Powerlink Queensland Transmission Network Revenue Cap - Draft Decision by the Australian Energy Regulator - 8 December 2007

TransGrid Submission

9 February 2007

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1. Introduction

As the AER is aware, TransGrid is the first transmission business in the NEM to be subjected to a revenue cap decision based on the ex-ante capital expenditure incentive regime set out in the Statement of Regulatory Principles. TransGrid's current revenue cap decision also foreshadows the move away from 'ex-post' assessments of expenditure efficiency. Further, TransGrid will be the first NEM TNSP to be subjected to the new revenue Rules that effectively abandon ex-post efficiency assessments in favour of efficient forecasts of capital and operating expenditure requirements.

Accordingly, TransGrid's focus in this brief submission is on three key areas of the draft Powerlink Revenue Cap decision as follows:

1. The approach adopted by the AER in determining Powerlink's future capital expenditure requirements for revenue cap setting purposes.
2. The approach adopted by the AER in forecasting Powerlink's future labour costs for revenue cap setting purposes.
3. The method for forecasting inflation and the associated risk free interest rate.

Each of these matters is considered in turn.

2. Treatment of Powerlink's Forecast Capex

TransGrid would like to ensure that the process for establishing forecast capital expenditure requirements is robust. In this regard, there are two matters in the AER's draft Powerlink decision requiring particular attention.

Firstly, it is important that the AER fully appreciates the cost increases that have occurred recently in the supply and erection of transmission plant. Analysis of the costs of establishing substations on a fully contestable basis in NSW reveals increases of between 12.5% (330/132kV substation) and 36% (132/66kV substation) over the past two years. Initial analysis suggests that increases in the past twelve months have been higher than in the previous twelve months. Transformer cost increases have been a key driver in the cost increase in 132/66kV substations. This has been accompanied by substantial increases in the delivery times of key items of plant. For example 132/66kV transformers, that were able to be provided in a 9 month time frame, are now provided in 15 months.

TransGrid's overall experience points to a very tight market for the supply and erection of transmission plant and appears to corroborate the substantial unit cost increases claimed by Powerlink.

Secondly, TransGrid does not believe that the 'top down' assessment of Powerlink's forecast efficient replacement capex requirements, as carried out by PB Associates, is an appropriate method. TransGrid notes that the result of this approach was a recommended reduction in Powerlink's replacement capex forecast of more than $100 million.

TransGrid develops its forecast replacement capex requirements using a 'bottom up' approach. This essentially relies on continuous assessment of the condition of plant and the relative risks to service outcomes presented by current and forecast plant condition as a basis for determining the need to repair or replace plant. TransGrid also has detailed cost data for use in comparing options for addressing emerging plant performance issues. As such, there is usually ample and detailed information to develop a prudent and efficient expenditure forecast.

TransGrid understands that Powerlink adopts similar processes, and is able to provide similar "bottom up" information for review by the AER, and the AER's consultants. As such, TransGrid would be most concerned if, for budgetary or other reasons, this information was not fully considered and reliance is placed, instead, on a relatively simplistic high level assessment.

3. Treatment of Powerlink's Forecast Opex – Labour Cost Forecasts

TransGrid would like to ensure that the process for establishing forecast operating expenditure requirements is robust. In this regard the AER's adoption of labour cost forecasts provided by Access Economics appears to require particular attention.

The key issues with the AER's use of the Access Economics report are discussed in more detail in the attached analysis by NERA. In summary these are:

1. The differences in the inflation forecasts developed by Access Economics and the AER have not been reconciled or taken into account; and
2. The Access Economics labour cost forecasts appear to be low and are not transparently justified.

The essential issue with the inflation forecasts is that Access Economics is forecasting 2.5% per annum over the Powerlink reset period, while the AER is forecasting 3.15%. Despite this, the AER then adopts the Access Economics' forecasts of nominal wage growth rates without adjusting for this difference. As a result, the AER is proposing a much lower real growth in wages than Access Economics without explanation and, consequently, builds this lower forecast into the Powerlink revenue cap decision.

To resolve this matter, and as noted below, consideration should be given to the adoption of the Access Economics inflation forecast as the basis for the final Powerlink revenue cap decision. In this way, and assuming that the AER agrees with the real forecast growth in wage costs implied by the Access Economics report, the findings of Access Economics would be accurately reflected in the final revenue cap decision.

