



The Australian Gas Light Company

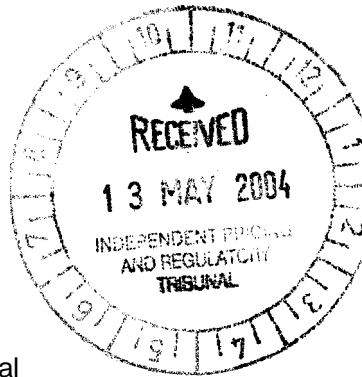
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10 May 2004

Mr. J Cox
Acting Chairman
Independent Pricing and Regulatory Tribunal
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Submission in Response to McLennan Magasanic Associates Pty Ltd (MMA) Report

Attached is a submission in response to the Draft Report to IPART prepared by MMA entitled "Review of Demand Forecasts for the AGL Gas Networks (AGLGN)".

AGLGN shares the view expressed by MMA that "this review has been more cooperative than has often been the case elsewhere" and many areas where AGLGN and MMA initially disagreed have been resolved as the two parties shared available information and methodologies. AGLGN looks forward to a continuation of this approach in addressing the issues remaining unresolved as outlined in the attached report.

While the final demand forecast is yet to be determined, it is essential that when that forecast is determined, the operating cost and capital cost forecasts are amended so that all three are based on a consistent set of assumptions.

This Submission is not of a confidential or commercially sensitive nature.

Yours faithfully

David Pringle
Manager Regulatory Affairs Gas Networks

For and on behalf of AGL Gas Networks Limited



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AGLGN Submission in Response to MMA Report

Overview

AGLGN welcomes the cooperative approach adopted by MMA during this review and has already adopted many of the recommendations included in the Report.

There are however certain issues where AGLGN and MMA have not yet reached agreement. These issues are itemised later in the report, but the major items can be summarised as:

- The forecast effect of Basix and other environmental initiatives;
- The failure to recognise the reduction in average consumption by new customers that has resulted from the reduction in AGLGN marketing resources and expanded use of energy efficient appliances over the previous regulatory period;
- What AGLGN believes to be a misunderstanding by MMA in relation to the nature of project areas, and the method adopted by AGLGN to incorporate project areas in the AGLGN forecast;
- Certain aspect of the contract market forecast.

It should be noted that AGLGN is the only major Australian gas network forecasting an increase in average consumption per customer over the next regulatory period. Victorian and South Australian regulators are both forecasting reductions.

In the balance of this Report AGLGN will address each of the recommendations raised by MMA

● **New Dwelling Forecast**

Recommendation 1: MMA recommends that forecasts for 2004 to 2009 and actual completions for 2002/03 from the March 2004 BIS Shrapnel report be used in forecasting by AGLGN.

AGLGN agrees with this recommendation

Recommendation 2: MMA recommends that the division of growth between houses and others be based on the BIS Shrapnel numbers over the period 1997 to 2005, including the forecasts for 2004 and 2005 and trend analysis of these numbers from 2005 to 2010.

The difference in the approach adopted by AGLGN and this recommendation is that AGLGN excluded the 2001/2 financial year in calculating the trend as the figures in that year were distorted due to the influence of changes to the first home buyers grant. AGLGN maintains that its preferred approach is fair and reasonable. It is AGLGN's view that the strict application of statistical techniques should not be followed where that application ignores the logical influence of known events, and is likely to lead to distorted forecasts.

Recommendation 3: MMA recommends that the trend analysis penetration of gas from 1997 to 2003 be incorporated into forecasts for stand-alone houses and that the trend analysis capped at 85% be factored into forecasts for medium/high density houses.

The penetration rates quoted relate to the percentage of AGLGN customer connections in relation to all dwelling completions in NSW including those dwellings constructed in areas not serviced by the AGLGN Network.

AGLGN currently achieves a penetration rate of 90% of those dwellings constructed in estates where it is economic for AGLGN to reticulate gas and does not believe this number will materially increase in the regulatory period.

Similarly AGLGN is forecasting that it will connect 70% of medium/high density dwellings constructed in the whole of NSW throughout the regulatory period, including those constructed outside on the AGLGN network area and those which can not be economically connected to the network. AGLGN does not believe this number will materially increase in the regulatory period.

Recommendation 4: MMA recommends that the average CHW proportion of 57.7% be used in forecasting unless AGLGN has reason to expect that this level of CHW will not continue.

