

Impact of the WA Gas Networks Proposed Tariffs for the Mid-West and South-West Gas Distribution Systems on Residential Gas Customer Bills

Final Report

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Executive summary

The WA Gas Network (WAGN) has submitted proposed tariffs for its Mid-West and South-West distribution networks for the period 2010 to mid-2014. It has proposed sharp across-the-board increases in distribution tariffs, which would then flow through to retail bills for residential and other customers.

The proposed increases appear unjustified. However, it is difficult to determine this since WAGN has claimed confidentiality around most of the supporting documentation it has submitted to the regulator in support of the increases.

The distribution tariff increases fall disproportionately on residential and small business customers on the B3 tariff compared with other four tariff classes.

This paper analyses and presents the impact of the proposed distribution tariff increases on residential customers, and investigates the main reasons for the increases.

Introduction

WAGN submitted proposed revisions to the Access Arrangements for the Mid-West and South-West Gas Distribution System in January 2010. The Access Arrangements proposed by WAGN, if accepted, will set distribution tariff paths and terms and conditions for these gas distribution systems from January 2010 to July 2014.¹

The revisions would significantly increase gas distribution tariffs for small gas customers. This would flow through to small customer retail tariffs since distribution tariffs (or 'reference tariffs') presently account for around 40 per cent of the final retail bill for residential and small business gas users.²

At present, there are five tariff classes (A1, A2, B1, B2, B3), each with its own pricing arrangements. The B3 tariff applies to residential and small business customers. Each of the five tariff classes consists of a standing (or fixed) charge and a consumption charge. The distribution tariff classes apply declining price steps to the consumption charge once usage reaches certain bands (a declining block tariff approach).

WAGN proposes to increase the standing charge for each tariff class (in particular for the A2 and B3 tariff classes), and to eliminate the declining block tariff approach for all but the A1 tariff class. In relation to the B3 distribution tariff, WAGN is proposing to:

- Increase the existing annual standing charge of \$28.59 to \$70.00 in 2011 with further annual increases of 4% and 7% taking the standing charge to \$83.35 by July 2013; and
- Move from the current declining block tariff structure of \$9.50 for the first 15 gigajoules (GJ), \$5.69 for the next 30 GJ and \$3.86 thereafter, to a flat rate of \$9.50 per GJ in 2011, with annual increases of 4% and 7% after that.

These tariff increases will make gas usage significantly more expensive for B3 tariff customers. At present, many residential customers in WA are struggling to afford gas. There are high overall levels of disconnection compared with other jurisdictions, and there were large increases in disconnection in 2008/09.³ Retail gas prices have already risen considerably in recent years due mainly to increases in the wholesale price of gas.

The social impact of the gas price rises would be significant. Gas is an essential service and is used for cooking, space heating, and hot water. A high price of gas may make these essential activities less affordable, particularly for low income and vulnerable members of the WA community.

¹ The proposal provides for tariffs to increase in January 2011.

² Office of Energy 2007, p. 18.

³ ERA 2010b, p. 7. For Alinta, in 2008/09, residential disconnections rose from 2.3 per cent to 2.9 per cent of the residential customer base.

Background

Demand for gas

The residential market for gas in WA is relatively large, with over 600,000 residential gas users.⁴ WA residential consumers are significant users of gas compared to some other jurisdictions. This assists in reducing the price of gas by providing some economies of scale. WAGN estimates that the average residential household uses around 17.87 GJ per annum.⁵

Gas distribution services

The Mid-West and South-West Gas Distribution System comprises a series of gas distribution networks serving Geraldton, Kalgoorlie, Albany, Bunbury, Busselton, Harvey, Pinjarra, Brunswick Junction, Capel and the Perth Greater Metropolitan Area including Mandurah. These networks constitute approximately 12,000km of gas mains and associated infrastructure.⁶

The Mid-West and South-West Gas Distribution System is a 'covered' network under the National Gas Law (NGL). This means that tariffs and terms and conditions for use of the distribution network must be approved by a regulator. While the Australian Energy Regulator (AER) is the regulator for most of Australia, the relevant regulator in WA is the Economic Regulation Authority (ERA).

The NGL was enacted in WA in January 2010. It replaced the *National Third Party Access Code for Natural Gas Pipeline Systems* (the Third Party Gas Code), which had previously regulated the setting of access prices and terms and conditions for distribution and transmission pipelines in Western Australia. The existing Access Arrangement for the Mid-West and South-West Gas Distribution System was made under the Third Party Gas Code.

Retail gas market

The retail gas market in Western Australia was deregulated in May 2004.⁷ After that time, new retailers have been able to enter the market and compete against Alinta, the incumbent retailer. However, to date Alinta has been the only active retailer in the residential gas market.

Retail gas prices in the areas served by the Mid-West and South-West Distribution System are capped for customers using up to 1 TJ (1,000GJ) per annum.⁸

⁴ ERA 2010a, p.12.

⁵ WAGN Proposed Revisions, p.15.

⁶ WAGN website, accessed at <http://www.wagn.com.au/>, 23 June 2010.

⁷ AER 2009, p.299, also p.304; ERA website, at http://www.erawa.com.au/1/52/42/gas_retail.pm, accessed 22 June 2010.

⁸ WA Office of Energy website, accessed at http://www.energy.wa.gov.au/2/3248/64/gas_tariffs_rev.pm, 17 June 2010

In October 2007, the Office of Energy completed a review of the state of competition in the retail gas market and whether it would be appropriate to remove the cap on retail tariffs. The review found that:

- There is currently insufficient competition in the gas retail market in Western Australia to justify removal of the Tariff Regulations.
- There are upward pressures on the cost of retail gas to small use customers in the areas covered by the Tariff Regulations. These cost pressures may impact on the viability of gas retailers and may act as a barrier to entry in the gas retail market if the tariff caps are maintained at their current level.⁹

Since 2008, the Office of Energy has conducted an annual review of retail gas prices, generally resulting in an increase in the retail tariff cap towards a more cost-reflective level.

Retail gas prices and gas distribution charges

The main components of retail gas prices are the wholesale price of gas, the costs of transmitting gas from the production fields to the distribution area, the charge for gas distribution, the operating costs of the retailer, and the retailer's net retail margin.¹⁰

As noted above, retail gas prices have been rising significantly in WA in recent years. These increases have been mainly due to increases in the wholesale price of gas. The wholesale price has been rising since 2007 as a result of the expiration of long-term gas contracts and high world demand for gas. World demand for gas influences the price that WA consumers pay for gas because the main gas basins in WA export gas as LNG to the rest of the world.¹¹

The regulated retail price for WA retail consumers connected to the Mid-West and South-West distribution system increased by between 5.4 and 16.5 per cent in 2008,¹² by 22 to 23 per cent in 2009¹³, and by 7 per cent in April 2010.¹⁴ These large rises in the retail price were not driven by increases in gas distribution tariffs. However, further price rises for small customers as a result of higher distribution charges would add to already stressed consumer prices.

WAGN's proposal

WAGN has submitted five documents to the regulator to support the proposed access arrangements to apply from 2011.

⁹ Office of Energy 2007.

¹⁰ Office of Energy 2007, p.15.

¹¹ Office of Energy 2007, pp.8-9.

¹² Office of Energy 2008, p.3.

¹³ AER 2009, p.306; Office of Energy 2008, p.3.

¹⁴ Office of Energy 2010, p.3.

These documents are:

- The Access Arrangement. The access arrangement essentially describes the broad terms and conditions for use of the distribution system. It defines reference services (including the B3 tariff service), sets out the procedure for application for connection, extensions and expansions, depreciation, definitions and interpretations, fixed principles, changing receipt and delivery points, and capacity trading. The draft Haulage Contract (discussed below) is attached as an appendix to the Access Arrangement.
- The Access Arrangement Information (AAI). The AAI provides the financial information and analysis that supports the reference or distribution tariffs that WAGN proposes to charge for each of the five tariff services.
- Proposed revisions to the current access arrangement. This document indicates where the proposed access arrangement varies from the current access arrangement. This and the AAI are the key documents for understanding the distributor's proposed approach for the upcoming access arrangement period.
- An excel model of the proposed tariffs showing how the distribution tariffs were calculated.
- A Draft Haulage Contract. The draft contract sets out the terms and conditions for retailers in contracting with the distributor for use of the gas. For example, it sets out fees and charges, receipt and delivery points, unaccounted-for gas, curtailment, metering, tax, force majeure, variation, and so forth.

Regulatory approach

The ERA must apply the new legislation (the NGL) in reaching a decision on the gas distribution tariffs to apply from 2011.

The NGL enacts the National Gas Rules (NGR) to provide a greater level of detail around specific requirements of the regulatory approach. The NGL and the NGR impose specific legal responsibilities and requirements on the regulator in assessing a distribution network's proposed revisions to access arrangements. The relevant sections of the NGL and NGR are extracted in Appendix 1.

Broadly, the ERA is guided by the National Gas Objective in section 23 of the NGL, which provides:

The objective of this Law is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.

Sections 24(2) to 24(7) of the NGL set out pricing and revenue principles for the regulator's guidance in setting distribution tariffs. These principles broadly require the regulator to approval total revenues that are sufficient to allow the business to recover its efficient costs, including depreciation and an appropriate return on capital.

The first step is to determine the total annual revenue that the distribution business must earn to cover its efficient costs of providing reference services and to provide a reasonable rate of return on its invested capital.

