Australian Energy Regulator

NSW Gas Distribution Revenue Reset

Jemena Application

A response

by

The Energy Markets Reform Forum

August 2014

Assistance in preparing this submission by the Energy Markets Reform Forum was provided by Headberry Partners Pty Ltd and Darach Energy Consulting Services

This project was part funded by the Consumer Advocacy Panel (www.advocacypanel.com.au) as part of its grants process for consumer advocacy and research projects for the benefit of consumers of electricity and natural gas.

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Executive Summary

The Energy Markets Reform Forum (EMRF) is a forum representing large gas and gas infrastructure users in New South Wales.

The EMRF has a number of areas of concern with Jemena's revenue proposal, including the forecasts of operating and capital expenditure, the rate of return, and the proposed tariff rebalancing, with large gas users facing 13% increases in real network costs.

These concerns with network prices are exacerbated by the prospect of very significant increases in the wholesale cost of gas. In light of this, Jemena's proposal must aggressively address its expenditures if it wishes to ensure a sustainable future for domestic gas supply.

At the outset, the EMRF also emphasises its disappointment at the lack of transparency of key elements of Jemena's proposal and general information available.

Over 95% of the supporting documentation is covered by confidentiality claims, an outcome that constrains critical assessment of the proposal by consumers. There may be many issues raised by consumers that could be addressed early in the determination process if there was more willingness to disclose information.

The EMRF is also concerned that there is very limited independent benchmarking information available for customers to compare the performance of their gas network service provider over time, or with other comparable businesses in Australia and overseas.

Jemena's revenue proposal

Jemena is proposing average network price changes in nominal dollar terms of -4.0% in 2015-16 and -2.7% for the remaining four years. In real dollar terms, this equates to -1.6% in 2015-16 and 0.2% in the remaining years of AA2015.

The overall average price changes, however, include some significant rebalancing of revenue sources between customer sectors. For example, Jemena proposes the following changes in average network prices as set out in Table 1 below.

Table 1: Jemena's proposed changes in network tariffs in AA2015 (% Real)

	AA2015	Average bill impact (over 5 years)
Residential Customers	-20%	- $271
Small Business & Commercial	-11.0%	- $5,090
Large, demand tariff consumers	+13%	+ $40700

The real reductions in residential and small business consumer tariffs are welcome and are stated by Jemena to redress the significant increases in their tariffs in AA2010.

However, the EMRF believes these reductions should not come at the expense of the larger demand tariff consumers who have effectively funded much of the large gas network infrastructure in the state.

In saying this, the EMRF considers that Jemena has had and still has a number of opportunities to reduce its cost base and these savings should translate to reductions in tariffs for larger customers.

Rebalancing Network Tariffs

Jemena has adopted a variety of approaches to the restructure network tariffs. For V tariff consumers (consumers using < 10 TJ/pa), Jemena proposes to encourage new connections and competitiveness with electricity by implementing:

- relatively low fixed cost that does not recover network fixed costs;
- significant reductions in the second band of the volume charge.

What is not clear is whether these reductions are the result of a cross subsidy (and therefore not sustainable). Further, reducing the tariffs is seen as a tool to increase new connections but it is not clear whether at these lower tariffs, the capex involved in creating the new connections is cost effective.

Jemena proposes to increase demand tariffs and set significantly higher prices for the first band of usage although the reasons for this are not clearly explained. The overall impact of the D tariff changes is to significantly increase D tariff customer charges..

The EMRF can understand the drivers of the above tariff changes, and recognises that Jemena has sought to address the issues raised by their V tariff customers and retailers in the consumer engagement sessions. However, EMRF believes there should be a more substantial and transparent analysis of the impact of the changes on different classes of both V tariff and D tariff customers. In particular, the EMRF is very concerned with the treatment of demand tariff customers, in terms of both the overall increases and the proposal to restructure the demand tariffs.

The EMRF's members do not believe they have been adequately consulted about these important changes that will have quite significant impacts on all demand tariff customer (in addition to the impact of the overall real price increases), and some Individual customers will be particularly negatively affected. It is essential when making such changes that Jemena conducts a full and open consultation process which leads to ensuring an equitable outcome for all is achieved.

The customers subject to demand tariffs underpin the viability of the whole gas distribution network in NSW yet they seem to be the focus of Jemena's attempts to recover its claimed increases in costs. In addition, the proposed restructuring of demand tariffs does not appear to represent a desire for more cost reflective pricing. Rather, Jemena's approach suggests a desire to push increased revenue into segments with lower price elasticity, at least in the short-medium term.

Expenditure Proposals

Examination of Jemena's proposal indicates that the main reason for a reduction in tariffs to small consumers (apart from the rebalancing referred to above), is the reduction in the proposed cost of capital.

In terms of the other components of expenditure, Jemena is forecasting significant growth in capital expenditure in AA2015 to some $1.15B ($2015) - an increase of over 6.2% nominal per annum (3.7% real) compared to AA2010 with this being seen in the context of falling consumption and demand for gas. Opex costs are also forecast to increase, although in real dollar terms Jemena expects basically a flat trajectory of spending.

Capex is still increasing despite the continued decline in energy usage?

Jemena is proposing increases in capex despite the fact that overall gas usage and peak gas demand is expected to continue to decline, trends that have been observed since around 2008-09. Moreover, Jemena exceeded its generous capex allowance in the current regulatory period (AA2010), thus increasing the opening regulatory asset base (RAB) for AA2015.

The EMRF is concerned that the AER has limited opportunity to review the efficiency and prudency of this excess capital expenditure in AA2010 but expects that it will assess the actual capital expenditure to ensure that it is "conforming capital expenditure" permitted under the Rules.

The fact that despite the considerable reduction in gas usage in AA2010, Jemena continued to maintain its forecast investment in "market expansion" activities is of concern. Jemena does not make a case for additional capex to 'expand' and 'upgrade' the network. In a negative growth market, investment in expansion must be very clearly justified, as should upgrading of long-lived assets whose utilisation may be declining.

Similarly, there is a case for some 'marketing' opex allowance as gas is an optional fuel in many sectors and there are potential efficiencies achieved by increasing gas usage per connection. However, while Jemena seeks to increase marketing expenditure its strategy has not placed an emphasis in their plans on improving the utilisation of the existing distribution network (excluding trunk lines).

Jemena's focus appears to be to encourage new connections for small consumers in new estates or new multi-unit high rise developments. However, the EMRF believes there should be a clear cost benefit[1] analysis required for such expenditure. Jemena should demonstrate how additional customer connections, particularly where new mains are required, provides a net benefit to existing gas users.

For example, Jemena's proposal states that the network will be expanded by over 2,000km of mains and Jemena will connect around150,000 new customers over the next 5 years, an increase of some 8% and 12% respectively in the size of the network.[2] However, even if this number of new connections were feasible (it represents quite a high proportion of forecast new dwellings of around 40,000 per year), in the current circumstances of rising gas prices creates a challenge to the forecast. There is no analysis provided by Jemena to demonstrate the net benefit of this level of expansion and associated expenditures as is required for conforming capex.

The EMRF highlights to the AER, that in effect, Jemena is saying "we will increase the length of pipeline by 8%, renew a considerable portion of our

[1] Such analysis should include the costs for marketing, the capital costs for providing the service and the increased opex that results from the investments.
[2] Source: Economic Insights, *Relative Opex Efficiency and Forecast Opex Productivity Growth of Jemena Gas Networks*, 14 April, 2014, p 55. {Appendix 04.3 to the Jemena proposal]

assets and grow capacity" – even though there is to be a significant rise in gas prices, no growth in output (i.e. energy usage), the age of our assets are well within their technical lifespan and we are performing within service target standards.

This is a costly, and ultimately, an unsustainable proposition in the current and likely future market circumstances.

Another concerning aspect of Jemena's capex proposal is the rate of replacement of its assets. This has now become the largest component of the proposed capex for AA2015, accounting for more than 45% of total forecast capex. Gas pipelines are typically very long lived assets, and while it is reasonable to continue replacing cast iron pipeline with newer materials, these pipelines now account for less than 10% of the total asset base.

Jemena's approach to replacing meters forms an important sub-component of its replacement expenditure. Jemena is proposing a very large replacement of gas meters (around a quarter of all meters) during AA2015. This is excessive and should be carefully examined by the AER. Even more challenging is the proposal to replace 150,000 hot water meters based on their "poor condition".

The EMRF understands that the AER accepted hot water meters as being part of Jemena's asset base in its determination for AA2012.

However, the rate of installation of these meters appears to be growing rapidly, so what was once a marginal issue is now becoming a major issue. These types of hot water meters typically have a much shorter life span than gas meters, creating an unreasonable and increasing burden on all consumers because of the rapidly growing need for servicing or replacement of the meters.

Separately, Jemena appears to have attempted to address the growth in bulk supply (or intermediary supply) to volume tariff consumers (usually residential consumers), by implementing tariffs with very high fixed costs charged to the 'intermediary'.

Again, this is a complex area and the EMRF believes the AER must further investigate this whole issue of gas supply to multi-apartment buildings and the inclusion of this service in NSW as a standard supply service. It is important to ensure Jemena obtains appropriate cost recovery from this growing category of customers, taking into account their different characteristics, and this market of convenience is not subsidised by other gas users.[3] The issue cannot wait another five years.

[3] A market search reveals that hot water meters that meet Australian standards sell for around $100 - $150 per meter. See for instance, http://www.domesticwatermeters.com.au

Finally, the EMRF highlights that Jemena has included capex costs to 'accommodate new sources of gas into Sydney and regional NSW.'[4] While it is hoped that new investment in gas production in NSW will occur over the next five years, the EMRF considers this capex is too speculative to include the cost of connecting specific locations as part of the current regulatory proposal.

However, in recognition of the importance of new gas sources to the long-term interests of NSW gas consumers, the EMRF believes the AER should consider providing a mechanism to allow the pass-through of approved efficient and prudent costs associated with enabling market access in NSW to new sources of gas.

Jemena's opex proposal misses the opportunity and necessity to undertake significant productivity gains

While opex is not increasing in real terms, Jemena is still proposing nominal increases in opex even as output declines and the carbon pricing mechanism is removed.

In part, this is driven by unit labour cost forecasts that are greater than CPI, with Jemena forecasting nominal increases in labour unit costs of up to 5% by the end of the AA2015 period, as illustrated in Figure 1. The EMRF believes this is a somewhat 'bullish' proposal on labour costs.

Figure 1: Projected changes in unit labour costs

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[4] Jemena, 2015-19 Proposal, Fact Sheet, 'Our forecast operating and capital costs', 30 June, 2014, p 5.

In any case, this should not necessarily mean that the total cost of labour increases by over CPI. There is a real opportunity; even a necessity, of reducing total labour costs and this in turn will create pressure on unit labour cost demands.

However, this does not appear to be part of Jemena's proposal. Overall, partial factor productivity for instance is only improving at 1.03% per annum, for a total saving of $1.31M over AA2015. A greater sense of urgency is required than simply trending productivity improvement on the basis of historical rates of improvement.

Across all three major components of the cost trend analysis (i.e. changes in labour costs, productivity and output), Jemena has found an *increase* in costs of $6.02M ($2015), plus a further increase through 'step changes' of around $21M.

In addition, there are some more immediately unsatisfactory elements of Jemena's opex proposal. For example, why does Jemena include carbon related costs in each year of the forecast (especially as the carbon pricing arrangements have been repealed[5])? Jemena makes a rather vague reference to possible ongoing carbon costs, but this cannot be the basis of a cost built into the revenue forecast.

Perhaps more significantly, why does Jemena include a category of overhead costs (corporate overheads) as part of opex when these costs were specifically rejected by the AER in the AA2010 determination? Jemena includes these costs without clearly stating its reasons for doing this and what has changed since the Australian Competition Tribunal reviewed the issue.

Overall, the EMRF does not find Jemena's approach to opex control an adequate response, particularly given it is operating in a mature, low risk industry with a 'guaranteed' average price for its services.

The EMRF believes that like the rest of Australian industry, the gas network industry needs to strive towards international best practice in order to strengthen its capacity to meet future challenges. The long-term interests of consumers are not well served by such a slow pace of reform along with static or even declining total factor productivity.

Rate of Return on Assets.

A reduction in the rate of return compared to the previous period is the main driver of reduced tariffs for small consumers. Thus, while operating

[5] Clean Energy Act 2011 repeal abolishing the carbon pricing mechanism from 1 July 2014

and capital expenditures are increasing in nominal terms, and the value of the RAB is continuing to grow above CPI, a lower rate of return allows certain price reductions.

However, in reducing the rate of return, Jemena is passing through some of the benefits of external factors such as the decline in interest rates since the GFC. This is not a reflection of improved efficiency or greater recognition of the real impact of higher prices in AA2010.

The EMRF is particularly concerned that Jemena has not adopted the AER's approach as set out in the Rate of Return Guideline (the RoR Guideline)[6] in its totality. While it has adopted some parameters, it has proposed different approaches to other parameters and has done so without further consultation with other stakeholders, including stakeholders who engaged in the guideline development process such as representatives of the EMRF and its associate Major Energy Users (MEU).

In particular, Jemena proposes a different approach to assessing:

- the risk free rate
- the equity beta; and
- the overall return on equity.

This has resulted in an initial estimate of the allowed rate of return of 8.67%, around 180 basis points above a rate of return estimated by the EMRF using the RoR Guideline approach.

The EMRF considers that the RoR Guideline was developed by the AER following an extensive consultation with all stakeholders, taking into account the objectives of the Australian Energy Market Commission (AEMC) 2012 reform program and the associated amendments to the National Electricity Rules (NER) and National Gas Rules (NGR).[7]

The RoR Guideline represents a holistic and coherent approach to achieving a rate of return consistent with the National Gas Objective (NGO). In particular, the Guideline recognises the interactions between various RoR parameters.

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[6] AER, *Better Regulation, Rate of Return Guideline*, December 2013.

[7] In 2012 the Australian Energy Market Commission (AEMC) undertook an extensive investigation and consultation process about of the operation of the NER following rule change requests from both the AER and consumer representatives. The AEMC concluded that the NER must be amended to ensure that the AER's decision better met the National Electricity Objective (NEO). The changes to the NER came into effect in November 2012. During 2013, the AER established the Better Regulation program, consulting the industry, experts and consumers. The outcome of this was a suite of six Guidelines that provide a framework for the AER's decision making within the context of the amended NER.

The selective application by Jemena of the RoR Guideline is therefore strongly opposed by the EMRF.

The EMRF also opposes the adoption of a gamma value (for imputation credits) of 0.25 compared to the AER's Guideline value of 0.5. A lower value of gamma means a higher allowance for taxation costs and higher revenue to the network.

Again, the AER has conducted considerable research on this issue over the last 12 months to address the concerns raised by the Australian Competition Tribunal (the Tribunal). The EMRF believes it is open to the AER, having undertaken this additional research, to exercise its discretion and adopt a gamma value of 0.5. This results in an assumed taxation rate of 15% (30% * 0.5), a figure much closer to observed rates of taxation for network companies.

Overall, the EMRF considers that the AER must apply its Guideline approach, and, within the Guideline parameters, exercise its discretion to determine a rate of return that better balances the interests of the owners and the customers.

Although the EMRF does not necessarily agree with every parameter in the RoR Guideline, it recognises the importance of accepting, at this stage, the totality of the 'package' of the decisions. It is more than disappointing therefore to see both the electricity and gas distribution network businesses picking and choosing parts of the package to suit their ends.

Although the EMRF does not necessarily agree with every parameter in the RoR Guideline, it recognizes the importance of accepting the totality of the 'package ' of the decisions at this stage. It is more than disappointing therefore to see both the electricity and gas distribution network businesses picking and choosing parts of the package to suit their ends.

Customer Engagement

The EMRF has also reviewed Jemena's customer engagement material. Much of the material seems to be based on sound consumer engagement principles. However, the EMRF is concerned that the consumer engagement process has been used to 'defend' the expenditure proposals. For example:

- Jemena reports meeting with larger consumers, however, they do not report on the outcomes of these discussions. First hand reports from EMRF members does not indicate that Jemena has satisfactorily engaged on the key issues of tariff increases and tariff design;

- The ‘price/service trade off’ questions suggest to consumers that such a trade-off is necessary; the EMRF disputes this claim given that there is excess capacity and further efficiency gains to be made; and

- The discussion on safety issues is loaded and highly emotive. The recent gas explosion incidents in New York that were put to consumers in the workshops are alarmist and have little relevance to the reality of gas distribution networks in NSW.

Notwithstanding some progress with the engagement of volume tariff consumers, the EMRF is disturbed by the lack of engagement with the 400 or so larger customers on whom the viability of the NSW gas network rests. Such engagement would have resulted in a rethink of the increases in Jemena’s demand tariffs and of the changes to the tariff structures.

1. Introduction

1.1. The Energy Markets Reform Forum (EMRF)

The Energy Markets Reform Forum (EMRF) is a forum representing large energy consumers in New South Wales. The EMRF is an affiliate of the Major Energy Users Inc (MEU), which comprises some 30 major energy using companies in NSW, Victoria, SA, WA, NT, Tasmania and Queensland. EMRF member companies – from the steel, aluminium, paper and pulp and the mining explosives industries – are major manufacturers in the State and are significant employers, especially in many regional centres.

The EMRF welcomes the opportunity to provide comments on the proposal by Jemena Gas Networks (NSW) Ltd (Jemena) to the AER for a review of the revenue allowances for the regulated gas distribution business (DB) located in NSW as set out in Jemena's 2015-20 Access Arrangement (AA2015).

The Jemena NSW gas network is the largest network in terms of consumer numbers, gas throughput, system capacity, distribution mains length and regulated asset base (RAB). It also has some unique physical characteristics, including 'network fragmentation'[8] and long trunk lines, all of which have affects on the relative costs of developing and maintaining the gas distribution network.

Analysis of the gas usage by the members of EMRF shows that in aggregate they consume a significant proportion of the gas used in NSW. As such, they are highly dependent on Jemena's gas distribution network to efficiently deliver gas. Many of the EMRF members are closely linked to local suppliers and share a common interest with these smaller businesses in the efficiency of the gas network operations.

The recent changes, and potential future changes, in both the electricity and gas markets, have further heightened the concerns of all these users with the outcomes of the regulatory processes. In particular, EMRF members highlight:

- The considerable capital that has been invested by EMRF members in businesses and equipment that use gas;

[8] The term 'network fragmentation' refers to the degree of service area dispersion. For example, compared to other DBs, Jemena has a highly dispersed supply area, with a number of discrete networks serving small cities and townships. See for instance, Economic Insights, *Productivity study and opex output growth*, April 2014.

- The importance of a reliable supply of gas; gas is central to their operations and there is no short term substitute available in most instances;

- The impact on their businesses of cost increases in both electricity and gas, and the potential threat of further substantial increases in the cost of gas in the next five years; and

- The potential shortage of gas in NSW if the current political impasse cannot be satisfactorily resolved.

While little can be done by either Jemena or the AER about the political aspects of the NSW gas supply constraints, EMRF (and its affiliate MEU) are keen to see both Jemena and the AER proactively address the issues that impact on the **cost, reliability, quality** and the long-term **sustainability** of their gas (and electricity) supplies.

AA2015 provides an opportunity to simultaneously address each of these issues by ensuring that only prudent and efficient expenditures and financing costs are allowed by the AER.

1.2 Regulatory requirements

In 2012, the AEMC amended the National Gas Rules (NGR) following an extensive review of the issues that had emerged in the economic regulation of electricity and gas transmission and distribution services.

The AER undertook extensive consultation with all stakeholders during 2013 to develop Guidelines and an approach to implementing the amendments to the National Electricity Rules (NER) and the NGR.

However, the reforms to the NGR are less extensive than those to the NER and, it could be argued, somewhat limit the AER's discretion more than might be the case with electricity network regulation. Equally, there are aspects of the NGR that impose greater involvement by the regulator, such as the requirement to prove that capital expenditure (capex) incurred by the gas network was "conforming".[9]

Importantly, the major changes to the assessment of the rate of return for both gas and electricity are critical to restoring the balance between investor interests and the long-term interests of consumers that existed before the implementation of economic regulation under the AER.

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[9] NGR, Rule 79

In addition to the requirements applying to Jemena under the National Gas Law (NGL) and the NGR, Jemena Gas Networks (NSW) is subject to general Australian Corporations law, NSW law and NSW specific industry regulatory requirements including:.

- Gas Supply Act 1996 (NSW) (Gas Supply Act)
- Gas Reticulator Authorisation under the Gas Supply Act (NSW) 1996
- Gas Supply (Gas Meters) Regulation 2002 (NSW)
- Gas Supply (Safety and Network Management) Regulation 2008 (NSW)
- JGN Network Code for Full Retail Competition (2002) (network code)
- Retail Market Procedures (NSW and ACT) (under AEMO)
- Pipelines Act 1967 (NSW)
- Pipelines Regulation 2005 (NSW)
- NSW Pipeline Licence Nos 1, 2, 3, 7 and 8 under the Pipelines Act 1967
- National climate change and greenhouse gas reporting obligations

The majority of these legislative obligations are long standing obligations that have been incorporated already into the cost base of Jemena. Indeed, the EMRF believes that with the current and proposed expenditure on IT systems, compliance with these obligations should be at lower cost than in the past.

However, there are a number of changes to regulatory obligations, including:

- The introduction in NSW of the National Energy Consumer Framework (NECF), which imposes various new obligations on distribution networks and commenced in transitional form on 1 July 2013 in NSW; and

- The introduction and ongoing changes to the short term trading market (STTM)[10] from mid 2010, which will require greater operational transparency and information reporting from distribution companies.