AGLGN maintains that its methodology is fair and reasonable and does not believe that the adoption of this recommendation would add to the reasonableness of the forecast.

Recommendation 5: AGLGN should be asked to provide a summary of the Singleton business case as evidence to support the new connection numbers.

This information will be provided to the Tribunal on a confidential basis.

Recommendation 6: MMA recommends that the average number of disconnections over the past five years, 2,744, be used to estimate disconnections over the next period.

AGLGN concurs with MMA that the average number of disconnections over the past five years should be used to estimate disconnections over the next five year period, but maintains that the relevant factor is not the absolute number of disconnections, but the disconnections as a proportion of the total customer base.

As set out in the report “Gas Networks – 2004 Access Arrangement Market Forecast Methodology”, AGLGN systems are such that estimates of customer losses in any given year are unreliable and no relevance should be placed on data for any specific year or consequently annual changes over a small number of successive years.

However it is known that customer losses occur largely due to the redevelopment of residential properties, which previously had a gas supply point. It is also known that new dwelling connections are overwhelmingly on newly developed land (by definition not on land that previously had a gas supply point.) There is therefore no logical relationship between new dwelling completions and gas customer losses as suggested by MMA.

It is obvious that the more gas customers in existence, the greater the redevelopment potential of residential properties, which previously had a gas supply point.

AGLGN therefore strongly maintains its position that customer losses should be forecast as a percentage of customer sites, and to argue that the number of site losses will remain static as the number of total sites increases defies logic and could not result in “best estimates arrived at on a reasonable basis.”

- **Changes in Average Consumption**

Recommendation 7: AGLGN is asked to provide statistical analysis to demonstrate that the HDD trend slope line is less than zero at a statistically significant level.

The following analysis is based on data presented in Attachment 4 of the “Gas Networks – 2004 Access Arrangement Market Forecast Methodology” Report.

Statistics for Observatory Hill data as produced by the Excel LINEST function are:

m (HDD/yr)	-3.055	c (HDD)	6,655.857
Std Error of m	0.464	Std Error of c	916.461
r ²	0.460	Std Error of y est	51.623
F	43.448	Degrees of freedom	51
Sum of squares for regression	115,785.08	Sum of squares of residuals	135,909.76

t critical at **99.9%** confidence (double-sided) = **3.49**

i.e. the observed coefficient is non-zero at the 99.9% confidence level.

Note that for a simple (single variable) regression, the value of r^2 is also non-zero at the same confidence level (F critical at **99.9%** confidence = **12.19**). The observed relationship between HDD and time is significant.

Recommendation 8: AGLGN will need to substantiate in much greater detail its forecasts of new home energy usage after Basix is introduced compared to that of current new homes.

A report detailing recent analysis of the impact of Basix will be included in a confidential submission to the Tribunal and MMA.

Recommendation 9: The modelling of Basix impact should reflect that Basix is only to be introduced into Sydney in mid **2004** and into the rest of **NSW** by 1/7/2005.

A report detailing recent analysis of the impact of Basix will be included in a confidential submission to the Tribunal and MMA.

Recommendation 10: The modelling of Basix impact should also take some account of the potential of Basix to stimulate gas usage in appliances other than hot water.

Information on Basix published issued by the Department of Infrastructure, Planning and Natural Resources (DIPNR) states clearly that prior to the 2007 financial year, the energy requirements of the index will be met by the inclusion of:

- An efficient hot water system and
- well designed buildings that make the most of natural cooling, heating and lighting.

There will be no impact on appliances other than hot water prior to **2007**, other than a reduction in heating load due to design improvements. Post **2007** the details of the proposed scheme are still being developed by DIPNR but AGLGN sees no reason to assume the greater use of gas cooking or heating.

AGLGN has not included in its forecast any reduced gas usage due to the inclusion of "well designed buildings that make the most of natural cooling, heating and lighting". Similarly AGLGN has not modelled any reduction in gas usage due to the non-mandated flow-on of Basix type energy conservation measures to the existing gas consumers, including those carrying out renovations.

Recommendation 11: In its tariff volume summary, the weather normalisation should be applied to the **2002/03** year and this should then be multiplied by the calculated increase to provide the starting **2003104** usage by existing customers.