Under the NGR, annual revenue requirements must be determined using a building blocks approach (NGR rule 76). The main building blocks of annual revenue are:

- Allowed operating expenditures (opex). Opex covers recurring costs such as staff wages and consumables;
- A return on capital, which is the capital asset base multiplied by a rate of return. The capital base is valued on the efficient cost of replacement of the network. The capital base is assumed to be composed of a mix of debt and equity. The rate of return is set at a level that is sufficient to allow the distributor to earn an adequate return on its capital investment so that it has incentives to continue to build and maintain the network and deliver the gas that consumers want. A different rate of return is allowed for the debt and equity in the capital base (reflecting the different risks of debt and equity). The blended return across both debt and equity is called the weighted average cost of capital (WACC).
- A return of capital, through depreciation. The allowance for depreciation permits the distributor to recover the loss of value in the network as different assets within the capital base depreciate over time.

At the start of the access arrangement, the capital base is set. The capital base is adjusted each year for new capex and for depreciation. New capital in the NGR is included in the capital base, while the depreciation allowance is subtracted from the capital base.¹⁵

Accordingly, the key parameters that influence the annual revenue requirement are:

- The level of opex;
- The valuation of the capital base at the start of the access arrangement period;
- The allowed capex;
- The rate of depreciation. Typically this rate is allowed across different asset classes rather than at a single rate across the whole asset base; and
- The WACC.

Together, depreciation and the return on capital normally constitute two thirds or more of the revenue requirement for gas distribution assets. Opex and smaller factors such as tax and service quality incentives account for the remainder.¹⁶

¹⁵ Capex only enters the capital base where it is conforming capex, that is, it meets the tests in NGR rule 79. The regulator only judges whether capex is conforming at the end of the access arrangement period when determining the opening capital base for the new access arrangement period.

¹⁶ AER 2009, p.282.

There are specific rules in the NGR for assessing each of these parameters.

The criteria for capex are set out in NGR rule 79 (see Appendix 1). Capex must be “such as would be incurred by a prudent service provider acting efficiently...to achieve the lowest sustainable cost of providing services”, and must be “justifiable”. New capex must also meet *one* of three criteria:

- The overall economic value of the capex is positive;
- The present value of additional revenue that can be earned from the capex is greater than the present value of the additional capex; or
- It is necessary for safety, to meet present levels of demand, or to comply with a regulatory obligation.

The criterion for opex is set out in NGR rule 91 (see Appendix 1). It provides that opex must be “such as would be incurred by a prudent service provider acting efficiently...to achieve the lowest sustainable cost of delivering pipeline services”.

Once the annual revenue requirement is determined from the building block approach, it is allocated to the services provided by distribution pipelines in order to come up with reference tariffs. The way in which the distribution tariff classes are developed, and the composition of revenues within a tariff class are regulated by the NGR under rule 94(3)-(6) (see Appendix 1). In essence, the distributor must divide users into different tariff classes, and assign an appropriate amount of revenue to each tariff class. The revenue is collected through a tariff structure, typically a two part tariff consisting of a standing charge and a consumption charge.

In the case of WAGN’s proposal, the revenues are divided into the five tariff classes (A1-B3), and then tariffs are set in each of these five classes consisting of a two-part standing and consumption charge to return the required revenues for the particular tariff class.

The relevant sections of the rules, and the way in which WAGN has determined the proposed distribution tariffs are discussed in later sections.

In WA, the *National Gas Access (WA) (Local Provisions) Regulations 2009* make two additional provisions in relation to small users (i.e. users using less than 1 TJ per annum). First, regulation 6 provides that the ERA must set uniform access tariffs for small users supplied by one of the Mid-West or South-West Distribution systems. Second, regulation 7(1) provides that:

When exercising a discretion in approving or making an access arrangement for a distribution pipeline the ERA must take into account the possible impact of the proposed reference tariffs, the method of determining the tariffs and the reference tariff variation mechanisms on [customers using less than 1 TJ per annum]

WAGN proposed tariffs

Regulation 7(2) provides that the ‘impacts’ referred to in regulation 7(1) are not limited to economic impacts. Arguably, this means the regulator can consider social or other impacts in assessing proposed tariffs for small users.

Proposed changes to B3 reference tariffs

This section analyses WAGN’s proposed B3 tariff revisions in the upcoming access arrangement period. All dollar amounts are stated in common December 2009 dollar terms to permit direct comparison of the dollar amounts.

Table 1 sets out the proposed increases in B3 distribution tariffs over the future access arrangement period in both dollar and percentage terms.

Table 1: Proposed increases in distribution tariffs (2009 dollars)

GJ per annum	Current cost	Jan-11 cost	increase	Jul-11 cost	increase	Jul-12 cost	increase	Jul-13 cost	increase
0	\$28.59	\$70.00	145%	\$72.80	155%	\$77.90	172%	\$83.35	192%
5	\$76.09	\$117.50	54%	\$122.20	61%	\$130.75	72%	\$139.90	84%
10	\$123.59	\$165.00	34%	\$171.60	39%	\$183.60	49%	\$196.45	59%
15	\$171.09	\$212.50	24%	\$221.00	29%	\$236.45	38%	\$253.00	48%
20	\$199.54	\$260.00	30%	\$270.40	36%	\$289.30	45%	\$309.55	55%
25	\$227.99	\$307.50	35%	\$319.80	40%	\$342.15	50%	\$366.10	61%
30	\$256.44	\$355.00	38%	\$369.20	44%	\$395.00	54%	\$422.65	65%
45	\$341.79	\$497.50	46%	\$517.40	51%	\$553.55	62%	\$592.30	73%
60	\$399.69	\$640.00	60%	\$665.60	67%	\$712.10	78%	\$761.95	91%
75	\$457.59	\$782.50	71%	\$813.80	78%	\$870.65	90%	\$931.60	104%

Source: ERA 2010a, p.12, referenced from WAGN AAI, table 46, p.47.

Chart 1 sets out the proposed distribution tariffs for B3 tariff customers in January 2011 (in red) compared with the current tariffs (in blue). The chart compares current and proposed tariffs over a number of different consumption levels.

Chart 1: Proposed Distribution Tariffs in January 2011 (\$2009 dollars)



Chart 2 shows the percentage increase in distribution tariffs in January 2011 from current levels for a range of consumption levels.

Chart 2: Percentage increase in distribution tariffs compared to current tariffs

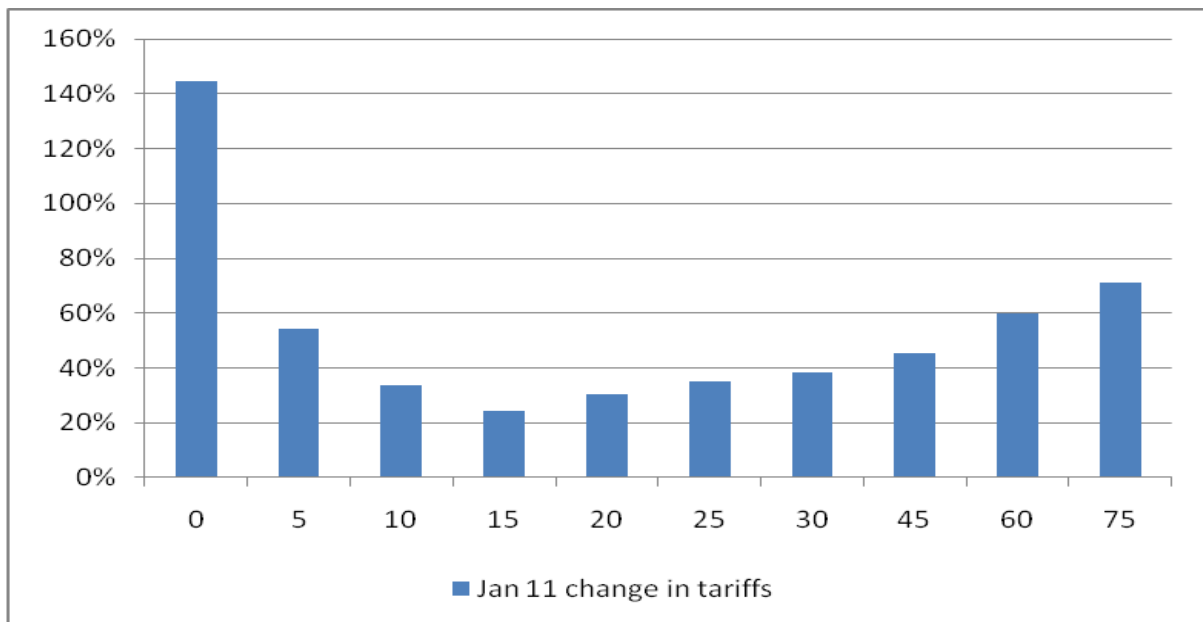


Chart 3 below shows the rate of increase in distribution tariffs over the forward years of the future access arrangement periods for usage in the range 0-20 GJ per annum.