However, TransGrid considers the forecast growth in real labour costs implied by the Access Economics report to be too low. Some of this concern is based on the absence of transparent analysis explaining the relatively sudden levelling off of labour cost increases in the latter years of the Powerlink reset period, and definitions of labour productivity adopted by Access Economics. These concerns are explained in more detail in the attached analysis by NERA.

TransGrid notes that the PB Associates' forecast labour cost increases are higher than Access Economics' forecasts and these appear to be soundly based. Furthermore, the AER's reasons for rejecting the PB Associates' forecasts, in favour of the Access Economics' forecasts, are not made clear.

In addition, TransGrid is aware of the length of time it takes to develop the high levels of specialised skills required by electricity network businesses, the current shortfalls in those skills, and the expected continuing high demand for those skills. For example, it typically takes at least 4 years formal training to achieve basic qualifications in the relevant fields of expertise, and many more years to develop into fully productive practitioners. In practical terms, it does not seem possible for existing skills shortfalls to be addressed via this process within the short time frame proposed by Access Economics.

4. The AER's Method for Calculating Forecast Inflation and the Risk Free Rate of Return

The AER's reliance on Access Economics' wage forecasts raises an important issue in relation to the determination of the WACC. Access Economics forecasts inflation to average around 2.5% over the period of the determination - as per the below table from the Access Economics' report.

TABLE 1: PRICE INDICES

	Forecasts					
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Headline CPI index	151.6	156.5	159.9	164.3	167.9	171.9
% change	3.2	3.2	2.1	2.8	2.2	2.4
% change (12 mths to year end)	4.0	2.1	2.5	2.6	2.2	2.4
Underlying CPI index	151.2	154.8	159.1	163.6	167.3	171.2
% change	1.9	2.4	2.8	2.9	2.2	2.3
% change (12 mths to year end)	2.0	2.6	3.0	2.6	2.2	2.3

ABS no longer publishes the 'Treasury underlying CPI index'. To replace that, we use the private sector goods and services price index as an 'underlying' CPI. CPI indices are based at 1989-90=100.

This compares with the 3.15% inflation forecast calculated by the AER from the difference between yields on nominal and inflation indexed Commonwealth Government Securities (CGS). If Access Economics' inflation forecast is the more accurate forecast, then Powerlink will receive an inadequate real return on its RAB. Adopting Access Economics' inflation forecast would increase the real return on capital for Powerlink by around 65 basis points (3.15% less 2.5%).

Furthermore, the Reserve Bank of Australia has recently argued that the difference in CGS bond yields overestimates inflation in the current market conditions. The reason given by the RBA is that institutional factors in the market for indexed CGS mean that yields on these bonds are biased downward.

> *"The implied medium-term inflationary expectations of financial market participants have traditionally been calculated as the difference between nominal and indexed bond yields. This measure has continued to edge higher since the February Statement, to be around 3.2 per cent in early May. However, this rise in part reflects developments in the indexed bond market that are unrelated to inflation expectations. In particular, the limited supply of indexed securities and increasing institutional demand for these securities has pushed down their yields relative to those on conventional bonds" (*p 58, RBA Statement On Monetary Policy, 5 May 2006)

In the context of the above, TransGrid is aware that the Energy Networks Association of Australia (ENA) is currently in the process of engaging Dr Tom Hird[1] and Professor Bruce Grundy[2] to examine and quantify the extent of the bias referred to by the RBA. The results of this study are expected to be available in around two months, and it would be reasonable for the AER to have regard to the results of that study in developing Powerlink's final determination.

Alternatively, the AER could adopt Access Economics' forecast of inflation over the relevant period. This is on the basis of both the AER's reliance on Access Economics' nominal wage forecast (which Access Economics notes is dependent its inflation forecast) and the statements from the RBA.

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1 NERA Economic Consulting

2 Melbourne University and Wharton Business School

5. Summary

Some adjustments to the Powerlink draft revenue cap decision appear warranted as follows:

1. Greater recognition of recent increases in the costs of procurement and erection of transmission plant.
2. A reassessment of Powerlink's capital replacement expenditure forecasts using 'bottom up' condition based data rather than relying on the 'broad brush' top down assessments carried out by PB Associates.
3. Incorporation of higher forecast real labour cost increases than currently proposed by the AER.
4. Amendments to the regulated WACC to reflect the actual real risk free bond rates implied by the Access Economics' labour cost forecast report, and recent statements by the Reserve Bank of Australia regarding the use of indexed bond rates to develop inflation forecasts.