AGLGN agrees with this recommendation

Recommendation **12**: AGLGN should use, as the starting point for the new houses, new medium density, new CHW and new **E** to **G** the average of the three years measured usage but take into account the impact of the annual shift from storage to instantaneous HWS (expected to be some **0.1 – 0.2 GJ pa**).

AGLGN has taken the average consumption of customers connected in 2001/2 as the starting point for this analysis (the last year for which data is currently available). To start with the three-year average would be to ignore the steady decline in consumption over the period as set out in table 8 the MMA Report. The decline in average consumption is in line with the steady decline in marketing resources over the same period and the expanded use of energy efficient appliances. Preliminary results for customers connected in 2002/3 supports the validity of AGLGN's assumptions.

A report detailing recent analysis of the impact of Basix will be included in a confidential submission to the Tribunal and MMA. This analysis should be used to amend forecast future consumption.

Recommendation **13**: AGLGN should use the same average usage numbers going forward in the Blue Mountains and Central West as it has in its historical reconciliation.

The major construction phase (and associated marketing campaigns), of the Blue Mountains and Central West Regions were completed in 2000 and 2001 respectively.

In forecasting future consumption, customer categories were grouped across NSW and the average consumption applied to each group was the weighted average of consumption of each group across NSW. If a small group of customers in defined regions were to be forecast at a higher average consumption, then the weighted average consumption of new customers in the remainder of the state would need to be reduced.

The impact of implementing this recommendation will be to marginally reduce forecast gas usage as the percentage of new connections in the Blue Mountains and Central West declines, but AGLGN maintains that the impact of this extra level of detail in the forecast would be minimal.

Recommendation **14**: AGLGN should use the **2002/03** averages for **2003/04** as there will be no impact of the Basix program until **2004/05** at the earliest.

A report detailing recent analysis of the impact of Basix will be included in a confidential submission to the Tribunal and MMA.

Recommendation **15**: AGLGN should include only the changes applicable to new dwellings in Sydney in **2004/05** (estimated at some **75%** to **80%** of the total) and the remainder only from **2005/06**.

A report detailing recent analysis of the impact of Basix will be included in a confidential submission to the Tribunal and MMA.

Recommendation **16**: AGLGN should review the expected impact of Basix in light of the comments made in Section **2.10.2**

A report detailing recent analysis of the impact of Basix will be included in a confidential submission to the Tribunal and MMA.

Recommendation **17**: AGLGN should either provide further evidence of the low expected average usage in Singleton or adopt the value used in the Central West.

The expected usage in Singleton has been assumed to approximate the usage experienced in the Cessnock and Maitland areas which are the areas of the Network closest to Singleton and which have similar climatic and demographic characteristics. The Central West does not have similar climatic or demographic characteristics as Singleton.

The business case for Singleton will be provided to the Tribunal on a confidential basis.

Recommendation **18**: AGLGN should use a growth rate for the business market which continues to assess the Central West and Blue Mountains as project areas. The business tariff growth rate can be estimated in ratio to the proportion of new homes projected in these areas every year compared to recent history. Singleton business tariff growth should be additional to this.

The major construction phase (and associated marketing campaigns), of the Blue Mountains and Central West Regions were completed in 2000 and 2001 respectively.

The marketing strategy adopted by AGLGN when developing new areas is to initially target the industrial and commercial load in the area and then progressively develop the residential market.

AGLGN has assumed that the commercial and residential growth in these now established areas will follow the pattern of respective commercial and residential growth across the state.

This recommendation suggests that in two defined established gas distribution areas the relative growth of the residential and commercial segments will be equal. This contradicts AGLGN's experience in all other areas in which it operates.

Recommendation **19**: In its tariff volume summary, the weather normalisation should be applied to the **2002/03** year and this should then be multiplied by the calculated increase to provide the starting **2003/04** usage by existing business customers.

AGLGN agrees with this recommendation

Recommendation **20**: Only the volumes which have actually transferred or asked for offers be included **as T to C** (and C to T) for **2004/05**. A further **50%** of the remainder should be assumed to transfer over the remaining period of the AA.

AGLGN is prepared to accept this recommendation

Recommendation **21**: AGLGN should assume that business customer numbers over the coming period remain constant at **2003/04** levels.

AGLGN is prepared to accept this recommendation. However as business tariff customer numbers were not used to forecast demand the only consequence will be a marginal increase in capital expenditure.

