the mining, construction and utilities sectors for Powerlink's labour cost forecasts for the 2007-12 regulatory control period. This composite series entailed the

³³ Similarly, the aggregate Construction sector is not necessarily a good indicator of wage movements of external contractors required in the electricity sector.

³⁴ Australian Energy Regulator (2007), Powerlink Queensland transmission network revenue cap 2007-08 to 2011-12, Decision, (June).

³⁵ BIS Shrapnel, (2010), Labour Cost Escalation Forecasts to 2016-17 - Australia and Queensland, (November), p 33.

use of weighted individual mining, construction and utilities series with the following weights:³⁶

- Mining – 57.1%
- Utilities – 28.4%
- Construction – 14.5%.

We consider this approach indicated a more realistic expectation of the impact competing employers for Powerlink’s workforce would have on its labour cost growth and which is equally relevant for the 2013-17 period.

In contrast, the apparent failure to adequately distinguish between electricity workers and other workers in the EGWWS group raises significant doubts about the robustness of DAE’s forecasts in regards to the electricity supply industry in Queensland and Powerlink specifically.

Professor Mangan’s Report discusses this limitation of the DAE model further.

3.1.2 Lack of transparency

Based on a review of the DAE accompanying report, it appears that a number of the weaknesses previously identified by Synergies regarding DAE’s macroeconomic wage forecasting model still apply.³⁷ In particular, the accompanying report only contains a relatively high level discussion of the structure of the model with limited information on the estimation procedures used.

This approach provides little scope to evaluate and understand the econometric procedures used in the model or the crucial econometric assumptions that underpin it.

The results reported by DAE are the mechanistic outcome of the equations embedded in its macro-economic model – we and stakeholders generally have no way of assessing:

- the realism of those equations that determine the outcomes;
- the specifics of the input assumptions that are relied upon; or

any impact that changes to input assumptions will have on the model’s predictions. We consider that this approach:

³⁶ Access Economics (2007) Labour Cost Indices for the Energy Sector - Report by Access Economics Pty Limited for the Australian Energy Regulator (April) and AER (2007), p 109.

³⁷ Synergies Economic Consulting (2007), Powerlink Review of Wage Growth Forecasts, (February).

- deprives stakeholders of the right to respond to the detailed assumptions embedded in the modelling; and
- increases the risk of regulatory error in relation to the reasonable expectation of Powerlink's real labour costs during the 2012-17 regulatory period.

Adding to the lack of transparency, neither DAE nor the AER provide any information on the predictive power of the model. We consider that an examination of the DAE model outcomes provided as part of the AER's 2007 Powerlink Final Decision may provide an indication of the predictive power of the model.

Table 1 provides an assessment of the 2007 DAE Australian LPI forecasts³⁸ relative to actual percentage changes in the LPI for a number of industry sectors over the period 2006-07 to 2010-11.³⁹ Australian data is used rather than Queensland data because (as we stated in section 2.3.3) relevant LPI data by State and sector is not published by the ABS.

Table 1 Comparison of DAE's 2007 forecast LPI and actual LPI growth, Australia (%)

	2006-07	2007-08	2008-09	2009-10	2010-11	Annual average percentage point difference
Composite						
DAE Forecast	4.4	2.0	2.1	1.9	2.2	2.5
ABS Actual	5.5	5.1	5.2	3.8	4.2	4.8
Percentage point difference	-1.1	-3.1	-3.1	-1.9	-2.0	-2.2
Mining						
DAE Forecast	4.5	1.2	1.4	1.4	1.9	2.1
ABS Actual	6.0	5.7	5.7	3.6	4.3	5.1
Percentage point difference	-1.5	-4.5	-4.3	-2.2	-2.4	-3.0
Construction						
DAE Forecast	5.2	2.5	2.4	2.8	2.7	3.1
ABS Actual	4.9	4.7	4.6	3.3	4.0	4.3

³⁸ Access Economics (2007), Labour Cost Indices for the Energy Sector, (April).

³⁹ Actual changes in the mining and utilities LPI are sourced from ABS 6345.0 (Financial Year Index; Ordinary time hourly rates of pay excluding bonuses and overtime; Australia; Private and Public). The actual composite LPI is derived using the same ratios as provided by the AER in its Final Decision (p. 109).

	2006-07	2007-08	2008-09	2009-10	2010-11	Annual average percentage point difference
Percentage point difference	0.3	-2.2	-2.2	-0.5	-1.3	-1.2
Utilities						
DAE Forecast	2.4	4.2	4.1	2.6	2.7	3.2
ABS Actual	4.8	4.2	4.5	4.4	4.1	4.4
Percentage point difference	-2.4	0.0	-0.4	-1.8	-1.4	-1.2

The data indicates that the DAE model systematically under-forecast growth in the LPI series over the forecast period (by an average 1.2 to 3.0 percentage points per annum). BIS Shrapnel have reached the same conclusion of systematic under-forecasting based on analysis of the model's forecasts over a longer period.⁴⁰

While indicative only, the results illustrate the potential risks associated with macro-economic forecasting models being used to determine maximum allowable revenues of TNSPs. Notwithstanding DAE's periodic attempts to explain the workings of its wage-forecasting model, there continues to be a lack of transparency in its use by the AER that precludes a rigorous review of the model's inputs, outputs and performance.

Finally, it is worth noting that Powerlink's proposed nominal labour cost forecasts for the current regulatory period predicted an annual average growth rate of 5.64% per annum.⁴¹ This growth reflected the impact of an existing collective agreement for the first year of the period and AWOTE-based forecasts for the remaining years. Based on the advice of its consultants, these forecasts were rejected by the AER as being too high. Given the AWOTE-based nature of these forecasts, it is possible to compare them with the actual ABS AWOTE series for the Queensland EGWWS sector. Over the four year period from 2007-08 to 2010-11⁴², this nominal series grew at a compound annual growth rate of 6.26%, indicating the conservative nature of Powerlink's forecasts and the fact that the LPI wages series is likely to have significantly under-estimated the actual labour costs it faces.

⁴⁰ BIS Shrapnel (2012), Labour Cost Escalation forecasts to 2016-17 – Australia and Queensland, Final Report, (January), pp 53-56.

⁴¹ Australian Energy Regulator (2007), Powerlink Queensland transmission network revenue cap 2007-08 to 2011-12, Draft Decision, (December), p 124.