Jemena proposes a step change allowance for the NECF, and ongoing charges for the carbon pricing costs through to 2019-20. The latter is speculative, and is similar in principle to Jemena's speculative

[10] Although the STTM was introduced subsequent to the last access arrangement, the 2009 AA was established in a way that fully accommodated the requirements of the STTM

allowance for future costs of connecting new gas supply sources to the current distribution trunk lines.

The EMRF opposes the inclusion of speculative costs, but recognises the need for mechanisms to allow pass through of costs for any new regulation as it arises or major changes such as connection of new gas sources.

The Jemena Group has also been undergoing various organisational restructures, including establishing a dedicated service provider, Zinfra Pty Ltd, to provide network services to the gas and other distribution businesses in NSW, Victoria and elsewhere.

EMRF would expect that this would lead to some synergy savings but these are not evident in the proposal. The EMRF also cautions that these related entity structures still enable profit shifting and a 'veil of secrecy' to descend, restricting the ability of regulators and consumers to determine the real costs and profits of these businesses.

1.3 Summary of Recent Developments

It is concerning that regulatory revenue reviews under the AER may have lost sight of the objective of network regulation, to service the long-term interests of consumers. In AA2010, for instance, there was a heavy emphasis on encouraging investment in the networks without sufficient consideration of the price impacts of this and, over time, the impact on energy usage.

The subsequent collapse in the growth trajectory of both electricity and gas usage may have its roots in the global financial crisis (GFC), but it has clearly been exacerbated by the parallel increases in electricity and gas prices, particularly in NSW.

In the face of this, Jemena still proposed average gas network tariffs of over 30% in AA2010. While the final determination modified this outcome somewhat, it still reflected the lack of realisation by networks that the energy supply situation was and still is changing rapidly.

The current proposal by Jemena pays greater heed to these developments and attempts to limit increases to the smaller consumers who, along with other gas users, bore considerable pain from AA2010. However, the EMRF believes strongly that Jemena and consumers long-term interests are much better served if there is a more vigorous approach to cutting costs.

More specifically, Jemena must address its plans to increase prices to large demand tariff customers by some 13% real over AA2015. Such increases will be a further blow to the viability of manufacturing and processing industries in NSW and this will not serve consumers' or Jemena's long-term interests. Jemena must also consult more effectively with these large customers on its plans to change the structure of these tariffs and do so with a sense of urgency to resolve these issues before it is too late in the process, and industry has made up its mind how to respond.

2. <u>Capital expenditure allowances</u>

<u>2.1 Regulatory framework</u>

The National Gas Rules (NGR) allow only 'conforming' capital expenditure to be become part of the projected capital base for the DNSP.[11]

Conforming capital expenditure is capex that conforms to the following criteria:[12]

- Expenditure that would be incurred by a prudent service provider acting efficiently in accordance with good industry practice, to achieve the lowest sustainable cost of providing services; and

- The capital expenditure must be 'justifiable'.

The assessment of whether capex meets these criteria falls into two distinct elements – assessment of past capex allowed for inclusion in the capital base and an allowance for capex for the next period. Essentially the assessment for both follows very similar guidelines:[13]

> 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);

This means that the AER first needs to assess Jemena's capex in the current regulatory period before it is included in the regulatory asset base (RAB) for AA2015.

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[11] NGR, Rules 78 – 79.
[12] NGR Rule 79 (1) (a) and (1)(b).
[13] NGR Rule 79(2) (a) – (d),

The inclusion of current capex in the opening RAB for 2015-16 should not be 'automatic' particularly where there the actual capex exceeds the allowed capex for AA2010. Only conforming capex should be included, and that capex must therefore have a net positive incremental value or meet the stated regulatory purposes of safety, integrity, regulatory compliance and capacity adequacy, as required in Rule 79 (2)[14]

Similarly, the AER must consider whether forecast capex is conforming capex in line with the criteria set out above in Rule 79 (2).

The EMRF has substantial concerns about both aspects of the application of the NGR to Jemena's current and future capex.

2.2 Assessment of current capex.

Jemena assesses its capex in three broad categories:

- market expansion: assets required for connection of new customers, including new meters and service lines;
- system reinforcement: enhancements to the system to maintain capacity for existing customers and provide capacity for future expansions; and
- non-system assets: IT systems and software, motor vehicles, plant and equipment.

The current access arrangement (AA2010) capex allowance effectively doubled the capex allowance in the first access arrangement (AA2005 or 2004-05 to 2009-10). Nevertheless, Jemena expects to exceed this significant capex allowance, despite the actual reductions in demand and consumption that occurred in AA2010.

In total, Jemena received a capex allowance of $882M in AA2010 and expects to exceed this allowance by some $76M or 8.7%, with a total capex of $957.9M ($2014-15).

The greatest excess capex occurs in the last (estimated) year of AA2010, 2014-15, where Jemena expects to exceed its allowed capex by 26% (i.e. nearly $51M) as illustrated in Figure 2 below.[15]

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[14] NGR, Rule 79(2)(c) (i)-(iv).
[15] This data is extracted from Jemena, *Current Period Performance*, Table 4.9, p 29. All values are in $2014-15 unless otherwise stated.

Figure 2: 2010-15 actual/estimate and approved capex[16]

The EMRF has compared the variation in the current forecast with the actual expenditure by category across the AA2010 period (including the 2014-15 forecast).

Figure 3 (below) illustrates the allocation between expenditures approved by the AER and the actual expenditure patterns. The major contributing factor in the expected over expenditure in 2014-15 is in the category "IT and other non-system". This single category accounts for some $92M of additional expenditure in AA2010 (much of expected in the final year 2014-15), that is only partly off-set by reductions in market expansion expenditure.

[16] Adapted from Jemena, Appendix 6.07 Forecast capital expenditure report, Figure 4-3, p 13.

The EMRF is concerned about the lack of transparency for the additional "IT and other" expenditure claim in AA2010 and particularly in 2014-15. The major factors appear to be (in $2014-15):

- IT capex: total AA2010 expenditure forecast to be $28M greater than allowance;[17]

- SCADA capex: $4M greater than allowance;

- Property capex; $57M greater than allowance

With respect to the property capex, it is not clear why this expenditure is included in 2014-15. It seems to largely relate to the expiry of leases in Sydney and Melbourne in 2015, with $15M and $37.7M for fit-out costs in new properties and $13.5M for a new depot/training centre in Sydney.[18]

Jemena states that the acquisition of leases for and fit out of these new properties will meet the capital expenditure criteria as they will improve efficiency and well-being of Jemena's staff, provide savings by consolidation and improve services to its customers. The very descriptions of the need for the capex imply a strong indication of "ambit" in the claim for these costs to be "conforming". Close assessment is required to prove these are costs that consumers should carry.

Further, EMRF is concerned that NSW gas consumers are only paying a fair share of Jemena's overhead costs (such as the Melbourne office), as this will be added to the RAB of NSW gas networks.

There is also a timing issue; is it appropriate that these property claims are included in 2014-15, or should a share be included in 2015-16? Does Jemena benefit from the allocation of all the costs into the last year of the current AA2010? Does it make it more likely that the costs might not be scrutinised to the same extent?

The EMRF therefore requests the AER to further investigate the property claims to ensure the allocation of costs during AA2010 represents 'conforming' expenditure.

The EMRF also notes that the capex for market expansion and system renewal reasonably tracked the allowances sought by Jemena and then allowed by the AER. What is concerning is that this capex was

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[17] Ibid, Table 4-18, p 37.
[18] Ibid, pp 43- 46. Jemena states that it is allocated 38.32% of the new Melbourne head office costs based on a 'cost allocation approach' (p 44).

implemented against a falling demand for and consumption of gas throughout AA2010.

Whilst the EMRF notes that some commitments for this capex would have been made without the full knowledge of the extent of the fall in demand and consumption that actually incurred, it has profound impacts on the amount of capex needed in the future.

To a large extent, the significant capex in AA2010 would have resulted in a considerable over-capacity in the network and therefore this should reduce the need for capex in AA2015. The AER needs to examine the extent the capex of AA2010 has already provided for network needs in AA2015 considering the extent of the demand and consumption reductions already incurred and forecast for AA2015.

2.3 Jemena's Forecast Capex

Figure 3 below illustrates that Jemena plans to undertake even more capex in AA2015 than it did in AA2010, even though AA2010 was almost double the previous capex allowance. In particular, Jemena forecasts (in real $2014-15):

- 20% more capex in AA2015 compared to AA2010 actual/estimate; and
- 31% more capex in AA2015 compared to AA2010 allowance.

The EMRF finds this capex forecast by Jemena very unsatisfactory, particularly during a period of declining demand. Jemena fails to explain why a prudent and efficient gas network service provider finds it necessary to increase (in real$ terms) its capex; noting that capex in AA2010 was itself considerably above historical levels of capex.

There appears to be a confusion between the 'nice to do' and the 'need to do' in the capex proposal – it would be 'nice' to replace older gas pipes or put in new gas meters, but there is no 'need' to do so on the scale proposed by Jemena.

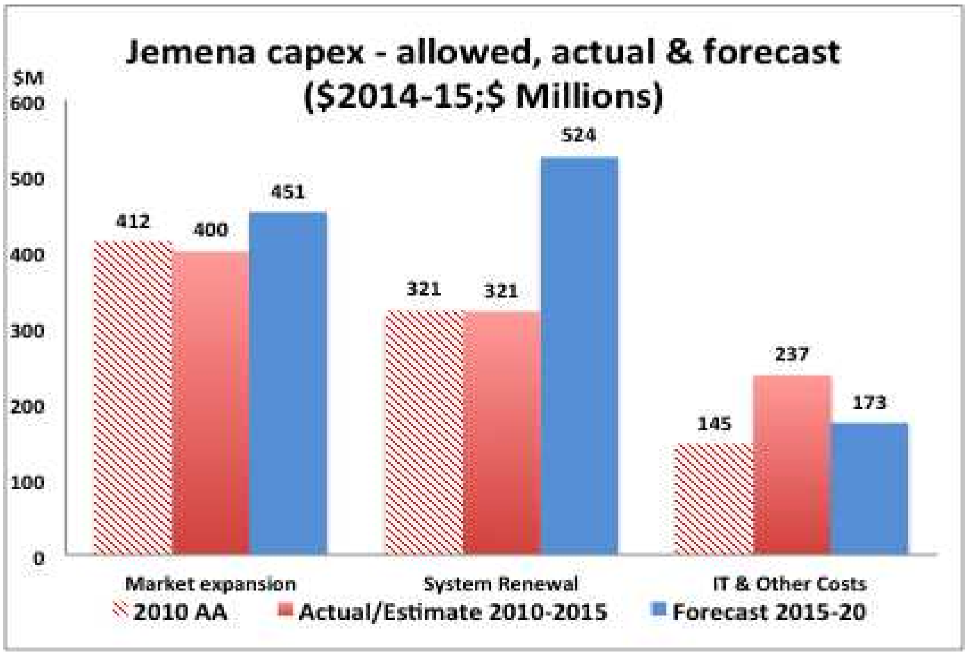
The EMRF is also concerned with the 'paper tiger' approach to explaining the additional capex. That is, Jemena explains its increase in investment by pointing to various dire consequences of under-investment.[19] This, however, does not tell consumers what the 'right' level of investment may be, and it does not explain the need to increase

[19] See, for example, Table 6-1, pp 54-55 which sets out Jemena's view of the consequences of under-investment.

capex (in real $ terms) considering the actual service performance of Jemena throughout AA2010.

Given these issues, the EMRF has examined the three major components of the capex forecast in some detail. Figure 3 below illustrates the main directions of the spending and areas where the increases are greatest.

Figure 3: Jemena historical and forecast capex



For each of the three categories of capex, EMRF has identified more specific areas of concern that warrant further investigation by the AER.

<u>2.3.1 Market Expansion (ME):</u>

ME represents 39% of Jemena's total forecast capex for AA2015.[20]

Jemena proposes a $50M (12.7%) increase in ME capex compared to the estimated capex for AA2010.

The increased ME capex reflects Jemena's forecast of new connections which expands from around 167,000 (AA2010) to 186,400 (AA2015), because of the forecast of increases in new residential estates and medium-high density housing (of 20% and 22% respectively).

[20] Ibid, p 13.

EMRF, however, highlights that Jemena has previously overestimated new gas connections, and there is every reason to challenge the current forecast of new gas connections, particularly given the forecast of doubling in wholesale gas prices. A key question for the AER to consider is whether this figure of 186,500 is consistent with growth in the housing market in general, particularly in areas of existing gas supply or new economic gas supply?

This forecast of new gas connections should also be read in conjunction with Jemena's proposal for a 'step change in marketing expenditure [opex]'.[21]

Jemena believes this new marketing campaign will counter the impact of price increases on gas usage and connection numbers. The EMRF's position is that Jemena must demonstrate the strategy and effectiveness of its marketing campaigns in acquiring profitable new customers to reduce costs to existing gas customers. The current proposal, for instance, does not include any review of the effectiveness of past campaigns or set out a specific strategy for the new marketing campaign.

The EMRF considers that Jemena has downplayed the impact of the expected gas price hikes. It is accepted that for most residential and some commercial needs, gas is a discretionary source of heating. With the increased efficiency and falling costs of reverse cycle heat pumps, when compared to the rising prices for gas over the next 2-3 years as the LNG export facilities commence operation, the forecast comparison between gas and electricity for residential heating purposes is that gas no longer has the cost advantage it once had[22]. The approach by Jemena assumes that there will still be a cost advantage yet Jemena fails to demonstrate that this is the case.

Such fundamental assessments are integral to establishing a program for implementing such a massive expansion program. The AER must require Jemena to provide considerably more evidence for its forecasts before requiring consumers to pay for what could well be a forlorn waste of investment capital. If there is to be marketing and capital investment, it may better be used for higher value customers or line of main.

Overall, the EMRF believes both the capex for market expansion (and associated additional marketing opex) should be modified to more realistic levels, and that even these need to demonstrate a clear plan to

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[21] Ibid, 15.
[22] See for example reports by Alternative Technology Association

address changes in pricing perceptions and to ensure that there is a net positive benefit[23] to existing consumers.

2.3.2 System Renewal:

System renewal includes capacity development, mains and services renewal, facilities renewal/upgrade, meter renewal/upgrades.

Jemena is proposing a massive increase in the system renewal segment of capex. As demonstrated in Table 2 below, Jemena is proposing an increase of some 63% in total system renewal expenditure. As a result, system renewal capex accounts for some 46% of total capex, compared to 34% of the total capex in AA2010.

Jemena provides the following four categories of system renewal capex, each involving significant increases in capex compared to AA2010, as set out in Table 2:

Table 2: Summary of System Renewal Expenditure $Millions, $2014-15
(*AER Approved capex in brackets)*[24]

	AA2010 Capex (actual/estimated)	Proposed AA2015 Capex	% change
Capacity development	101.02 *(78.22)*	111.99	10.9% *(43.2%)*
Mains & services renewal	29.52 *(21.74)*	72.13	244.3% *(331.8%)*
Facilities renewal & upgrade	82.54 *(83.85)*	144.70	75.3% *(72.6%)*
Meter renewal & upgrade	107.79 *(134.56)*	195.35	81.2% *(45.2%)*
Total	**321.05** ***(318.37)***	**524.17**	**63.3%** ***(64.5%)***

Each of the four categories of system renewal capex listed in Table 2 demonstrate real increases compared to the current AA2010, with three of the four showing increases of over 75%. These are very significant increases, and will be considered in more detail below.

[23] Such analysis should include the costs for marketing, the capital costs for providing the service and the increased opex that results from the investments and for this to be compared to the likely revenue from the new customers, noting that Jemena wants to reduce the revenue from the small customers that it seeks to add to the network and predicts average consumption of around 18 GJ/pa for new connections
[24] Ibid, Tables 4-6, 4-8, 4-10, & 4.10.

In general, the EMRF has a very deep concern that assets still used and useful will be taken from service by Jemena as they no longer receive any return for them, and replaced with new assets on which they do get a return. This provides an incentive to replace assets regardless of their continued usefulness, with consumers bearing the costs for early or unnecessary replacement.

The age profile (see figure 4 below) of a number of assets suggests that this is a real risk and must be closely monitored by the AER.

2.3.2.1 Capacity development (10% of total capex):

Jemena states that it designs the gas network to meet a 1-in-20 winter gas demand scenario, '"reducing the poor supply risk to 10 per cent".[25] This is a reasonable planning standard for establishing pipeline capacity requirements.

However, as discussed in Section 5, overall peak demand has not been increasing even as Jemena has added over 30,000 new customers per year to the system. Further, the impact of the falling consumption by demand tariff customers and by each volume tariff customer has led to a significant fall in consumption across the network more than offsetting the growth from new customers. With increasingly efficient appliances and a warming environment this trend of each residential and small commercial enterprise using less gas is apparent across all gas networks.

In addition, it is likely that with the existing program of replacement of low pressure and cast iron pipes with high pressure nylon pipes, Jemena is able to transport more gas at higher pressures and which will at the same time reduce leakage (less UAG), water ingress and maintenance costs (less opex).

In Section 5, EMRF also challenges Jemena's forecast of increasing load factor (i.e. peak demand/average demand) for large demand tariff consumers. Whilst this view is supported by the evidence from AA2010, the actual consumption of gas from this sector has fallen considerably providing greater capacity in the network and line pack to carry through the shorter term peak demands measured as MDQ and even MHQ. Again, the evidence does not support an increase in capex for capacity development to these consumers.

[25] ibid, p 17.

2.3.2.2 Mains and Services Renewal/Replacement

EMRF does not accept the necessity of the proposed level of increase in investment in the renewal/replacement of assets, particularly given these proposed increases come on top of the much higher levels of capex that were already approved (and often exceeded) in AA2010.

It is appropriate for Jemena to continue its program of progressively replacing cast iron pipes, as this brings multiple benefits in terms of safety and security of supply and reductions in gas losses to its customers. At the same time, many of these benefits should be quantifiable, especially a reduction in "unaccounted for gas" gas (UAG). However, as shown in figure 6 in section 3, the amount of UAG has been relatively constant for the past decade, implying that the "gold lining" project might not been as necessary as was alleged by Jemena at previous revenue resets.

Moreover, Jemena reports that only 10% of its medium and low pressure mains are cast iron or steel, the rest are plastic. In addition, Jemena states that the nylon pipeline replacing it has an “industry expected design life of 50 years”. [26] As this "gold lining" program has now only been in operation for less than three decades, the plastic piping should not need replacement now or for many years.

Other renewal capex is even less readily justified, at least at the level proposed by Jemena, particularly given the very significant increases granted for AA2010. Gas pipeline assets are typically very long-lived assets, particularly the polyethylene or nylon pipes that have been used over the last 3-4 decades, as noted above.

EMFR understands that Jemena has already undertaken a very large program of pipeline renewal going back over the last 5 years and even earlier. For instance, in 2009, Jemena reported in Gas Today on its major rehabilitation programs in Macquarie Fields and the Liverpool-Smithfield area. Jemena also highlighted the other renewal work it had undertaken, as follows:[27]

> "Over 5,500 km of gas distribution network infrastructure has been rehabilitated since 1987, including 150 year old cast iron gas mains in the Sydney distribution network and old high-density polyurethane (HDPE) pipes."

These developments are reflected in the age profile of the various components of the gas system. Figure 4 below illustrates the age

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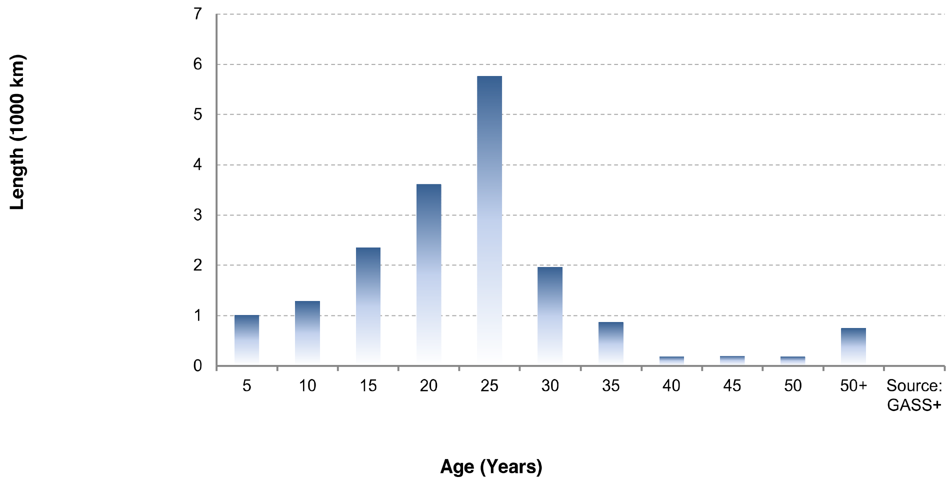
[26] Jemena, *Access Arrangement Information*, Appendix 6.01, p 36.

[27] Reported in Gas Today, *Every pipe has a goldlining*, August 2009. Goldlining referred to the process of inserting nylon piping into existing gas distribution mains.

profile for low and medium pressure mains, with a median between 20 and 25 years compared to a design life of 50 years (see above).

Figure 4: Age Profile for Low and Medium Pressure Mains[28]



EMFR believes, therefore, that greater clarification of Jemena's replacement program is required.

More specifically, Jemena suggests "the great majority of renewal activity is planned with the remainder being reactive in nature".[29] In these circumstances, there is a greater risk that it will lead to excessive replacement rates. The replacement plan and associated replacement criteria should, therefore by closely investigated by the AER to ensure this planning approach results in a prudent but not excessive rate of replacement.

2.3.2.3 Facilities Renewal & Upgrade

This represents some 13% of the forecast total capex requirements in AA2015 and Jemena is proposing an increase in expenditure of some 75% compared to actual expenditure in AA2010. This expenditure includes condition assessment, refurbishment and replacement of key facilities, and capex on high pressure mains.

