

**Submission by AGL on the Discussion Paper released in January 2000 by the  
Office of the Interim Utilities Commissioner entitled  
“Calculating PAWA’s Initial Network Revenue Caps”**

**1. Introduction**

AGL welcomes the opportunity to provide a submission to the Discussion Paper released by the Office of the Interim Utilities Commissioner entitled “Calculating PAWA’s Initial Network Revenue Caps” (the Discussion Paper).

AGL is primarily an energy infrastructure and energy trading company. In particular AGL is:

- the 96 % owner of NT Gas, which is the operator of the Amadeus Basin to Darwin gas pipeline and 100 % owner of several other smaller lateral pipelines in the Northern Territory;
- the 96 % owner of NT Gas, which is the owner and operator of gas distribution assets in Darwin;
- the owner and operator of electricity distribution assets in Victoria; and
- an active energy trader, wholesaler and retailer.

These activities give AGL an interest in the outcome of the current regulatory process being undertaken in the Northern Territory with respect to PAWA.

Specifically, this AGL response provides:

- comment on the nature and applicability of revenue caps;
- comment on the appropriate rate of return for infrastructure investments; and
- general comment.

**2. Revenue Caps**

AGL notes that the Northern Territory Electricity Network Code requires a revenue cap. As a general approach to utility regulation AGL does not favour revenue caps for either gas or electricity infrastructure for the following reasons:

- **Economies of Scale in Networks:** Utility networks typically have a declining marginal cost curve (ie they exhibit economies of scale). Given this, networks act to grow demand and the customer base in order to take advantage of these economies of scale. This growth spreads fixed costs over a larger sales and customer base. This reduces marginal and average costs to the benefit of customers. Any pricing mechanism, such as a revenue cap, that does not provide incentives to increase sales may result in an increase in the average and marginal costs, as economies of scale are not fully utilised.
- **Dynamic Efficiency Incentives:** Dynamic efficiency involves making efficient allocative and productive decisions in the longer term, especially with regard to technological change etc. Revenue caps may limit incentives to pursue dynamic

efficiency as a focus on revenue limits may provide little incentive to invest in new technology to grow the market, even though such an investment in technology may add to dynamic efficiency.

- **Pricing Flexibility Incentives:** Revenue caps do not necessarily offer any incentive to implement pricing flexibility to meet new demand, meet new energy market competitors and attract new customers (thus reducing average cost).

The above being noted, AGL accepts that under the Northern Territory Access Code revenue caps will regulate Northern Territory electricity networks. However, revenue caps should not be applied to gas infrastructure in the Northern Territory, particularly gas distribution networks. Revenue caps provide little incentive for infrastructure owners to develop infrastructure and markets, as additional sales are not reflected in additional revenue. Conversely, price caps provide incentives for infrastructure owners and energy marketers to develop infrastructure and markets as additional sales volumes are translated into increased revenue. As Northern Territory gas infrastructure and markets are immature and are continuing to be developed price caps are required to encourage this continuing development.

### 3. Cost of Capital

AGL notes that using the values of various parameters outlined in the Discussion Paper a pre tax real WACC of 7.4 % is derived for PAWA (p16).

AGL generally favours an approach to calculating the cost of capital based on a pre tax real WACC with industry wide (not utility specific) parameters. However AGL believes that the pre tax real WACC value of 7.4 % derived for PAWA is too low. In particular AGL wishes to comment on the following variables used in the Office of the Interim Utilities Commissioner’s WACC calculation:

- **Equity Risk Premium:** The Discussion Paper proposes an equity risk premium of 5.5 % (p15). A useful proxy for the expected long-term equity risk premium can be found in estimates of the long-term arithmetic mean of the historically observed equity risk premium. Studies<sup>1</sup> of long-term arithmetic means of the historically observed equity risk premium by recognised Australian authorities that may be considered include:

ESTIMATES OF EQUITY RISK PREMIUM BASED ON THE DIFFERENCE BETWEEN MARKET RETURNS AND TEN YEAR BOND RETURNS		
Study	Time Frame of Measurement	Arithmetic Mean
Officer (1989) updated	1900-1996	7.1 %
Hathaway (1996)	1882-1991	7.7 %
Hathaway (1996)	1947 - 1991	6.6 %
Centre for Research in Finance, AGSM	1974 - 1998	4.8 %

<sup>1</sup> Table based on ABN AMRO (1999) Submission to the Office of the Regulator General Victoria Regarding 2001 Electricity Distribution Price Review: the Cost of Capital Financing (Consultation Paper No. 4) p12.