⁴² A full year of data is not available for 2011-12.

3.1.3 Inadequate recognition of institutional labour market factors

The main driver of forecast labour cost movements in the DAE model appears to be cyclical factors, with the effect of EGWWS labour productivity and competition (relative wage) factors relating to the mining and construction sectors less clear.

This is all we can conclude from the following forecasts for the EGWWS sector over the 2013-17 period:

- modest growth in the EGWSS sector appears to reduce the demand for labour, resulting in a subdued real wage growth outlook in absolute terms;
- slower real wages growth compared to the mining and construction sectors;
- slower real wages growth than the All Industries average reversing a long standing historical trend in the LPI series; and
- strong labour productivity growth for the EGWSS sector, reversing a long standing historical trend for negative growth in the sector.

In contrast, it would appear that the strong institutional influences on wage rates, in particular, Enterprise Bargaining Agreements (EBAs), that could mitigate and slow the cyclical impact have not been reflected in DAE's real wage forecasts for the Queensland EGWWS sector. BIS Shrapnel notes that collective bargaining dominates pay setting arrangements in the utilities sector, with around 81% of workers in the EGW sector covered by EBAs in the 2000-10 period, which it expects to increase to 82% in the 2012-17 period.⁴³

DAE notes that growth in new EBAs in the EGWWS sector has recently moved between 4 and 5% per year, which it considers is a good predictor of LPI growth in the immediately following quarters.⁴⁴

DAE also states that the current rate of growth (4.7% per year for all agreements operating at the end of December 2010) will have an impact on wages growth over the medium-term, as only around one in ten agreements are re-negotiated in any given quarter, with typical agreement lasting just over three years.⁴⁵ However, this strong growth does not appear to be reflected in its medium term nominal LPI forecasts.

⁴³ BIS Shrapnel (2010), Labour Cost Escalation Forecasts, (November).

⁴⁴ Deloitte Access Economics (2011), Forecast Growth in Labour Costs: Queensland and Tasmania - Report prepared for the AER, (August).

⁴⁵ Deloitte Access Economics (2011), p 59.

Professor Mangan's report also cites a number of reports indicating that the Queensland labour market is expected to tighten over the medium term with strong demand for skilled labour in the labour force categories of relevance to Powerlink. As a result, new EBAs are likely to remain strong over the period with a number of forecasters predicting wage increases of more than 4% per annum.⁴⁶ In contrast, DAE is forecasting a moderation in wages growth over the forecast period (see Table 2).⁴⁷

Table 2 DAE's sectoral forecast LPI growth, Queensland (%)

	2012-13	2013-14	2014-15	2015-16	2016-17	Simple Annual Average
All industries						
Nominal	5.0	4.2	3.9	3.3	3.7	4.0
Real	2.2	1.1	1.0	0.3	0.7	1.1
Utilities						
Nominal	4.4	3.7	3.5	2.9	3.5	3.6
Real	1.6	0.6	0.6	0.0	0.5	0.7
Mining						
Nominal	5.8	4.8	4.5	3.5	3.8	4.5
Real	3.0	1.7	1.6	0.5	0.9	1.5
Construction						
Nominal	5.4	4.3	4.0	3.4	3.4	4.1
Real	2.7	1.3	1.1	0.4	0.5	1.2
Administrative services						
Nominal	4.8	3.8	3.5	3.0	3.6	3.7
Real	2.0	0.7	0.6	0.0	0.7	0.8

We agree with BIS Shrapnel that these institutional factors are likely to continue to underpin nominal LPI and AWOTE wages growth in the Queensland electricity sector of well over 4% over the whole 2012-13 to 2016-17 period. In our view, how the DAE model incorporates institutional factors, their specification and interaction with other elements of the model requires clarification.

Moreover, DAE's relatively weak forecast for growth in EGWWS sector nominal wages compared to the All Industries series is questionable based on historical wage movements. As indicated by BIS Shrapnel, the EGW LPI series (for Australia) has consistently grown faster than the national average since the LPI series was introduced

⁴⁶ Professor John Mangan (2012), Labour Cost Report: Report undertaken for Powerlink Pty Ltd Regarding Labour Cost Escalators in the EGWWS industry (January).

⁴⁷ The implied GDP deflator used to convert the nominal LPI forecasts into real LPI forecasts appears to be just under 3% per annum.

in 1997 (excepting the years 1998-99 and 2007-08).⁴⁸ BIS Shrapnel notes that this key forecasting assumption has been a characteristic of DAE's modelling for a number of years although it has yet to be proven correct. This indicates that the assumption should be strongly tested in light of known institutional arrangements and expected labour market conditions in Queensland.

Given expected strong demand for skills relevant to the electricity and gas sectors in Queensland over the next five years at least, plus the previously noted influence of institutional arrangements on likely wage outcomes, it is difficult to see wages growth in the Queensland EGWWS sector being lower than the national average over a sustained period as envisaged by DAE.

While we agree that history is no guarantee of likely trends in future wages growth, there should be compelling reasons identified for the marked departure in relative EGWWS and All Industries wage movements envisaged by DAE. We do not consider that any such reasons have been identified in its accompanying report, or by the AER in its Draft Decision.

3.1.4 Plausibility of DAE's LPI forecasts (excluding productivity adjustment)

In a macro setting, differences in the AWOTE and LPI series revolve around the relative importance of compositional-led productivity/skill gains in the wage setting process. However, nominal wages, particularly at the regional level and industry level are also impacted by:

- institutional factors such as collective agreements;
- localised wage inflation resulting from supply inelasticity and competing demands for skilled workers from other industries; and
- employer-based efficiency wage issues.

Professor Mangan's Report discusses these issues in more detail, in particular, rejecting DAE's view, reflected in its relatively low Queensland EGWWS LPI forecasts, that increased labour supply will put downward pressure on wage outcomes in this sector in the 2013-17 period.

However, it is instructive to quote DAE in relation to a recent report it prepared for the Queensland Resources Council on expected labour market conditions in Queensland in the medium-term. In our view, there appears to be an inconsistency in DAE's views about the importance of the supply side having a dampening influence on wage

⁴⁸ BIS Shrapnel, (2010), Labour Cost Escalation Forecasts, (November), p 31.

outcomes for Powerlink, while simultaneously posing a significant medium-term problem for the Queensland resources sector given these two sectors are competing employers.