The EMFR seeks further investigation by the AER in the following areas of Jemena's proposal. They are:

- Jemena is proposing some 54 projects of significant size (capex greater than $1.0M), many of them quite complex. This is a

[28] Jemena, Access Arrangement Information, Appendix 6.01, p 35.
[29] Jemena, Access Arrangement Information Proposal, p 20.

challenge for the management and material resources of the company and likely to lead to more costly solutions. The EMRF believes there should be greater prioritization of these projects so they can be spread across two AA periods (for instance).

- A number of major projects have been deferred from AA2010 to AA2015. In some cases this may have been prudent deferral. However, in other cases, the deferrals reflect (for example) a failure to understand the complexity of the project. Customers have already 'paid' for these assets, yet received no benefit. Their re-inclusion in AA2015 is questionable. The fact that even with these deferrals capex still exceeds the allowance indicates that Jemena included other works which it had not planned for 2010, raising the concern that these new works were not prudent.

- Some projects, such as the Northern Trunk Pressure Mitigation Project, are proposed on the basis of 'expected' changes in the supply sources. The EMRF considers these types of projects should not form part of the regulatory allowance unless there is substantive evidence of commitment by seller and buyer that these projects will proceed.

- There are a number of 'projects' that were previously considered as opex, and Jemena is now proposing to include them as capex such as 'in-line inspection' and 'integrity digs'. The capitalisation of integrity projects for instance accounts for some $32M of additional capex[30] at an annualised cost of more than $1M.[31]

  The EMRF is not convinced this is the appropriate treatment of these costs although the AER appears to have accepted this capitalisation in more recent decisions on gas pipelines. The decision by the Australian Competition Tribunal in 2011, for instance, suggests that a monitoring activity is not capex if it does not result in a "capital expense" to repair any "damage".[32] Simply 'checking it out' is not a capital cost under this definition.

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[30] Jemena, Access Arrangement Information, Appendix 6.7, p 25.
[31] The EMRF notes that if opex is transferred to capex, then there should be a consequential reduction in opex but this does not seem to have occurred
[32] See Ibid, p 27. The EMRF has considered the decision by the Australian Competition Tribunal in *Application by Jemena Gas Networks (NSW) Ltd* (no 3) [2011] ACompT 6, which addressed the issue of whether expenditure arising from mine subsidence is capital or operating expenditure. The Tribunal determined it was capital expenditure, but also restricted this to circumstances where some asset has been "damaged "and is "actually followed up by capital works" (@40). The Tribunal also states that "the cost of 'monitoring plant and equipment is unlikely to be a capital expense if no damage shows up." (@39). The EMRF considers that "in-line inspection" and "integrity digs" would generally fit this latter criterion.

Deferral of projects (such as noted above) is a major issue for consumers. It is recognised that it may be efficient. However, it is also the case that consumers have paid for the investment already and are being asked to 'pay' for it again in the next regulatory period (unless it does not meet the test of 'conforming' capex).

2.3.2.4 Metering Renewals & Upgrade

This is the largest single category of renewals in Jemena's proposal, accounting for some 37% of the total renewals allowance. It is also 87% greater than the actual expenditure in AA2010.

Jemena proposes to replace some 274,000 residential gas meters compared to 161,000 in AA2010, largely on the basis (it appears) that they are aging, and approaching the end of their 'statutory life', and in recognition of a bow wave of new meter installations in the 1980s-2000s.[33]

However, Jemena's proposal for meter replacement represents a replacement of around a quarter of all meters in five years. The EMRF does not believe such an aggressive replacement program is warranted.

A more even profile of gas meter replacements over a number of regulatory periods has long-term advantages, and there is no evidence that there is a pending crisis in the accuracy of gas meters in terms, for instance, of gas losses. A reasonable alternative is to have a much slower program of routine replacement while still replacing gas meters found to be faulty.

A rapid changeover in gas meters also means that the cost of any future technological upgrade (e.g. to 'smart' gas meters, such as those being rolled out in the UK) will result in the imposition of unnecessary costs to consumers that could have been avoided by a more sensible approach to meter replacement.

A second, and perhaps more disturbing component of Jemena's renewal capex, is the proposed replacement of <u>residential hot water meters</u>. Jemena plans to replace "150,000 aging and prematurely defective hot water meters, based on a replacement rate of 23,000 meters each year over the AA2015".[34]

[33] Ibid, p 30. Jemena cites AS 4944 that it claims extended the life of meters from 15 to 25 so that meter replacement could be deferred in previous AA.
[34] Ibid, Table 4-11, p 29.

The installation of hot water meters enables the *allocation* of gas costs (as measured at a master meter) to individual tenants/owners of units in high-rise buildings. In this way, there is no need for gas meters and gas supply lines to be installed to each apartment.

The issue of the cost of these hot water meters, and whether gas consumers generally should be responsible for funding them, was raised in the AA2010 determination process.

The AER determined (unfortunately) that the hot water meters in multi-apartment buildings are relevant to the provision of the 'reference services' and Jemena was entitled to recover the costs of the water meters from all gas consumers.

The AER's decision rested largely on the claim by Jemena that (unlike in Victoria), each apartment was billed directly on their notional gas consumption. This notional gas consumption was, in turn, derived by Jemena allocating gas measured on the master gas meter to each apartment based on their respective metered water consumption.

The EMRF is not convinced by this argument that hot water meters represent a reference service included in the revenue allowance and RAB. The EMRF believes that the recovery of the costs of water meters should be a separate charge to the specific users rather than spread across all gas consumers. The EMRF's view is reinforced by a number of other factors, namely:

- This is a rapidly growing sector of the market, accounting for almost half the new gas connections;

- There are increasingly more complex metering and revenue recovery arrangements emerging such as market 'intermediaries' (Jemena has had to add a number of new specific tariffs);

- The hot water meters have a history of poor performance, high maintenance costs and limited life span particularly compared to standard gas meters; and

- The principle beneficiaries of the hot water heater arrangements are developers who may make considerable savings in construction costs and building owners who are able to have someone else take responsibility for the cost of allocation between users.

Therefore, from both a principle and practical perspective, EMRF is very disturbed by any 'creeping' extension of the regulatory standard gas reference service model to include the ownership, management and replacement of hot water meters.

This is a ‘slippery slope’, with little if any regulatory precedent, and one that could become very expensive to gas consumers, given the growth in centralised hot water systems in medium-high density apartments and their generally poor life cycle performance.[35] The hot water meters cost between $100-$150 per meter, and further costs to install.

The EMRF urges the AER to investigate the issues raised above. If it continues to consider provision, maintenance and replacement of hot water meters should be classified as ‘reference services’ then it needs to demonstrate how (and why) the costs of a much shorter life cycle are recovered from gas consumers in general and why it is prudent for all gas consumers to fund this activity.

The AER will also need to consider whether, and how, the more complex configurations of water meter installations and revenue recovery (through intermediaries et al, including centralised cogeneration systems) that are now emerging in the market, can be captured in its decision.

2.3.4 Information Technology & Other capex

Jemena’s IT capex exceeded its allowance in AA2010. Total capex for IT was around $132M while the AER’s capex allowance was some $103M ($2014-15). However, some $20M of the $132M was IT capex incurred in AA2006 and capitalized in AA2010.

Jemena proposes to spend around the same amount in AA2015, that is, a capex of $132M over five years, with the majority in the first three years. Given this, IT is clearly the largest component of expenditure in this category.

The ERMF accepts that a gas DNSP will require a significant investment in IT to interface with other gas market participants and AEMO, manage their business, meter and customer records and their field operations.

The important issue, however, is the assessment of the net benefits of the various programs to customers in terms of network prices over time and enhanced customer services.

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[35] Centralised hot water systems have the potential to provide considerable savings to property developers, as they only need to install a single bank of water heaters to supply many units. It may also mean they avoid the cost of gas reticulation through the building (although in many cases gas is still supplied for cooking and may or may not be metered).

The EMRF requests the AER to require Jemena to provide a more transparent and quantitative analysis of the costs and benefits of the $260M spent on IT systems across AA2010 and AA2015 and whether there is value to consumers from such a significant expenditure. The AER should also investigate the additional $20M capitalized in AA2010 (above) to ensure it was conforming capex, before it is included in the regulatory asset base.

As the utility businesses operate in a very stable commercial and physical environment (relative to businesses in a competitive market), there is an opportunity to extend the life of IT systems beyond their depreciated life.

Moreover, it is not clear what synergies Jemena is extracting from sharing IT costs with other members of the Jemena Group in Victoria and elsewhere. For example, when considering capex associated with Jemena's property portfolio, Jemena seeks recognition of the allocated costs of 'fit outs' to its new Victorian head office of some $35.7M.

The EMRF, therefore, (and in like vein) seeks assurance that any synergy benefits to Jemena (NSW) of common IT platforms are shared with their NSW customers. The EMRF supposes, for instance, that the costs associated with the consolidation onto a SAP platform will be shared across the Jemena Group (no double dipping) and that the benefits will ultimately accrue to consumers in the form of lower costs.

The EMRF is aware that in addition to its regulated activities (ie NSW gas networks, Jemena Victorian electricity networks and a part share in Victorian United Energy networks) Jemena has a number of unregulated activities (Colongra gas transmission, Queensland Gas Pipeline, Eastern Gas Pipeline and Rosehill recycled water scheme) so there is an incentive to move costs to regulated activities to limit costs for unregulated activities.

With such an extensive list of unregulated assets, the EMRF is very concerned that regulated assets are carrying more than their fair share of head office and other common costs. The AER must ensure that any allocation of costs by Jemena that are from a shared resource must be shared equitably between the regulated and unregulated businesses.

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3. Forecast Operating Expenditure

The NGR requires the AER to determine opex for Jemena based on the "operating expenditure that 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".[36]

The AER's discretion in amending an opex proposal is "limited".[37] That is, the AER may not withhold its approval of proposed operating expenditure if it is satisfied that the proposed opex complies with applicable requirements of the Law, and is consistent with any criteria prescribed by the Law.[38]

The EMRF argues that in evaluating whether the opex is prudent and efficient, the AER needs to take explicit account of the significant increases in capex projects in AA2010 and the proposed additional increases in AA2015.

In addition there are a number of factors that have an influence on opex and make assessment of movements in underlying opex more complex:[39]

- Jemena seeks to capitalise some of its regular maintenance costs (see above) in AA2015. (see Section 2, capex discussion);

- In 2012, a new operating structure was implemented to form a separate assets business (Jemena) and a services businesses (Zinfra), with the potential for changes in cost allocation to the regulated business;

- A new SAP system replacing two outdated legacy systems with a single-business-wide system with enhanced capabilities (in line with new operating structure); and

- Jemena no longer pays a margin in respect of services received under the previous Asset Management Agreement with Jemena Asset Management Pty Ltd. It is not clear how this benefit is captured in the current opex proposal, particularly any adjustment to the base year.

Overall, therefore, and given the substantial increases in capex in AA2010 (and projected for AA2015), it is reasonable to expect a

[36] NGR, R 91 (1).
[37] NGR, R 91 (2).
[38] NGR, R 40 (2).
[39] Adapted from Jemena, *Access Arrangement Information, Current Performance*, 4, p 27-28.

prudent and efficient operator will see significant and progressive increases in efficiency and reductions in costs. More specifically, the EMRF would look to the following outcomes:

- Reduced maintenance and inspection requirements;
- Reductions in gas losses (Unaccounted for Gas);
- Enhanced planning of resources and materials;
- Enhanced computerization of administration and operations planning tasks; and
- Synergy benefits that assist in capturing scale efficiencies.

Jemena provides only a limited number of measures that show the outcome of their opex plans in terms of efficiency. However, Jemena does summarise a number of important outcomes as set out in Table 3 below.

Table 3: Operating cost per metre & per customer site ($2015).[40]

	2015-16	2016-17	2017-18	2018-19	2019-20
Operating cost per metre	6.12	6.06	6.05	6.17	6.09
Operating cost per customer site	127.27	124.24	122.45	123.38	120.51

While there is a 5% forecast reduction in operating costs per customer between the start and end of AA2015, Jemena's operating costs per metre of pipeline remain virtually unchanged despite their proposed increase in the size of the networks.

EMRF has also looked at these high level measures set out in the AA2010. Examination of these indicates that the costs per customer and per meter in the current proposal are significantly higher than in AA2010, even when allowing for CPI movements.

For example, Jemena proposed an opex of $4.74 per metre in 2009. Adjusting for inflation brings this figure to around $5.20 per metre (using December to December CPI, less if using June to June CPI changes). This is significantly less than the $6.12 per metre Jemena proposes for 2015-16.

It would be helpful if Jemena could present this type of historical analysis and explain any variation. It certainly points to the urgent need for further assessment of the proposed opex both across other utilities and against Jemena's own historical performance and targets.

[40] Jemena, *Access Arrangement Information*, Chapter 7, Table 7-4, p 80.

3.1 Assessment of Current Operating Expenditure (AA2010)

Jemena expects to achieve an opex outcome very close to the total amount allowed under AA2010 ($802M versus $805M). However, the actual outcome in AA2010 includes some $25M for carbon costs, including $7.8M in 2014-15.

The base year for the AER's preferred "base-step-trend" approach to setting opex, is 2013-14.

The actual opex for that year is in the order of $166M, including $7.75M for carbon which must be removed from the forecast allowance. After excluding carbon, the base year value of opex is $158.6M, almost $7M (4.2%) below the AER allowance for that year.

3.2 Assessment of Forecast Operating Expenditure (AA2010)

The framework for Jemena's opex forecasting is consistent with the AER's approach as set out in the AER's *Expenditure Forecasting Assessment Guideline* (November, 2013). It consists of the following five steps:[41]

1. establish the efficient base year based on current and historical costs;
2. adjust the base year for non-representative expenditure;
3. trend the base year forward;
4. add specific forecasts to the trended base year; and
5. adjust the trended base year for step changes.

3.2.1 Step 1 & 2: Adjusted Efficient base year (2013-14)

Jemena advises that it intends to use the 2013-14 year as the efficient base year for the purpose of forecasting opex.

The EMRF finds Jemena's proposal to adjust the base year lacks some transparency. A relatively small component relates to the capitalisation of some costs (which EMRF does not agree with) and some other minor items.[42]

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[41] Jemena, *Access Arrangement Information*, Chapter 7.2, pp 3 – 4.
[42] See Ibid, Table 2-2, p 8.

The EMRF's main concern, however, is with the (re)inclusion of corporate overhead costs that were previously rejected by the AER, and the lack of clarity around the decision by Jemena to include these costs again in the base year costs, as follows:

- The 'base cost' opex for 2013-14 is stated by Jemena to be $166.35M ($2015). This total is made up of the following (in millions $2015):[43]

    - General opex costs: $152.1
    - Carbon costs: $7.75;
    - "Disallowed corporate overheads": $6.51
    - **Total base year cost = $166.35**

- Jemena then calculates the 'adjusted base year as follows:[44]

    - **Total base year = $166.35**
    - Less One-off events/cost adjustments = -$3.64
    - Less Specific Annual forecasts = -$29.45
    - **Adjusted Base Year = $133.17**

EMRF concludes from this analysis that Jemena is including 'disallowed corporate overheads' as defined by the AER in AA2010, to establish the adjusted base year efficient cost.

It is not clear why Jemena should make this decision to include these costs in the efficient base year when they were examined in some depth and then explicitly rejected by the AER in its final determination for AA2010.[45]

Because these 'disallowed corporate overheads' are included in the adjusted base year by Jemena, they continue to impact on each year of AA2015, for a total of over $30 million (in $2015) additional opex.

The EMRF therefore, urges the AER to:

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[43] From Ibid, Figure 2-1, p 6.
[44] From Ibid, Table 3-1, p 17.
[45] It would appear these corporate overhead costs relate to what Jemena called in 2009, 'enterprise support functions', being functions provided by the ultimate owner, Jemena Group, and passed onto Jemena Access Management who provided services to Jemena under the Access Management Agreement. The AER concluded that some allocation of costs was appropriate, but other costs are likely to represent a duplication of management costs and/or do not relate to the delivery of NSW gas pipeline services. The AER does, however, suggest that it is an area for future analysis. However, this issue is not made clear in the main documents by Jemena associated with the current Access Arrangement proposal. For a discussion of the issue, see AER, *Final Decision-Public Jemena Gas Networks, Access Arrangement proposal for the NSW gas networks, 1 July 2010-30 June 2015*. June 2010 , pp 248-249.

- Review whether the base year is efficient – were the net savings relative to the AA2010 allowance for 2013-14 due to delays in activity levels (and the like), or greater efficiency in undertaking the agreed tasks;

- Remove the effect of the 'disallowed corporate overheads' from the analysis. This would lead to an **adjusted base year of $126.66 million ($2015)**.

The EMRF notes that the AER has advised that it intends to commence implementing benchmarking of costs to ensure that the base year is as efficient as implied from the impact of an efficiency benefit sharing scheme (EBSS).

The EMRF notes that the NSW gas network has historically been seen to be inefficient[46] and there is still a concern that Jemena has not yet reached the efficient frontier for opex. The fact that Jemena's opex is not subject to an EBSS raises considerable doubt as to whether the base year costs can be assumed to be efficient, yet this is the basis on which Jemena has forecast its opex for AA2015.

Jemena also removes a number of other costs from the base year that are forecast specifically for each year, namely, government levies, unaccounted for gas (UAG), carbon costs and debt raising costs. This is standard practice and the EMRF has no difficulty with this part of Jemena's proposal.

3.2.2 Step 3: Trend the Base Year Forward

Jemena states that the 'trend' to apply from the base year to the forecast years for AA2015, has three components. That is, the 'rate of change' is a function of changes in growth ('output quantity'); input cost escalators and opex partial factor productivity.

The EMRF is most surprised that the impact of all these movements on the trend rate in opex over AA2015 is quite small, being only a total of $6.02M across the five years.

The EMRF requests the AER to examine each of the components carefully. It seems an inadequate response to the challenges the gas industry is facing over the next five years. Nor is it consistent with the general business and community expectation of significantly improved efficiency and productivity, supported by prudent investment plans.

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[46] For example, under the IPART reviews IPART consistently applied an efficiency adjustment to reflect the perceived inefficiencies seen in the operation of the network

The EMRF therefore presents below an examination of some of the components of the forecasts that have led to such a poor outcome.

3.2.2.1 Growth/output quantity

Although customer numbers continue to grow, there is a significant drop in energy use in 2014-15, with minimal rate of growth in energy use (ie output) forecast for subsequent years. On the other hand, Jemena predicts significant growth in customer numbers of approximately 30,000 per year.

As a net result of these factors, Jemena forecasts a reduction of -$16.38M ($2015) over the five-year period of AA2015. This amounts to little more than $3M per year in real dollar terms.

The EMRF considers this is the minimum reduction that should be directly associated with the changes in output. It points to the need for a focus on improved productivity to capture greater savings.

3.2.2.2 Input cost escalators

There are three components to derive the input cost escalator factors; labour costs (internal and contract); input factors, and partial factor productivity. The net impact of the three factors (the "blended" input cost) is $23.7M ($2015)[47] increase in opex over the base year.

(a) Internal labour and contract costs:

Jemena proposes real increases in labour costs and contractor costs over the course of AA2015; internal labour costs are forecast to rise from 1.23% in 2015-16 to 2.27% above CPI, while contract costs increases will rise to 1.45% above CPI by 2019-20.

Given an inflation assumption of 2.55%, this implies in-house labour costs rising by nearly 5% nominal in the last year, 2019-20, and contract costs by around 4% nominal in 2019-20.

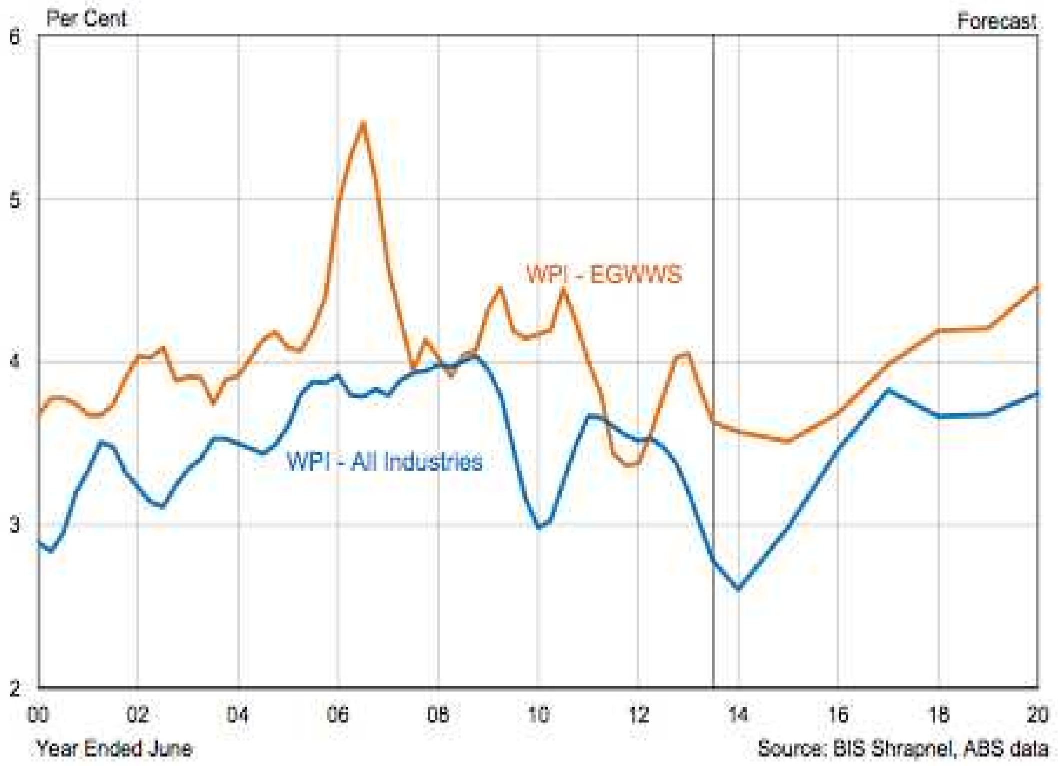
This forecasts for AA2015 are provided by BIS Shrapnel who state that the average compound annual growth rate (CAGR) of wages for workers in the electricity, gas, water and waste services industry (EGWWS) will be 4.3% (using an inflation forecast of 2.5%), somewhat higher than the all industries CAGR of 3.8% [48]

[47] Jemena, *Access Arrangement Information*, Chapter 7.2, Table 2-6, p 10.
[48] Jemena, *Access Arrangement Information*, Appendix 6.10: *BIS Shrapnel – Input cost escalation report*, June, 2014, Table 4.5, p 32.