- **Contract Market**

MMA comment that over the past 5 years that “increased and new loads have largely balanced the well publicised losses of loads such as the BHP Steel plant at Newcastle”. Underlying this comment is an inference of some substantial underlying growth in the contract market. To put this comment in context it should be recognised that plants associated with the former BHP Steel Division operate from a number of locations across NSW, and that the closure of BHP Newcastle steel furnaces had little effect on total load of all the BHP Steel Division sites (ie: 2001/2 total Steel Division load was the same as in 1998/9). There was no net **loss** of Steel Division load at the time of the closure, and therefore no substantial underlying growth. Table 4.16 of AGLGN's contract market forecast report reinforces the fact that there has been **no** underlying load growth, where loads of the “non-major” category of contract sites have been decreasing (with the exception of the 2000 Olympics period) since 1998.

MMA also represent AGLGN's forecast as incorporating a substantial drop in the Maximum Daily Quantity (MDQ) even though Annual Contract Quantity (ACQ) is forecast to be relatively flat. The forecast reduction in MDQ is unrelated to ACQ but arises from a reasonable expectation that the past MDQ booking behaviour of a small number of customers will not be sustained. See the comments on recommendation 26 for more details.

Recommendation 22: AGLGN should try using other drivers (eg NSW sectoral output) and exponential relationships as well as time-linear relationships in forecasting growth by contract category. The best relationship should be used unless there are compelling reasons not to.

AGLGN note that MMA (para 3 section 3.4.2) agree with AGLGN's finding that the method used for forecasting non-major ACQ results in a relatively low error overall.

Given the low level of error in the methodology, and the fact that ACIL Tasman found the contract market forecast to be “reasonable”, we do not agree with MMA that any advantage in accuracy is gained by adopting the more complex method they advocate. Our reasons are set out below:

- Overall Accuracy

MMA's proposed approach of selecting optimal regression methods for each industry group individually does not result in a contract market forecast with an optimal regression coefficient. Through discussion with MMA we have endeavoured to reproduce their analysis and have found that the r^2 of the overall outcome from MMA's recommended method is 30%, which is significantly less than the r^2 of 39% for AGLGN's original linear forecast.¹

- Time versus Output Regression Methods

- No rationale for the applicability of the BIS Shrapnel sectoral output to AGLGN AGLGN's contract market gas demand has been provided, apart from the fact that a handful of industries appear to give a higher r^2 reading on this basis. However, AGLGN considers some initial issues should be addressed: eg do the definitions of sectors adopted by MMA correspond with the definitions used by AGLGN? It may be necessary to reclassify all historical and forecast customers according to **BIS** Shrapnel definitions before testing whether a sectoral output methodology could give a significantly better result in particular industries.

¹ r^2 have been compared using the period 1996 to 2003; hence the r^2 for the AGLGN forecast of 39% quoted above is slightly different to the r^2 of 36% quoted in the MMA report of 5 April 2004.

- MMA's table 9 shows that overall, the time based correlations are superior to output based correlations (in 13 industry groups time based correlations provide the best or equal best r^2 , while output is superior in only 3 groups). In addition the BIS Shrapnel sectoral output forecasts do not provide data for four of the 16 groups, making it impossible to apply an output method consistently across all groups.
- A time based correlation depends only upon actual past data, while a sectoral output forecast also depends upon the accuracy of the BIS Shrapnel sectoral output forecasts over the future AA period - (ie: the error in an output forecast would be dependant on the uncertainty of both the correlation AND the BIS Shrapnel forecast, while a time correlation would be dependent only on the uncertainty of the correlation). When comparing uncertainties (r^2), MMA have not accounted for this additional factor contributing to uncertainty in the sectoral output methodology.
- A further source of uncertainty is that, as far as we are aware, the BIS Shrapnel sectoral output forecast data used by MMA jumps from 2008 to 2013. Accordingly an output methodology cannot be applied to each year of the AA without additional estimation and uncertainty (ie: interpolation of 2009 and 2010).
- Selection of Regression Relationships
 - AGLGN disagrees with MMA's approach of selecting a regression method solely on the basis of the "best r^2 ". The type of regression selected will provide the "shape" of the forecast (ie: an exponential regression will impose a trend of increasing demand as the relationship is extrapolated beyond the range of the original data set; a logarithmic regression will similarly impose an attenuation as the relationship is extrapolated beyond the range of the original data set). Before applying an exponentially increasing trend to data, there should be an understanding of why that shape is occurring and a reasonable expectation that the drivers underlying that shape will continue to be relevant over the future AA period (in other words, a "reality check" on achieving that particular forecast).
 - AGLGN's approach of using a single consistent regression technique for all industry groups provides benefits over the "mixed regression" approach recommended by MMA. Such benefits include
 - a) providing transparency from a single consistent method, and
 - b) ensuring that when aggregated to an overall forecast the linear approach will result in a trend characteristic which is intuitively expected (ie: in the absence of any predictable external effects the overall market will continue as it has been, relatively flat).
 - While MMA's table 9 shows that their analysis found the "time period logarithmic" to most frequently have the strongest correlation of the various regression methods, the "time linear" (used by AGLGN) is also shown to generally be among the better correlations. Given that the linear time correlations are seen to be among the better of the correlations, the uncertain overall accuracy of a sector output based forecast and the expectation that the resulting overall forecast should be "business as usual" (ie: relatively flat), AGLGN concludes that a time linear regression offers the best approach to forecasting this market.
 - The suggestion to choose individual regression methods for each of the non-major industry groups will be unnecessarily complex, problematic and will detract from the transparency of the forecast. It has not been demonstrated that it will lead to a more accurate result than a time linear forecasting approach.