On this last point TransGrid notes that additional supporting information is expected to be provided over the next couple of months.

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Review of Access Economics Report TransGrid

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1. Summary

This short report is divided into two sections. The first spells out relevant facts surrounding the AER's adoption of Access Economics' wage growth forecasts. The second section explains the problems we see with the use of these forecasts.

2. Summary of relevant facts

One important element of operating costs is labour costs. Powerlink reported increased labour costs driven by skills shortages in Queensland relative to southern states and submitted that the growth in its wage costs should be indexed at a rate of 5.6% over the period from 2008/09 to 2011/12.

2.1. PB Associates review

The AER engaged PB Associates to review Powerlink's opex proposal. The AER summarised PB's critique with regards to labour costs as follows:

> *"PB indicated that the market for experienced electricity workers will be very tight in the short-term and consequently it believed that above average wage rate increases will be negotiated for at least the next four to five years. However, PB stated that given the cyclical nature of labour markets it is unlikely that labour costs will increase by 5 per cent to 6 per cent compounding every year for the next seven years"*

PB referred to evidence that Queensland full time adult total earnings have increased over the last ten years at an average rate of 4.6 per cent. Noting that the electricity industry is responding to the labour shortage, PB recommended that the long term rate to apply be 4.6 per cent, but that Powerlink's proposed factors for 2007/08, 2008/09 and 2009/10 are reasonable.

2.2. Access Economics review

The AER also commissioned Access Economics to advise on wage growth forecasts for the utilities sector in each state of Australia. Access Economics provides estimates of "annual nominal wages growth" for utilities workers and for all industries on page iii of its report. However, it provides no sources for these data and does not describe any methodology that it uses to derive them.

Access Economics also reports a separate series for annual nominal wages growth, but excluding gains in productivity. It is unclear how Access Economics defined productivity or what sources were used to estimate it.

Relevant data that Access Economics reports for Queensland is shown in the table below.

Table 2.1
Access Economics Forecasts

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
QLD Utilities Nominal Wages Growth	5.60	5.80	5.30	3.50	3.50	4.00
QLD Utilities Nominal Wages Growth less Productivity	2.90	0.90	2.90	3.00	1.80	2.00
National Headline Inflation Forecast[1]	2.1	2.50	2.60	2.20	2.40	2.30
QLD Utilities Real Wages Growth	3.20	3.40	2.80	1.30	1.10	1.70

Notes: (1) See Table 1 [sic] on page 14 of the Access report. 2011/12 estimate is inferred from Chart 2 of the Access Economics report.

2.3. AER decision

In table 6.7 of its determination, the AER reports the nominal labour cost escalators that it has considered. This is reproduced here, except that for convenience Access Economics' forecasts have also been included.

Table 2.2
Access Economics Forecasts

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Powerlink	Base year	12.20	7.69	5.83	5.60	5.60	5.60	5.60
PB	Base year	12.20	7.69	5.83	5.60	5.60	4.60	4.60
Access Economics	Base year	n.a.	5.60	5.80	5.30	3.50	3.50	4.00
AER	Base year	12.20	7.69	5.83	5.30	3.50	3.50	4.00

As can be seen in the table above, the AER has adopted the Access Economics' nominal forecasts from 2008/09. It appears that Powerlink's proposed escalator has been rejected because it:

> *"does not appear to reflect likely changes in skilled labour supply, due to both supply side initiatives such as training and recruitment strategies, and demand side responses to increased wages"*

The AER does not indicate why it has not chosen to adopt the escalators suggested by PB Associates.

3. Errors and problems with the AER's approach

We see three main issues relating to the use by the AER of the data provided by Access Economics. The first relates to the use of nominal escalators based on different assumptions of inflation. The second relates to 'black box' nature of advice by Access Economics. The third relates to the role of Access Economics' productivity measures in informing its wage forecasts.

3.1. Inflation assumptions

Powerlink, Access Economics and PB Associates have arrived at different estimates of nominal wage growth for electricity workers in Queensland over the next five years. However, it is the *real* wage growth that will determine the revenue that Powerlink is awarded in each year of the regulatory period. The real wage growth used in the PTRM is equal to the nominal wage growth less the estimate of inflation **used in the PTRM modelling**. The ACCC/AER's practice has been to use the difference between nominal and real bond rates as the forecast of inflation over the period. This is forecast at 3.15% pa (page 101 of draft decision). This compares with Access Economics' estimates of around 2.5% pa (see above table).