Hence, DAE commented as follows in relation to Powerlink's wage forecasts for 2013-17:⁴⁹

It is true that the coming engineering construction boom is again very big and big booms in demand usually add to relative costs (as was seen in the last boom).

However, the past gains have been considerable, and permanent shifts in price relativities are rare, because 'the supply side' adjusts – workers shift into those occupations where skill shortages are keenest (and wages are good), while producers here and around the world step up their production of the materials whose prices have risen because they are in short supply (and profits are good).

This can be contrasted with its analysis for the Queensland Resources Council covering broadly the same period:⁵⁰

Current labour market settings will fail to meet the expectations and requirements of the resources sector. While the total demand for labour from the projected expansions is small relative to Queensland's total labour market, the analysis has identified a number of specific skill sets that will be in short supply unless there is increased private and public sector action to train, attract and retain new workers for Queensland. The two most noticeable shortages are in the fields of Technicians and Trades Workers and Machinery Operators and Drivers. Action is needed in the short rather than medium-term to deliver solutions to expand the available labour force. If this does not occur, a lack of skilled labour is likely to be a major impediment to the expansion of Queensland's resources sector.

It is difficult to reconcile this subdued wages outlook with the labour market conditions it expects the Queensland resources sector, a competing employer for Powerlink in Central Queensland, to face over the same period.

In our view, DAE's supply side adjustment argument used in the context of labour cost forecasts for Powerlink over the 2013-17 period lacks a sound basis. It appears to reflect a view that the Australian labour market operates in a simple market-clearing manner in relation to labour supply and demand, ignoring the institutional, union and

⁴⁹ Deloitte Access Economics (2011), Forecast growth in labour costs: Queensland and Tasmania - Report prepared for the AER, (August).

⁵⁰ Deloitte Access Economics (2011), Queensland, Resources Council, Queensland Resource Sector State Growth Outlook Study, (November), p 5.

competing employer issues that characterise the actual labour market Powerlink faces currently and prospectively.

3.1.5 Inadequate explanation of labour productivity estimates

The AER/DAE have assumed annual labour productivity increases sufficiently large (including in excess of 2% in the latter three years of the regulatory period) to turn small forecast real wage increases into real labour cost declines over four of the five years of Powerlink's 2013-17 regulatory control period.

The methodology underpinning the labour productivity component of DAE's wage-forecasting model is not clear. While a high level discussion of forecast productivity is provided, DAE has not provided sufficient information for any stakeholder to adequately review how the actual productivity estimates were derived.

In this regard, DAE notes that the model assumes industries with faster growth in productivity will see faster growth in wages than the national average. However, these factors apparently take some time to become evident. DAE also notes that due to the inherent volatility in productivity measures at the State and industry level an average productivity trend across the past two years is used.⁵¹ We do not understand how DAE's relatively subdued wages outlook for the EGWWS sector reconciles with the strong assumed labour productivity growth (averaging around 1.7% per annum) for the sector but somehow it relates to DAE's cyclical and relative wage modelling assumptions.

Hence, labour productivity forecasts for the EGWWS and Construction sectors (for Powerlink's internal labour and external contractor labour respectively) are simply incorporated in the productivity-adjusted real and nominal LPI forecasts to provide an estimate of productivity-adjusted labour costs.

Of particular concern to us, the DAE report does not provide:

- The model specification or detailed assumptions used to derive the labour productivity forecasts including, for example, what measure of EGWWS output is used to derive the forecasts;
 - we assume it is Gross Value Added, which raises a further concern, which is discussed further in section 4 of our report.
- An analysis of the sensitivity of the labour productivity forecasts to changes in the underlying assumptions;

⁵¹ Deloitte Access Economics (2011a), pp 99-100.

- given the inherent measurement difficulties associated with labour productivity estimates, we consider forecasting annual productivity growth to be fraught with difficulty, and any productivity forecasts to be potentially significantly unreliable – sensitivity analysis would seem to be essential to provide an indication of the potential variability in the forecasts (and the associated impact on the real labour cost forecasts);
 - we also have significant concerns about the ABS EGWWS labour productivity estimates being used for forecasting purposes. There appears to us to be a lot of ‘noise’ in the data which is of little or no relevance to electricity network businesses. We do not know to what extent DAE attempts to remove the effects of this ‘noise’ in its EGWWS labour productivity forecasts and some recent analysis of utility sector productivity does not provide much comfort in this regard (this issue is discussed in detail in section 3.1.5 of our report).⁵²
- Supporting information to substantiate the labour productivity forecasts;
 - the DAE accompanying report does not provide a detailed assessment of the forecasts or a sufficient explanation for trends in the forecasts. Rather, the annual percentage change in the labour productivity forecasts (not the actual productivity series itself) are presented as merely an output from the macro-economic model; and
 - details of the relationship between labour productivity and forecast capital investment. Given the apparent importance of “capital deepening” in determining future labour productivity movements in the model, it is essential that the interaction of labour and capital inputs within the model be clearly articulated (we discuss this further below).

The following two specific issues of concern are discussed in the next sections of our report:

- appropriateness of adjusting LPI series for labour productivity
- DAE’s changing labour productivity outlook

Adjusting LPI series for labour productivity

In its Powerlink Draft Decision, the AER concluded that a quality-adjusted measure of labour productivity is the appropriate measure by which to adjust the LPI series. However, DAE has argued that it does not believe that the value of the quality

⁵² Deloitte Access Economics (2011d), Response to the Economic Insight report of March 2011, (April), pp 2-5.

adjustment is large and so values it at zero both in forecasting the LPI and making the labour productivity adjustment to the LPI. We have the following problems with these assumptions:

- DAE does not consider that compositional change in the EGWWS sector has had a significant impact on labour productivity and average wages in recent years;
 - Professor Mangan’s Report has shown that this conclusion is incorrect in relation to Powerlink in recent years.
- In practice, we cannot assess the reasonableness of DAE’s zero assumption nor the predictive performance of DAE’s forecasts for its constructed LPI series for the EGWWS sector because the ABS does not publish a comparable series which could be used as the basis for the forecasts (the only quality-adjusted labour productivity estimates released by the ABS are for the economy-wide market sector);
- Given its zero quality assumption, DAE is effectively using the ABS standard labour productivity series for the EGWWS sector (including compositional effects), as the basis for its productivity forecasts. However, these productivity forecasts are then applied to its forecasts of an LPI series that excludes the impact of those productivity effects.
 - Professor Mangan’s Report states that if the LPI series is adjusted downwards by assumed labour productivity increases incorporating compositional work force effects, the resulting labour cost series will understate real labour cost changes faced by TNSPs. Professor Borland has raised the same issue.⁵³

Professor Mangan’s concerns appear to be borne out by the real LPI productivity-adjusted escalators generated by DAE, which are negative for all but the first year of the 2013-17 regulatory control period.

