Jemena Gas Networks (NSW) Ltd - Initial response to the draft decision

Appendix 3b.6

CEG: Escalation factors affecting concrete forecasts – A report for Jemena Gas Networks – March 2010

19 March 2010

Escalation factors affecting concrete forecasts

A report for Jemena Gas Networks

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1. Introduction

1. Jemena Gas Networks has engaged CEG to provide updated advice on the appropriate escalation factors to be applied to concrete prices in NSW and to provide a critique of the AER's draft decision to set these escalation factors to zero in real terms over the six years from July 2009 onwards.

2. The escalation factors estimated in this report are based on Macromonitor forecasts collected in late February 2010.

3. We have been provided with a copy of the Federal Court guidelines "Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia" dated 5 May 2008. We have reviewed those guidelines and our report has been prepared consistently with the form of expert evidence required by those guidelines.

4. This report has been prepared by Dr Tom Hird, a Director of CEG and based in its Melbourne office. Dr Hird has been assisted in the preparation of this report by Daniel Young, an economist in CEG's Sydney office. The qualifications of Dr Hird and Mr Young are set out at Appendix C to our previous report.

5. In preparing this report, we have made all the inquiries that we believe are desirable and appropriate and no matters of significance that we regard as relevant have, to our knowledge, been withheld.

2. Forecasts of concrete cost escalation

2.1. Updated Macromonitor forecasts

6. The attached report[1] provides an update of Macromonitor's forecasts. Relative to the last report provided in early 2009 Macromonitor is forecasting lower price growth in the near term:

> *Data for the March, June and September quarters of 2009 show national readymixed concrete prices in decline, by a total of close to 2%. We expect total decline in readymixed concrete prices of 2.2% during calendar 2009.*
>
> *In the short term, the combination of falling input costs and a weaker construction sector is expected to continue to drive down the rate of concrete price growth. We are forecasting a decline in national readymixed concrete prices of 1.2% in 2009/10.*
>
> *Beyond 2009/10, we expect a return to positive rates of price growth, reflecting a tentative upturn in construction sector activity, led by house building. We are forecasting average annual growth in national concrete prices of 4.5% over the five years from 2009/10 to 2014/15 inclusive.* (page 7)

7. This forecast has been provided as the year-ending price of concrete, up to and including 2016. Deflating these forecasts using RBA inflation and using linear interpolation between these points, we have created a real index of concrete prices up to June 2016. The escalation factors derived from this forecast are set out in Table 1 below.[2]

Table 1: Escalation factors for concrete, real

Financial year	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**
Concrete	-1.6%	-0.9%	2.6%	3.1%	2.0%	0.9%
Calendar year	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Concrete	1.3%	-2.7%	1.2%	3.2%	2.7%	1.4%

Source: Macromonitor, RBA, CEG analysis

[1] Macromonitor, *Forecasts of Ready Mix Concrete Prices*, March 2010

[2] See section 2 of our previous report for a full description of the issues considered in deriving such escalation factors. CEG, *Escalation factors affecting expenditure forecasts: a report for Jemena Gas Networks*, June 2009.

2.2. Critique of AER draft decision

8. In its draft decision the AER rejected the original Macromonitor forecasts and instead inserted its own forecast of zero real escalation. The AER did not provide a reason for believing that zero real escalation was an appropriate forecast. However, it did provide reasons for rejecting the Macromonitor forecasts. These can be summarised as follows"

   i. the AER did not know which of the three presented concrete indices (on page 22 of the Macromonitor report) are being forecast;

   ii. there is a divergence in the indices in 1992 which makes it important for the AER to understand which index is being forecast (presumably because the AER considers one index is more relevant than another);

   iii. the Macromonitor report does *"not demonstrate the statistical validity"* of the relationship between the annual percentage changes in the ready-mixed concrete used in houses price index and total construction work done; and

   iv. the forecasting methodology in the Macromonitor report is not transparent or reproducible.