BIS Shrapnel considers that the non-mining sector of the economy, particularly NSW, will start to recover from around 2016, leading to fuller employment and, in particular, re-emergence of shortages of skilled labour.

BIS Shrapnel also notes that in the EGWWS industry, over 67%[49] of workers are under Collective Agreements that traditionally have managed to achieve above average increases. Figure 5 below illustrates BIS Shrapnel historical analysis and forecast of the wage price index (All Australia).

Figure 5: Wage Price Index (nominal) for EGWWS[50]



The EMRF notes that the BIS Shrapnel forecasts imply that cumulatively over AA2015, workers in the EGWWS industries will see:

- Real wages will increase by over 10%; and
- Nominal wages will increase by over 28%.

Therefore, the EMRF considers that the BIS Shrapnel forecast is at the top end of reasonable forecasts particularly for the gas industry that is seeing a

49 Ibid, Table 4.4, p 30
50Ibid, Chart 4.1, p 29.

downturn in domestic demand and this is not likely to recover over the next five years.

This will keep a lid on any growth in shortages of specialist gas fitters, particularly if new connection rates are further reduced (eg by the rapid rise in gas prices) and, in turn, reduce pressures on wages.

In addition, BIS Shrapnel notes the high level of collective agreements in the industry. The latest enterprise agreements for EGWWS workers appear to be limiting wage increases to around CPI, and are conditional on certain productivity improvements. Moreover, governments are likely to place additional pressures on wage increases through changes to the Fair Work Act and the like.

Given these factors, the EMRF considers the Jemena forecasts for both internal and contract cost labour should be critically reviewed by the AER. The EMRF notes that the AER has consistently used labour price indices prepared by Deloitte Access Economics (DAE) in preference to BIS Shrapnel forecasts. The EMRF considers that the AER should continue to use DAE data for the sake of consistency.

If, however, the AER chooses to accept Jemena's forecasts, then it is important that the AER build in greater productivity improvements into the forecast so that overall labour costs do not increase above CPI.

The EMRF also notes that the AER has used forecasts without productivity adjustments. The EMRF considers the AER should also apply a productivity adjustment as it has in other recent network reviews

(b) Non-labour input costs:

Jemena provides forecasts (again provided by BIS Shrapnel) of changes in costs for all key non-labour inputs, such as steel, concrete, aluminium, copper, and plastics. The costs of these materials are influenced not only by Australian economic growth rates but also by international supply and demand and the value of the Australian dollar.

These are all difficult to predict, and can be quite volatile over a short period of time. The EMRF, therefore, has no comment on BIS Shrapnel's forecasts of the non-labour input costs.

At the same time, the AER needs to ensure (by its own assessment) the likely movements in materials over the forecast period. Such a review requires Jemena to submit a detailed breakdown of the different materials that make up the material mix of Jemena activities such that the mix is not varied at each review to allow bias in the mix to maximise the reward for Jemena.

The EMRF would also expect the gas networks to undertake prudent hedging arrangements for currency and commodity prices given the volatility of the various internationally linked prices and the relative certainty of the networks demand for each of the products.

3.2.3.3 Partial Factor Productivity Measures

Jemena has gone to some lengths to commission a benchmark study by Economic Insights (EI) using industry data to establish a "robust model of productivity growth" in gas networks. [51] EI conducted a similar study for AA2010. The study relies largely on the analysis of historical trends in productivity.

The model analysis suggests that Jemena should expect to achieve productivity improvements averaging 1.03% pa over AA2015 period. Jemena suggests that these productivity gains are "passed directly through to our consumers and reflect JGN's commitment to efficiently managing our business".[52]

Jemena also suggests that Jemena's partial productivity factor performance to date has been consistent with the better gas utilities in Australia, given its unique circumstances. Jemena suggests that given this favorable relative status at the start of the new AA, the 1.03% productivity is reasonable and consistent with its obligations.

The EMRF does not accept that a productivity improvement of 1.03% per year is sufficient under the current circumstances. The very significant capex increases, along with new IT systems and the like, should have allowed greater savings in opex than is apparent in the Jemena forecast.

In the ERMF's previous submission to the AA2010 Draft Determination, ERMF submitted evidence from a study by IPART that the Australian gas industry as a whole was more than 27% less efficient than their overseas counterparts. The relatively slow (albeit steady) rate of improvement in efficiency since then suggests that this figure on relative efficiency will not have changed much. It will certainly not change in the future if the productivity rate is only 1.03% per annum – the rest of the world does not stand still.

It is evident to the EMRF that the local gas industry participants do not face the same challenges as their customers who have had to undertake considerably more aggressive attempts to improve productivity to achieve comparable best practice efficiency.

[51] Jemena, *Access Arrangement Information*, Chapter 7.2, p 11.
[52] Ibid.

In general, the EI study is a useful starting point, but there is a need for more independent evaluation of the efficiency of Jemena (and other gas networks), and a real attempt by participants to use the results of the study to accelerate efficiency gains.

The AER should therefore cast its net wider than just the local industry, to develop benchmarks that really drive the local monopolies towards international best practice, not just local best practice,

3.2.4 Step 4: Add specific forecasts to the Trended Forecasts.

Jemena adds back into the base-trend opex forecast, the impact of specific factors. These include government levies, UAG, carbon costs and debt raising costs.

3.2.3.1 Government levies

The EMRF notes Jemena's proposal to include about $4.21M p.a. ($2014-15) for various government levies, and that these remain unchanged from the levies included in the base year 2013-14. The EMRF accepts that the basis for the assessment of this cost is reasonable.

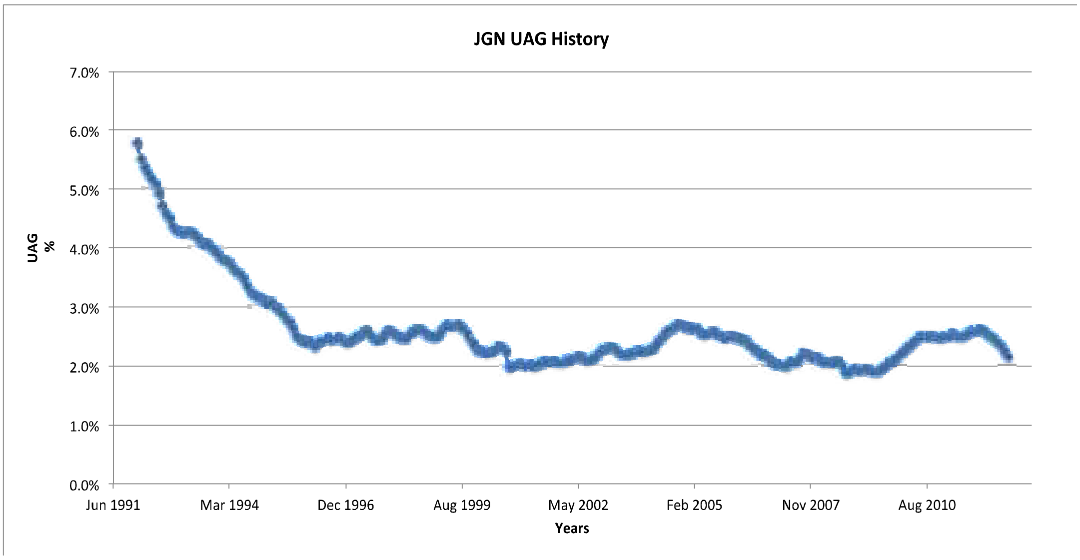
3.2.4.2 Unaccounted for Gas (UAG)

Jemena is required to 'buy' additional gas from a gas shipper that represents the difference between the measured volume of gas delivered to the distribution receipt points and the gas measured (or estimated) at the customers' meters.
Jemena's cost of UAG therefore depends on two factors, namely, the estimated volume of gas lost and the notional cost of that gas.

The regulator sets a benchmark target for the volume of UAG for inclusion in the regulated UAG costs, with Jemena either receiving payment for or paying out any differences between measured UAG and the benchmark.

UAG improved rapidly between the 1980s and 2000, reflecting the investment in replacing old cast iron pipes and older plastic pipes with newer more robust materials. The dramatic reduction in UAFG is illustrated in Figure 6.

Figure 6: Changes in the Jemena UAG volumes[53]



Jemena states that since 1996, UAG has varied between 1.9% and 2.7%.[54] While Jemena continues to replace older cast iron pipes it is doing this at a much-reduced rate. The EMRF agrees that this is an appropriate response, although also wonders why Jemena is investing so heavily in renewal capex for AA 2015 given the very modest reductions in UAG.

Jemena is proposing that the AER set the benchmark UAG for AA2015 on the basis of the 5-year average. This benchmark is reported to be 2.24% of receipts.[55]

The EMRF considers this is a reasonable proposal given the measurement issues with UAG and recommends the AER accept this proposal, subject only to a reduction that would come from the final stages of replacing cast iron mains with plastic – consumers should receive a benefit over time from that.

However, to set a tighter benchmark target for UAG than the current allowance may drive additional costs to consumers that are not warranted at this time. The experience of the impact of overly tight reliability standards in the electricity industry on the network costs should reinforce a more cautious approach.

The cost of gas that Jemena must purchase to replace UAG is a pass through arrangement, along with the relevant volume of gas receipts to which the UAG percentage is applied.

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[53] Jemena, *Access Arrangement Information, Appendix 7.5, UAG methodology and justification*, June 2014, p 2.
[54] Ibid.
[55] Ibid, p 6.

For the purposes of the current proposal, Jemena proposes to use the 2013-14 contractual UAG supply cost, while the actual cost will be submitted each year as a pass through allowance (along with the volumes received). The cost of the gas is subject to confidentiality provisions.

EMRF notes that this creates uncertainty and risk for Jemena's customers, particularly given the prospect of future gas price rises.

The AER should closely monitor the costs that Jemena does pass through. This is because the ability to pass through gas costs reduces the incentives on Jemena to seek the best possible contract for gas supply and to take appropriate actions to reduce the amount of UAG.

Allocating UAG to customer segments

Jemena has identified that there are significant differences between the UAG on the local low-medium pressure distribution system, and UAG on the main high pressure pipelines.

As a result, it is proposing two separate UAG rates, which have been reviewed by Frontier Economics,[56] as follows:[57]

- 0.450% of forecast withdrawals for the demand (daily metered) market; and

- 5.44% of forecast withdrawals for the volume market customers

There is some precedence in this separation, as the Victorian regulator sets different UAG for volume and demand tariff customers.

Therefore, the EMRF is not averse to the proposal, in principle. However, the EMRF believes that the proposal should not be accepted until the wider implications of this on final network tariffs are understood and the outcomes clearly communicated to stakeholders.

The EMRF therefore recommends that the AER consider Jemena's proposal favorably, but require Jemena to undertake and share further analysis of the costs and benefits of two separate UAGs and the impact on network tariffs to different customer classes.

Similarly, the EMRF considers there is some value in Jemena's proposal for UAG costs to be recovered with a two year lag rather than the current one year lag in order to have access to more accurate market data.

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[56] Jemena, *Access Arrangement Information, Appendix 7.6, UAG-Frontier Economics Report*, June 2014.
[57] Ibid, 8. Note, Jemena is also proposing slightly different figures for the annual 'true-ups' of 0.427% and 5.16% respectively. The EMRF is not in a position to evaluate the merits of this.

3.2.4.3 Carbon costs

At the time of preparing the proposal, there was still some uncertainty about the fate of the carbon pricing mechanism. As a result, Jemena included the costs of meeting carbon obligations as part of its opex proposal. Jemena also stated as follows: [58]

> "The removal of the carbon pricing obligations would effectively eliminate JGN's current carbon pricing liability. However, depending on the design of the ERF [Emissions Reduction Fund] JGN may incur costs which cannot be defined on the basis of the information currently available.
>
> As a result of the uncertainty regarding future carbon pricing and obligations, JGN has included a conservatively low allocation for carbon pricing in its forecast."

Jemena then suggests that if circumstances change 'materially' or 'new information comes to light prior to the AER's final determination, then Jemena may revise these forecasts and resubmit to the AER. With the repeal of the carbon pricing mechanism[59], "new information" has been received identifying there is no need for an allowance for carbon pricing obligations.

The EMRF finds the Jemena approach unsatisfactory. Jemena has applied for $7.76M ($2015) for 2015-16, and close to $2M per year for the remaining years. The additional $2M pa is purely speculative. It should not be included in the forecast. If there are additional material costs associated with the Emissions Reduction Fund (ERF), then these (like carbon) should be subject to pass through arrangements at the time they are incurred.

However, the EMRF has concerns about Jemena's view that it 'might' incur costs from the ERF. The EMRF disagrees. The ERF is all about paying emitters to reduce their emissions. The only way the EMRF sees that Jemena might be impacted would be if Jemena applied to the ERF to get paid for reducing its emissions (eg UAG). Consumers have already paid through their contributions to the Jemena revenue for reducing UAG. If Jemena applies to the ERF for reducing emissions and gets paid for reducing UAG then consumers should benefit, not Jemena.

The EMRF urges the AER to reject all of Jemena's carbon cost allowances.

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[58] Jemena, *Access Arrangement Information, Appendix 7.2, Operating expenditure forecasting method and base year efficiency*, June 2014, p 13.
[59] Clean Energy Act 2011 repeal abolishing the carbon pricing mechanism from 1 July 2014

3.2.4.4 Debt & Equity raising costs

Jemena is proposing a total debt raising cost of $20.5M across AA2015 period, with an average annual cost of some $4M ($2015).[60] Jemena bases this claim on the work of Incenta who has undertaken similar investigations for the NSW electricity networks. The EMRF is aware that the Incenta analysis looks more closely at the indirect costs for debt raising and this has not yet been demonstrated as legitimate costs.

EMRF accepts that there are costs incurred in raising debt, and that the implied costs of the rate of return approach (10 year debt, with 1/10 of the debt raised each year) may be an additional factor. Equally, the EMRF notes that Jemena has stated that it incurred no costs for raising debt over the past five years despite being allowed some $7.62m [61] for this purpose in the AA2010.

However, the EMRF does seek further investigation by the AER of the Incenta analysis before confirming its relevance to the NSW gas distribution service provider.

Jemena also discusses equity raising costs, and concludes that 'consistent with the recent AER decisions'[62], it proposes an equity cost allowance of 1% for internally raised equity[63], and 3% for externally raised equity.

Notwithstanding its proposed approach, Jemena states that it estimates "zero equity raising costs for the next regulatory period" (AA2015).[64]

3.2.5: Adjusting for Forecast Step Changes

Table 4 below sets out Jemena's proposed step changes. In total, the proposed step changes amount to around $23M ($2015) for AA2015.

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[60] Ibid, p 15.
[61] Ibid, p 27
[62] Ibid, 15.
[63] The EMRF has great difficulty in accepting this cost and considers that the previous AER approach to assessing retained earnings (at no cost) as the basis for assessing what equity needs to be raised externally.
[64] Ibid, 16.

Table 4: Jemena's forecast step changes ($millions, $2015)[65]

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
NECF	0.52	1.97	1.04	1.14	1.14	1.14
Customer engagement	0.06	0.19	0.06	0.19	0.00	0.06
JGN AA Review 2015 & 2020	0.00	0.00	0.00	0.04	4.52	3.33
Annual Regulatory Reporting	0.00	0.39	0.39	0.39	0.39	0.39
Marketing	0.00	1.32	1.32	1.32	1.32	1.32
Insurance premiums	0.09	0.12	0.12	0.12	0.12	0.12
Total step changes	**0.66**	**3.97**	**2.92**	**3.19**	**7.48**	**6.35**

EMRF notes the following with respect to the step changes:

- All the NSW electricity and gas distribution businesses are claiming costs associated with the NECF. The EMRF expects a consistent approach to assessing these costs. Having stated this, the EMRF is not convinced that realistically networks have incurred costs in relation to NECF that are in addition to normal business development costs.

- Customer engagement should be considered a normal part of the networks business. The EMRF sees no basis for additional cost recovery in this area.

- The costs for the next review (AA2020) are significant; more effort should be made to reduce these costs perhaps by simplifying the use of consultants and more closely aligning with the AER's Guidelines. The EMRF has noted that networks are consistently and significantly increasing the costs for their revenue resets over time. It is bizarre that consumers are being levied ever increasing costs for this activity in which many of the costs are directly related to the networks seeking to bypass the AER guidelines so that the networks can increase their profitability at consumers' expense;

- Marketing costs are already part of opex to the tune of some $40M ($2015) over AA2015. As noted in the general comments on marketing expenditure, it is essential that the objectives of marketing and the output measures are clearly defined in terms of the net benefit to consumers' long term interests.

  Similarly, there needs to be more substantial support for a further step change in these costs in the order of an additional $6.5M ($2015) than is included in the Jemena proposal. Consumers quite

[65] Ibid, Table 2-13, p 16.

rightly ask for some analysis of the costs versus the benefits of this additional expenditure (and indeed the whole of the marketing expenditure should be subject to this as noted above).

3.2.6 Conclusions on Jemena's Operating Costs

Overall, the EMRF does not accept that Jemena has really addressed the issue of productivity improvement. This is a 'steady as you go' opex proposal, when what is required is a strong focus on efficiency and productivity growth in a static or declining market. A firm operating in a competitive market when faced by such a falling demand for its services as Jemena is faced with, would be taking massive steps to reduce its cost structure. This is a strong counterpoint to the actions by Jemena.

Reducing opex will contribute to Jemena's ability to wind back the proposed increase in Demand tariff customers.

Particular areas for consideration are:

- Reject the inclusion in the 'base year' of costs that were specifically rejected by the AER in AA2010 (Corporate overhead costs). The EMRF considers the AER's reasoning continues to be sound

- Address the EMRF's concerns that the quantum for opex in the base year opex has not been driven by an EBSS scheme and therefore cannot be assumed to be efficient;

- Review of overhead and management costs. The total overhead cost (management - O&M, corporate overheads - O&M, corporate overheads - A&O and management A&O) is about 30% of controllable opex (ie excluding debt raising, carbon cost, UAG and government levies). This amount of management and overhead is excessive and would not be tolerated by a capital intensive firm operating in a competitive environment;

- Adjust the excessive increase in forecast labour costs;

- Review the study by Economics Insight and apply a stronger productivity index to Jemena's forecast opex to reflect the new reality;

- Develop a more extensive suite of simple trend measures for opex, in addition to costs per meter or costs per customer site, to enable more robust historical trend analysis. As applicable, query the reasons for increases as is currently indicated by the limited data available;

- Accept the UAG proposal to set two UAG benchmarks, with the proviso that Jemena provides more explanation of the customer impacts, and the AER is assured that Jemena's gas contract arrangements are arms length and competitive (particularly given they are pass-through costs);

- Remove the carbon cost allowances for the whole of the AA2015, including the assumed ERF allowance;

- Amend a number of the step change proposals, which should be part of normal opex.

4. Service Performance Targets

Jemena is not subject to service performance targets in the way electricity distribution businesses are. To a large degree this is an outcome of the technical arrangements that impact gas distribution.

Essentially the main service performance consumers seek from a gas distribution business is reliability of supply and that the supply is not curtailed due to actions taken by the gas DB. As a gas DB has the power to curtail any gas consumer if there is a risk that the network could suffer a low gas pressure condition, it tends to curtail large gas consumers as the most effect means to get the fastest outcome for the least effort.

In AA2010, Jemena had attempted to address this deliberate targeting of large gas consumers for priority curtailment by the introduction of its discounted tariff for being first to be curtailed when there is a need. However, Jemena is now discarding this tariff as they claim there has been minimal take-up by demand tariff customers.

What is not clear, however, is the extent to which Jemena has promoted the tariff in its discussions with the larger customers, nor what terms and conditions Jemena attaches to the relevant tariff.

Further, despite the apparent minimal take-up, there is always a need for such a scheme to apply for new customers. The cost to Jemena for maintaining the curtailment tariff is minimal as it only applies to a few very large consumers. The EMRF does not support its removal and this is expanded more in section 7 below.

Jemena is also subject to a ‘benchmark target’ for UAG that is set on the basis of historical rates of UAG. Jemena has been significantly improving its UAG and as noted previously, has reached a point where further investment in reducing UAG will not result in a positive cost-benefit to consumers.

To a large extent UAG is a measure of efficiency of performance and the fact that UAG has moved little in the last decade despite massive investment in replacement of aged cast iron pipelines, implies that this replacement has not delivered the outcomes expected. Alternatively, if there has been a reduction in UAG due to the replacement, then Jemena has not identified where UAG is increasing and taken actions to limit this

The AER needs to more closely assess the reasons for the essentially static UAG value.