The upshot of this is that Access Economics is estimating real wages growth of more than 1% pa (Access Economics' nominal wage growth less Access Economics' inflation forecast) while the AER is estimating much lower real wage increases (Access Economics' nominal wage growth less the AER's inflation forecast). It is clearly wrong to use Access Economics' nominal wage growth assumption and not use Access Economics inflation forecast to estimate real wage growth. This is especially true when Access Economics states:

> *"Underlying inflation is an important driver of wage growth – workers desire their wage increases to at least keep pace with the increasing cost of living, with 'real wage growth' (increase in wages after the impact of inflation have been accounted for) often used as a measure of the true level of wage increase." (Page iv.)*

3.2. 'Black box' forecasts of nominal wages growth

Access Economics does not go into any material level of detail as to how it has derived its forecasts. The economic relationships that underpin its forecasts are explained, at best, in a general nature such that its results are not replicable and its implicit economic assumptions can not be tested.

Access Economics does have a 'brand name' in Australia for economic forecasting, however, it is not sufficient for the AER to rely on that 'brand name' in making its decisions. It is incumbent on the AER to properly test Access Economics' forecasts and to require that the basis for these forecasts be made public prior to them being relied on. It may be that the nature of economic forecasts is that it is impossible to codify the reasons for the forecasts and that inevitably the forecasts represent the forecaster's 'gut feeling' which 'weighs up' a range of different factors in a manner that can not be explained in a rigorous mathematical manner. However, if this is the case then it is unclear why the AER should rely only on Access Economics' forecasts and not commission forecasts from other experts.

We also do not believe that Access Economics' 'brand name' justifies the relative weight that the AER has given to its forecasts in the current context. Access Economics' forecasting expertise is primarily in forecasting macro-economic variables - such as economy wide wages growth, economy wide inflation, budget revenues, exchange rates etc. This is reflected in the fact that most of Access Economics' report revolves around a discussion of macroeconomic forecasts (of national wages inflation and domestic demand). There is little justification in the way of words, and no empirical justification, for why Access Economics forecasts Powerlink's wages growth will be dramatically below national forecasts.

Unlike PB Associates and Powerlink, Access Economics has no special knowledge of the electricity transmission business in Queensland. It is therefore unclear on what basis the AER adopted Access Economics' forecasts, despite both PB Associates and Powerlink forecasting higher wages growth.

The importance of the above issue is highlighted given that Access Economics' forecasts provided to the AER on 17 November 2006 are materially lower than forecasts it published exactly four months earlier on 17 July 2006.[1] Moreover, it is worth noting that Access Economics' appears to have regarded its forecasts even then to be at the low end of forecasts.