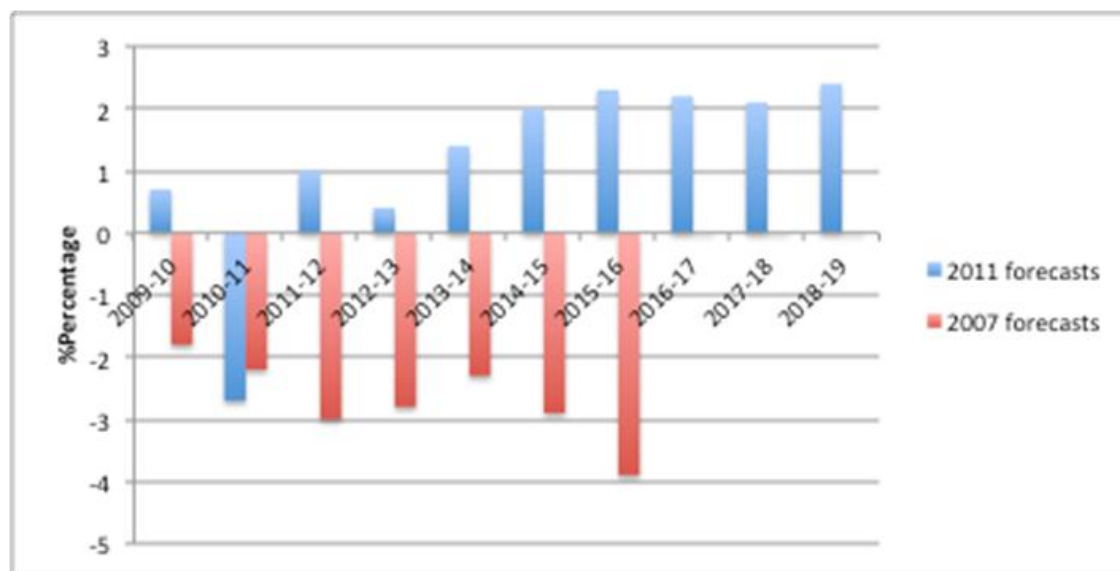
DAE’s changing labour productivity outlook

DAE’s labour productivity assumptions for the EGWWS sector appear to have changed fundamentally between 2007 and 2011. In 2007, at Powerlink’s last regulatory reset, DAE’s forecast was that labour productivity growth would remain negative until 2015-16. In 2011, DAE is now forecasting that labour productivity for the EGWWS sector will turn positive from 2011-12 and remain so until the end of the forecasting horizon in 2018-19 (forecasts for 2016-17 onwards were not made in 2007). The swings

⁵³ Professor Borland (2011), p2.

from negative to positive growth are generally very large, which raises doubts in our mind about the robustness of the model outputs.⁵⁴

Figure 1 Comparison of DAE's labour productivity forecasts between 2011 and 2007



While not explained by DAE or the AER, it would appear that the key model feature driving these revised labour productivity forecasts is the effect of 'capital deepening', such that significant capital investment in the EGWWS sector will increase labour productivity sharply after an unspecified but relatively short lag. Given significant capital expenditure has been a feature of the Queensland EGWWS sector since prior to 2007, something fundamental appears to have changed in the assumptions DAE is inputting into its model. This has resulted in an assumed major structural change being forecast for medium term labour productivity in the EGWWS sector. The relevance of this forecast structural change to the electricity transmission sector (or even the broader electricity industry) is not addressed.

The difference between DAE's two forecast productivity series can be characterised as regulatory forecast error, which because of the way the AER is using DAE's productivity-adjusted LPI forecasts in its transmission (and distribution) determinations, will directly affect a TNSP's maximum allowable revenue. Hence, there is an element of 'luck of the draw' in terms of the timing of a transmission determination and what the latest view of DAE is regarding EGWWS labour productivity changes.

⁵⁴ It is not clear from DAE's report why productivity turns sharply negative between 2009-10 and 2010-11.

Moreover, there is no mechanism under Chapter 6A for a TNSP to seek a re-opening of a transmission determination even though DAE's assumptions regarding a key input used by the AER to set maximum allowable revenues may change within-period. In terms of materiality, the AER's substitute real labour cost escalators (including productivity adjustments) in its Draft Decision have had the effect of reducing Powerlink's operating and capital expenditure forecasts by around \$63 million and \$104 million (in \$2011-12) respectively over the next regulatory control period. Maximum allowable revenues are also clearly significantly lower than those proposed by Powerlink.

DAE's labour productivity forecasts are critical to this outcome as indicated in Table 3.

Table 3 Impact of DAE's labour productivity adjustments on real labour cost escalators

	2012-13	2013-14	2014-15	2015-16	2016-17
DAE's real LPI forecasts	1.6%	0.6%	0.6%	0.0%	0.5%
DAE's real productivity-adjusted LPI forecasts	1.2%	-0.8%	-1.4%	-2.3%	-1.7%
DAE's implied labour productivity forecasts	0.4%	1.4%	2.0%	2.3%	2.2%

In terms of potentially suitable benchmarks for understanding the basis of DAE's labour productivity forecasts, the ABS Electricity Gas and Water Partial Factor Productivity (labour) series has consistently declined at the annual rate of 3.6% per annum since 1998.⁵⁵ This indicates the size and nature of productivity turnaround foreshadowed by DAE.

We understand that Powerlink sought clarification from the AER concerning the data, source, methodology and model/s used to establish the labour productivity measures.. We also understand that DAE advised that the information is confidential and cannot be provided.

As a result, on the basis of the information provided in the DAE report and the AER's Powerlink Draft Decision, we think that the substitute productivity-adjusted real labour cost forecasts have not been established on a reasonable basis and are inconsistent with Section 6A.14.2 of the NER.

We note that Professor Borland⁵⁶ and Economic Insights⁵⁷ raised similar concerns to ours about DAE's changed and increasingly positive outlook for labour productivity in

⁵⁵ Economic Insights (2011), p 7.