Chart 3: Progression of Tariffs over the future Access Arrangement period (\$2009 dollars)

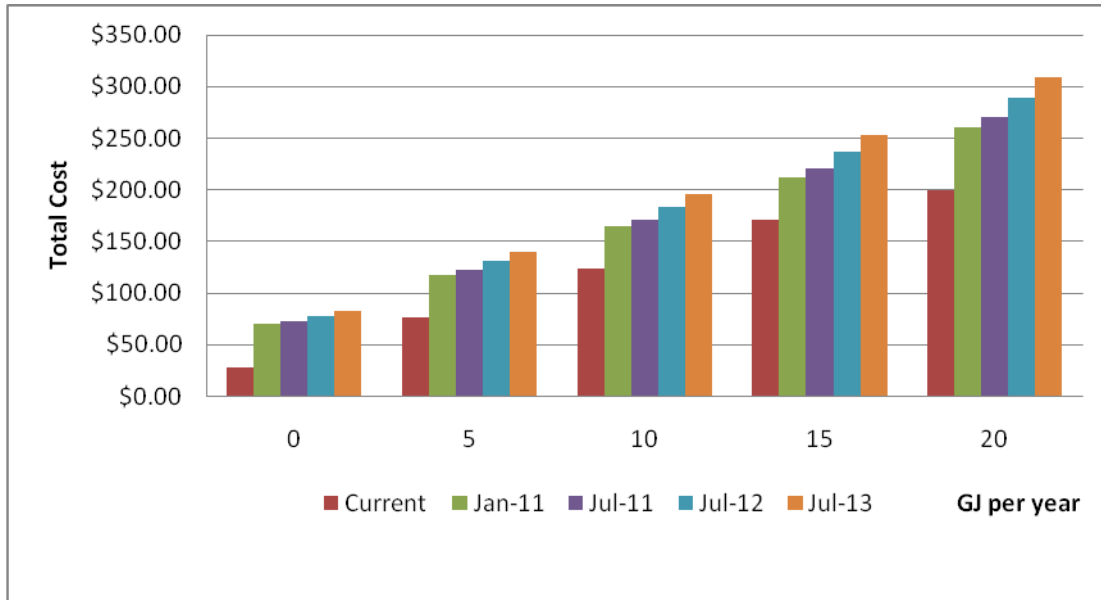
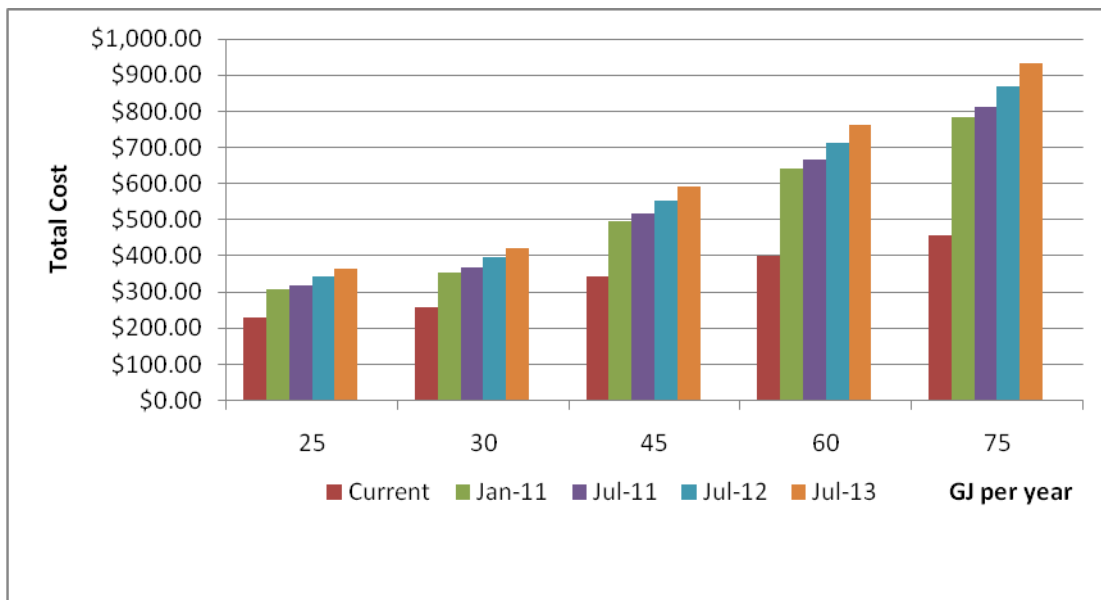


Chart 4 below shows the rate of increase in distribution tariffs over the forward years of the future access arrangement period for usage in the range 25-75 GJ per annum.

Chart 4: Progression of Tariffs over the future Access Arrangement period (\$2009 dollars)



Charts 1 to 4 show that distribution tariffs increase sharply at the start of the new access arrangement, and then continue to increase significantly above inflation throughout the access arrangement period.

Projected retail gas bill changes for B3 customers

This section analyses the impact of the increased B3 distribution tariffs on retail gas bills.

Table 2 summarises the projected changes in the retail bill in January 2011 if WAGN's proposed B3 distribution tariffs were accepted. The current retail charge in table 2 includes the increase in the retail tariff that occurred in April 2010.

Table 2: Changes in Distribution Costs as Percentage of Retail Bill (2009 dollars)

GJ per annum	current distribution	current retail	Jan 11 proposed distribution	current retail with proposed distribution	% increase	current distribution as % of current retail bill	proposed distribution as % of projected retail bill
0	\$28.59	\$59.92	\$70.00	\$101.33	69.1%	47.7%	69.1%
5	\$76.09	\$209.09	\$117.50	\$250.50	19.8%	36.4%	46.9%
10	\$123.59	\$358.26	\$165.00	\$399.67	11.6%	34.5%	41.3%
15	\$171.09	\$507.42	\$212.50	\$548.83	8.2%	33.7%	38.7%
20	\$199.54	\$644.25	\$260.00	\$704.71	9.4%	31.0%	36.9%
25	\$227.99	\$778.83	\$307.50	\$858.34	10.2%	29.3%	35.8%
30	\$256.44	\$913.41	\$355.00	\$1,011.97	10.8%	28.1%	35.1%
45	\$341.79	\$1,317.16	\$497.50	\$1,472.87	11.8%	25.9%	33.8%
60	\$399.69	\$1,720.91	\$640.00	\$1,961.22	14.0%	23.2%	32.6%
75	\$457.59	\$2,124.66	\$782.50	\$2,449.57	15.3%	21.5%	31.9%

Chart 5 shows the percentage that distribution costs currently make up of B3 customers' final gas bill compared with the percentage that they would make up if the proposed revised distribution tariffs were accepted.

Chart 5: Distribution Costs as a percentage of final retail bill

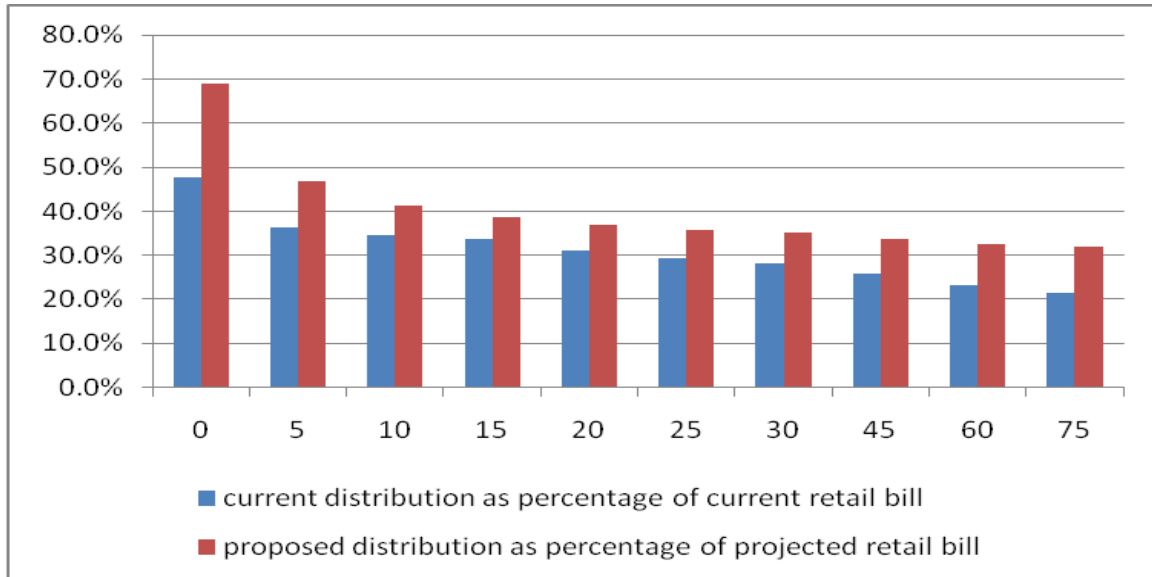
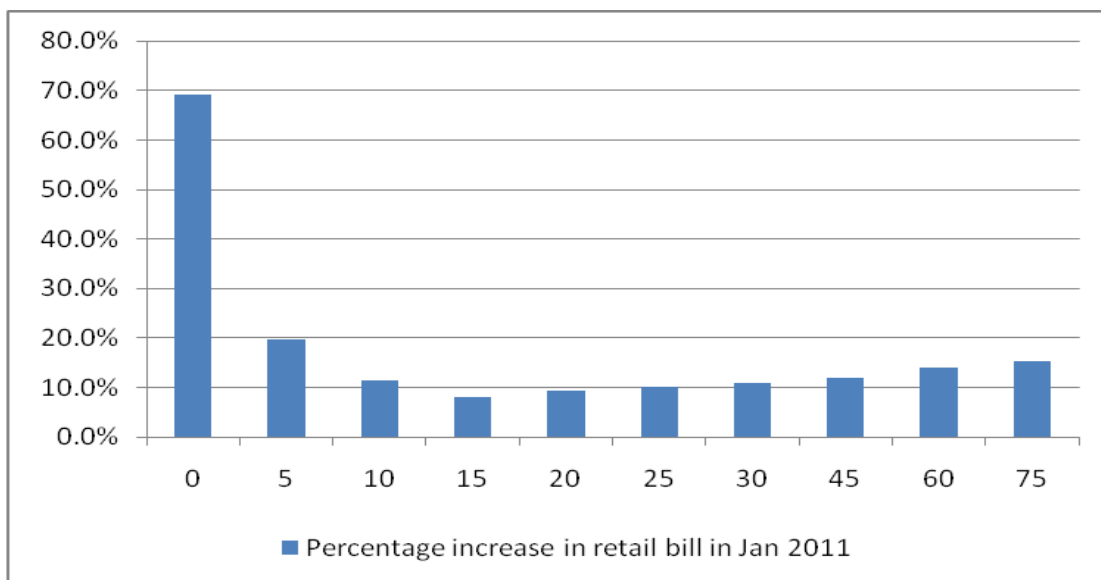


Chart 6 shows the percentage increases in 2011 retail bills due to the proposed rise in distribution tariffs.