5. Demand and consumption forecasts

5.1 General observations

It appears that the AER intends to continue to set a weighted average price cap (WAPC) for the gas distribution businesses rather than a revenue cap as used for electricity transmission and distribution businesses[66]

Under a WAPC, the setting of the demand forecasts becomes a critical element of the review. As the key determinant for setting the price cap is consumption (gigajoules) there is potential for the distribution businesses to manipulate the forecasts in two basic ways.

1. By understating the volume forecasts (or MDQ for large contract customers), the average unit price (i.e. $/GJ or $/MDQGJ) to recover costs is higher. The DNSP is then able to apply the regulated WAPC to actual volumes that are larger and so increase its revenue.

2. By front end loading the forecasts, the business is able to recover the cash earlier providing a greater net present value of the cash flow.

Careful analysis of the forecasts is required to assess whether Jemena is using one or both of these techniques to secure an improved revenue and profit position compared to the expected revenues and profits. The EMRF therefore encourages the AER to undertake a careful review of the forecasts for both volume and demand customers, noting that demand customers use around 60% of the total volume (albeit declining as a percentage).

As part of this assessment, the EMRF considers the AER should assess the extent to which Jemena's actual revenue for AA2010 was less (or more) than the revenue allowed by the AER for AA2010. A review of the historic revenue performance is a critical aspect of the assessment of the tariffs set for AA2015. The EMRF suspects that Jemena revenues for AA2010 were considerably higher than might be assumed from the under-run in actual gas transported to that allowed.

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[66] The AER has published framework and approach statements for the electricity DNSPs in NSW, Queensland, and South Australia. The AER indicates that it is moving to a revenue cap to apply to all the electricity distribution businesses in the next round of regulatory determinations, i.e. from 2014/15). The AER"s preliminary position paper on replacing the Victorian Framework and Approach suggests that the AER will apply a revenue cap for the Victorian electricity distribution businesses from 2016.

On the other hand, there are incentives for the gas DNSP to overstate total peak demand as this flows directly into the assessments of capacity requirements and the need for new and replacement capex. Similarly, the DNSP has incentives to overstate the forecast of consumer numbers as connection of new consumers also drives the forecast of new capex requirements.

All other things being equal therefore, increasing consumer number forecasts and peak demand, combined with decreasing the annual gas usage (relative to the 'true expected values') will tend to maximize the overall revenue. This occurs through the combined effects of higher expenditure allowances and higher average network prices as set out above.

However, the EMRF acknowledges that the NSW gas market is entering very turbulent times and this in turn makes forecasting of gas usage more difficult. Not only is the market subject to changes in the structure of the NSW economy but also to ongoing improvements in efficiency and, importantly, the impact of expected rises in wholesale gas prices after a long period of relative stability in gas costs (see below).

Traditional trend analysis may well break down under these circumstances. Indeed, that is what appears to have happened in AA2010. The AER's final forecasts of gas volumes and peak demand for AA2010 were closely tied to forecasts of gross state productivity (GSP) for NSW. The AER therefore revised upwards Jemena's proposed amended forecast in its final decision, particularly with respect to the forecast of usage by demand tariff customers.

As it has eventuated, however, gas usage has continued to decline despite some ongoing growth in NSW GSP and the decline in usage by demand tariff customers has been the main factor in this overall decline. Similar trends have been seen in the electricity sector and appear to reflect the ongoing restructuring of the state economy and improving efficiency in energy utilisation. In addition, and most importantly, the expected doubling in the wholesale price of gas is expected to have a large impact on gas usage during AA2015.

5.1.1 Forecast changes in gas prices.

The EMRF recognizes that changes in gas prices will have an impact on gas usage in all sectors over the AA2015 period. Jemena's forecasts assume that gas prices will double from around $4/GJ in 2013-14 to $8/GJ by 2017-18 through to 2019-20 ($2014).[67]

[67] Ibid, p 66.

This forecast of gas prices is consistent with other estimates of gas price rises in this period (including various publically announced forward contract prices)[68] and based on reasonable assumptions regarding the east-coast gas supply arrangements through to 2020. However, some longer-term forecasts assume that gas prices will settle at a price somewhat lower than this after around 2020.[69]

Much may depend on whether NSW unconventional gas resources can be developed in sufficient quantities to limit price increases in NSW. This in turn will influence the expectations and decisions of gas users, particularly those larger customers with high levels of sunk investment in gas-fired equipment and those that use gas as a feedstock.

It will also influence the willingness of smaller volume customers to connect to gas, whether in a new estate or existing electricity-to-gas conversions. When faced with a choice between a gas fired water heater, and a solar water heater, the preference may be for the latter, even if government subsidies are removed

5.2 Jemena demand and consumption data - historical

[Note: in the following sections, Jemena's data for 2013-14 is estimated, while 2014-15 are forecasts based on information from consumers and other sources]

Jemena has two broad classes of customers. They are:

- Volume (V) tariff customers: V tariff customers include residential, small business and industrial and commercial (I&C) customers consuming less than 10 terajoules (TJ) per annum; and

- Demand (D) tariff customers: D tariff customers include large industrial customers expected to consume more than 10 TJ per annum. Jemena changed the capacity measure for Tariff D from a maximum daily quantity (MDQ) to a Chargeable Demand (CD) system, where CD refers to the quantity of gas used to determine Jemena's demand charge.

Although NSW GSP has continued to grow throughout AA2010 at around 2% per annum, gas usage has continued to fall by a total of 17.7% from the first year of the current AA2010. Similarly, Jemena

[68] See Ibid, p 70, for a summary of recent third party wholesale gas price forecasts.
[6969] See for example, SKM's report to the Standing Council on Energy and Resources (SCER), October 2013. Since this report, Origin energy has reported expansion of their P2 supply in Queensland, which (together with other recent announcements) will assist in reducing the LNG pull on NSW gas supplies during the LNG start up period to 2020.

states that maximum daily peak load has declined from 416.2TJ in 2010-11 to 385.6 TJ in 2012-13.

The fall in demand was particularly noticeable for Jemena's largest segment of customers, the demand tariff customers (annual usage greater than 10 TJs). This decline reflected both a fall in the gas customer numbers and a fall in average usage of gas by those customers as illustrated in Table 5.

Given GSP continued to grow through the period, the decline reflects broader developments such as restructuring of the NSW economy and greater efficiency in energy utilisation.

Table 5: Comparison of AER forecast & 'Actual forecast' outcomes by 2014-15 (Demand Tariff Customers)[70]

2014-15	Customer #	Total Usage (TJ)	Av /customer (TJ)	Average MDQ (TJ)
AER Forecast	409	63,685	155.7	318
Estimated Actual	378	46,297	122.5	264
Difference (F-A)%	*-7.6%*	*-27.3%*	*-21.3%*	*-17.0%*

The total usage of 46,297TJ by demand tariff customers in 2014-15 represented a decline of some 28.5% from actual demand in the last year of the previous AA period (2009-10). Intriguingly the fall in MDQ (which is what Demand tariff customer pay for) has not fallen as much as total volume.

In contrast to the demand tariff segment, there has been a small growth in consumption for the volume tariff segments (consisting of residential and small business consumers less that 10 TJ per annum). The demand from this segment increased by some 4.7% from 2009-10 to 2014-15 (estimate).

However, over the last three years there has been minimal change, and Jemena projects even a small decline in volume tariff gas usage in 20013-14 and 2014-15. What is concerning, is that this static growth in overall usage has occurred at the same time as Jemena has seen significant growth of some 11% in volume tariff customer numbers from around 1,110K customers in 2010-11 to 1,231K customers in 2014-15.

[70] Data for this table is taken from Jemena, Chapter 4, Current Period Performance, Tables 4-1, 4-2, 4-4 and 4-6, pp 21 – 24.

Jemena states that it has been increasing volume tariff customer connections by more than 30,000 new connections per year, with the increase in customer numbers ‘underpinned by new dwellings in new estates and in medium/high-density developments’.[71]

As a result of all these changes in Tariff V and Tariff D demand, occurring in a relatively short period of time (i.e., in the five years from 2009-10), the proportion of Jemena’s total gas sales to the demand tariff customers has declined from 65.7% to 56.7% (2014-15 forecast) of total gas sales.

These outcomes pose a number of challenges to Jemena and to the AER in assessing Jemena’s proposal, including:

- What are the likely changes in gas usage and peak demand over the next regulatory period?

- Given that Jemena spent some $960M ($2015) on capex over AA2010, which was around 8.7%[72] more than allowed by the AER, what are the implications capex in the next regulatory period?

At the most fundamental level, the concern is that continuing to chase increasing numbers of new connections might not be efficient when considering the costs of the new connections, the amount of additional opex and capex required for these and the costs of securing these new customers.

5.3 Jemena’s demand and consumption forecasts[73]

Overall, the EMRF does not have many significant concerns with the forecasts provided by Jemena (and prepared by the Core Energy Group), and the general approach of trend analysis, environmental scan and bottom up forecasting seems quite reasonable.

However, the EMRF does have some significant concerns with Jemena’s forecast of contract peak demand (CD) for D tariff customers, particularly as this influences the overall revenues from D tariff customers and the need for additional capex. The forecasts for V Tariff and D tariff are discussed below, including the EMRF’s views on the CD forecasts.

[71] Ibid, p 21.
[72] Ibid, p 28.
[73] The data in this section is largely drawn from Jemena: *2015-20 Access Arrangement Information, Appendix 5.1, Demand forecasting report*, June 2014.

5.3.1 Forecasts of V Tariff usage

Jemena is forecasting Tariff V demand to fall by 0.61% pa over AA2015. The reduction is based on:

- An increase in forecast connections of 2.38% pa for residential customers, 2.9% for small business and 1.9% (net) for I&C; offset by

- A decrease in average usage for residential, SME and I&C consumers (2.1%, 4.6% and 4.3% pa respectively)

While the increase in new connections is consistent with historical data (2.73% for 2008-13), the reduction in average usage for each of the V tariff segments is significantly larger, as illustrated in Table 6.

Table 6: Changes in Tariff V average and total usage (%/pa)[74]

	5 years: 2008-13	5 years: 2008-13	5 years: 2016-2020	5 years: 2016-20
	Av/Cust (GJ)	Volume (TJ)	Av/Cust (GJ)	Volume (TJ)
Residential	-0.76%	1.91%	-2.10%	0.23%
SME	-2.51%	1.15%	-4.56%	-1.80%
I&C	-2.49%	1.69%	-4.29%	-2.43%
Total V tariff		**1.75%**		**-0.61%**

Jemena states that the main reasons behind these forecast reductions in average usage as:

- an increase in the number of new dwellings connected with lower gas usage, including mid-high rise dwellings;

- continued trends in gas use efficiency and energy substitution; and

- customer response to increased gas prices.

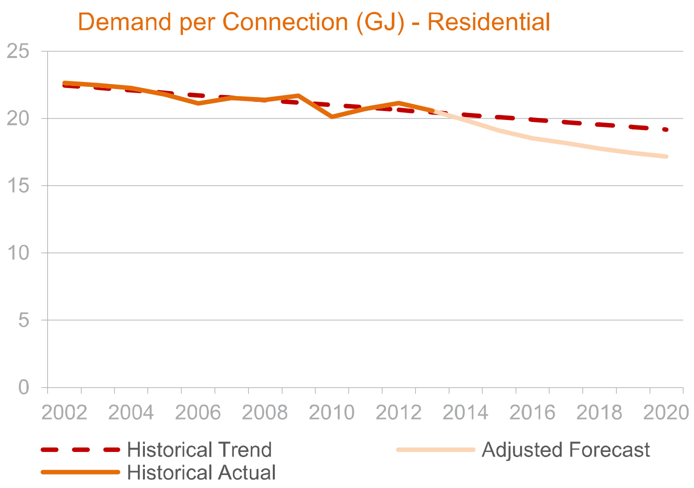
[74] Ibid, Table 1.4, pp 14-15. The data in Cols 2 and 3 refer to the period 2008-13 which covers two access periods, but enables comparisons of actual data, rather than included estimated/forecast data for the remainder of AA2010. .

The EMRF considers that all the factors are relevant and notes that they are all interrelated. That is, while there is an overall trend for declining average usage per connection, the expected doubling of wholesale gas prices in the next five years (and the flow through to retail prices) can be expected to exacerbate the trends in all the V tariff segments.

For example, Jemena's forecast of residential usage of -2.1%pa can be decomposed into historic trends (-0.8%), price elasticity (-0.7%) and reduction in dwelling demand (-0.6%).[75] The impact of all these factors is highlighted in Figure 7 in terms of the 'adjusted' forecast.

Figure 7: Adjusted forecasts of residential gas usage in AA2015.[76]

Figure 3.2. Tariff V Residential – Historical Trend & Adjusted Forecast.



Source: Core Energy Group.

Similar decompositions are provided for small business and I/C V tariff usage, with price elasticity accounting for about a quarter of the overall reduction through AA2010.

What it does lead the EMRF to question, however, is whether the pursuit of 150,000 new customers in AA2015 is an appropriate response by Jemena. In particular, the EMRF also notes the breakdown of average gas usage for the residential tariff customers in 2013 (actual data), as set out by Jemena:

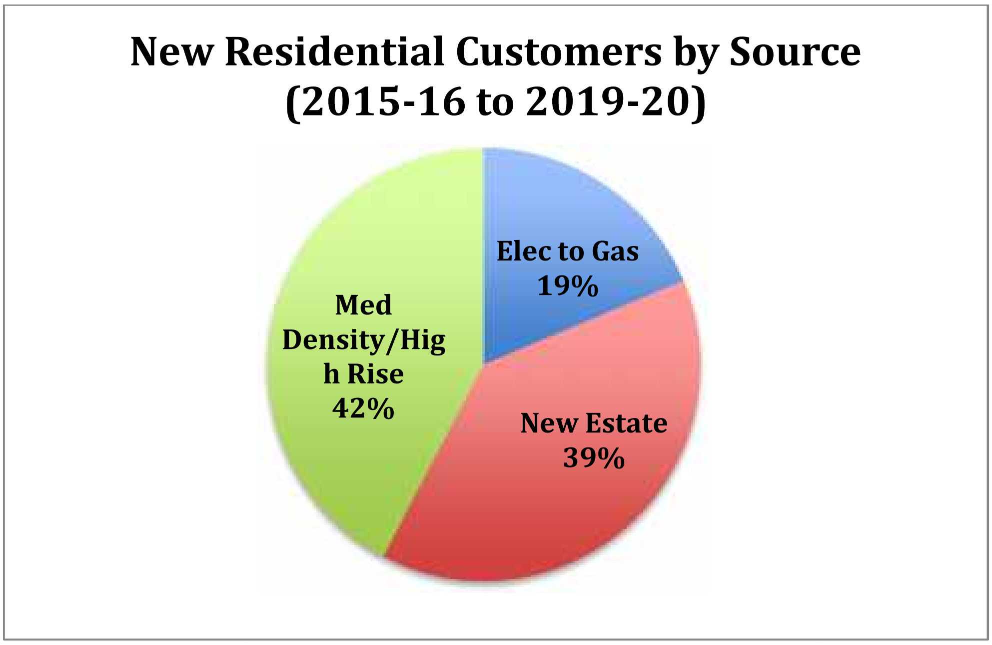
- Existing residential customers: 20.6GJ pa.
- New Electricity-to-Gas customers: 13.7GJ/pa.

[7575] Ibid, Table 3.10, p 33. Note, price elasticity is based on the retail price impacts that include wholesale gas and network cost components; reduction in new dwellings is relative to the previous AA period.
[76] Ibid, p 33

- New Estates: 17.89GJ/pa.
- New Medium Density: 15.71GJ/pa.

The trend is away from conversion of all electric customers despite the fact that gas penetration in NSW is less than 30% of all households and there would be many households on line-of-main that are not connected. For example, in 2013 some 26% of new customers came from customers converting from all electricity to (some) gas appliances. Jemena's forecast suggests that over AA2015, this proportion will be as low as 19%, with the majority of new connections coming from medium density developments. This is illustrated in Figure 8 below.

Figure 8: New Residential consumers AA2015 forecast[77]



Each of these customer sub-categories will have a different net cost to Jemena to connect to gas supply, and this will also vary (inter alia) with location and whether it is a greenfield or a brownfield site.

What is important is that Jemena provides a clear cost benefit study covering different classes of V tariff consumers, in different locations. Extending the gas network, for instance, to a new estate may not be profitable, unless there is a substantial developer contribution payment to Jemena, or significant industrial/commercial customers within or near the new estates.

[77] Ibid, Table 3.8, p 32.

The EMRF therefore believes the AER should require Jemena to provide a detailed examination of its proposal to extend its consumer base as noted above and as a condition of the AER's approval of the expenditure. This would be consistent with Rule 79 of the NGR which requires capital expenditure to be 'justifiable' [78] on a number of grounds, and that the 'overall economic value of the expenditure is positive"[79] and t 'incremental revenue' exceeds the present value of the capital expenditure and marketing costs.[80]

The issue will also be compounded if the fixed component of the proposed V tariffs is not sufficient to cover a large portion of the annualised capital costs.

5.3.2 Forecasts of D Tariff Demand

Jemena does not provide a forecast of consumer numbers for D tariff customers but does forecast a continuation of the decline in D Tariff annual contract quantity (ACQ) and peak contracted demand (CD) in AA2015, as set out in Table 7 below.

Table 7: Changes in Tariff D ACQ and CD (%/pa)[81]

	5 years: 2008-13	5 years: 2008-13	5 years: 2016-2020	5 years: 2016-20
	CD/MDQ (TJ)	ACQ (TJ)	CD (TJ)	ACQ (TJ)
Total D tariff	**-0.61%**	**-2.16%**	**-0.74%**	**- -1.28%**

Jemena states that decline in ACQ is influenced by:

- a continued reduction in gas-intensive industrial capacity as a result of macro-economic developments; and
- a continued trend in energy efficiency, including peak demand as a response to higher prices.

EMRF is, however, intrigued to see the differences in the rate of decline between CD (-0.74% pa) and ACQ (-1.28%).

While Table 7 suggests these different outcomes are consistent with the trends seen between 2008-13, EMRF would note that this may be a

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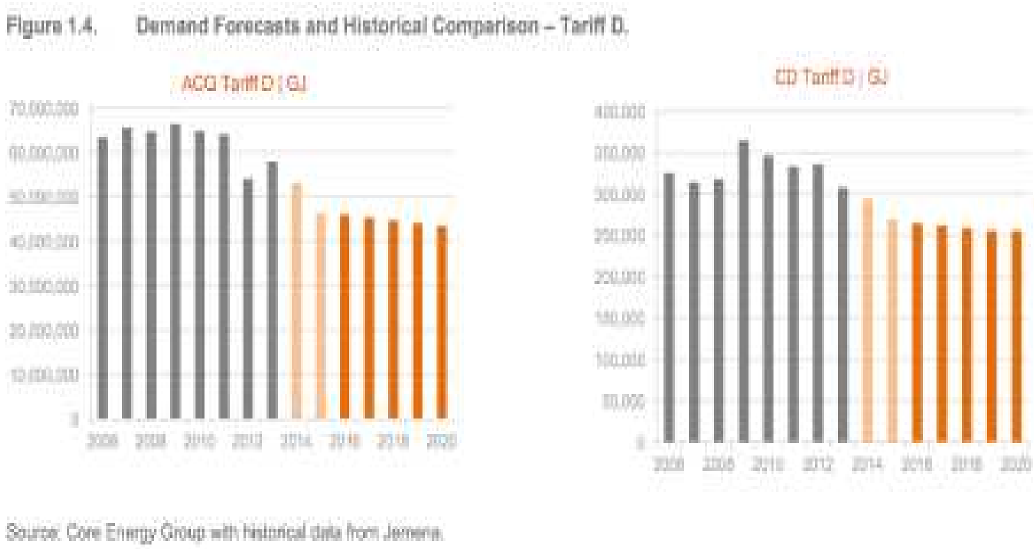
[78] NGR, Rule 79 (1) (b).
[79] NGR, Rule 79 (2)(a).
[80] NGR, Rule 79 (2)(b).
[81] Ibid, p 16.

function of the timing of the data used in the analysis. Had Jemena's analysis taken 2009 as the starting point, the decline in CD would have more closely matched the decline in ACQ during AA2010. Figure 9 below illustrates this important point.

Given the particular importance of the CD forecast to revenues, tariff design and capex, it is essential that this issue is clarified further by the AER.

Figure 9: Comparison of changes in ACQ and CD for Tariff D[82]



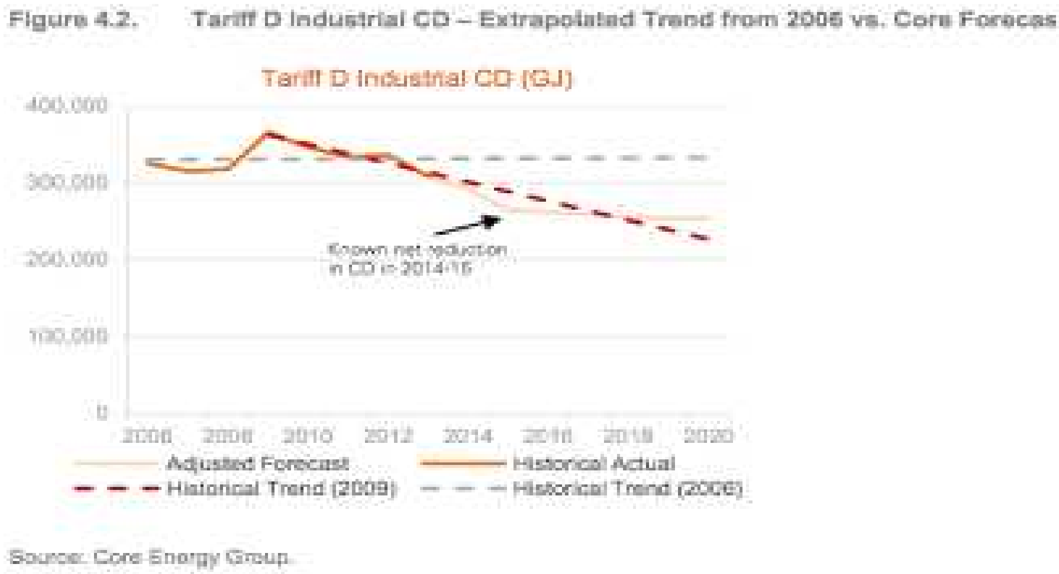
In assessing this difference between the ACQ and CD forecast, the EMRF points to a number of features of Jemena's analysis of historical trends in MDQ/CD:

- the historic trend since 2005-06 points to a reasonably flat forecast;
- the trend in CD since 2008-09, however, points to a steep decline in the CD for tariff D customers, of some -4.2%pa
- the trend line has been adjusted 'upwards' to account for 'known' events (plant closures etc) particularly in 2014-2015 period.