⁵⁶ Borland, J. (2001), Labour Cost Escalation Report for Envestra Limited (March), pp 12-13.

⁵⁷ Economic Insights (2011), pp 7-8.

the EGWWS sector in the medium term. DAE responded to these concerns by, in effect, stating that one-off 'drags' on labour productivity growth in the EGWWS sector may have passed or are passing and that measured productivity typically rises when an economy recovers.⁵⁸ In our view, this type of 'broad brush' commentary, generally relied upon by DAE to substantiate its real labour cost forecasts for AER determinations under the NER and NGR, fails the substantiation thresholds established in the respective Rules.

3.2 Conclusion

We do not consider that DAE's macroeconomic wage forecasting model is likely to generate sound or reasonable forecasts of the real labour costs that Powerlink is likely to incur over the 2013 - 2017 regulatory period. This is mainly because:

- it does not adequately take into account the reasonably expected demand for skilled electricity workers from competing mining and construction employers, particularly in regional Queensland;
- it does not appear to adequately recognise the influence of institutional labour market factors on wage outcomes;
- a review of the performance of the model indicates that it has historically systematically under-forecast growth in the LPI series by a significant amount;
- as various key details of the model structure and inputs are unable to be reviewed and tested, it is not possible to comment further on why the model has historically under-forecast growth; and
- DAE's views on the strong dampening influence of labour supply-side adjustment on EGWWS wage outcomes is not supported by the reasonably expected expansion of mining and construction activities in Queensland and the way in which labour markets adjust.

Finally, we have significant concerns about the labour productivity adjustments made in the DAE forecasts. From the materials we have reviewed there does not appear to be a sound evidential basis for this adjustment.

For these reasons we consider that Powerlink's proposed real labour cost forecasts provide a more reasonable estimate of expected outcomes over the 2012-17 regulatory control period.

⁵⁸ Deloitte Access Economics (2011), Response to Borland, (April), p5.

4 Labour productivity adjustments

4.1 Introduction

As discussed in section 3 of our report, the labour productivity measure adopted by the AER is generated by DAE's macro-economic wage forecasting model based on the EGWWS sector. It appears to us to have limited regard for Powerlink's specific circumstances.

Further, we consider that the use of an EGWWS labour productivity forecast to determine future potential efficiencies in the electricity transmission sub-sector is both arbitrary and incorrect under the NER.

For these reasons, we argue that the AER does not have a reasonable basis to make its proposed labour productivity adjustment to real wage forecasts as part of its assessment of the efficiency of Powerlink's proposed operating and capital expenditure forecasts under the NER.

4.2 Incentive-based economic regulation under the NER

Economic regulation has evolved from what is called rate of return regulation to a variety of CPI-X methodologies often referred to as incentive regulation. The NER set out a form of incentive-based regulation. The fundamental objective of incentive based regulation is to encourage a regulated entity to achieve efficiency and/or productivity gains through time.

Under a high powered incentive framework, a CPI - X control is applied to the weighted average price of the regulated entity's services, where the X reflects the expected efficiency gains, based either on an industry-specific or economy-wide measure. This type of incentive regulation effectively decouples an entity's prices from costs (at least for a period) such that the entity experiences increased or reduced profits depending on how well it manages its costs. Generally, under this framework, the regulator undertakes no business-specific cost assessment (apart from the establishment of base year costs prior to the start of the CPI - X control).

However, such a high-powered CPI - X control is not being applied by the AER to TNSPs under Chapter 6A of the NER. Rather, Chapter 6A applies a form of incentive regulation that requires the AER to set revenue caps for TNSPs using what is known as the building block approach. Under this approach, the AER applies cost building blocks of the relevant TNSP, including operating and capital expenditure forecasts, which are used to establish an annual revenue requirement (also known as maximum allowable revenue) in a forward-looking sense under a revenue cap control.

In doing so, the AER must determine the extent to which expected efficiencies and/or productivity gains are reflected in the revenue cap control. As noted in section 2 of our report, the NER provide limited guidance on how the AER should determine the scope for efficiencies and/or productivity improvements.

Productivity is a measure of the physical output produced from the use of a given quantity of inputs. Similarly, economic efficiency measures the use of resources to maximize the production of goods and services. However, efficiency is a somewhat broader concept than productivity, with productive, allocative and dynamic dimensions.

In an Australian regulatory context, regulators have tended to identify efficiencies and/or productivity improvements in specific expenditure programs or the aggregate operating and capital expenditure programs of regulated entities as part of building block assessments. This is the regulatory assessment model upon which Chapter 6A is based.

To apply broad sectoral (EGWWS) labour productivity estimates without due regard to the specific circumstances of the affected TNSP, or to other comparable entities, is in our view inconsistent with the intent of Chapter 6A. This issue is discussed further below.

4.2.1 Prudency and efficiency tests under the NER

Under Chapter 6A, a TNSP is required to provide a Revenue Proposal to the AER providing details of the building block components and associated supporting material. In response, the AER must assess the TNSP's proposed operating and capital expenditure forecasts for their prudency and efficiency.

In our view, this could be expected to involve a 'top-down and 'bottom-up' assessment of forecast expenditure including

- its historic expenditure;
- scope and resourcing of its proposed future expenditure programs, including the labour components;
- comparable TNSPs efficiency, including any soundly based TNSP-specific efficiency benchmarking; and
- business and/or electricity network-specific forward-looking labour cost drivers.

In doing so, the AER may identify reductions in forecast expenditure, including opportunities for future efficiency gains. However, under the NER, any such reductions must be substantiated such that they have a reasonable basis.

The AER has generally applied this approach to its assessment of both capital and operating expenditure in previous regulatory reviews for TNSPs and DNSPs. However, in assessing Powerlink's forecast operating and capital expenditure, the AER has departed from this approach and imposed a productive efficiency-driven reduction to these forecasts through a broad sectoral estimate of future labour productivity. As noted in section 3.1.5, the basis of the EGWWS labour productivity forecasts has not been substantiated in the DAE report from which they are taken nor by the AER in its Draft Decision.

While we agree that the AER must assess the potential for operating and capital expenditure efficiencies under Chapter 6A, and can substitute replacement values on a reasonable basis where it identifies them, we consider that the use of an EGWWS labour productivity estimate to determine future efficiencies is both arbitrary and incorrect. This issue is discussed further in the next sub-sections.