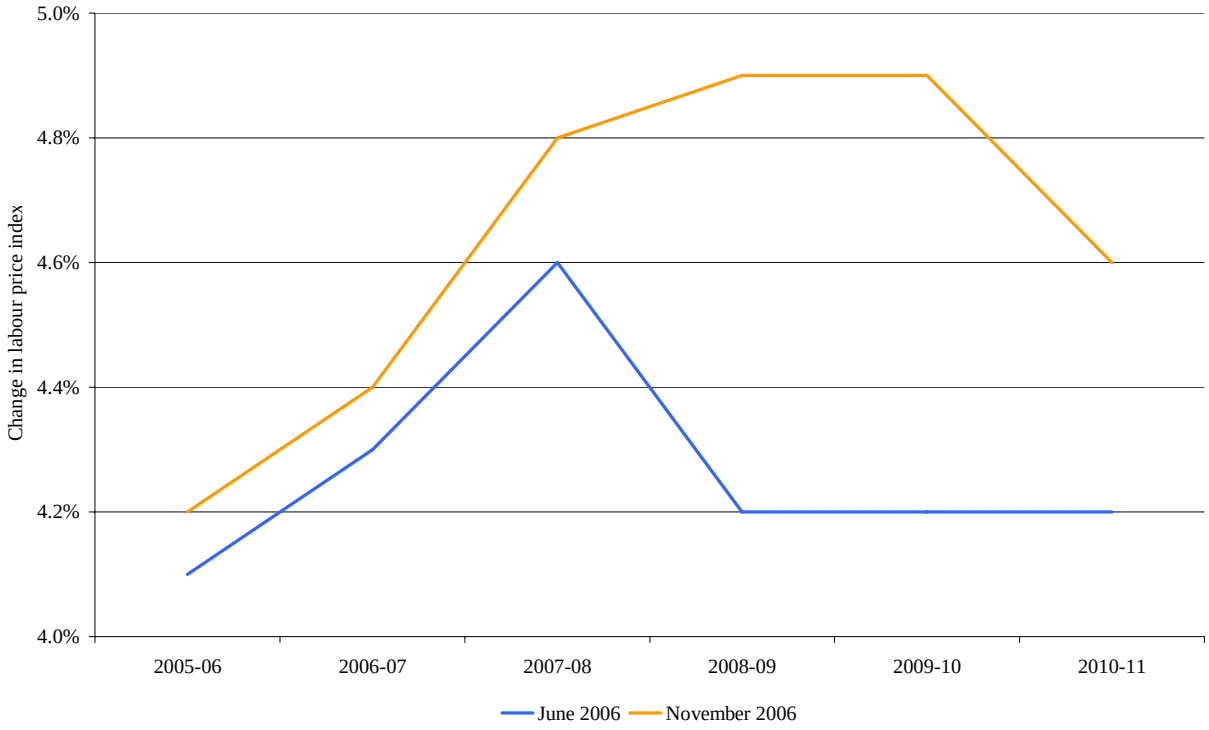
> *"Indeed, it is this view on labour costs that underpins our positive view on the overall CPI (seen in WP Chart 1 above).*
>
> *"That view may seem strange given unemployment at under 5%, the sustained strength in domestic demand, the particular strength in mining and construction wage growth, as well as wage gains in education and health. Moreover, some pessimists see continuing moderation in wages as justtemporary (as the ACTU battled WorkChoices more than it pressed for wage gains).* ***But, as WP Chart 2 shows, we are optimistic****.)*" (Page 53, emphasis added.)

Access Economics is even more optimistic four months later (and dramatically so). This is illustrated in the below graphs which compare Access Economics' July forecasts against the November forecasts provided to the AER. It would appear that had the AER sought this advice four months earlier Access Economics would have been forecasting general wages growth that is materially higher its current forecast.

We do not argue that Access Economics' new forecasts are better or worse than their forecasts of four months earlier - it may well be that they are more accurate. However, the fact that one forecaster can change their estimates so dramatically in such a short space of time suggests that the AER would be better relying on an average of available forecasts. This is especially true given that there has been no dramatic change in economic conditions that could explain such a dramatic reduction in forecasts. That is, the reduction appears to be only explicable by reference to a changed 'gut feeling'.

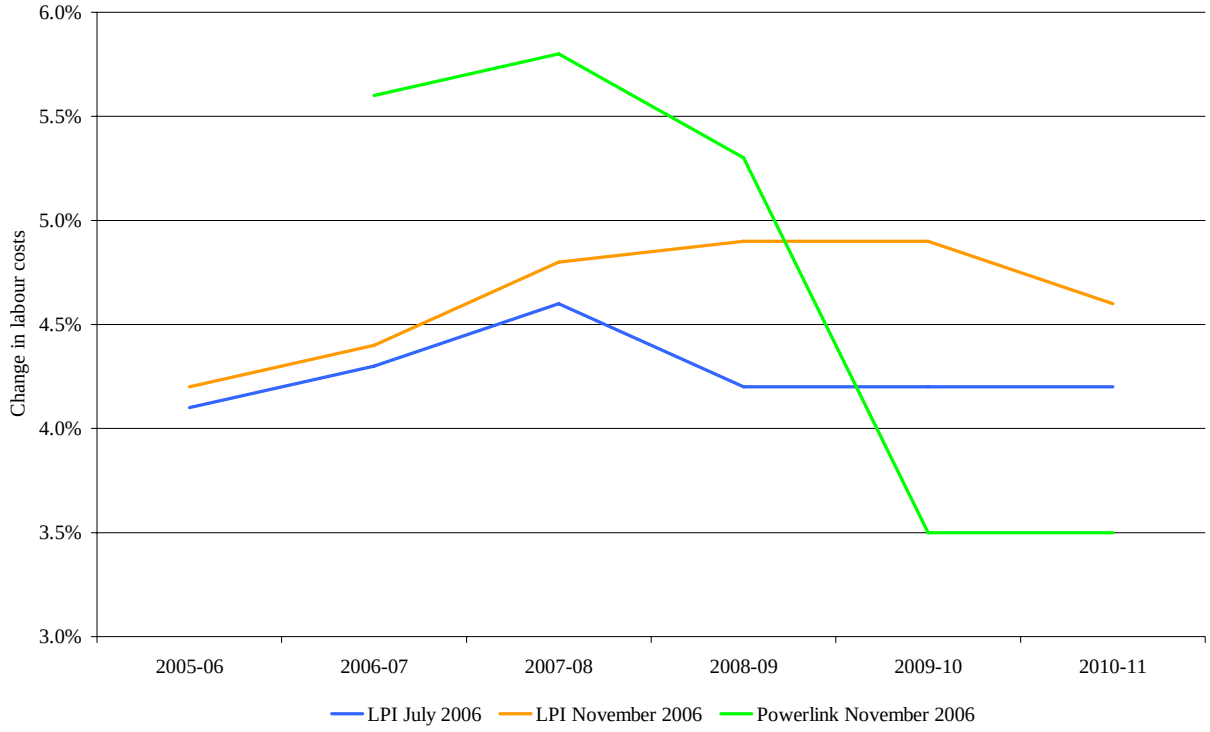
[1] See Access Economics, *Business Outlook June 2006*, released on 17 July 2006.