These adjustments and the impact on the forecast of CD through to 2020 are illustrated in Figure 10 below. After a significant fall in actual/known CD in 2014-15, Jemena predicts a relatively small further decline in CD (i.e. only a change of -0.7%pa (see Table 7 above).

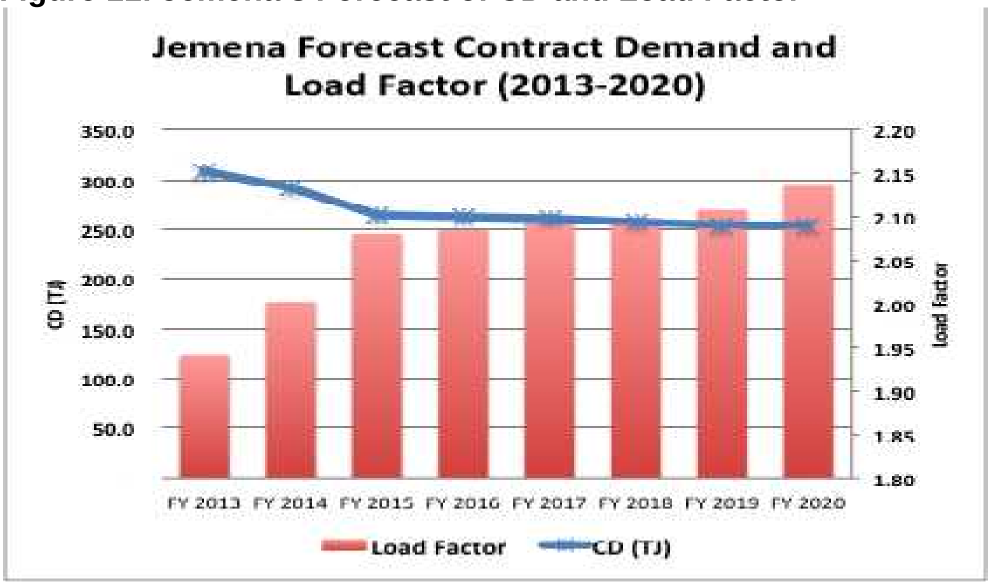
[82] Ibid, p 14.

Figure 10: Adjusted forecast for D tariff CD (GJ)[83]



As a result of the more rapid decrease in ACQ compared to CD, Jemena predicts that the load factor (peak demand/average demand) will progressively increase from 1.94 (in 2012-13 actual data) to a forecast load factor of 2.13 in 2019-20. This is illustrated in Figure 11 (noting that FY 2014 is estimated and FY 2015 is a forecast).

Figure 11: Jemena's Forecast of CD and Load Factor[84]



[83] Ibid, Figure 4.2, p 42.
[84] The data for this chart is taken from Ibid, Table 4.9, p 47

Jemena does not provide a satisfactory analysis of the trend for increasing load factor, and the forecast report by Core Energy Group states that 'there is evidence of conservatism'[85] in the forecast of CD relative to ACQ and, by implication, the consequent increase in load factor.

The main reason provided for this conservatism is an expectation that large consumers will focus particularly on reducing their CD compared to their ACQ as a result of price signals.

The EMRF does not accept that this is sufficient basis for the CD forecasts. A 'conservative' CD forecast would maintain the existing relationship between CD and ACQ (i.e. a similar load factor) unless there was compelling evidence to change, which there is not. This analysis has important implications for the setting of demand tariffs which are based on MDQ rather than ACQ.

5.3.3 Conclusions on Jemena's Forecasts for Volume and Demand Tariff Customers.

The EMRF considers that generally, Jemena's forecast is reasonable with the following exceptions:

- the forecast growth in Tariff V customer numbers is too high; and
- the forecast growth in CD
- the reduction in ACQ relative to CD and, therefore, the increase in the load factor.

Both these forecasts provide a basis for Jemena to claim higher levels of investment in the gas network. EMRF strongly rejects this proposition as discussed in Section 2 of this submission.

[85] Ibid, p 47.

6. Cost of Capital

6.1 Policy Background

While the NEO and the NGO require the regulator to make its determinations in accordance with the long-term interests of consumers, the view at the time was that the priority in achieving this objective was to promote investment to meet the expected growth in electricity and gas demand.

The subsequent regulatory decisions achieved this aim to promote investment in the electricity and gas networks. What they did not do, however, was to promote efficient and prudent investment. Energy network companies (including Jemena) were allowed very large increases in capex and opex to fund excessive growth plans that were, in many cases, beyond the capability of the network to deliver. In effect, consumers funded many programs that were not delivered.

Moreover these expenditures were approved just around the peak of the GFC, which meant that they were approved at a time when the cost of capital was at its peak, and when many other businesses (outside mining) were placing strict controls on their capital programs.

Under the regulatory regime set out in the NER and NGR, these costs of capital were held constant over the 5-year regulatory period, despite the rapid decline in funding costs. Any network with a reasonably capable capital management program has been able to make profits well in excess of those expected and irrespective of any improvements in the efficiency of the business itself.

For example, for AA2010, Jemena was allowed a cost of capital (that applied for the whole 5 year period) of 10.43%. This represented the weighted average of the cost of equity of 11.02%, and cost of debt of 10.02%.[86]

However, by 2012-13, the Jemena Group reported an **average interest rate** of 7.41% for all its businesses, and for its gas, water and electricity distribution, the Jemena Group reported a discount rate of 6.69%. The figures for 2013-14 were lower again (7.45% and 6.28% respectively).[87]

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[86] AER, JGN's NSW gas distribution networks, Access arrangement information for the access arrangement, 26 September 2011, Table 7-1, p 19. This final AA reflects the outcome of Jemena's appeal to the Tribunal and adjustment for mine subsidence. Prior to the appeal, the AER had allowed a cost of debt of 8.78%.

[87] SGSP (Australia) Assets Pty Ltd, Directors Report for the Year Ended 31 March 2014, Notes to the Financial Statements, 2(f) (page 15) and 4 (i)(3) (page 25). The 'average interest rate' is the

That suggests that by 2013-14 there was a difference of 374 basis points between the allowed cost of debt and the actual cost of debt for the distribution businesses (as allocated by the Jemena Group to reflect inter alia 'risks specific to the assets'[88]).

Any network with a reasonably capable capital management program, such as the Jemena Group, has been able to make profits well in excess of those expected just from the changes in the capital market and irrespective of any improvements in the efficiency of the business itself.

It is frustrating to consumers, that the decisions of the Australian Competition Tribunal (the Tribunal) have exacerbated this outcome. In the case of Jemena, for instance, the AER originally awarded a cost of debt of 8.78% (and an overall WACC of 9.69%), which was overturned by the Tribunal on the basis of analysis of different fair value curves for commercial bonds.[89] From a practical perspective, however, the AER's initial determination would have provided a much more reasonable estimate of Jemena's actual average debt costs over the period.[90]

More generally, the rate of return parameters have been a common theme of the many appeals to the Tribunal related to the assessment of the rate of return parameters. It has been estimated that between 2006 and 2013, the regulated electricity and gas networks received some $3.3billion dollars of additional revenue as a result of their appeals to the Tribunal of which 85 per cent related to the elements of the WACC or the value of imputation credits.[91]

Consumers bore not only the revenue increases of $3.3B resulting from the successful appeals of various NSPs, but also (indirectly) the costs of the appeals themselves, whether successful or unsuccessful[92]

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average across all the Jemena group including distribution entities, gas transmission and the non regulated infrastructure services business (Zinfra).

[88] Ibid, 4 (i) (3).

[89] Australian Competition Tribunal, *Application by Jemena Gas Networks (NSW) Ltd (No 5)[2011] ACompT 10* (9 June 2011). The Tribunal determined that the debt risk premium should be set on the basis of the Bloomberg Fair Value curve as this best fitted (at that time), the sample of bonds observable in the market (subject to certain selection criteria). The AER had proposed averaging of fair value curves.

[90] One issue, however, is that actual debt of Jemena (and other networks) includes the cost of debt from overseas bond markets, which has been somewhat lower than Australian commercial bond rates which were the basis of the Tribunal's analysis.

[91] See SCER, *Regulation Impact Statement, Limited Merits Review of Decision-Making in the Electricity and Gas Regulatory Frameworks, Decision Paper*, 6 June 2013, p 2.

[92] Until the recent reforms (December 2013) of the NGL (and NGO), the direct costs of an appeal could be passed through to consumers, no matter what the Tribunal determined. That has since changed.

- a ‘double whammy’ for consumers and a ‘no risk’ strategy for networks.

A review of the limited merits regime as operated by the Tribunal, found that:[93]

> "…the general approach to reviewing decisions was unduly narrow and was relatively detached from the promotion of the NEO and NGO, specifically the intention for regulatory decisions to be in the long term interest of consumers."

The EMRF hopes that the December 2013 amendments to the NEL and NGL go someway to addressing the issues with the Tribunal’s approach by limiting the grounds for appeal and introducing the concept of a ‘preferable decision’, that takes into account the overall impact of a decision on the long-term interests of consumers.

The focus on a preferable decision means the Tribunal should be better placed to judge whether the AER’s rate of return determination as a whole finds a better balance between the interests of consumers and investors, encouraging prudent and efficient capital management and investment rather than excessive profits and over-investment.

The emphasis on efficiency and prudency in investment is particularly important in the context of declining demand for and consumption of gas and electricity. There is no scope in an environment of declining demand and excess capacity for a need of an ‘incentive’ level rate of return to apply. The only outcome of the ‘conservative’ approach (i.e. consistently selecting the higher points in a range of possible approaches/outcomes) is an acceleration of price rises as demand declines more rapidly and fewer users pay more and more for the excess capacity and services they don’t need or use.

6.2 Regulatory requirements & the RoR Guidelines

The most immediate requirement for the regulator in implementing the changes to the NGL (and NEL) is to set an allowed rate of return that achieves the rate of return objective (RoR objective). The RoR objective states) that:[94]

> "The allowed rate of return objective is that rate of return for a service provider is to be commensurate with the **efficient financing costs** of a **benchmark efficient entity** with a **similar degree of risk** as that which

[93] Ibid.
[94] NGR, Rule 87 (3). There is an equivalent definition in the NER.

> applies to the service provider in respect of the provision of reference services." [EMRF emphasis].

Importantly, while focused on the efficient financing of the efficient benchmark entity, the rate of return objective sits within a hierarchy of objectives, with the NGO at the apex. It also reinforces the principle that the assessment of relative risk is central to the analysis.

Fortunately, the amendments to the NER and NGR, which are principle based rather than determinative, reinforce this. That is, the amendments give the AER clear direction to use its discretion to select the best approach (within certain ‘givens’ such as the use of the weighted average cost of capital) that best achieves the rate of return objective.

The AER’s RoR Guideline[95] was developed following an extensive consultation program with all stakeholders and various economic and financing experts. It establishes a coherent framework for the AER to apply when determining the rate of return that best achieves the objectives.

Importantly, in the process of developing the RoR Guideline, the AER was able to consider many different “estimation methods, financial models, market data and other evidence”, In this way, the Guideline development process satisfied the requirement under the NER and NGR to consider various methodologies.[96]

The rules do not, however, require the AER to include any and all options in the final RoR Guideline, although this seems to be suggested by Jemena and other NSPs. The RoR Guideline represents the final reasoning and conclusions of the AER about the best way to determine the RoR, taking into account the information available.

In particular, the NGR states that the RoR Guideline:

> "…must to set out the estimation methods, financial models, market data and other evidence the **AER proposes to take into account**…" [EMRF emphasis].

The clear implication of the wording is that the AER has complete discretion to include in the final RoR Guideline only those approaches

[95] AER, *Better Regulation, Rate of Return Guideline*, December, 2013 and accompanying document, AER, *Better Regulation, Rate of Return Guideline Explanatory Statement*, December, 2013.
[96] NGR, Rule 87, (5) (a). Under this Rule, the AER in determining the allowed rate of return, regard must be had to: (a) relevant estimation methods, financial models, market data and other evidence…”.

that it believes are relevant to achieving the rate of return objective. While it may include other approaches at some point, having developed the RoR Guideline, the AER is not obliged to consider all and every approach that sits outside the Guideline that a network might include in their proposal. Indeed if the AER did so, it would need to explain to stakeholders its reasons for departing from the RoR Guideline.

The EMRF is, therefore, most concerned that the AER stays consistent with their RoR Guidelines whatever variations on the theme of assessing the return on equity or return on debt is put to them,. To the extent the AER does not apply its Guideline, consumers expect a very clear explanation of why it does not and why the change better reflects the intent of the Rules.

In saying this, the EMRF would not wish to detract from the AER's exercise of its discretion. The RoR Guidelines, for instance, provide scope for the exercise of its discretion in selecting the market risk premium or in selecting a point within a range of outcomes for a particular determination. Similarly, the Rules allow the AER to make a decision that is not in accordance with the RoR Guideline, providing it provides reasons for this.

However, the EMRF contends there is little value in having the open, transparent consultation process to develop the RoR Guideline, if changes to the RoR Guideline approach are adopted by the AER (including changes arising from the NSPs' proposals) without a similarly open and transparent consultation with consumers and a demonstration of how this change better achieves the rate of return objective and the NGO.

In the EMRF's view, the RoR Guideline is not perfect; for instance, it does not go far enough to ensure that the current excess profits of the networks are reduced to a level that is commensurate businesses of similar level of risk. Nevertheless, there is great value in the certainty that the RoR Guidelines will provide over the next two to three years.[97]

This is why the EMRF places such a strong emphasis on all stakeholders accepting the framework and criteria set out by the AER in the Rate of Return Guidelines (RoR Guideline).

And, this is why the EMRF is utterly opposed to networks cherry picking parts of the RoR Guideline that appear to suit their interests while proposing alternatives in other parts that result in a higher rate of return. This will lead to asymmetric outcomes that are in favour of the

[97] The RoR Guideline must be reviewed every three years, implying that a new RoR Guideline must be published by December 2016.

network interests rather than a proper balance between investor and consumer interests.

Indeed, in the NGL the Revenue and Pricing Principles (RPP) specifically emphasise the importance of this balance, rather than asymmetric outcomes. The RPP states, for instance, that:[98]

- "regard should be had to the economic costs and risks of the potential for under or over investment; and
- regard should be had to the economic costs and risks of the potential for under and over utilisation of a pipeline."

In other words, in addition to the NGO and the rate of return objective, the RPP direct the AER to make a balanced assessment of the costs and risks. A cherry picking approach will not result in that outcome.

The RoR Guideline provides an integrated set of parameters that cannot be looked at and selected in isolation from the other parameters. However, as noted above, this is not to deny the right of the AER to use its discretion to select values within the Guideline framework on the basis of current market data (for instance). Indeed, the EMRF would encourage the AER to do so, as models alone will not provide the final point estimate for the AER's determination.

6.3 Jemena's proposal for the RoR.

Jemena has provided a detailed submission on the assessment of the rate of return. In some instances, it has adopted the RoR Guideline approaches and parameters. In others, it has not. On some occasions it has proposed detailed alternative methodologies which it claims better achieve the objectives.

However, the EMRF considers that the role of the AER is a proactive one under the new rules. Its role is to implement its Guidelines unless the network service provider (NSP) can demonstrate that the Guideline does not allow the NSP, operating prudently and efficiently, and with an efficient financing strategy, to reasonably achieve the RoR objective and the NGO.

If alternatives have merit, then they may become part of the debate for the review of the RoR Guideline in 2016. However, in the main, these alternatives should be put aside as they are either:

[98] NGL, Part 3, Division 2, 24 (6) and (7).

- options that have been reasonably canvassed during the development of the RoR Guideline (albeit there may be additional arguments attached to them) in which case they should be put aside; or

- new approaches (or substantially new), in which case they should be put aside for the current round of determinations as they have not been subject to the required levels of consultation with other stakeholders.

Jemena's proposal demonstrates both these features, while also selectively adopting the RoR parameters.

6.3.1 Jemena's overall WACC proposal

Jemena proposes an overall nominal vanilla WACC of 8.67%. Jemena claims this is required to "ensure sufficient compensation consistent with the NGL and NGR."

The 8.67% is derived using the overall rate of return structure set out in Rule 87 (4)(a) and 4(b). Table 8 below summarises the key parameters in Jemena's RoR proposal.

For comparison, the EMRF has estimated the likely outcome from applying the RoR Guideline[99] as well as providing the EMFR's own estimate of the RoR based on a more balanced view of selecting a point estimate within the range of empirical data available to the AER during the RoR Guideline development process.[100]

[99] This is an estimate only, as the detail of how the AER proposes to calculate the return on debt in particular is not yet available.
[100] The EMRF is not proposing this as the final outcome. It is provided here to illustrate the potential impact of providing a somewhat different point estimate within the range set out by the AER.

Table 8 : Rate of Return Parameters for AA2015

Parameter	Jemena Parameter Value %	AER Guideline %	EMRF Estimate %
Credit Rating	BBB	BBB+	BBB+
Return on Equity	**10.71**	**7.99**	**6.88%**
Risk Free Rate	4.12	3.44[1]	3.44[1]
MRP	6.5	6.5	6.25 (6.0 – 6.5)
Equity beta	0.82	0.7	0.55 (0.4-0.7)
Return on Debt	**7.3**	**6.22[1]**	**6.22[2] (5.51 – 6.77)**
Leverage	60.0	60.0	60.0
Gamma	0.25	0.5	0.5
Nominal Vanilla WACC	**8.67**	**6.89**	**6.48**

(1) Using average 20 BD from RBA Report f02hist ending 15 August 2014.
(2) RBA Report f03hist, average of 6 months Feb 14 – July 14 (at month end). The range presented in the EMRF estimate table (numbers in brackets) represents the range between using the most recent month data (July 14) and 12 months of data (August 13 – July 14).

As Table 8 suggests, Jemena's proposal demonstrates some significant departures from the AER's RoR Guideline. Given current interest rates, this implies an increase by Jemena of some 178 basis points over the estimate using the AER's methodology (noting that the AER's approach to the averaging period for the cost of debt is not yet finalised).

The EMRF has issues with the following aspects of Jemena's proposal, and these issues are largely independent of the RoR Guideline approach:

- the proposal by Jemena to adopt a BBB credit rating for the benchmark gas distribution business;
- the inclusion of the Fama-French model in the assessment;
- overall methodology used to calculate the return on equity;

- the calculation of the equity beta;

- the methodology used to calculate the return on debt and the annual updating of debt; and

- the assessment of gamma.

These issues will be examined in further detail in sections 6.4 to 6.5 below.

However, it is most important to note that some of Jemena's proposed methodologies are quite detailed and complex. It is not possible to provide a detailed response to these in the time available for submissions.

The EMRF therefore wants to state quite clearly, that the lack of commentary on some aspects of Jemena's proposal does **not imply agreement** with them. Further analysis is required by the AER and much greater consultation with consumers on the proposal is also essential.

The following section identifies the variations from the AER Guideline in more detail.

6.3.2 Jemena's proposal and the AER's Rate of Return Guideline.

Table 9 below sets out the approaches or parameter where Jemena's approach aligns with the Guidelines, and where it does not.

Given the departures from the RoR Guideline that are identified in Table 9, the AER must decide whether it accepts the proposed variation (and if so, why) or rejects the proposals. Its principal criterion is to assess whether the proposals better achieve the rate of return objective, and more generally, the NGO.

Table 9 Jemena's RoR proposal and alignment with RoR Guideline.