4.2.2 Relevance of AER's labour productivity measure

We consider that the concept of labour productivity is incorrectly applied by the AER in the context of the requirements of Chapter 6A and, specifically, assessment of a TNSP's operating and capital expenditure forecasts.

Productivity is a measure of the physical output produced from the use of a given quantity of inputs. However, in applying its labour productivity factor, the AER has neglected to define the outputs produced by Powerlink against which its labour productivity is being measured.

Powerlink is required to perform a range of activities and services to meet the NER and State legislative obligations in relation to energy security, reliability and safety. Moreover, Powerlink's service performance is subject to financial incentives (penalties and rewards) in terms of reliability-based and congestion-based targets in its business-specific service target performance incentive scheme (STPIS). Powerlink's STPIS has the following service incentive indicators:

- transmission circuit availability (with four sub-parameters);
- loss of supply (LOS) event frequency (with two sub-parameters);
- average outage duration;

and the following congestion-related market impact indicators:

- total cost of constraints
- outage cost of constraints
- marginal cost of constraints.

Hence, it can be argued that a key objective of Powerlink's operating and capital expenditure programs is to at least meet or exceed these service standards/targets. In other words, the quantifiable 'outputs' of the expenditure programs are most likely to be these standards.

Furthermore, as noted in section 2 of our report, the AER's assessment of a TNSP's labour costs included in the capital and operating expenditure forecasts for the regulatory control period should ensure their consistency with the incentives provided by the applicable STPIS.

However, and while not revealed in the AER's Draft Decision or DAE's accompanying report, we assume that the output measure for labour productivity being used in DAE's forecasts is the concept of gross value added (GVA), based on the ABS industry-based multi-factor productivity series.⁵⁹

The labour input measure for the labour productivity series is likely to be the total number of hours worked, sourced from the ABS Labour Force Survey. Total hours worked is derived from the level of employment multiplied by average hours worked per person.

Labour productivity for the EGWWS sector is thus likely to be expressed in the model as either:

- $\text{GVA for EGWWS sector} / \text{Total Employment in EGWWS sector} = \text{Labour productivity per employee for EGWWS sector}$

or:

- $\text{GVA for EGWWS sector} / \text{Total hours worked in EGWWS sector} = \text{Labour productivity per hour worked for EGWWS sector}$

In our view, the relevance of using the output concept 'gross value added', which is not otherwise relevant to a TNSP's obligations under the NER, to calculate labour productivity and then apply these estimates to Powerlink's operating and capital

⁵⁹ The ABS publishes annual indexes of labour productivity, capital productivity and multi-factor productivity for a set of industries (referred to as the market sector), which are published in the Australian System of National Accounts (ABS cat. no. 5204.0).

expenditure forecasts on efficiency grounds is incorrect in principle and is likely to be inconsistent with clause 6A.6.6(e)(8) of the NER.

Moreover, the effect of the AER using DAE's labour productivity adjusted real labour cost forecasts in its Draft Decision is that Powerlink will be expected to meet its STPIS and broader legislative service performance obligations with the level of its real labour costs falling by around 5% over the 2013-17 regulatory control period. We do not consider that this outcome is reasonably plausible given:

- any reasonable expectation of labour market conditions likely to face Powerlink;
- its network growth and employment plans; and
- the scope for reasonably achievable labour productivity gains within its business over this period.

These issues are discussed at length in Powerlink's Revised Regulatory Proposal.

4.2.3 Main concerns with AER's proposed real labour cost forecasts

The main reasons for our view that the AER's substituted labour cost escalation forecasts have not been formed on a reasonable basis are as follows:

- the AER proposes significant improvement in Powerlink's labour productivity over the 2012-17 period without any substantiation, including having due regard for the relationship between Powerlink's capital and labour inputs in the proposed expenditure programs;
- we question the appropriateness of the measure of labour productivity we assume is being used by the AER and its relevance to Powerlink's outputs;
- the AER's approach to assessing the efficiency of Powerlink's forecast costs appears to inappropriately combine a standard business-specific expenditure assessment using EGWWS labour productivity adjustments that are only loosely related to Powerlink's specific circumstances (see the next section for further discussion on this point); the aggressive nature of the AER's proposed labour productivity adjustments without apparent due regard for Powerlink's circumstances; and
- the significant reductions to Powerlink's forecast capital expenditure based on a consultant's business-specific assessment of the proposed expenditure program

but the consultant was not required to form a view on the quantum of the labour escalators used by Powerlink in its forecasts;⁶⁰

- at best this has resulted in a partial assessment of Powerlink’s proposed capital expenditure program and, at worst, could well result in a ‘double counting’ of labour productive efficiencies incorporated in the program.

4.3 Identifying a reasonable efficiency adjustment under the NER

We recognise that the AER must apply a rigorous assessment of a TNSP’s forecast expenditure and propose substitute values where cost inefficiencies are appropriately identified. However, we consider that the AER’s application of labour productivity efficiency gains to forecast capital and operating expenditure based on forecast productivity in the EGWWS sector is misguided.

In our view, Australian regulators have generally assessed efficiency based on an assessment of the efficiency of comparable entities. Under this approach, an efficient cost benchmark would be identified and less efficient TNSPs transitioned to the benchmark over some time period. This is a more targeted approach that recognises the specific circumstances of TNSPs as opposed to applying broad EGWWS labour productivity adjustments. As will be discussed further in section 4.4 of our report, the use of a TFP approach is foreshadowed in the National Electricity Law as potentially applicable under the building block assessment approach. However, this application of TFP for TNSPs would be in relation to electricity transmission-based (not EGWWS) efficiency benchmarking.

Conversely, the AER’s proposed labour productivity measure is not specific to either Powerlink or the Australian electricity transmission sector. Instead, forecast labour productivity is based on the entire Queensland EGWWS sector. Given the wide range of industries included in the EGWWS sector, this approach is, in our view, inappropriate. Effectively, the AER has proposed large reductions to Powerlink’s forecast expenditure on the basis of labour productivity forecasts for a range of broadly comparable but not necessarily relevant industries from a labour input and service output perspective.