9. We deal with each of these in turn.

2.2.1. Which series is being forecast

10. The draft decision makes the following statement on page 65:

> *The Macromonitor report then examines the relationship between the ready mixed concrete used in houses price index and total construction work done. This relationship forms the basis of the forecasts in the Macromonitor report.*
>
> *The AER considers that it is not clear from the Macromonitor report which price index is being forecast. The AER also notes that the 'ready mixed concrete used in houses' price index and the price indexes for 'concrete slurry manufacturing – price of output' and 'ready mixed concrete used in buildings other than houses' seem to diverge in 1992. Given the differences in the price indexes, the AER considers that to derive a best estimate arrived at on a reasonable basis Jemena's proposal needs to outline which price index is used.*

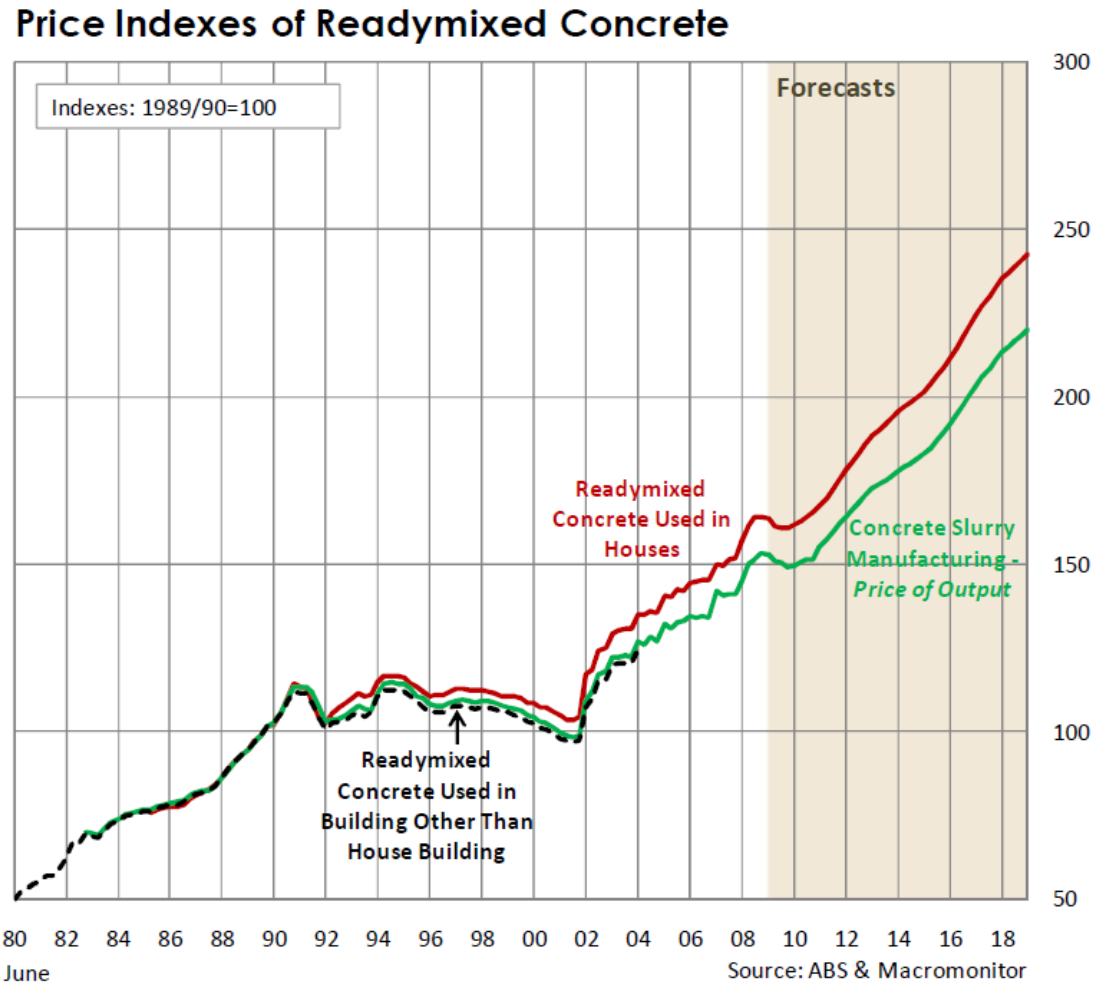
11. These statements appear to involve a non sequitur. We do not understand how the AER can (correctly) identify that the relationship between *"ready mixed concrete used in houses price index and total construction work done is the relationship that forms the basis of the forecasts in the Macromonitor report"* and then, in the next sentence, go onto to state that it is unclear what index is being forecast.