Chart 6: Percentage increases in retail gas bills



The total retail bills would rise for B3 customers using 0-20 GJ and 25-75 GJ per year as shown in charts 7 and 8.

Chart 7: Projected increases in retail bills for customers using 0-20 GJ per year (\$2009 dollars)

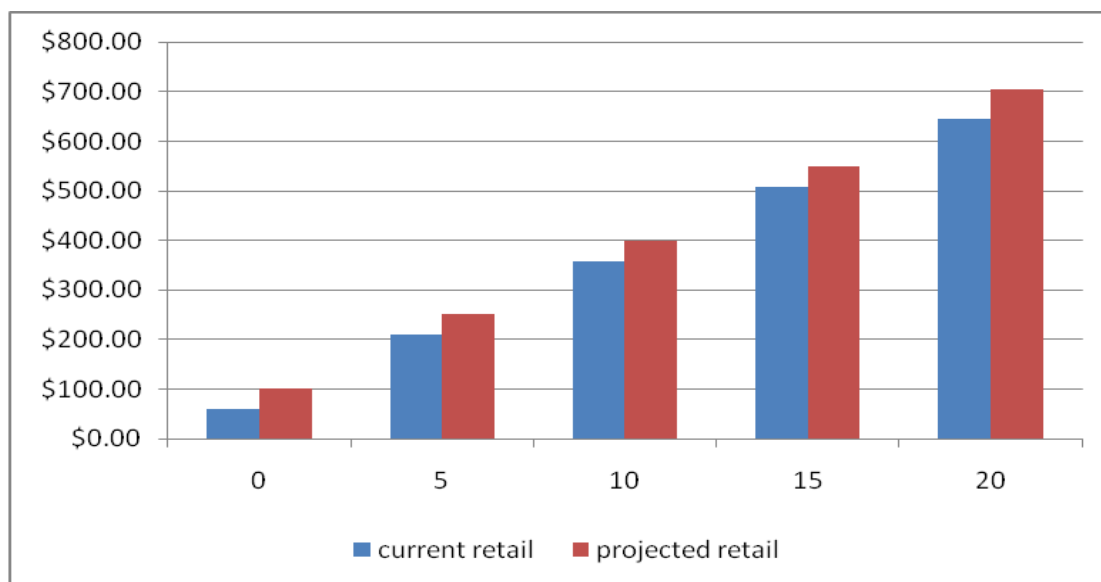
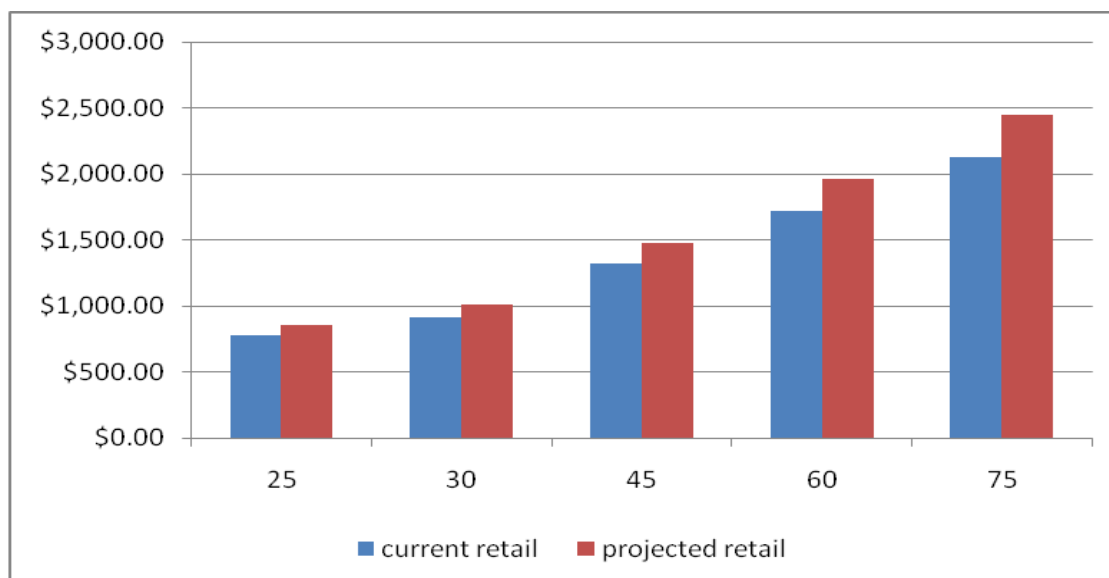


Chart 8: Projected increases in retail bills for customers using 25-75 GJ per annum (\$2009 dollars)



ERA's Issues Paper

The ERA released an Issues Paper on 26 February 2010 to provide guidance on the issues that it would be considering in making a decision on WAGN's proposed revisions.

The Issues Paper notes that the new NGL came into place on 1 January 2010, and replaces the Third Party Gas Code in providing the regulatory framework for deciding access arrangements. This means

the regulator will be using a new approach compared with the legislative framework used to assess the current access arrangement.

The Issues Paper identifies a number of key issues to be considered comprising reference tariffs, the rate of return, capital expenditure, operating expenditure, total revenue, and other issues (ERA 2010a, p.7). Each of these areas is analysed in turn below.

Reference tariffs

The Issues Paper discusses the principles for setting reference tariffs at pages 10-13. The Paper notes the process under NGR rule 94 for dividing customers into tariff classes and calculating the revenue to allocate to each class.

The Issues Paper notes that the revised tariffs are particularly significant for some large customers (the A2 tariff) and for small customers (the B3 tariff). For B3 customers, the revised tariffs incorporate both a steep increase in the standing charge and an increase in the consumption charge for consumption over 15 GJ per annum.

Tariff structures are discussed in greater detail in the “Tariff Classes and Structures” section below.

Rate of return

The Issues Paper notes that WAGN is proposing a rate of return or WACC of 11.1 per cent compared with a WACC for the current access arrangement of 6.78 per cent.¹⁷

WAGN have included four alternative measures of rate of return with the intention of selecting a representative rate of return. From the resulting set they have selected a rate of return near the upper end of the range. Three of these four measures tend to provide a higher rate of return than the method used in the current access arrangement.

Compared with the current access arrangement, WAGN have sought a much higher WACC on the basis that the unsettled financial markets have raised the cost of both debt and equity. In other words, due to the increased perceptions of risk following the global financial crisis, investors are demanding a much higher return on both debt and equity. This means that WAGN must earn a higher rate of return on its gas distribution activities in order to lure capital from competing sources.

Table 3 below compares the parameters used to derive WACC in the current access arrangement with the same parameters in WAGN’s proposal. The proposed debt margin, which is the margin over a risk-free rate that investors require to lend capital to the distribution network, has jumped from 1.125% to 4.5%, and some additional borrowing costs have been nominated (debt raising costs and refinancing costs). The proposed market risk premium, which is the margin over the risk-free rate that equity investors require to invest in a project, has jumped from 6% to 8%.

¹⁷ ERA 2010, p. 14. Expressed in real, pre-tax terms.

Table 3: Comparison of WACC parameters in the Current Access Arrangement with WAGN's proposal

Parameter	Current Access Arrangement	WAGN proposal
Risk-free rate (nominal)	5.34%	5.59%
Market risk premium	6%	8%
Debt margin (required margin over a risk-free rate)	1.125%	4.5%
Debt raising costs	0	0.125%
Refinancing costs	0	0.163%
Debt to equity ratio	60:40	60:40
Franking credit value (gamma) (The value of franking credits to investors)	0.5	0.2

Source: ERA 2005, p. 66; WAGN AAI, pp. 27-34.

Capital Expenditure

Capex must meet the tests in NGR rule 79 (see Appendix 1) for the expenditure to be rolled into the capital base.

The Issues Paper notes that NGR rule 79 imposes a higher test on proposed capex compared with the old Third Party Gas Code. Under the old Third Party Gas Code, forecast capex had to be reasonably expected to be required, while under NGR rule 79 it must be demonstrated to be required.

The Issues Paper notes that WAGN spent \$177.469 million on capex during the current access arrangement. This was 8 per cent more than the forecast capex of \$164million. Using the tests in NGR rule 79, WAGN must now justify the capex above the forecast level (i.e. \$13.469million) in order for this amount to be included in the capital base at the start of the upcoming access arrangement period.

For the upcoming access arrangement, WAGN has proposed capex of \$224.252million over the four and a half year period of the new access arrangement. This is a major increase over both the \$164million forecast and the \$177.469million actual capex spend over the current five year access arrangement.