Figure 3.1
Access Economics Forecasts: LPI July vs November



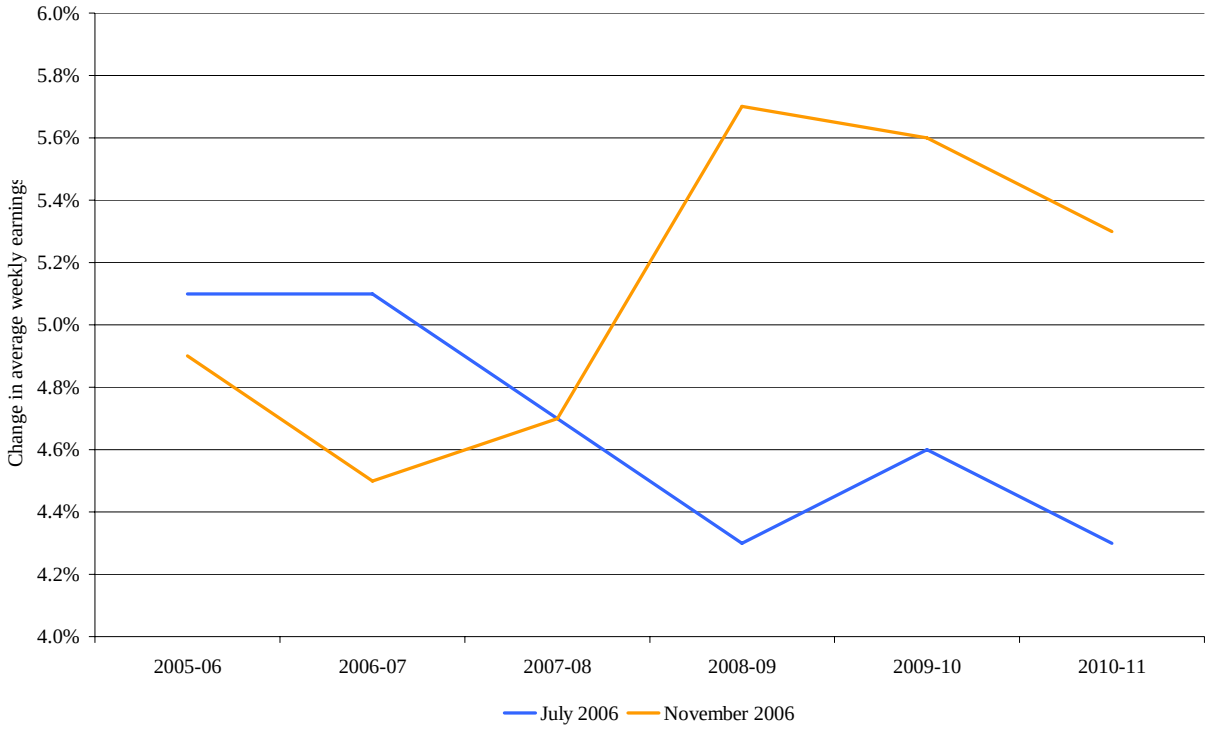
The above graph demonstrates that Access Economics has reduced its forecasts of labour price index, which is Access Economics' preferred measure of labour cost inflation, by around 0.7% in 2008/09 and 2009/10. In percentage terms, the July forecast was 17% higher than the November forecast for this period. If we now superimpose Access Economics' forecasts for Powerlink's wages growth we see an extreme variation between forecasts - especially given that Powerlink operates in a state which Access Economics believes has higher than average wage pressure.