Moreover, we consider that the proposed productivity gains averaging 1.7% per annum are relatively aggressive and seem inconsistent with the AER’s own benchmarking analysis which indicates Powerlink’s current operating expenditure is in

⁶⁰ Energy Market Consulting Associates, (2011), Powerlink Revenue Determination: Technical Review, (September).

the average range when compared to the other TNSPs in the National Electricity Market.⁶¹

In our view, to the extent a labour productivity factor is warranted at all, estimates of electricity transmission labour productivity should be developed using data from the electricity transmission industry only.

4.4 Using a TFP approach under the NER

TFP is one way of calculating an industry efficiency factor, measuring productivity as the difference between the growth rate in a Network Service Provider's outputs and the growth rate in its inputs (both labour and capital).

In July 2011, the Australian Energy Market Commission (AEMC) published its final decision in relation to the use of TFP for the determination of revenues and prices.⁶² The AEMC identified two possible applications of TPP under the national energy laws.⁶³ First, TFP indices can be used to assist the AER in applying efficiency cost benchmarking under the existing building blocks approach. However, the AEMC noted that to date the AER has made limited use of benchmarking in its determinations.

Alternatively, the TFP methodology could be used as the basis for setting maximum allowable revenues (with the TFP growth rate used to set the X factor in the CPI-X framework). The AEMC noted that this latter approach would be applied as an alternative to the existing building block approach established in the Rules.

The AEMC found that before the implementation of the TFP methodology could be considered under the energy regulatory frameworks, more consistent and robust data on network service providers' inputs and outputs needed to be collected and reported to the AER. In other words, there is insufficient information available to make any reasoned or logical industry-based adjustments for efficiency or labour productivity in relation to electricity and gas network service providers.

Importantly, the AEMC noted that:⁶⁴

⁶¹ AER, (2011), Powerlink Transmission Determination 2012-13 to 2016-17 – Draft Decision, (November).

⁶² Australian Energy Market Commission (2011), Review into the use of total factor productivity for the determination of prices and revenues, Final Report, (June)

⁶³ Australian Energy Market Commission (2011), pp i-ii.

⁶⁴ AEMC (2011), p ii.

In addition, the development of TFP indices for the energy sectors could be used to guide wider policy decisions by providing an accurate measure of productivity in the industry.

We agree with the AEMC that the TFP methodology and building block approaches are alternative methods for applying incentive regulation to the determination of maximum allowable revenues and prices. Moreover, the use of a labour productivity factor would appear to be a sub-component of a TFP methodology rather than a stand-alone approach used to derive a service provider's future real labour costs as proposed by the AER in its Powerlink Draft Decision and the recent final decisions for Envestra's Queensland and South Australian gas distribution networks.

It is important to note that we are not recommending the AER adopt a TFP methodology for TNSPs, rather a consistent approach to economic regulation under the NER should be applied.

We consider that, where a labour productivity factor is proposed, it should be applied in the context of a TFP or similar methodology that allows for all relevant inputs and their interactions to be included in determining potential productivity gains. Moreover, the outputs of the service providers will also need to be properly specified. This is not the case with the AER's proposed labour productivity adjustment applied to Powerlink's proposed real labour cost forecasts for the 2013-17 regulatory control period.

A Curriculum vitae



In brief

An experienced economist and lawyer, Euan consults extensively in the infrastructure sector, particularly on costing and pricing work in the energy, transport and water industries. Euan has substantial experience in providing regulatory advice to electricity and gas network businesses.

Qualifications

Certificate of Attainment in VPAU324 & VPAU325, *Swinburne University of Technology, National Centre for Sustainability*, 2008

Bachelor of Economics (1st Class Honours), *University of Queensland*, 1994

Bachelor of Economics, *University of Queensland*, 1992

Admitted as a Solicitor, *Supreme Court of Queensland*, 1991

Bachelor of Law (Honours), *University of Queensland*, 1988

Bachelor of Commerce, *University of Queensland*, 1986

Skills and Capabilities

- Economic regulation advice
- Competition policy and trade practices
- Economic policy advice

Key Appointments

- Member of the Expert Panel advising the Ministerial Council on Energy on energy access pricing
- Independent Expert under the National Electricity Rules
- Member of the Trade Practices Committee of the Law Council of Australia
- Director, Ecofund Queensland
- Director, AEIOU

Recent Major Projects

- As Principal Advisor – Regulation at QERU, advised on the creation of the Queensland electricity market and the rules to underpin its inception and evolution
- Prepared Expert Statements for Vector on cost allocation issues, the valuation of the regulatory asset base and the appropriate cost of capital to be applied to Vector's gas pipeline and electricity distribution businesses under Part 4A of the Commerce Act
- Advised ENEREX on network pricing approaches for achieving demand management objectives and the development of its long term pricing strategy
- Advised the National Generators Forum on congestion management in the NEM for the AEMC's congestion management review
- As part of a review by Ergon Energy of the future direction of its telecommunications strategy, examined the activities of energy utilities (particularly energy

retailers) in the telecommunications sector;

- Prepared four separate due diligence exercises for the Australian Pipeline Trust in connection with the purchase of infrastructure assets;
- Provides advice on the effectiveness of the NEM, the importance of liquidity in hedging markets and the factors driving liquidity
- Advised AEMO on real options values in transmission investment
- Advised on the economics of network hardening associated with climate change, including a cost benefit assessment of undergrounding networks
- Prepared a report to Australian Energy Market Commission; 'DSP Contribution to Standing Reserve for Reliability Purposes in the NEM'
- Advised on energy efficiency regimes and market based approaches to encourage energy efficiency
- Undertook cost comparison of grid transmitted electricity and embedded solar thermal generation
- Facilitated a workshop for the Regulatory Affairs Committee of the Energy Networks Association on issues associated with the recent large increases in network costs
- Assisted the Northern Territory Utilities Commission design a regime for the NT electricity market
- Advised TXU in the United States on electricity market design issues, including in relation to market power mitigation, reliability measures and capacity trading mechanisms
- Facilitated workshops for numerous regulated infrastructure providers, including APIA, Energy Networks Association and ESAA Distribution Directorate
- Advised on the economics of renewable energy and the impact of Mandated Renewable Energy Target on NEM congestion
- Prepared expert testimony for appeal processes associated with NEMMCO's determination on the proposed SNI interconnector
- Advised Powerlink on the costs and benefits of increasing thresholds for the regulatory test in relation to reliability-driven network augmentations



In brief

Matt has broad consulting experience advising in relation to the economic regulation of the energy and transport sectors. Over the past 18 months Matt has been advising Queensland's two electricity distribution businesses, ENERGEX and Ergon Energy, on a wide range of matters associated with the development and interpretation of a new national energy regulatory framework for Australia's National Electricity Market.