WAGN attributes the capex increase to a range of factors including:¹⁸

- A meter replacement program for meters at the end of their life;
- A new control facility;
- Replacement of cast iron mains in the Fremantle area;
- Increased spending on medium and low pressure mains; and

¹⁸ Compare ERA 2010, pp. 17-18 with WAGN Proposed Revisions 2010, pp. 20-56.

- Increased IT spending.

Much of the information on both historical and forecast capex has been suppressed as confidential. This makes it very difficult to determine whether the capex is justified. There is some material that would suggest that WAGN's costs for project managing capital programs is rising, and may be above justifiable levels.¹⁹

Operating Expenditure

WAGN spent around 1 per cent more in opex during the current access arrangement period than forecast. In the Issues Paper the regulator notes that WAGN would have underspent opex except that the cost of unaccounted for gas (UAG) rose sharply in 2008 and 2009. UAG is the gas that enters the distribution system but either leaks, is misread by meters, is stolen, or is otherwise unaccounted for. WAGN says the cost of UAG rose because of the increase in the wholesale cost of gas. WAGN has claimed confidentiality over much of the detail of the price of gas used in its calculations.²⁰

WAGN has proposed significant increases in opex. In December 2009 dollars, WAGN spent \$218.66m during the current access arrangement and proposes to spend \$276.15m in the upcoming access arrangement. The relative increase is even higher given the shorter upcoming period of four and half years.

There are significant increases in a number of categories of opex spending, including:

- Corporate;
- Information Technology;
- Regulatory costs; and
- UAG.

The Issues Paper notes that UAG makes up 17 per cent of the new opex forecasts compared to 11.7 per cent during the current period. This forecast increase has largely been attributed to the higher wholesale price of gas rather than a substantial increase in the volume of UAG.

Total Revenue

Total revenue and the annual revenue requirement are determined by adding up the building blocks. Under the WAGN proposal the annual revenue requirement rises from around \$132m in 2009 to around \$193m in 2013-14. The rise in total revenue is largely accounted for by increases in the return on capital and opex.

¹⁹ WAGN Proposed Revisions, pp.51-52. Project management costs in the current access arrangement have averaged \$1 for each \$3.30 of capital project cost, while WAGN projects that project management costs will be \$1 for each \$3 of capital project cost in the upcoming access arrangement period.

²⁰ WAGN Proposed Revisions, p. 65-66.

Return on capital roughly doubles from the end of the current access arrangement. This is due to the combination of increased capex each year and the much higher WACC. Return on capital increases from around \$45m in 2009 to around \$99m in 2013-14. There is also a large rise in opex, from around \$38m in 2009 to nearly \$61m in 2013-14.

The drivers for the increased tariffs are analysed in greater depth below.

Other Issues

In the current access arrangement, the regulator has required WAGN to use CPI (Eight Capital Cities). WAGN, however, has used CPI (Perth). As Perth inflation is higher than the average inflation rate over the eight capital cities of Australia, using the Perth CPI has apparently increased the amount that WAGN can carry over from the current access arrangement to the new access arrangement.

Alinta provides an example in terms of the impact of using the Perth CPI compared to the Eight Capital Cities CPI. Using the Perth CPI increases the forecast capex for the current access arrangement from \$168.6m to \$172.1m, an increase of 2% or \$3.5m.

Summary of submissions in response to the ERA Issues Paper

In response to the Issues Paper, ERA received submissions from:

- Synergy;
- Alinta (two submissions, stamped 20 April and 29 April);
- The WA Office of Energy; and
- Two residential users (RL Steele and Merrilyn Robertson)

All of the submissions were critical of WAGN's proposal.

Synergy's submission criticised the magnitude of the projected tariff increases coupled with the lack of material to support those increases. It expressed concern at the significant upward movement in capex and opex. It considered the proposed tariffs would cause price shocks for users. It also criticised the terms of the draft haulage contract.

Alinta lodged two submissions, stamped 20 April and 27 April. The first submission (20 April) was a detailed 48 page submission. This submission expressed concern at the size of the proposed tariff increases, including the proposed 56 per cent real increase in the B3 tariff over the period 2009 to 2014. It considered that WAGN had not provided sufficient public information to permit third parties to understand the basis and derivation of the various elements of the access arrangement, as required by NGR rule 42(1). It doubted that the information which WAGN claimed confidentiality over met the tests for confidentiality in NGR 43(2). It considered that the proposed WACC did not comply with the NGR, and imposed price shocks. It also considered that WAGN had not taken into account the WA Local Provisions.

The second Alinta submission (27 April) contained detailed comments on the draft haulage contract.

The WA Office of Energy provided a limited submission since it did not wish to be perceived to be influencing the independence of the ERA. The Office of Energy submission expressed concern about: (i) the price shocks that would arise from the proposed increase in the standing charge for small users; (ii) the short term impact of the proposed tariff increases; (iii) removal of the declining block tariff; (iv) the lack of an incentive mechanism that might instil some incentives to make opex savings over the term of the access arrangement; and (v) WAGN’s proposal that it should be able to pass-through unanticipated increases in the cost of UAG and certain capex.²¹

The two residential users criticised the trend of increasing prices, arguing that they would make gas unaffordable.

Main causes for the increased total revenue

The distribution tariffs are designed to recover the total revenue across the period of the new access arrangement. This section focuses on the determination of total revenue, while the next section focuses on tariff structures and the determination of the distribution tariffs.

WAGN’s total revenue request is stated in table 4 below.

Table 4: Total Revenue requirement (\$m 2009 dollars)

	2010	2010/11	2011/12	2012/13	2013/14
Return on Capital Base	44.035	91.949	94.165	96.670	99.065
Return on Working Capital	0.427	1.605	1.988	2.223	2.462
Depreciation	0.328	24.349	26.229	28.203	30.123
Efficiency gains	2.179	2.248	0.969	2.211	1.311
Forecast Operating Expenditure	36.418	59.621	59.200	60.182	60.727
Total revenue	83.387	179.772	182.621	189.489	193.689

Source: WAGN AAI, table 28, p. 54.

Note 1: January 2010 to 30 June 2010 only

The three dominating factors are return on capital, depreciation, and opex. Of these three elements, depreciation is relevantly constant over the new period, and not significantly higher than the current access arrangement (it was \$30.1m in the full 2009 year, and will be \$30.1m in the full 2013/14 year). Depreciation is therefore not a main cause of the increase in total revenue.

²¹ WAGN Proposed Revisions, p.65 and pp.147-148.

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The capital base at the start of the future access arrangement is projected to be \$788.188m. Based on the proposed capex, the capital base is projected to grow from around \$788m at 31 December 2009 to \$903m at 30 June 2014 (Dec 09 dollars).²²

A change in the WACC can have a large impact on the return on capital. Table 5 below shows the impact on the return on capital of the proposed increase in the WACC from the current rate of 6.78% to the proposed rate of 11.1%.

Table 5: Comparison of impact on the return on capital of different WACCs (\$m 2009 dollars)

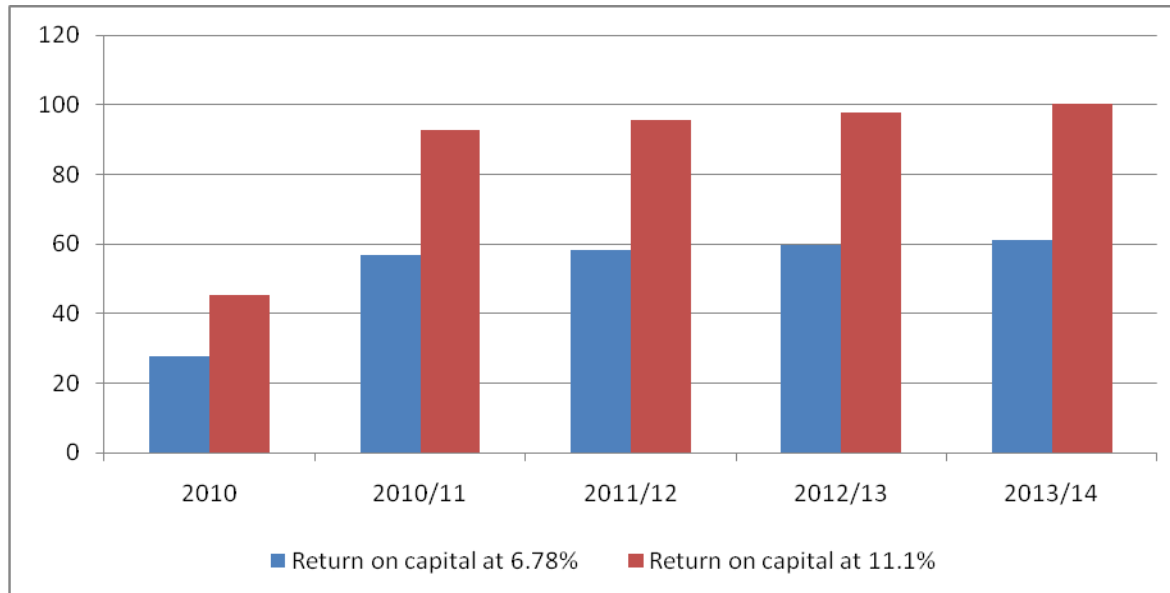
	2010	2010/11	2011/12	2012/13	2013/14
6.78%	27.66	56.72	58.30	59.78	61.23
11.10%	45.28	92.87	95.45	97.88	100.24
Difference	17.62	36.14	37.15	38.09	39.01

Note: the figures in the 11.1% row do not quite match the sum of the Return on Capital and Return on Working Capital figures given by WAGN in table 4 above.