In 1999 Neville Hathaway, who authored several of the studies in the table above, has stated that he has no reason to believe the equity risk premium has changed since these studies<sup>2</sup>.

In 1999 the Centre for Research Economics, which authored one of the studies in the table above, has stated that the figure of 4.8 % (as shown in the table above) included the effects of October 1987. When this month is excluded from the data set a figure for the equity risk premium of approximately 6 % is derived<sup>3</sup>. Given that an expected equity risk premium is required, rather than a historic equity risk premium, 6 % may be a better estimate than 4.8 %.

The long-term equity risk premium appears to be above 6 %. An equity risk premium of 6.5 % is reasonable.

- **Asset Beta:** The Discussion Paper (p16) proposes an asset beta of 0.43 as used by IPART (the NSW electricity regulator) for the majority of the NSW electricity distributors. However it should be noted that IPART considered a range of asset betas – with the top end of the range being 0.5. IPART considered that two rural electricity distributors (Advance Energy and Australian Inland Energy) faced greater risks than city based electricity distributors and consequently these distributors received a higher WACC (presumably due to IPART using the top end of the asset beta range to reflect the higher risk).

Given that PAWA may be seen as operating in a relatively isolated region with a relatively concentrated customer base an asset beta similar to the asset beta used for rural distributors in NSW may be appropriate. (As a comparison to PAWA Advance Energy serves 118,000 customers with a total network load (distribution network only) of 2393,279 MWh over 167,000 square kilometres using \$ 287 million of distribution network assets<sup>4</sup>).

In addition the asset betas used in recent regulatory decisions relating to gas distribution systems have ranged from 0.4 to 0.6.

Given the above an asset beta of at least 0.5 is reasonable for PAWA.

- **Equity Beta Conversion:** There are a variety of approaches to adjust the asset beta for financing and tax effects to derive an equity beta. AGL notes that the Discussion Paper (p13) derives an equity beta using an approach recommended in a 1996 government policy document. Since this time utility regulators, particularly the

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<sup>2</sup> N. Hathaway (1999) Cost of Capital: Imputation Credits and Other Issues: Melbourne Business School Seminar 15 September 1999

<sup>3</sup> Telephone conversation with Centre for Research in Finance 7 October 1999

<sup>4</sup> IPART (1999) Pricing for Electricity Networks and Retail Supply: Report: Volume 1 p iv, p 9

ACCC appear to be moving towards using the “Monkhouse” equity beta formula. This formula can be found in various ACCC decisions relevant to utility networks<sup>5</sup>.

- **Debt Risk Premium:** The Discussion Paper (p 16) proposes a debt risk premium of 1 %. In calculating the debt risk premium the following should be considered:
  - ten year bond swap spread - typically 40 – 60 basis points;
  - the credit margin on debt funding - recent press articles indicate that this margin could be expected to be at least 60 – 80 basis points; and
  - borrowing costs (such as the fees required to raise fixed rate finance or the cost of hedging floating rate finance) – these could be expected to be 10 – 20 basis points.

Based on the above figures a debt premium of 1.1 % to 1.6 % is possible. A figure of 1.3 % may be reasonable.

If the values suggested by AGL above were used this would result in a pre tax real WACC of approximately 8.55 %.

#### **4. Other Comment**

AGL notes that at this time the Interim Commissioner only proposes to determine a revenue cap for the Darwin and Katherine electricity networks. As noted in the Discussion Paper (p9) it is currently intended that other networks will only be revenue cap regulated “where both:

- (a) there are identifiable customers connected to the network who are reasonably expected to become contestable in the year in question; and
- (b) licenced third party generators and / or retailers foreshadow to the Commission their intention to enter into negotiations with those contestable customers.”

If a similar test to that above were used for Darwin’s gas distribution network such a test would be likely to preclude any need for third party access to this network in the near future.

#### **5. Conclusion**

AGL welcomes the opportunity to provide a submission to the Discussion Paper. AGL believes revenue caps should not be applied to gas infrastructure in the Northern Territory as, compared to price caps, revenue caps provide little incentive to develop infrastructure and markets as additional sales are not reflected in additional revenue. As Northern Territory gas infrastructure and gas markets are undergoing a development, price caps are required to encourage this development.

AGL believes that the pre tax real WACC value of 7.4 % derived for PAWA in the Discussion Paper is too low, in particular the equity risk premium, debt risk premium and

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<sup>5</sup> See for example ACCC (1999) Draft Decision: Access Arrangement by AGL Pipelines (NSW) Pty Ltd for the Central West Pipeline 10 September 1999 p45

asset beta used in the Discussion Paper are too low. A pre tax real WACC of 8.55 % may be more appropriate.