Matt joined Synergies in early 2006 after a number of years as a Team Leader at the Queensland Competition Authority. Matt has extensive experience in economic regulation having supervised a number of the QCA's regulatory processes in the electricity and rail sectors. These include the 2005 final revenue determination for Queensland electricity distributors, QR's 2001 Undertaking and reviews with respect to energy pricing, ring-fencing, service quality and metrology.

Matt also has lengthy experience in public sector policy development. He worked for a decade in the Commonwealth Department of Treasury where he held roles relating to the development of national competition policy and structural reform, as well as analysis of national accounts, wages and general economic data.

Qualifications

Graduate Diploma of Applied Finance and Investment,
Financial Services Institute of Australia, 2005

Graduate Diploma of Economics, *Australia National University, 1990*

Bachelor of Economics, *University of Queensland, 1986*

Skills and capabilities

- Extensive knowledge of Australian economic regulatory frameworks, particularly in the transport and energy sectors
- Regulatory compliance and strategic advice
- Regulatory design advice
- Competition and microeconomic policy advice

Recent major projects

- Assisted in the preparation of ENERGEX's response to the AER's Draft Determination for the 2010-15 regulatory control period, including on input cost escalation issues
- Prepared a report for Essential Energy on the advantages and disadvantages of the various control mechanisms available under the NER. The report also included a recommendation on the preferred form of control based on current operational conditions and policy environment
- Prepared a written report assessing the Australian Energy Regulator's (AER's) proposed service target performance incentive scheme (STPIS) and co-ordinated development of a model to enable ENERGEX to assess the sensitivity of its regulated revenue to the STPIS
- Prepared submissions for Vector, a New Zealand electricity distributor and gas pipeline service provider,

on asset valuation and cost allocation issues in relation to the Commerce Commission's development of Input Methodologies for price setting purposes

- Advised the Energy Network Association on exogenous risk management mechanisms available under the National Electricity Rules
- Reviewed international evidence on electricity demand responsiveness and time of use tariffs in the context of electricity retail tariff reform in Queensland
- Advised ENERGEX on its price modelling requirements for the 2010-15 regulatory control period, including an interpretation of the National Electricity Rules (NER) pricing provisions and a review of electricity distribution pricing across National Electricity Market jurisdictions
- Provided a written report interpreting the implications of the AER's demand management (DM) incentive scheme and developed assessment criteria for the incorporation of DM expenditure projects in ENERGEX's regulatory proposal for the 2010-15 regulatory period
- Provided advice to ENERGEX in relation to the Australian Energy Market Commission's consideration of a proposed Rule change to the NER to allow total factor productivity to be used as a form of regulation for electricity distribution businesses
- Assisted ENERGEX develop its long term pricing strategy.
- Advised Ergon Energy on a range of compliance issues associated with the cost pass-through provisions of the National Electricity Rules.
- Advised a banking consortium on regulatory risks associated with the proposed Copperstring high voltage electricity transmission line from Mt Isa to Townville.



In brief

Gary has over thirteen years experience in the economic regulation of monopoly services, working for the regulator, government agencies and regulated businesses. His responsibilities have included developing and assessing regulatory determinations in the energy and water industries, retail tariff setting and pricing, and the development of cost allocation and regulatory reporting frameworks.

Prior to joining Synergies, Gary worked as a Regulatory and Pricing Manager at Allconnex Water and is a former Team Leader in the Energy Division of the Queensland Competition Authority where he supervised a number of regulatory processes in both the energy distribution and retail sectors.

Gary also has prior experience in providing consultancy services and has been engaged as an in-house Regulatory Advisor for both regulatory agencies (including the Australian Energy Regulator) and regulated businesses across Australia.

Qualifications

Masters of Applied Economics, *Griffith University*, 1994

Bachelor of Commerce (Econ), *Griffith University*, 1990

Skills and capabilities

- Extensive knowledge of Australian economic regulatory frameworks
- Regulatory design advice
- Regulatory compliance advice
- Tariff setting
- Regulatory reporting

Recent Experience

- Responsible for preparing Allconnex Water's 2011-12 Price Monitoring submission to the Queensland Competition Authority (QCA), setting out process and system developments since the 2010-11 submission, forecast capital and operating expenditure, tariffs for the forthcoming year and the forward work program
- Developed a project plan for Allconnex Water in preparation for future deterministic, including: identifying current capabilities; documenting existing processes; and identifying existing policies, processes, procedures and resources that require modification to ensure Allconnex Water meet its requirements.
- Developed a short and medium-term pricing strategy for Allconnex Water's distribution/retail tariffs, including commencement of tariff harmonisation; achievement of required credit metrics and revenue adequacy requirements; and alignment with regulatory pricing principles.
- Managed the production of a report to the Queensland Government reviewing retail electricity pricing in Queensland. The majority of the report recommendations were subsequently endorsed by the

Queensland Government.

- Provided advice to the Australian Energy Regulator (AER) concerning the appropriate design of information reporting requirements to apply to Australian electricity distribution businesses in the lead-up to future Regulatory Determinations.
- Assisted Ergon Energy Distribution with its preparations for its 2009 Revenue Reset. This role encompassed review and commentary on regulatory Guidelines as these were released, modelling implications of service classifications, roll-forward of the regulatory asset base, cost allocation and allocation of overheads, capital contributions issues and pricing issues.
- Engaged as an in-house regulatory adviser to the AER for a period of 6 months to provide expert advice in relation to the assessment of capital and operating expenditure forecasts provided as part of the AER's 2009-14 NSW Regulatory Determination.
- Assisted Power and Water Corporation with its preparations for its 2008 Revenue Reset. This role encompassed advice on the modelling implications of service classifications, cost allocation, and revenue proposal drafting.
- Engaged as an in-house regulatory adviser to Ergon Energy for a period of 6 months. This involved the provision of regulatory advice to the Network Regulation Manager, Ergon Energy on issues including: the development of a regulatory asset valuation; the preparation of Cost Allocation Guidelines and Regulatory Reporting Statements; and the preparation of annual Pricing Principles Statements.
- Provided advice to the AER regarding the Ministerial Council of Energy initiated review of cost allocation and regulatory reporting arrangements in the Australian electricity transmission sector.