Note: 2010 is a half year.

The comparison in table 5 is graphically illustrated in chart 9.

Chart 9: Comparison of impact on the return on capital of different WACCs (\$m 2009 dollars)



The increased rate of return contributes about \$36m-\$39m per year of the total revenue requirement, or about 20 per cent of the total revenue requirement per year in table 4 above.

²²

WAGN AAI table 11, p.10 and table 16, p.16

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In contrast, the total capex budget increases by \$60.5m over the new period (to \$224.5m from \$164m). Assuming this additional capex was spent evenly over the upcoming access arrangement, it would only add about \$2.6m per year on average to the total revenue requirement through increased returns on capital (\$1.4m) and depreciation allowances (\$1.2m).²³ Therefore, the increase in the WACC has a much greater impact on total revenue than the increase in proposed capex budget.

While the return on capital is derived from the capital base, the WACC, and the capex, the increase in opex goes directly to the increase in total revenue requirements per year. Thus the significant increase in the forecast opex adds in direct measure to the total revenue requirement.

Table 6 compares the revenue requirement of the current access arrangement period with the forecast revenue requirement over the future access arrangement period.

Table 6: Comparison of historical and forecast opex (\$m 2009 dollars)

Year	2005	2006	2007	2008	2009
Opex 2005-2009	42.889	43.914	43.949	42.286	47.972
Year	2010	2010/11	2011/12	2012/13	2013/14
Opex 2010-2014	72.836 ⁽¹⁾	59.621	59.2	60.182	60.727
Difference	29.947	15.707	15.251	17.896	12.755

Note 1: the 2010 opex forecast has been doubled for comparison purposes as it only covers a half year.

Chart 10 illustrates the impact of WAGN's increased opex proposal. After the first half year, WAGN's proposal adds around \$15m per year.

²³ This consists of a return on capital of \$1.4m per year plus a depreciation allowance of \$1.2m per year. The rate of return is calculated as $(11.1\% - 6.78\%) * 60.5/2$ and the depreciation allowance is calculated using straight line depreciation over an assumed 30 year average asset life and treating the first half of 2010 as a full year.

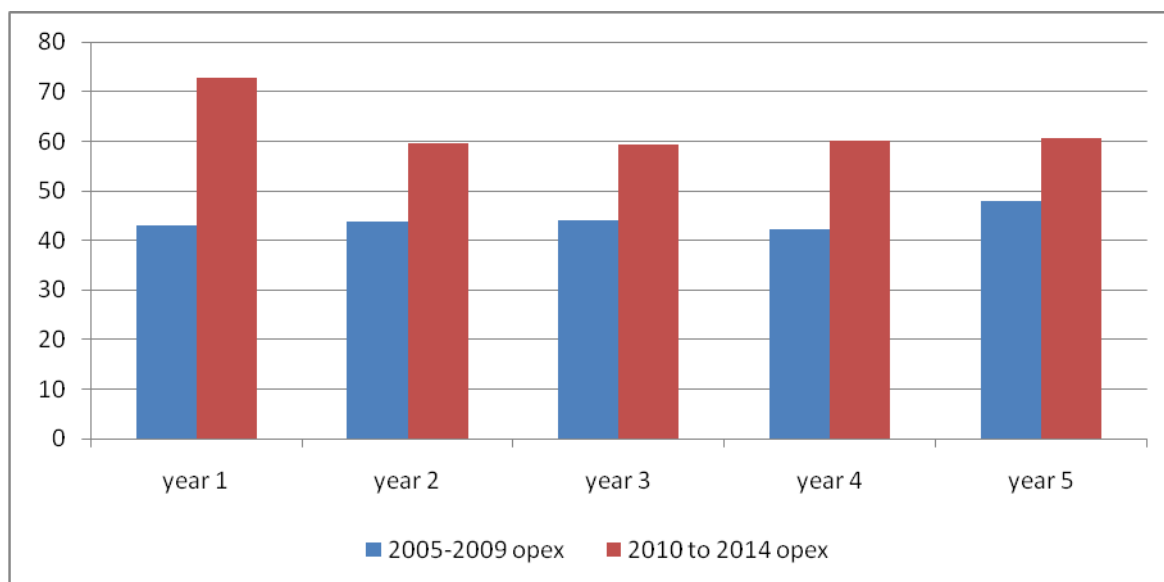
Chart 10: Impact of Increased Opex Forecasts (\$m 2009 dollars)

Table 7 summarises the impact of these factors on total revenues over the upcoming access arrangement period.

Table 7: Summary of the impact on total revenue of changes in capex, WACC and opex (\$m 2009 dollars)

Year	2010	2010/11	2011/12	2012/13	2013/14
Capex	1.4	1.4	1.4	1.4	1.4
WACC	17.62	36.15	37.15	38.09	39.02
Opex	29.95	15.71	15.25	17.90	12.76
adds	48.97	53.25	53.80	57.39	53.17

During the current access arrangement period, there have been patterns across both capex and opex of significant underspending in the early years of the access arrangement followed by significant overspending in the later years. This tends to suggest that WAGN has a high level of management control and choice over annual opex and capex spending and is selecting a level based on management choices. It contrasts with WAGN's argument in its AA and AAI that its forecast opex and capex requirements are dictated by business needs and regulatory and safety obligations in order to maintain services at reasonable levels.

Tariff Classes and Structures

Distribution tariffs must be structured to collect the distribution network's revenue requirements from different types of users. This section sets out some general economic principles for designing

tariffs compared with the applicable provisions of the NGR. It then analyses WAGN's tariff design proposal against those principles and the NGR provisions.

General Principles for developing tariffs

Generally economists are concerned to ensure that tariffs are cost reflective – that is, that they recover revenue from each tariff class in accordance with the costs of providing services to that tariff class.²⁴ In effect, this means moving over time to reduce any cross-subsidies among the tariff classes. Cross subsidies exist where one tariff class pays more than its true costs of being served while another tariff class pays less than its true costs. Under a cost reflective approach, each tariff class would pay the costs that can be directly attributed to its class plus a fair and reasonable share of costs that are shared jointly with other tariff classes.

Another important economic principle is Ramsay pricing. The concept behind Ramsay pricing is that by charging a different price for different consumers you may be able to maximise total consumption of a service. Sellers charge consumers who are highly price-sensitive a lower tariff and consumers who are not price-sensitive a higher tariff.²⁵ The economic justification for Ramsay pricing is that it boosts overall demand compared to charging all users an average market price. This is because price-sensitive customers would not be willing to pay the average market price. Under Ramsay pricing, the minimum price that sellers must charge price-sensitive user is the directly attributable cost of providing services to that customer.

NGR provisions

To allocate the total revenue requirement into a set of distribution tariffs under NGR rule 94 the distributor must:²⁶

- Divide users into different tariff classes;
- Estimate the number of users in each tariff (including trend growth in user numbers)
- Assign a portion of total revenue to each tariff class; and
- Develop a tariff for each class that will return the portion of revenue assigned to that class over each year of the access arrangement. Tariffs are typically in two parts – a standing charge and a consumption charge.

Under rule 94, the portion of the total revenue requirement for each tariff class must be between 'stand alone cost' (at a maximum) and 'avoidable cost' (at a minimum).

The *stand alone cost* of a service is the cost of providing that particular service where no other services are provided. In relation to the WAGN distribution network, most of the high pressure and

²⁴ and earn a normal rate of return.

²⁵ The price-sensitive consumers are said to have 'elastic' demand for the product, while non-price sensitive consumers are said to have 'inelastic' demand for the product.

²⁶ NGR rule 94 is extracted in Appendix 1.

medium pressure pipelines are used by all five of the tariff classes. To calculate the stand alone cost of providing the B3 service means including the cost of using all the common high and medium pressure pipelines in the network (assuming none of these were specifically dedicated to other tariff classes), plus all the low pressure pipelines used by the B3 tariff class. If the B3 customers were charged the stand alone costs of their services, then in effect the costs associated with all the common pipelines used by all the tariff services would be attributed just to the B3 customers.

Avoidable costs are those that could be avoided by not providing a service. The avoidable cost of the B3 service is the cost of the specific services provided only to B3 customers (e.g. B3 customer meters and meter reading, and the parts of the distribution network that do not serve other tariff classes).

The approach in NGR rule 94 can lead to contentious outcomes because stand-alone cost is generally far higher than avoidable cost, particularly for gas distribution services.²⁷ It is also noted that NGR rule 94(6) provides that the regulator's discretion to change the tariffs proposed by the distribution network is 'limited'.²⁸ On the other hand, the Issues Paper notes that the principles for tariff development must also be consistent with both the economic efficiency principle in the National Gas Objective (NGL section 23) and the pricing and revenue principles in NGL section 24. The Issues Paper also notes that the *National Gas Access (WA) Local Provisions Regulations 2009* provide that the ERA must take account of the possible impact of tariffs and tariff calculation on smaller users.

Fixed Principles in relation to tariff design

At the start of the current access arrangement period in 2005, the ERA agreed a number of 'fixed principles' in relation to the gas distribution system. These principles apply for the ten years from 2005 to 2015, meaning they apply during the regulator's decisions about the upcoming access arrangement. These fixed principles are designed to reduce uncertainty for a regulated distribution or transmission pipeline by stating a fixed approach that the regulator is bound to take in making a decision about a particular aspect of an access arrangement.²⁹ NGR rule 99(3) preserves the fixed principles made under the Third Party Gas Code.