12. In our view it is very clear what index is being forecast. Macromonitor makes this clear when, on page 23 of its March 2009 report, it states that the data in Table 9 of its report (being the forecast table) are based on *Price Indexes of Materials Used in House Building – Readymixed Concrete*.

> *Table 9 on the following page contains historical data and our forecasts of readymixed concrete costs. This table contains data from the series: Price Indexes of Materials Used in House Building – Readymixed Concrete, but any of the three series could be used, because their movements are so similar over time.*

2.2.2. There is a divergence between the ready mix concrete series

13. In the above quote Macromonitor not only makes clear what series it is reporting and forecasting but also makes clear that its forecasts would be the same for all series. Macromonitor makes this conclusion based on the fact that the series have moved very closely over the last 28 years of data - which it reports in Chart 5 of its March 2009 report and which we repeat below:



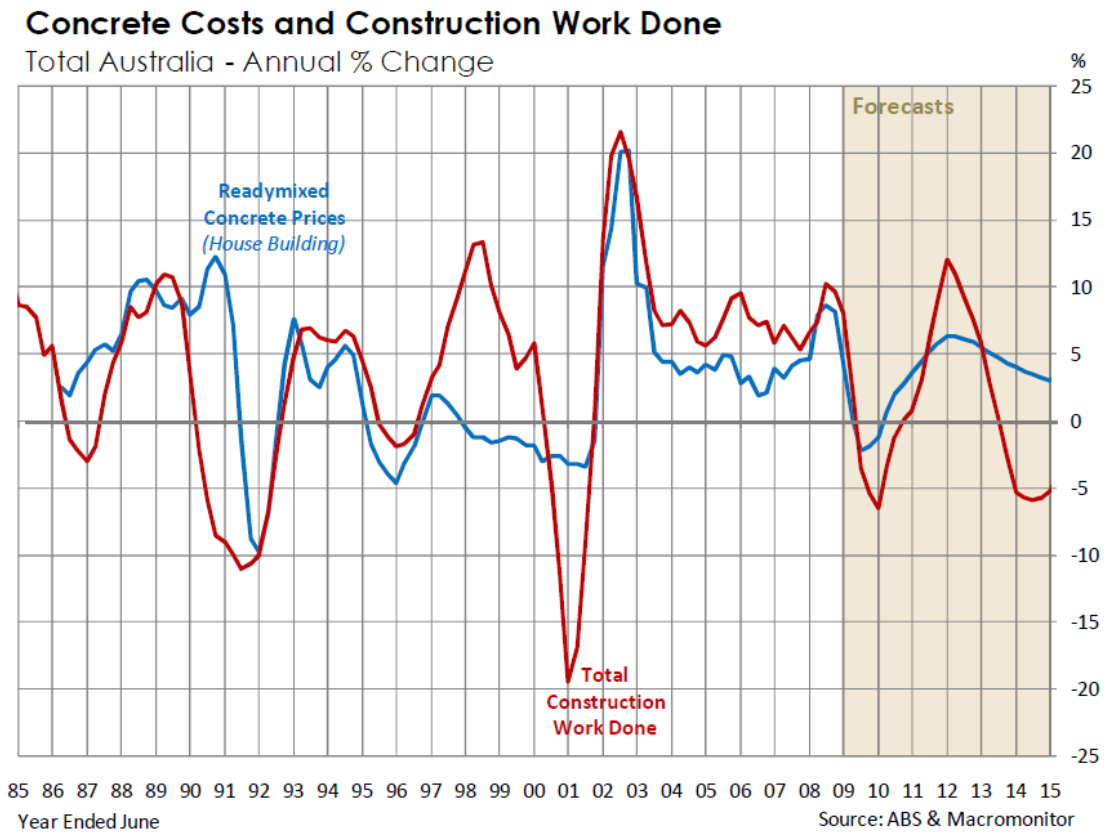
14. The AER appears to have looked at this figure and reached the opposite conclusion to Macromonitor. Namely, that because the lines diverge after 1992 then Macromonitor is wrong to conclude, as quoted above, that *"…any of the three series could be used, because their movements are so similar over time"*. In contrast, the AER states:

> *The AER also notes that the 'ready mixed concrete used in houses' price index and the price indexes for 'concrete slurry manufacturing – price of output' and 'ready mixed concrete used in buildings other than houses' seem to diverge in 1992. Given the differences in the price indexes, the AER considers that to derive a best estimate arrived at on a reasonable basis Jemena's proposal needs to outline which price index is used.* (Draft Decision Page 65)

15. In our view, this statement by the AER involves an error in that the AER concludes that a material divergence in the *level* of the indexes over a very long period (28 years) implies that there is not a strong relationship between the *annual rates of change* in each index. While it is true that the indexes diverge over time this is to be expected over such a long time period – with very small differences in *rates of change* giving rise to small differences in *levels* that are then amplified over time in a constantly growing series.

16. The fact that these series do move extremely close together can be seen in the following chart from page 3 of Macromonitor's updated report that uses precisely the same data but instead reports annual rates of change in each index rather than the level of the index over time.

17. We consider that this figure adequately demonstrates that Macromonitor was correct to conclude that *any of the three series could be used, because their movements are so similar over time*.



2.2.3. No demonstrated statistical validity

18. Macromonitor stated that in its view, as professional forecaster of construction activity and construction costs:

> *The determinants of concrete prices are a combination of trends in cost inputs (prices of cement, other raw materials, fuel and labour) and trends in the demand for concrete. Demand for concrete, in turn, is driven by cycles in the construction activity. Chart 6 below illustrates the relationship which often exists between changes in the volume of construction activity and changes in the price of concrete.* (Page 5)

19. In our view, Macromonitor's statement that higher construction activity leads to higher demand for concrete which in turn leads to higher prices for concrete (and vice versa) is uncontroversial. Nonetheless, the AER has cited as a reason for not accepting Macromonitor's forecasts that Macromonitor has not established the statistical validity for its conclusion.

> *The Macromonitor report only illustrates the annual percentage changes in the ready-mixed concrete used in houses price index and total construction work done; but does not demonstrate the statistical validity of this relationship. The AER does not consider that this provides a reasonable basis to verify that the forecast is the best possible in the circumstances as required by r. 74(2) of the NGR.* (Draft Decision, page 65)

20. We consider that the above chart presented by Macromonitor does demonstrate conclusively that the expected relationship exists and this is richly described in the chart. These indices do not move one for one suggesting that other factors are likely to be relevant and/or that the interaction between these variables is not always constant through time. However, it is clear from this graph that sustained growth in construction work done is associated with sustained growth in concrete prices and vice versa.

21. We have also performed a formal statistical test of this proposition which supports this conclusion. When we regress, using data from 1986/87 to 2008/09, the change in Total Construction Work Done with the change in the change in *Price Indexes of Materials Used in House Building – Readymixed Concrete*[3] we find a statistically positive relationship at a stronger than 97.5% confidence level. An abbreviated summary of the results of estimating this equation are set out in Table 2 below.

[3] Both expressed as the average of one financial year's four quarterly index values divided by the average of the previous financial year.

Table 2: Results of regression between prices changes for ready mix concrete and total construction work done

Regression Statistics	
R Square	0.24
Adjusted R Square	0.20
Standard Error	4.85
Observations	22

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	1.95	1.18	1.65	0.11
Construction work done	0.32	0.13	2.48	0.02

22. The interpretation of these results is that a 1.00% change in construction work done gives rise to a 0.32% rise in the price of ready mix concrete. This coefficient is statistically significant at the 5% level, with a p-value of 0.02 indicating that a null hypothesis of no relationship between the variables can be rejected with a 98% degree of confidence.