RoR Parameter	Guideline Approach	Align with Guideline?	Not align with Guideline
Risk Free Rate (RFR)	AER uses 10 year Cth Govt bonds, as per RBA reports. Bonds averaged over 20 business days close to	Partly Agrees to the use of 10 Yr Cth Govt bonds as per RBA reports.	Jemena proposes to apply average of CGS 10 Yr bonds, averaged over 20 BD, but not the most current 20BD (Jemena uses 20 BD

	determination date		in Jan-Feb 2014 data)
Market Risk Premium (MRP)	AER uses a mix of market feedback & historical modeling. Proposes a MRP of 6.5% to be 'updated' at the time of the determination	Largely. Jemena accepts the AER's interim forecast for MRP of 6.5%	Market feedback and regression studies point to 6%. DGM studies point to >7%
Equity Beta	AER reviewed both theoretical and empirical data. Guideline sets an equity beta of 0.7	No.	Jemena proposes to use equity beta of 0.82 based on SFG recommendations
Overall cost of equity	AER uses S-L CAPM as foundation model to set range. Takes account of other models and empirical data to set point estimate within the range	No.	Jemena combines a range of models to select a point estimate of the overall cost of equity
Credit Rating	AER assigns credit rating of BBB+ to all networks	No	Jemena states it should be rated as BBB as gas network services have higher risks than electricity
Cost of Debt	The AER proposes to use a 10-year trailing average of 10-Year bond for BBB+ rated entity, averaged over agreed period (up to 1 year). AER still considering whether to use RBA or Bloomberg (extrapolated to10 years) or some combination of	Part	Jemena proposes cost of 10-year bonds for a BBB credit rated firm. Jemena proposes to use the data source that "transparently and objectively" provides the best estimate at any point in time. For any averaging period there is a 'pre-defined & mechanistic process to select the data source (i.e. the selected sources

	these.		may vary from time to time). Jemena proposes a flexible approach to selecting the 3rd party debt series, using observed bond data to select curve of best fit.
Updating of Cost of Debt	The AER proposes to update the cost of debt annually using preset averaging period and automatic application formula	No	Jemena proposes to advise each year of its preferred averaging period (but must be at least 10 consecutive BD, within the prior financial year and nominated at least 50 BD prior to start of regulatory year. While the formula for updating is preset, the averaging period is variable within those constraints.
Transition Mechanism	The AER proposes to move to the 10 year trailing average approach using a 10 year transition period, with the first year being calculated on current interest rates.	Yes	
Gearing	AER applies weighting of 60% debt/40% equity	Yes	
Value of Gamma for dividend imputation	AER applies a gamma value of 0.5 based on a payout ratio of 0.7 and theta of 0.7	No	Jemena adopts the value of 0.25 based on payout ratio of 0.7 and theta of 0.35

The EMRF sets out below its views on matters the AER should consider when exercising its discretion to reject or accept Jemena's proposal, or to be influenced by the Jemena proposal in exercising its discretion to select a point estimate within a range.

6.3.3 What should the AER consider when exercising its discretion?

Jemena states that its proposed methodology better achieves the rate of return objective than the AER's RoR Guideline.

Jemena's central argument for this statement appears to be that the RoR Guideline will not allow Jemena to recover its efficient costs of capital. If it cannot recover its efficient costs of capital then it cannot provide the investment needed to achieve the NGO. Therefore, the AER is obliged to adopt Jemena's proposal in order to ensure the rate of return objective and the NGO are achieved.

Jemena also argues their approach is more consistent with the NGL revenue and pricing principles (RPP) which state that a network must be provided with a "reasonable opportunity to recover at least the efficient costs incurred in providing the reference services and complying with any regulatory obligations"[101] and "allow a return commensurate with the regulatory and commercial risks involved in providing the service…."[102]

The answer to Jemena's claim that the AER's RoR Guideline will not allow them to recover efficient costs is both theoretical and empirical. From a theoretical perspective, the EMRF would argue the following:

- Jemena is selective in its approach. When arguing for variation from the RoR Guideline, Jemena points to individual circumstances rather than the benchmark approach. Jemena, for instance, pleads a special case, as a relatively small gas business, in terms of its credit rating and the use of the Fama-French model to assess the cost of equity.[103]

- **However, when arguing for other parameters, such as the equity beta and overall return on equity, Jemena proposes**

[101] NGL, Part 3, Division 2, 24 (2)
[102] Ibid, 24 (5).
[103] The Farma-French model includes (inter alia) a coefficient that captures the size of the company, based on its empirical analysis of US companies. Small companies are reported to have higher risks and therefore warrant a higher rate of return. These observations, however, are not consistently replicated in international studies. See Section 6.4.2.1 for further discussion on this.

using selected international data to establish the best parameters for a gas utility in Australia.

- The AER's approach to selecting some parameters or point estimates under the RoR Guideline is already conservative when compared to the reality of the network businesses. For instance, the AER has adopted the following positions:
  - the beta value of 0.7 is selected at the top of the range of the empirically observed range of 0.4 – 0.7 ;
  - the market risk premium of 6.5 is at the high end of the observed range (being 5.5 to 7.0);
  - the credit rating of BBB+, however, the reference bonds are in the range of BBB+ to BBB-
  - the assumed debt tenor is 10-years, when in fact the observed debt tenor is closer to 7-8 years;
  - the assumption that the debt is raised in the Australian bond market when in fact the networks raise much of their debt from overseas (or through parent companies) at cheaper rates;
  - the assumption of a 'stand-alone' gas network for a specific region, even though that is never the case.

From an empirical perspective, the facts on the ground do not support a case that Jemena will not recover its actual costs of capital under the RoR Guideline.
Examples of this are detailed in Section 6.5. Suffice to repeat here that the Jemena Group 2013-14 annual financial report indicates the following:[104]

> "… a post-tax discount rate that reflects the current market assessments of the time value of money and risks specific to the assets. The discount rates applied in determining the recoverable amounts of the CGUs [business groups] are as follows:

	2014 %	2013 %
Gas, Water and Electricity Distribution	6.28	6.69"

In citing this type of data, the EMRF is not saying it is determinative. The EMRF understands that the NGR requires the AER to consider a 'benchmark firm' not a specific firm. However, the EMRF would strongly argue that market data such as that provided above (but not limited to) is relevant to the following aspects of the AER's decision-making:

[104] SGSP (Australia) Assets Pty Ltd, *Directors' Report For the Year Ended 31 March 2014*, (4) (i) 3, p 25.

- the exercise of regulatory discretion; and

- challenging the DNSPs with respect to their claims about recovery of efficient costs.

The Jemena approach is a mix of addressing the RoR in terms of the benchmark network firm (such as when using the AER guideline parameters) and its specific needs (eg that it is a small network). When compounding Jemena's arguments with its specific cost of capital outcomes, there is a clear mismatch in the Jemena approach to this issue.

The discussion above is focused on some of the general issues with the rate of return assessment. The following sections discuss particular aspects of Jemena's proposal.

As noted previously, however, Jemena has included some detailed proposals about the calculation of some of the parameters. It is not possible within the resource constraints of this submission to provide a detailed response to all of these. The EMRF's position is that they all represent a departure from the RoR Guideline. To the extent the AER believes they are worth further consideration, then it is appropriate that the AER and/or Jemena conduct a much wider consultation process on them.

6.4 Assessment of Jemena's proposal for the Cost of Equity

There are three areas of concern the EMRF specifically raises although all are interrelated. They are Jemena's credit rating, the overall approach to assessing the cost of equity and the assessment of the equity beta.

6.4.1 Jemena's Credit Rating

Jemena proposes that the standard credit rating for a gas distribution company should be BBB (rather than BBB+).

This is clearly a theoretical argument based on the Jemena's view that a gas distribution company has a lower credit rating than an electricity distribution company because (in large part) gas is an optional fuel subject to greater risks.

The AER investigated this issue at some length during the development of the RoR Guideline, and the EMRF supports the AER's conclusions that there was no strong reason to adopt a different credit rating for the gas distribution businesses.

In addition to the AER's arguments, the EMRF would highlight the following:

- A number of the gas utilities have had lower credit ratings; but in most cases that reflected the poor capital management of the business and/or much higher gearing; therefore, this is not representative of the efficient benchmark entity. Envestra for instance was rated BBB- at one stage, but has since focused on its capital structure and is now rerated to BBB+ (prior to the recent completion of the takeover). It has managed to reduce both its gearing and average interest rate significantly.[105]

- The Jemena Group itself, which allocates costs on the basis (inter alia) of risks specific to the assets, does not distinguish between gas distribution, water distribution and electricity distribution for the purposes of determining recoverable amounts on debt.[106]

6.4.2: The overall approach to assessing the cost of equity

The NGR requires that the return on equity must be estimated such that it contributes to the *allowed rate of return objective* and that, in estimating the return on equity, regard must be had to the *prevailing conditions in the market for equity funds*.[107] The emphasis in the return on equity under the rules is, therefore, on establishing a forward-looking estimate of the return on equity

After extensive consultation with all stakeholders during the Better Regulation program, the AER concluded that the return on equity objectives were best met in the manner set out in the RoR Guidelines, namely:

- Use the Sharpe-Lintner CAPM model (S-L CAPM) as the "foundation" model on the basis that it best met the ex ante criteria.

[105] Envestra Ltd, *Full Year Results, 30 June 2014*, 14 August 2014, pp 10-11. Since FY 2010, Envestra gearing has reduced from around 74% to less than 65%. Average interest rate has declined from over 8% to below 6% (5.7%) by regular refinancing..
[106] SGSP (Australia) Assets Pty Ltd, *Directors Report for the Year Ended 31 March 2014,* Notes to the Financial Statements, 4 (i) (3), p 25.
[107] NGR, rule 87 (6) & (7).

- Take into account other modeling outputs and data sources, with weightings attached according to how each scores on the initial criteria.

- These other modeling outputs that were selected to form part of the final point estimate decision by the AER included:

  - Dividend growth model (DGM);
  - Wright CAPM;
  - Black CAPM;
  - Market data/valuation reports and the like

The EMRF agrees with the general approach set out in the RoR Guideline. However, the EMRF would also note that given many NSPs, including Jemena, have responded by proposing significant variations from the Guideline, it is appropriate for the AER to put somewhat more weight on actual market data and business outcomes.

This perhaps provides a better check on the AER's approach than the endless debates about the finer details of which models, which assumptions, which period of analysis and so on. There is distinct merit in a common sense check using real world market data.

The EMRF also agrees with the AER rejecting in its RoR Guideline the use of the Fama–French model and the associated proposal by the networks to use multiple models to assess the outcomes then weighting these models to arrive at a point estimate. These issues are discussed below.

6.4.2.1 Use of the Fama-French model

In addition to the AER's very extensive arguments for these positions,[108] the EMRF would add the following:

- The Fama-French approach may have some additional explanatory power (compared to the S-L CAPM) when assessing particular stocks or investments. However, there is still little precedent in its use in regulatory settings.

  The EMRF rejects the option that consumers should be 'experimented on' by the introduction of a new (from a regulatory perspective) approach. This is particularly the case when the model is still subject to dispute with respect to its most appropriate formulation (e.g. three factors versus four or five

[108] See AER, Explanatory statement to rate of return guideline, Appendix A.4, pp 18-23.

factors, include momentum or not, whether to decompose and value weight etc).

The proponents of Fama-French need to establish that it satisfies the criteria set out in the RoR Guideline. It needs to be transparent, produce reliable and repeatable results and be validated against historical outcomes for regulated entities.

- In contrast, the EMRF understands that there are still disputes about the appropriate variant of the Fama-French model to apply and when, the relevant coefficients in the Fama-French model are unstable, the outcomes of the model are dependent on a suite of input assumptions and there are many other arbitrary decisions in terms of size, value and momentum (if that is included as a 4 factor model).

- Moreover, the research into its application outside of the US is limited. Although Fama-French provides coefficients for non-US regions (although not Australia specifically), there is a lack of independent testing of these coefficients.

  For example, in order to provide coefficients for the Fama-French parameters to Jemena's modeling, SFG appears to have combined Australian and US data, using the same set of data as they assessed the equity beta under the CAPM. The EMRF does not consider this is a valid approach to defining model parameters for a regulated Australian business (see also section 6.4.3.2).

  In addition, in a 2012 paper in the UK, having reviewed the literature on the application of the Fama-French model in the UK, the paper states that:

  > "Their [Fama & French (2011)] results provide evidence that asset pricing is not integrated across regions"[109].

  It also notes that Fama and French (2011) observe that:

  > "…smaller stocks are particularly challenging to price".[110]

  The authors then note "the absence of evidence that there exists a reliable and robust model for the UK, therefore leaves researchers and managers in a difficult position".[111]

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[109] Alan Gregory, Rajesh Tharyan and Angela Christidis, *Constructing and Testing Alternative Versions of the Fama-French and Carhart Models in the UK*, Journal of Business Finance & Accounting, 40(1) & (2), January/February 2013, p 172.
[110] Ibid, 207.

While the authors then go on to develop a more robust construction of the Fama- French model, the constructions of the model become increasingly complex with increasing number of assumptions, including the exclusion of small firms (the additional analysis is restricted to the top 350 listed firms in the UK).

An illustration of this growing complexity is set out in Figure 12 below, which represents just one of the options investigated by the UK authors.

Jemena's submission has drawn from results of an SFG study which provided coefficients for two additional factors, namely size and value. It is notable, however, that the SFG study appears to derive these factors from an averaging of results that are dominated by a US sample of firms, with a much smaller sample of Australian regulated firms.[112]

This is the same sample that SFG used in assessing the equity beta under the CAPM model, and a number of the limitations of this are discussed in Section 6.4.3.2.

It is, therefore, not clear the extent to which this is applicable to Australia. As noted in the UK study referred to above, it can be concluded from the Fama and French 2011 study that:

> "Their results [of the Fama and French study] provide evidence that asset pricing is not integrated across regions" and conclude that country-level models will perform better".[113]

If this is the case, or even a possibility, there is no validity in merging Australian and US results to form a larger sample, with better statistical characteristics but less validity in the coefficients.

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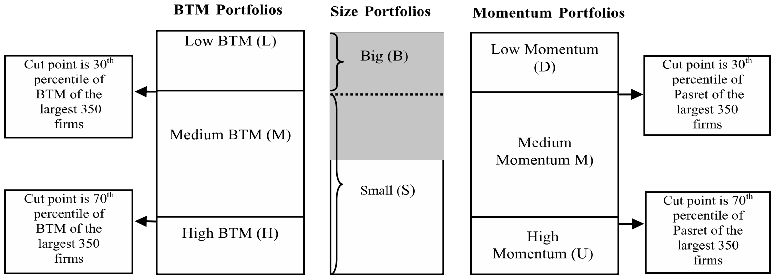
[111] Ibid, p 173.
[112] See SFG Consulting, Regression-based estimates of risk parameters for the benchmark firm, May 2014.
[113] Alan Gregory et al, op cit, p 172-173.

Figure12: Construction of Fama-French model (UK)[114]

Figure 1

Construction of SMB, HML, UMD, HML_S and HML_B, SMB_CPZ, UMD_CPZ, BHML_CPZ, SHML_CPZ Risk Factors



Notes:
The shading represents the largest 350 firms, the dotted line represents the median of the largest 350 firms.

Construction of the factors:
SMB = (SL + SM + SH)/3 − (BL + BM + BH)/3
HML = (SH + BH)/2 − (SL + BL)/2
UMD = 0.5 (SU + BU) − 0.5 (SD + BD)
HML_S = SH-SL
HML_B = BH-BL
SMB_CPZ = $([SL*V_{SL}] + [SM*V_{SM}] + [SH*V_{SH}])/(V_{SL} + V_{SM} + V_{SH}) - ([BL *V_{BL}] + [BM*V_{BM}] + [BH*V_{BH}])/(V_{BL} + V_{BM} + V_{BH})$
HML_CPZ = $([SH*V_{SH}] + [BH*V_{BH}])/(V_{SH} + V_{BH}) - ([SL*V_{SL}] + [BL*V_{BL}])/(V_{SL} + V_{BL})$
UMD_CPZ = $([SU*V_{SU}] + [BU*V_{BU}])/(V_{SU} + V_{BU}) - ([SD*V_{SD}] + [BD*V_{BD}])/(V_{SD} + V_{BD})$
BHML_CPZ = $[BH*V_{BH}]/(V_{BL} + V_{BM} + V_{BH}) - [BL*V_{BL}]/(V_{BL} + V_{BM} + V_{BH})$
SHML_CPZ = $[SH*V_{SH}])\ /(V_{SL} + V_{SM} + V_{SH}) - [SL*V_{SL}]/(V_{SL} + V_{SM} + V_{SH})$

Size portfolios are formed annually or monthly (for constructing momentum portfolios only); BTM portfolios formed annually; momentum portfolios formed monthly; *Pasret* is the prior 2–12 month prior returns; *BTM* is the book-to-market ratio; and *Size* is the market capitalisation. Vxx represents the market capitalisation of a particular portfolio (used for value weighting). So, for example, V_{SL} represents the market capitalisation of a Small Size–Low BTM portfolio, V_{MH} represents the market capitalisation of a Mid-Cap–High BTM portfolio etc.

The growing complexity needed to try and make the Fama-French model deliver consistency and reliable outcomes is in stark contrast to the level of reliance given it by Jemena and its consultant.

- The networks, including Jemena, have much derided the AER applying the criterion of "simplicity", despite parsimony being a well-established principle in scientific research (Ockham's Razor). The complexity of the Fama-French model, particularly in its evolutionary stages, in fact supports the importance of the AER's criterion.

- Using US data to support the case is not satisfactory to the EMRF. Consumers have the right to object to prices being set by reference to this model until and unless, its foundations and application in the Australian context are much better understood.

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[114] Ibid, p 179.

6.4.2.2: The Multi-Model model of cost of equity

Jemena, along with other networks, is proposing a multi-model approach to the assessment of the cost of equity as a whole.

Variations of this approach were put forward during the Better Regulation process and were rejected by the AER, and by consumer representatives. The question that was often put, but was never satisfactorily addressed by the networks, related to how and on what basis the results of the different models (and they do produce quite different outcomes) can be combined to a point estimate. Who made this determination and how was it carried forward over time were also key questions that were posed during the Better Regulation process and were not satisfactorily addressed.

The very same questions can be posed to Jemena, and again are not satisfactorily answered.

Jemena has proposed the weighting of modeled outcomes as set out in Table 10 below. Jemena claims that this is a better approach than the AER's foundation model because it has regard to all relevant models and evidence, it recognizes and gives weight to the strengths and weaknesses of each model, and estimates model parameters the reflect the best and most recent market evidence.[115]

The EMRF notes that the Fama-French 3 factor model receives a weighting of 37.5%, versus the AER's S-L CAPM of 12.5%. Significant weighting of 25% is also given to the dividend discount model The Jemena proposed weightings are different to those proposed by other NSPs highlighting that the weighting approach itself is flawed as it is even subject to debate amongst its proponents.

The previous section has already identified the EMRF's concerns with the Fama-French and believes it should not be part of the weighting process at all as suggested in the AER's Guideline.

Similarly, the EMRF would have considerable difficulty with the weighting of the dividend discount model as this also includes many arbitrary assumptions, model variants and unstable parameters. The AER, noting the strengths and weaknesses of this model,[116] uses this model as 'directional' and the EMRF believes that is the most it should be considered for at this stage.

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[115] Adapted from Jemana, Access Arrangement Information, Appendix 9.3, Return on Equity Proposal, p 2.
[116] See for example, AER, Explanatory statement, rate of return guideline, Appendix A.2, pp 14 – 15.

Table 10: Proposed weightings of modeled outcomes[117]

Table 1–1: Return on equity estimates

Model	Return on equity estimate	Weighting
Sharpe-Lintner CAPM	10.01%	12.5%
Black CAPM	10.62%	25.0%
Fama-French three-factor model	10.87%	37.5%
Dividend discount model	10.92%	25.0%
Weighted average	**10.71%**	**100.0%**

Source: SFG, *The required return on equity for regulated gas and electricity network businesses*, June 2014, appendix 9.4.

The EMRF is also very concerned that this multi-model approach will result in a repeat of the same arguments from year to year and determination to determination. Each of the models will come to different conclusions at different times. At this point in time, Jemena's proposal suggests that the Fama-French model should receive the most weighting.

Consumers are naturally skeptical when it turns out that it, and the dividend discount model (with a total weighting of 62.5% or nearly two thirds of the total) also generate the highest value outcomes. Perhaps next time, when the dividend discount model provides a figure of closer to 7%, the networks will weight it 5%[118] claiming, for instance, that it is not a 'normal result' just as they claim the S-L CAPM is not providing a 'normal result' at this time.[119]

The EMRF cannot accept that the requirements of the NGO, the NGR and the RRP are best met if Jemena, or other network proposers, are free to pick and choose which weightings would apply to which of the models they have chosen to use at any particular date. If risks are to be shared as set out in the RRP, then such one-sided arbitrariness must be avoided.

[117] Jemena, *Access Arrangement Information, Appendix 9.3, Return on equity proposal,* Table 1-1, p 2.

[118] The Tribunal has previously noted this issue in its decision on the AER's use of 6% for the market risk premium. The appellant network proposed a higher MRP using the dividend growth model, however, the Tribunal queried whether it would still argue for the DGM if it identified a MRP of 2%, which it had done in the past.

[119] More specifically, the S-L relies on the risk free rate which is currently lower than it has been for some years, although arguably, within the long-term range of risk free interest rates.

6.4.3 Equity Beta

6.4.3.1 Background to the current assessment

This is yet another parameter of the cost of equity calculation that has been the subject of dispute between the networks and the AER and consumers.

The equity beta analysis was subject to extensive consultation processes during the Better Regulation program, and the value of 0.7 set out in the RoR Guideline is a conservative estimate as a result of all the consultation.

However, Jemena, like other networks, is proposing an equity beta of 0.82. It is basing this figure largely on the work undertaken by SFG Consulting during the Better Regulation program and updated in 2014.

Consumers have argued that the AER's figure of 0.7 is high because the empirical data provided to the AER by its consultants indicated a range of 0.4 to 0.7 with a median value of around 0.5 – 0.6.

Following the completion of the Guideline, the AER received an updated study from its expert consultant, Professor Henry[120] that reinforced the results of his original 2009 study. The updated study included multiple analyses of Australian public network companies using different combinations of companies, time periods and regression formulations. Professor Henry concludes as follows in his 'summary of advice to the AER': [121]

> "In the opinion of the consultant, the majority of the evidence presented in this report, across all estimators, firms and portfolios, and all sample periods considered, suggests that the point estimate of β lies in the range of 0.3 to 0.8. …within the range of 0.3 to 0.8 the average OLS [ordinary least squares) estimates for the individual firms reported in Table 2 is 0.5223 **while the median estimate is 0.3285**." [EMRF emphasis]

The EMRF also notes, as an aside, that by selecting a value of 0.7 for equity beta in the face of the empirical evidence, the AER has effectively adjusted the equity beta for the theoretical arguments of the Black CAPM (i.e. that the S-L CAPM under-estimates beta for firms with beta less than 1). There is, therefore no basis for the AER to further adjust the outputs of the S-L CAPM to take account of the Black CAPM hypothesis, even if that hypothesis was accepted.