In relation to tariff design and setting, the regulator agreed to fix the following principle:

26. The portion of the Total Revenue that each Reference Service has been designed to recover includes, to the maximum extent commercially and technically reasonable:

(a) all of the Total Revenue that reflects costs incurred (including capital costs) that are directly attributable to each Reference Service;

(b) a share of the Total Revenue that reflects costs incurred (including capital costs) that are attributable to providing each Reference Service jointly with other Services, with this share

²⁷ The difference between stand alone cost and avoidable cost is illustrated in chart 11.

²⁸ NGR rule 40(2) provides that if a regulator's discretion is limited then the regulator must accept any proposal that complies with the law and is consistent with applicable principles.

²⁹ Gas Code, clauses 8.47 to 8.48.

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being determined using a methodology that meets the objectives in section 8.1 of the Code and is otherwise fair and reasonable; and

(c) a share of the Total Revenue that reflects costs incurred but not recovered from those Users of Reference Services who pay at a prudent discount to the Reference Tariff.

The fixed principle in clause 26 would suggest that the share of joint revenue assigned to B3 tariff customers be no more than is fair and reasonable.

The ERA is bound to apply this principle unless it and WAGN agree otherwise.³⁰

WAGN's proposed tariff structure

WAGN has proposed the reference tariff structure set out in table 8 for the five tariff classes, together with the stand alone and avoidable cost of providing services to each of the tariff classes. The A1 tariff applies to largest customers supplied by the distribution network, while the B3 tariff applies to the smallest customers supplied by the network (residential and small business customers).

Table 8: Proposed tariff structure for A1 to B3 tariff classes (\$m 2009 dollars)

Tariff class	Costing approach	Revenue	Expected cost as a percentage of stand alone or avoidable cost
A1	Expected revenue from proposed tariff	23.6	
	Stand alone cost	241	9.7% of stand alone cost
	Avoidable cost	5.1	461% of avoidable cost
A2	Expected revenue from proposed tariff	25.4	
	Stand alone cost	361	7.0%
	Avoidable cost	1.7	1506%
B1	Expected revenue from proposed tariff	37.1	
	Stand alone cost	437	8.5%
	Avoidable cost	3.7	1011%
B2	Expected revenue from proposed tariff	35.6	
	Stand alone cost	449	7.9%
	Avoidable cost	3.2	1128%
B3	Expected revenue from proposed tariff	491.5	
	Stand alone cost	591	83.1%
	Avoidable cost	58.1	846%

Source: WAGN AAI, Table 27, p.48.

³⁰ WAGN may be able to move away from the fixed principle unilaterally if it can demonstrate the fixed principles were designed purely for its benefit.

Table 8 illustrates the degree of difference between the stand alone and avoidable costs for each tariff class. For example, the stand alone cost of the A1 service is around \$241 million while the avoidable cost is just \$5.1million. This reflects the fact that few assets are dedicated solely to A1 customers, while most assets are shared with the other tariff classes. This phenomenon is true for all five of the tariff classes.

Chart 11 shows the forecast (or expected) revenue from each of the five tariff classes compared with its relevant avoidable and stand alone cost. It is clear from chart 11 that most of the common costs of the distribution network have been assigned to the B3 tariff class, illustrated by the fact that the expected revenue from the B3 tariff class is a very high percentage of the total stand alone cost of that class.

Chart 11: Expected revenue from the proposed tariffs compared with avoided cost and stand alone cost (\$m 2009 dollars)

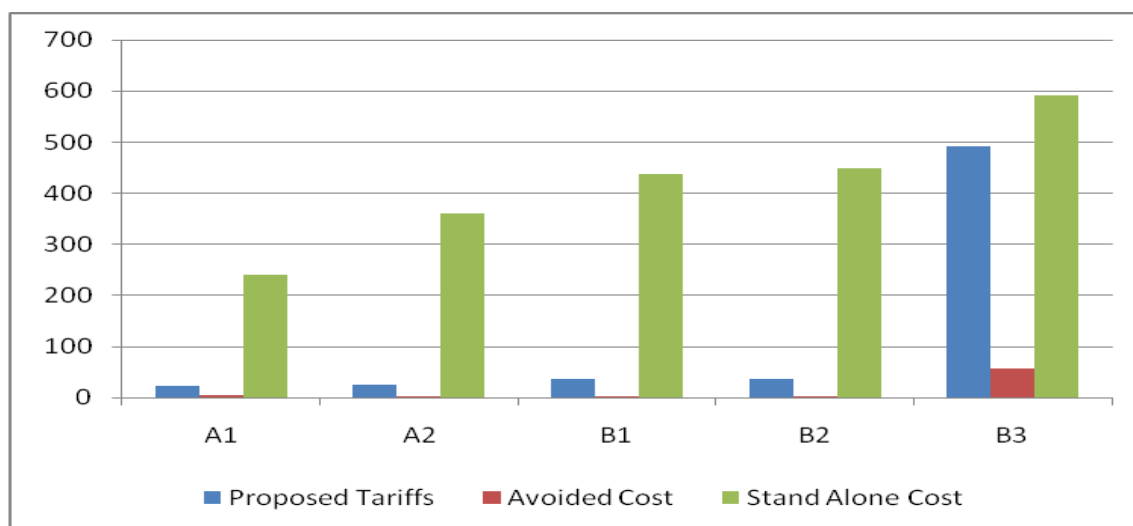
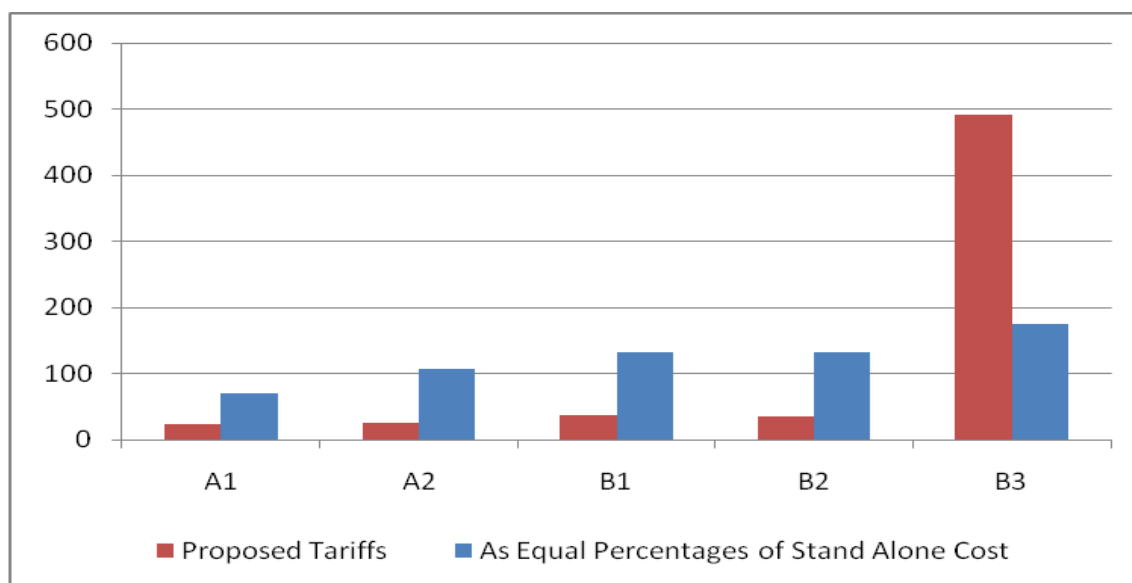


Chart 11 illustrates that WAGN has decided to recoup most of its common costs from the B3 tariff class. This decision has had a major effect on the tariffs charged to B3 customers compared to the other tariff classes. If, for example, revenues were allocated among the different tariff classes as an equal percentage of stand alone cost, then the revenues to be collected from the B3 tariff class would fall from \$491.5m to \$174.3m, almost 65 per cent. Chart 12 illustrates how revenues would be reallocated to the different tariff classes under this approach.

Chart 12: Reallocation of revenues based on an equal percentage of stand alone cost (\$m 2009 dollars)



WAGN justifies its approach to allocating its revenue requirements among the five tariff classes at pages 43-48 of its AAI. In effect, it argues that demand in the B3 tariff class is less sensitive to price rises (meaning that it expects that small consumers would still use the same volume of gas after the price rises), which justifies allocating more of the revenues to this tariff class.³¹

Price sensitivity of B3 customers

An important question is whether B3 tariff customers are in fact more price-sensitive than anticipated in WAGN's proposal. That is, will B3 tariff customers react to price rises by significantly cutting use or by the regrettable circumstance of disconnecting gas supply. If they are, then WAGN's proposal may not collect sufficient revenues to return the annual revenue requirement.

In response to the distribution tariff increases, one option for B3 customers would be to consider switching from distributed gas to bottled LPG.³²

Table 9 shows the price of bottled LPG compared with the retail tariffs that would apply in January 2011 under WAGN's proposal.

³¹ WAGN AAI, p. 46.

³² This assumes switching from distributed gas to LPG does not raise any safety or technical issues.