23. Finally, we consider that the AER objection to Macromonitor's forecasts are difficult to reconcile with the adoption of Access Economics forecasts for wage costs (a cost item of much more importance in Jemena's total costs than concrete). The Access Economics report includes no discussion of any statistical tests nor the statistical validity of any relationships it posits in its analysis.[4]

24. The Access Report includes numerous references to relationships between demand and prices[5] but, as far as we can ascertain, not one statistical test is reported in the entire document. We do not understand how the AER could use the lack of formally reported statistical results to reject the Macromonitor concrete escalators and not similarly reject the Access Economics wage forecast.

2.2.4. Macromonitor forecasts are not transparent nor reproducible

25. The AER states that:

[4] Access Economics, *Forecast growth in labour costs, report for the Australian Energy Regulator,* 16 September 2009.

[5] For example, see the first three paragraphs in Section 8.2 on page 43 which discuss Chart 8.3 (construction growth forecast).

The forecasting methodology in the Macromonitor report is not transparent or reproducible.

26. The AER does not describe what these terms ('reproducible' and 'transparent') mean in this context. We agree with this conclusion if what the AER means is that the Macromonitor forecast relies on the expert opinions and judgements of Macromonitor staff and are not derived mechanically from some predetermined process (such as projecting the most recent historical price trends forward changes forward at the same rate).

27. However, this is true of all forecasts. All forecasts embody the expert opinions and judgements of the forecasters and are, therefore, not neither fully transparent nor fully reproducible.

28. Once more, a relevant point of comparison is the Access Economics forecasts of wage costs. In arriving at their forecasts of wage costs Access Economics develops a forecast of aggregate economic growth and sectoral growth within that. In arriving at these forecasts Access Economics employs its expert opinion and judgement. The outcome of this process is not transparent nor reproducible.

29. CEG has read and analysed the Access Economics report and it is not transparent to us how Access Economics has arrived at its wage forecasts. It is not transparent why Access Economics has lower real wage forecasts than BIS Shrapnel, Macromonitor and Econtech.[6] The reasons for these differences are neither transparent (and the results not reproducible) precisely because they reflect different judgements.

30. It is common for economic forecasters with the same information available to them to draw different conclusions. These different conclusions will not reflect different datasets available to them but simply differences in judgement and interpretation of the available data.

31. In our view, the AER has no more reason to describe Macromonitor's forecasting methodology as non-transparent or non-reproducible than it does to describe Access Economics' forecasts, on which it solely relies for labour costs, in the same way.

32. Should the AER continue to reject Macromonitor forecasts as not reproducible/transparent then we consider that it is incumbent on the AER to:

    i. explain what is meant by these terms;

    ii. explain what is required for a forecast to be 'transparent' and 'reproducible'; and

[6] See discussion in our report for ActewAGL *Escalation Factors Affecting Expenditure Forecasts*, January 2010, p. 6

iii. explain why Access Economics' forecasts (that are relied on by the AER) satisfy these criteria but Macromonitor forecasts do not.

2.2.5. Conclusion on concrete

33. In conclusion we do not consider that any of the AER's criticisms of the Macromonitor concrete forecasts provide a valid basis for rejecting their forecasts as the best possible in the circumstances as required by r. 74(2) of the NGR. Moreover, we consider that the AER has provided no basis for assuming that a zero real escalation in concrete costs is a better forecast.

3. Impact of CPRS on escalators

34. CEG has previously provided, in a January 2010 report for ActewAGL, a discussion of the AER's rejection of estimates of the impact of the Carbon Pollution Reduction Scheme (CPRS) on cost escalators.[7] We consider that the reasoning in that report remains valid. For this reason we consider that the concrete escalation factors provided by previously to Jemena Gas Networks remain valid.[8]

[7] CEG, *Escalation Factors Affecting Expenditure Forecasts, a report for ActewAGL*, January 2010, section 3.

[8] See Table 2 of the CEG report for JGN, *Escalation Factors Affecting Expenditure Forecasts, a report for JGN*, June 2009.