Figure 3.2
Access Economics Forecasts: July vs November, Powerlink vs LPI



The difference between July and November forecasts is even more pronounced for other measures of wages growth.

Figure 3.3
Access Economics Forecasts: AWE July vs November



In July, Access Economics' was forecasting AWE growth of 5.7% in 2008/09. In its November report to the AER it is forecasting 4.3%. This is a 140 basis points difference, with the July forecasts being 33% higher.

In our opinion, the vagaries of the Access Economics' forecasts (and, no doubt, those of other professional forecasters) mean that the AER should not simply adopt one forecaster's view. In this regard, we consider that the alternative forecast put forward by PB Associates is at least as reliable as Access Economics' forecasts and, in many respects, preferable.

PB Associates' methodology is both understandable and replicable in so far as it assumes current market conditions will moderate for three years and then wages growth will revert to historical average levels. By contrast, Access Economics' assumes that wages growth will more than halve within two years and will then continue at around 1% *below* historical average growth levels. In our view, Access Economics' unquantified statements about 'above equilibrium wages' do not provide a compelling case for such a sudden and dramatic reduction in wages growth to levels that are below historical averages - and certainly no more compelling a case than PB Associates provides.

3.3. Productivity measures

It is also important to note that Access Economics' appears to misunderstand the role of 'productivity' in determining wage costs in the utility sector. Access Economics' appears to derive its (surprisingly low) wage growth forecasts from some implicitly assumed relationship between wage costs and 'productivity'.

> *"The second key driver for wage growth is **productivity**. The more work each individual worker can do, the greater the return is expected to be. The utilities sector has seen a very different pattern in its productivity growth rate to the general economy (where productivity growth has been quite steady). (Page 3, emphasis in original).*
>
> *"Our longer term expectations for productivity growth in the utilities sector are that it will return to growth in line with national trends. As we anticipate utilities sector output will lag the broader economy (see the section on Utilities later), this implies relatively weak employment growth in the sector to maintain productivity growth." (Page 5).*

Access Economics does not explain how, if at all, its 'productivity' forecast has affected its wages forecast. However, if it played any role, as the above quotes would appear to suggest it has, then this throws further doubt over the use of Access Economics' figures.

Access Economics' describes productivity as "output per hour worked". However, Access Economics does not define what 'output' is. Access Economics provides a chart (Chart 3) which purports to describe productivity in the utility sector over time. Access Economics does not appear to provide any source for the information in that chart. However, it seems likely that this chart describes one of: annual peak MW per hour worked; annual MWh per hour worked, or annual revenue per hour worked.

However, none of these measures of productivity are relevant when considering the productivity of workers performing operating and maintenance roles in transmission businesses. The output of these workers is not 'revenue' or 'peak MW' it is maintenance of the network assets to an acceptable level of reliability. This 'output' is the relevant measure for determining the productivity of these workers and it depends on the number of network assets, their age and their type. It is extremely difficult to measure and it is certainly very poorly proxied by the type measures that Access Economics appears to have regard to.

For example, Chart 3 in the Access Economics report shows that output per worker in the energy sector tripled in the period 1985 to 2000. Does this mean that workers were really three times as productive in 2000 as in 1985? The answer is almost certainly no. The real explanation is likely to be that growth in whatever definition of 'output' is being used was higher than true output (eg, growth in peak MW could be delivered without a proportional addition to the number of assets requiring attention from operation and maintenance staff).

It appears that Access Economics may be attempting to apply macro-economic forecasting techniques to that simply do not fit the micro-economic facts of electricity transmission. Aggregate productivity measures, such as GDP per hour worked, may be useful in the context of forecasting aggregate wage and inflation growth. However, measures such as 'revenue per hour worked' or "MW per hour worked" are simply not relevant when assessing wage forecasts at the micro level of electricity transmission.

That said, the discussion of productivity on pages 3 to 6 of the Access Economics report may play no role in their final forecasts. We can not be sure because we do not know how these forecasts were arrived at. However, to the extent that Access Economics' has relied on its estimates of productivity growth forecasts it is likely to have been led into error.

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