Table 9: Bottled LPG prices compared with projected retail bills

GJ per annum	Projected retail tariffs including proposed distribution charges: Jan 2011	Bottled LPG cost	Distribution as a percentage of LPG
0	\$101.33	\$56.00	181.0%
5	\$250.50	\$230.74	108.6%
10	\$399.67	\$405.49	98.6%
15	\$548.83	\$580.23	94.6%
20	\$704.71	\$754.97	93.3%
25	\$858.34	\$929.71	92.3%
30	\$1,011.97	\$1,104.46	91.6%
45	\$1,472.87	\$1,628.68	90.4%
60	\$1,961.22	\$2,152.91	91.1%
75	\$2,449.57	\$2,677.14	91.5%

Note: For the calculations, it is assumed customers buy LPG 45 kg cylinders with 88 litres of LPG at \$81.50 each (including a discount of approximately 5% for paying with a credit card), and that they hire 1 to 2 LPG bottles per year (at \$56/year rental total): Kleenheat WA contact centre, conversation 16 June 2010. A litre of LPG is assumed to have an energy content of 26.5 MJ: ABARE 2010, p.ix.

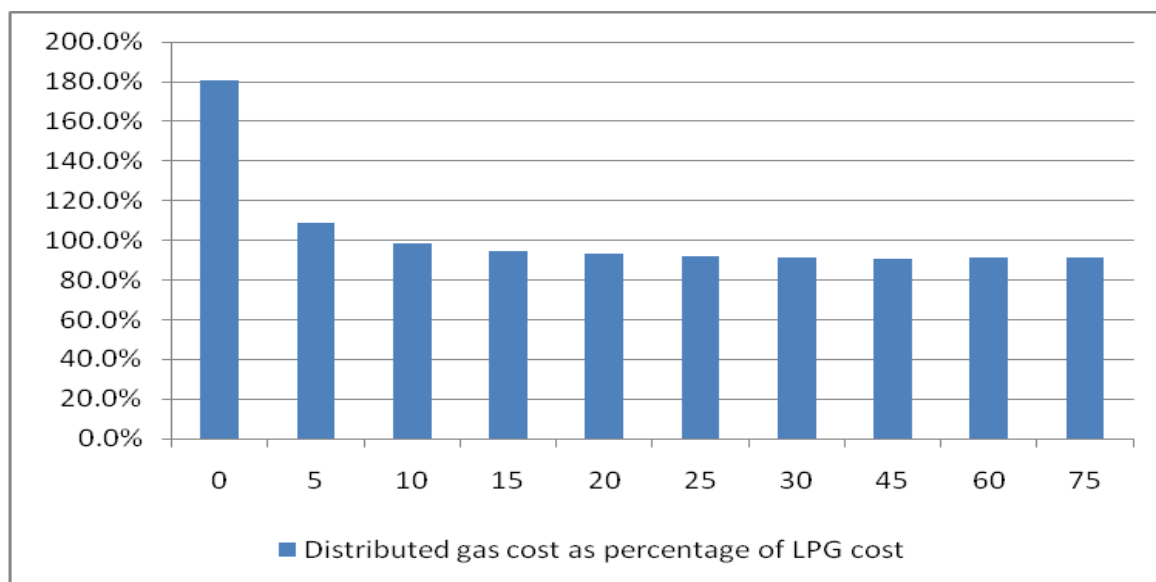
Chart 13 below shows that switching from distributed gas to bottled LPG would be a sensible strategy for B3 customers using 5GJ per annum. At this consumption level, distributed gas would become more expensive than bottled LPG after January 2011. At around 8 GJ per annum the retail cost of distributed gas and bottled LPG would be roughly the same in January 2011 (around \$340 per annum). At consumption levels of 10 GJ per annum and above, LPG remains marginally more expensive than distributed gas after January 2011. However, as the price difference is small, even quite small changes in other elements of the retail bill (transmission costs, retail costs, or retail margins) would push the price of distributed gas past the price of bottled LPG across a broad range of higher consumption levels.

Moreover, during the course of the future access arrangement further significant and above-inflation increases in distribution tariffs are proposed, which may make the strategy of switching to bottled LPG will become sensible for customers at higher consumption levels.

As a significant proportion of the B3 customer base uses less than 8 GJ per annum, WAGN's proposed B3 tariffs appear unsustainable as early as January 2011.³³

³³ See WAGN Proposed Revisions, figure 6, p.142.

Chart 13: Distributed gas costs as a percentage of LPG bottled gas costs



Summary of findings

WAGN is proposing sharp across-the-board rises in distribution tariffs. Much of the increase falls on B3 tariff customers. The increased distribution tariffs are underpinned by sharp increases in opex and the rate of return (WACC). At first analysis, these increases appear unjustified but it is difficult to make a clear judgment as most of the relevant information has been withheld from the public version of WAGN’s documentation.

Obtaining further and more detailed information about WAGN’s proposal will assist interested parties to make more informed criticisms of the proposed capex and opex spending program, and the WACC.

The distribution tariff structure appears to be very weighted against B3 tariff customers compared with other tariff classes. The B3 tariffs recoup most of the common costs of the network, i.e. the costs of operating the high and medium pressure mains that serve all customer classes. This can be seen from chart 11 above. Depending on consumption levels, distribution tariffs for B3 customers are above or just below where it would be sensible for these customers to switch to bottled LPG. It is arguable that at these tariff levels, it would be prudent for customers to ‘bypass’ the network and use LPG.³⁴

NGR rule 94 provides significant scope for WAGN to nominate tariffs while NGR rule 40 provides limited discretion for the regulator to reset tariffs more equitably among tariff classes. However, it

³⁴ The NGR provides that where a particular customer can bypass the network by obtaining cheaper gas supply elsewhere, that customer can be offered a prudent discount on the tariffs applicable to that customer in that tariff class in order to keep it.

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is possible to point to the terms of NGR rule 94, to the WA Local Provisions, to the Fixed Principles agreed in 2005 (currently set to last 10 years to 2015), to the National Gas Objective, to the Pricing and Revenue Principles in the NGL, to the prudent discount principles, and to economic principles of efficient use, to advocate for reallocation of revenues from the B3 tariff class to other tariff classes.

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Appendix 1: Relevant Legislation and Regulation

Section 23 of the NGL is the National Gas Objective:

The objective of this Law is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.

Sections 24(2) to 24(7) of the NGL provide pricing and revenue principles.

- (2) *A service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in—
 - (a) providing reference services; and
 - (b) complying with a regulatory obligation or requirement or making a regulatory payment.*
- (3) *A service provider should be provided with effective incentives in order to promote economic efficiency with respect to reference services the service provider provides. The economic efficiency that should be promoted includes—
 - (a) efficient investment in, or in connection with, a pipeline with which the service provider provides reference services; and
 - (b) the efficient provision of pipeline services; and
 - (c) the efficient use of the pipeline.*
- (4) *Regard should be had to the capital base with respect to a pipeline adopted—
 - (a) in any previous—
 - (i) full access arrangement decision; or
 - (ii) decision of a relevant Regulator under section 2 of the [Third Party] Gas Code;
 - (b) in the Rules.*
- (5) *A reference tariff should allow for a return commensurate with the regulatory and commercial risks involved in providing the reference service to which that tariff relates.*
- (6) *Regard should be had to the economic costs and risks of the potential for under and over investment by a service provider in a pipeline with which the service provider provides pipeline services.*
- (7) *Regard should be had to the economic costs and risks of the potential for under and over utilisation of a pipeline with which a service provider provides pipeline services.*

NGR **rule 79** provides the rules for assessing proposed new capital expenditure:

79 New capital expenditure criteria

(1) *Conforming capital expenditure is capital expenditure that conforms with the following criteria:*

(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;

(b) the capital expenditure must be justifiable on a ground stated in subrule (2).

(2) *Capital expenditure is justifiable if:*

(a) the overall economic value of the expenditure is positive; or

(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(c) the capital expenditure is necessary:

(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity)

....

(4) *In determining the present value of expected incremental revenue:*

(a) a tariff will be assumed for incremental services based on (or extrapolated from) prevailing reference tariffs or an estimate of the reference tariffs that would have been set for comparable services if those services had been reference services; and

(b) incremental revenue will be taken to be the gross revenue to be derived from the incremental services less incremental operating expenditure for the incremental services; and

(c) a discount rate is to be used equal to the rate of return implicit in the reference tariff.

...

(6) The AER's discretion under this rule is limited.

NGR rule 91 provides the rules for assessing proposed new operating expenditure:

91 Criteria governing operating expenditure

- (1) *Operating expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of delivering pipeline services.*
- (2) *The AER's discretion under this rule is limited.*

NGR rule 94(3)-(6) provides the rules for how tariff classes are developed, and the composition of revenues within each tariff class:

- (3) *For each tariff class, the revenue expected to be recovered should lie on or between:
 - (a) an upper bound representing the stand alone cost of providing the reference service to customers who belong to that class; and
 - (b) a lower bound representing the avoidable cost of not providing the reference service to those customers.*
- (4) *A tariff, and if it consists of 2 or more charging parameters, each charging parameter for a tariff class:
 - (a) must take into account the long run marginal cost for the reference service or, in the case of a charging parameter, for the element of the service to which the charging parameter relates;
 - (b) must be determined having regard to:
 - (i) transaction costs associated with the tariff or each charging parameter; and
 - (ii) whether customers belonging to the relevant tariff class are able or likely to respond to price signals.*
- (5) *If, however, as a result of the operation of subrule (4), the service provider may not recover the expected revenue, the tariffs must be adjusted to ensure recovery of expected revenue with minimum distortion to efficient patterns of consumption.*
- (6) *The AER's discretion under this rule is limited.*