Recommendation **23**: **AGLGN** should provide reconciliation between its baseline adjustments in the spreadsheet and those in Table **4.7** of the contracts report and also between the net T to C transfer of **221** TJ in the market report against **207** TJ in Table **4.7**.

Table 4.7 was provided for the purpose of transparency to reconcile the 2003 baseline against the actual 2003 consumption to a level of detail which covered material baseline adjustments (note that the residual which is not reconciled in detail is less than 1% of the actual 2003 ACQ). AGLGN would be pleased to carry out the next level of detailed analysis to reconcile this remaining difference, however we suggest that this would be best done at the same time that any other IPART required changes to the forecast are made. In particular, adoption of recommendation 20 would change the reconciliation requested and possibly also the list of contract sites

Recommendation **24**: **AGLGN** should adjust the **2002/03** baseline only for “return to trend” values. All other adjustments should be made in the year they will actually take place.

AGLGN understands that this recommendation arises as part of MMA’s concern for elements of double counting between the baseline adjustment and the trend analysis. The following two points should be noted:

- Whether or not the “back to trend” adjustment is done to the 2003/2004 or 2002/2003 years, the first year of the forecast will have included such an adjustment.(ie: the adjustment will be factored into 2005, the first year of the forecast period, no matter which approach is taken).
- The potential for understating the 2004 forecast by applying the “back to trend” adjustment to the adjusted 2003 baseline is only of very minor significance. As a worst case, the maximum potential for understating the forecast through making adjustments to the 2003 baseline rather than to 2004 is 1.4% of 324 TJ or 4.5 TJ. This is approximately 0.016% of the 2004 forecast.

AGLGN does not believe that this recommendation would make a material difference to the forecast.

Recommendation **25**: **AGLGN** should only adjust for known additions and closures which have happened or will happen in **2003/04**. Other additions and closures can be adjusted for only through a trend analysis carried forward to the year of addition or closure.

This information will be provided to the Tribunal on a confidential basis as it involves the discussion of particular customers.

Recommendation **26**: **AGLGN** should assume that contracted MDQ levels for the majors stay at **2002/03** levels unless it provides evidence from customers that they intend to change their ordering behaviour or provides evidence that the incentive to some customers for reducing MDQ contracted will become greater over the new AA period.

The adjustments forecast by AGLGN were made to reflect a realistic MDQ for a small number of customers who do not currently have a meaningful MDQ in their current contract. Because of their specific contract conditions, contracted MDQ plays no part, or in one case a very small part in these customers total cost of gas. These forecast adjustments are set out in section 4.1.1 of the “AGLGN Contract Market Forecast - 2004 Access Arrangement”.

It must be recognised that the MDQs of individual majors are significant in the determination of zonal pricing. Even if these customers do not change their ordering behaviour it would be inappropriate to adopt their contracted MDQ in this analysis as it would severely distort the cost allocation used to determine zonal pricing

Accordingly, the adoption of unrealistic MDQs as proposed in this recommendation will distort price allocations between the various customers within the contract segment.