[120] Olan T. Henry, *Estimating Beta: An Update,* April 2014.
[121] Ibid, p 63.

It should also be noted that the publically listed networks consistently state to investors that one of benefits of investing in the networks are that they are offer stable long-term positive cash flows and are subject to a stable regulatory environment. They were certainly seen as counter-cyclical investments during the crises of the GFC and the years that followed. There are strong practical arguments for a lower equity beta.

6.4.3.2 The SFG Consulting analysis of equity beta[122]

Jemena has applied an equity beta of 0.82 based on the two studies by SFG Consulting. SFG concluded (May 2014) for the CAPM beta values. The analyses were based on a total of 9 Australian-listed firms and 56 US firms. The most recent (2014) results are summarised from the SFG paper in Table 10 below.

[Note, Table 11 includes two estimation techniques (individual firm analysis and equal-weighted indices]

Table 11: Coefficient estimates & implied risk premiums for CAPM[123]

		CAPM β
Australia	Firms	0.60
	Index	0.55
	Average	0.58
United States	Firms	0.85
	Index	0.91
	Average	0.89
Australia & United States	Firms	0.84
	Index	0.86
	Average	0.85
Parameter estimates		0.82

The final "parameter estimate" of 0.82 represents a reweighting of the Australian-listed firms by a factor of 2. That is, the Australian evidence

[122] For example, SFG Consulting, Regression-based estimates of risk parameters, June 2013. This study was updated for the ENA and networks in May 2014. See SFG Consulting, Regression-based estimates of risk parameters for the benchmark firm, May 2014.
[123] Extract from Table 4, in SFG May 2014 (above), p 16. The full table also provides the additional risk premium estimates for the Fama-French model.

is weighted 24% (18/74) and the use US evidence is weighted 76% (56/74).

There are very similar results to the 2013 SFG study. The EMRF notes that at that time the AER did not consider it reasonable to include international benchmarks in the study of the equity beta for Australian firms. The AER concluded:[124]

> "…we consider CEG [who provided the initial list of US firms for the study] did not provide satisfactory evidence to demonstrate that vertically-integrated US energy businesses and businesses that engage in other activities [beside energy networks] present close comparators to 'a pure play, regulated energy network business operating in Australia'."

The EMRF agrees with this conclusion, In addition, we note the AER's subsequent analysis using data from a report from Allen Consulting Group that included only a sub-set of "almost exclusively electricity and/or gas distribution and transmission businesses"[125], produced an average equity beta of 0.76.

The EMRF would also note the following:

- The SFG study only included Australian and US firms. Why were firms from other countries such as the UK or NZ not included to give a broader international context with countries with more similar regulatory environment, industry structure and ownership arrangements.

- The results of the SFG study reinforce the view that SFG has averaged two different populations.

- The doubling of the weighting for Australian firms is arbitrary and appears to have been done to make the results more acceptable. It does not do that, but rather creates the perception of weighting to achieve the outcome target. There is no reason why the Australian firms should not be weighted 2.5 or 3.0 or 0.5 (or even for the equity beta to be assessed just from Australian data as this reflects the operating environment of the firms in question).

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[124] AER, *Explanatory statement – rate of return guidelines, appendices,* December 2013, Appendix C3.1, p 62.
[125] Ibid.

The last point raises again the whole issues with the approach adopted by the Jemena and other networks. The AER has been criticised for the arbitrary nature of some of its RoR Guideline decisions.

However, the EMRF considers that the proposals by Jemena (and others) are even more open to such criticisms, particularly in the application of ‘weightings’ to the various models (see 6.4.2.2 above) and the weighting of the international data to achieve parameters for the Fama-French model (see 6.4.2.1), and for the CAPM equity beta as set out in this section 6.4.3.

6.4.4 Conclusions on the Cost of Equity

The EMRF believes the AER should reject Jemena’s proposal for a cost of equity of 10.71%. The proposed return on equity is only marginally below the return on equity of 11.05% allowed in AA2010 (after the Tribunal’s decision). It fails to reflect the very dramatic decline in interest rates and the more favourable environment in Australia for investment.

As such, it does not meet the rate of return objective in the NGR, nor does it satisfy the NGO. It also fails the test set out in the RRP in the NGL, in that it does not represent a balance of risks of over and under investment, and over and under utilisation.

Specific areas of concern relate first to the equity modeling framework which is arbitrary and includes weighting for models that have not met the tests of transparency, repeatability and validity in the Australian context. The EMRF also rejects the proposed equity beta as this is derived from a sample that is not representative of an Australian benchmark firm.

The analysis provided in the proposal reinforces the EMRF’s primary concern that the proposal is based on cherry-picking from the AER Guideline, with the result that risk allocation between consumers and networks is distorted.

The EMRF also rejects the suggestion that a lower cost of equity (as would be derived under the RoR Guideline) would result in an inability of Jemena to invest in the network in the future as it could not recover its costs. If Jemena applies prudent capital management principles, there is no reason to believe that it would not recover its costs, although it may not achieve the same above normal profits as it currently enjoys.

A very similar conclusion applies to the assessment of the cost of debt as discussed in Section 6.5 below.

6.5 Assessment of Jemena's proposal for the Cost of Debt

6.5.1: Jemena's Proposal

At the outset, the EMRF notes that the AER's Guideline does not provide all the details of its proposal to calculate the cost of debt. In particular, while it states that the debt tenor should be 10 years, and the information provided by an independent third party, the AER has not decided on which third party it should use and what adaptions (if any) it should make to these independent assessments.

Jemena is proposing a cost of debt of 7.3%. This is significantly below the cost of debt approved in AA2010 of 10.02% (after the decision by the Tribunal on the debt risk premium). Jemena identifies three key elements in its proposal for the cost of debt as follows:[126]

- Credit Rating and term: Jemena proposes to use a 10-year term-to-maturity and a BBB credit rating. The term is consistent with the AER's RoR Guideline, while the credit rating is lower. The term is consistent with the RoR Guideline, the second is not.

- Averaging periods: Jemena proposes implementing the return on debt over future averaging periods using a 10-year trailing average and transitioning to it using the 'QTC transition method' as outlined in the RoR Guideline.

- Selection of data sources: Jemena proposes a four step method for selecting the appropriate data source in each future measurement period, consistent with the Guideline. These steps are:

  (i) Identify relevant third party return on debt data series (e.g. Bloomberg fair value curve (FVC) or Bloomberg valuation service (BVAL), the Reserve Bank of Australia (RBA) or CBASpectrum).
  (ii) Estimate the return on debt for each series for that averaging period
  (iii) Identify relevant bonds to compare each estimate against and their yields over the averaging period; and

[126] Jemena, *Access Arrangement Information, Appendix 9.10, Return on debt proposal*, p 2.

(iv) Select the return on debt estimate (or combination of estimates) that best fits the sample of bonds identified in step (iii)

Jemena, therefore, proposes to depart from the Guidelines with respect to the credit rating assumption and the process for nominating future averaging periods.

With respect to the averaging period, Jemena sets out a proposal that involves updating the averaging period for the cost of debt each year according to the prevailing market circumstances.

6.5.2 EMRF's response to Jemena's proposal

6.5.2.1 Jemena's proposal for a BBB credit rating

The EMRF has previously noted in Secton 6.4.1 that it did not support Jemena's proposal to adopt a credit rating of BBB, rather than the benchmark credit rating of BBB+ and did not believe the empirical data warranted such a conclusion.

The EMRF supported the AER's conclusion in the RoR Guideline process that there is insufficient evidence to support a different benchmark for gas distribution companies. Moreover, in Section 6.4.1, the EMRF highlighted that the Jemena Group does not distinguish between its gas and electricity distribution businesses when assigning internal cost of debt.

In support of its proposal, Jemena has provided a historical analysis of credit ratings for listed networks. It concludes that the 'median credit ratings of Australian regulated energy networks shows the following historical trends:

- 2002-2012 BBB+
- 2002-2013 BBB+, Negative watch
- November 2013 BBB

However, the EMRF considers this data should be treated with some caution. There had been a number of changes that lead to changes in credit ratings in the last few years, but a number of them have since been upgraded again.

For instance, SPI AusNet Group was downgraded when there was a change of ownership but has since been increased again. Similarly, Envestra Ltd has undergone progressive upgrades reflecting the improvements in its capital management structures, as noted in section 6.4.1 above.

Credit rating is also heavily influenced by the level of gearing. It has been seen that despite many of the networks having a gearing higher than the benchmark 60% debt, the higher credit ratings still applied. To assess the market credit ratings without identifying the levels of gearing that underpin the credit ratings can lead to erroneous conclusions.

It can be reasonably assumed from Envestra's experience that the reduction in debt levels to the benchmark 60%, will be similarly reflected in other networks and supporting the use of the BBB+ credit rating.

6.5.2.2. Jemena's proposal for a variable annual averaging period

The EMRF is most particularly concerned with the proposal to update the averaging period for the cost of debt assessment each year. The EMRF urges the AER to reject the proposal as it stands.

In recommending this, the EMRF highlights that the proposal is only viable if there is a process of annual updating of the cost of debt in place. It is instructive therefore to consider the background to the proposal for annual updating of the cost of debt.

Background to the annual updating of the cost of debt

The annual updating of the cost of debt was introduced to reduce the exposure of both NSPs and consumers to rapid changes in the cost of debt such as that which occurred in the period of 2007-2010. It was also consistent with the concept of a 10-year trailing average approach.

One of the additional benefits was that it reduced the volatility of the WACC between regulatory determination periods, although it did increase volatility by a small amount within the regulatory period.

Consumers were sympathetic to the proposal, but were extremely concerned that it would provide additional opportunities for gaming. Fresh in consumers' minds was the manipulation of averaging periods that led to almost $2B increase in revenue (or consumer costs) in the NSW electricity network determinations of 2009.[127]

[127] The AER had rejected the averaging period that was proposed by the NSW networks, which it was entitled to do under the NER (and NGR). The AER replaced the averaging period with a period closer to the start of the determination and consistent with the principle of determining the

The AER advised that they had addressed this issue in the RoR Guideline by requiring the NSPs to propose the averaging period for each year in advance, and at the start of the regulatory determination period.

Thus, the intention was that the updating process would be fully automatic. NSPs would have the benefit of annual updating, but it would be a mechanistic process with little opportunity for disputes. Risks would be shared in an unbiased way between consumers and networks.

Jemena's proposal, however, to update the averaging period each year to suit the NSP's circumstances, introduces a new source of risk and bias to consumers. While Jemena states that this process will not increase 'gaming' opportunities (because of the potential lead times)[128], the EMRF cannot accept that proposition in the absence of more information and analysis. The EMRF, therefore, rejects this approach and urges the AER to continue to apply its RoR Guideline.

A further source of variability in what was meant to be a mechanistic process is the proposal to update each year through application of the four-step process. Jemena argues that the process is mechanistic because the process will be documented in the AA2015. [129]

Jemena's provides a detailed outline of how this process would work in its current proposal as set out in Figure 13 below.[130]

However, the EMRF believes that there has not been enough public discussion of this proposal, and while it is documented there are many points at which different stakeholders may take very different views, such as which bonds are in or out of the sample of traded bonds (on which the various independent data sources are evaluated).

There is a need for much greater clarity on the actual process versus the idealised process map set out by Jemena. The EMRF highlights that these issues have been regularly disputed and appealed to the Tribunal. The EMRF is, therefore most concerned if the 4-step is process is adopted each year leading to annual debates about selection of the relevant bonds, the interpretation of the 'best fit' etc. There has been enough complexity in this debate once every five years.

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cost of capital as close as possible to the determination. The Tribunal, however, reverted to the original proposal leading to a very significant increases in the allowed cost of capital.

[128] Jemena, *Access Arrangement Information, Appendix 9.10, Return on debt proposal*, p 17.

[129] See Ibid, pp 18- 30.

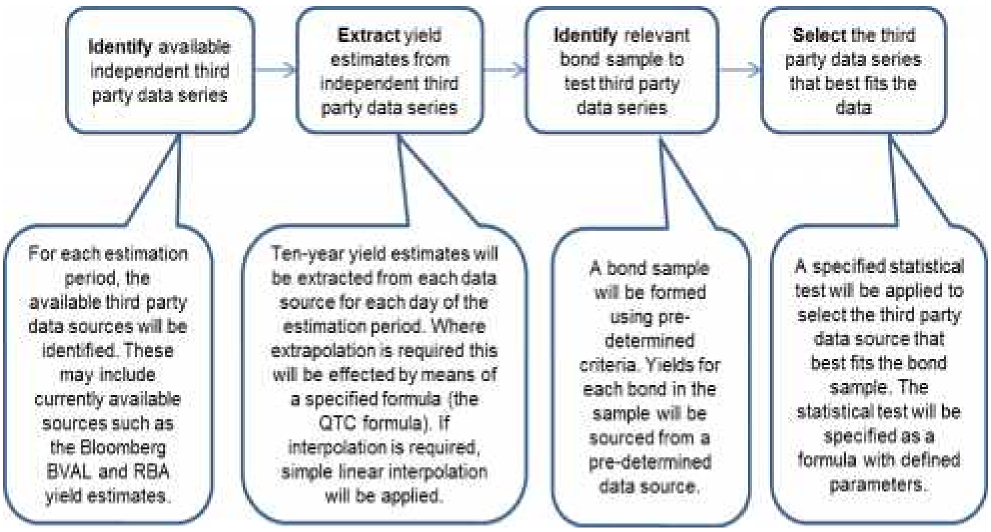
[130] Ibid, p 23.

The prospect of having this debate, along with the averaging period debate each year is not only daunting in itself, it undermines the very objectives of annual updating and opens the door for a new round of gaming. The EMRF believes there needs to be a much greater analysis of the implications of this process than is currently provided for consumers.

Therefore, while rejecting the concept of annual updating of the averaging period, the EMRF would like to reserve its judgment on the implications of the 4-step process generally, and the additional risks this may impose on consumers.

Figure 13: Jemena's proposed 4-step process for selecting data series

Figure 5–1: Proposed approach to selecting third party data series



6.5.3 Market data on Jemena's actual debt profile

Consistent with Jemena's proposals on the cost of equity, Jemena claims that the Guideline approach to the cost of debt will not enable Jemena to recover its reasonable efficient costs and is therefore not consistent with the NGO, the NGL and the NGR.

This section provides a brief overview of Jemena's actual costs of debt as revealed in its financial statements. Again, this is not to reject the benchmark approach, but rather to highlight the claim that Jemena cannot recover its actual costs is spurious.

At the outset, it is important to note that Jemena Gas (NSW) Networks does not appear to raise debt in its own right. Debt is raised by the

Jemena Group for both its regulated and unregulated businesses and allocated to each sector on the basis of current market assessments and risks specific to the assets. As noted previously, the Jemena Group regards its regulated gas, electricity and water distribution assets as having the same effective rate (of 6.28% in 2013-14).

Table 12 summarises the overall debt costs for the Jemena Group and the allocation of this debt costs to the separate business groups, including the regulated gas, water and electricity distribution businesses.

Table 12: Jemena Group allocation of post-tax interest costs

CGU	2014 %	2013 %
Gas, Water & Electricity Distribution (2)	6.28	6.69
Gas Transmission (3)	6.53-7.93	6.93-8.33
Infrastructure Services (4)	10.86	9.07
Overall Cost of Funds (5)	**7.45%**	**7.41%**

(1) Data is extracted from SGSP (Australia) Assets Pty Ltd, Directors' Report for the Year Ended 31 March 2014, Notes to the Financial Statements 2(f) and 4(i)(3).
(2) Gas Water & Electricity Distribution includes JGN (Jemena Gas Networks NSW), JEN, Rosehill, ActewAGL and UED (Notes 4(i)(3)).
(3) Gas Transmission includes EGP, QGP, VicHub and Colongra. (Notes 4(i)(3)).
(4) Infrastructure Services includes Zinfra. (Notes 4(i)(3)).
(5) Overall cost of funds for the Jemena Group (ie all entities (2) – (4) above (Notes 2(f)

Table 13 below provides further information on the detail of the Jemena Group debt securities including the relevant interest rates. Jemena borrows more than 50% of its debt from overseas sources, although Jemena converts these loans to Australian fixed interest rates at rates that reflect the expected regulatory cost of debt allowance.

Jemena Groups other sources of funds include:

- Trust Loans: Provided by the parent company (SGIDAIC and SPI) to order of a $4.4B, non-interest bearing trust loan.

- Working capital: Floating rate including margin in the order of 3.03% to 3.65%; and

- Syndicated Financial Agreement, totaling $1.8B unsecured. Interest paid on floating bases. Floating rate includes a margin and the overall interest rate (floating) 4.08% - 5.37%.

Even allowing for the cost of currency swaps, it seems that the portfolio of loans available to the Jemena Group is, on average considerably below the 7.3% cost of debt that Jemena claims it needs to recover its debt financing costs. In addition, the highest cost component ($500M debt in Australian dollars) is due to be refinanced by August 2014, and if replaced is likely to be so at a lower cost.

Table 13: Jemena Group Debt Securities[1]

Bond	Amount	Maturity Date	Rate	Comment
USD Fixed	150M	September 2015	5.30%	Swapped to Aus fixed interest rate
USD Fixed	130M	April 2018	6.85%	Swapped to Aus fixed interest rate
AUD Fixed	500M	August 2014	7.0%	
CHF Fixed	175 M	August 2015	2.25%	Swapped to Aus floating rate/partial swap to fixed interest rate
GBP Fixed	250M	Feb 2021	5.13%	Swapped to Aus floating/short term swap to fixed rates.
AUD Fixed	400M	Feb 2017	6.25%	
USD Fixed	500m	Mch 2023	3.30%	Swapped to Aus floating rates
AUD Floating	150M	Mch 2020	BBSW + 1.6%	
AUD Fixed	350M	Mch 2021	5.5%	

(1) Jemena's capital management debt securities are set out in Notes to the Financial Statements, Note 29 (f).

6.5.4 Conclusions on Jemena's Proposed Cost of Debt

In general, Jemena's proposal is reasonably aligned with the RoR Guidelines. The higher cost of debt compared to the EMRF assessments is largely a reflection of different averaging periods.

Jemena has chosen a sample averaging period of 20 business days to Feburary 2014 inclusive to apply to the return on debt and the return on equity.[131] In contrast, the EMRF's estimations in Table 8 (above) use more recent data from the Reserve Bank of Australia daily and monthly reports (f02, and f03).

The EMRF does not accept Jemena's case that gas distribution businesses should be rated differently from electricity distribution networks on the basis of claimed greater risk. The EMRF supports the AER's original position on this matter that there are no material differences.

Moreover, the EMRF points to data from the Jemena Group Financial Statements for 2013-14 which indicate that the Jemena Group, which supplies the funds to Jemena Gas NSW Networks does not distinguish their gas and electricity distribution networks for the purposes of cost allocation even though this is based (inter alia) on the perception of risk.

The EMRF also does not accept the proposal for annual updating of the averaging period for assessing the annual update of the cost of debt. It was consumers' clear understanding that the annual updating process would be conduced mechanistically, such that consumers were not exposed to additional opportunities for gaming or disputes.

Jemena provides reassurances that their proposed process for updating of annual cost of debt, including the averaging period and the selection of the data sources would not increase risk for consumers or provide opportunities for gaming. However, the EMRF cannot accept these assurances on the information provided. There needs to be considerably more clarity and open consultation on this process before the AER could contemplate a departure from the RoR Guidelines.

Finally, the EMRF has provided data, which suggest that Jemena's actual average debt costs, are below the regulated allowances and within the bounds that the application of the RoR Guideline would set.

The EMRF therefore, does not consider that the RoR Guideline will prevent Jemena recovering its reasonable, prudent and efficient costs. It will, however, provide for a better allocation of risks than has occurred hitherto, and as such is aligned with the NGO, the NGR and the RPP in the NGL.

[131] See Jemena, *Access Arrangement Information, Chapter 9*, Table 9-1 (footnote (1)), p 93.

6.6 The value of Imputation Credits

Jemena has chosen to propose a gamma value of 0.25 based on a payout ratio of 0.7 (as per the RoR Guideline) and a theta value of 0.35 compared to the AER's value of 0.7.

In adopting this value, Jemena has relied on the studies provided largely by SFG on the value of gamma using a dividend drop-off approach.[132]

The EMRF does not agree with Jemena's proposal. The EMRF believes the AER has conducted a very comprehensive analysis of the issue in 2013, and in so doing has put the assessment of theta on a sounder conceptual and empirical footing. As part of this the AER investigated a variety of approaches including the type of study proposed by SFG.

In so doing, the EMRF believes the AER has addressed the primary concern of the Tribunal as expressed in its 2010 decision to allow Energex to apply the SFG dividend drop-off approach. That is, in its decision the Tribunal stated that it "found some deficiencies in its understanding of the foundations of the task facing it, and the AER, in determining the appropriate value of gamma."[133]

Even though the Tribunal ordered the AER to adopt a theta value of 0.35, the Tribunal's decision was by no means determinative. The Tribunal's statements were heavily qualified throughout its analysis, by its concern about the lack of a sound conceptual basis for gamma and its constituent elements in the regulatory context (as indicated in the quote above).

In particular, the Tribunal encouraged the AER to investigate a wider range of approaches and, importantly, to better establish the conceptual framework in the regulatory context.

As noted above, the EMRF believes the AER has undertaken this task with due diligence, and is no longer bound by the Tribunal's qualified direction to adopt a value of 0.25 in the absence of an adequate analysis. Having done so, the AER is entitled, having done that, to exercise its discretion in a way that it believes will best achieve the NGO and the long-term interests of consumers.

[132] See SFG Consulting, 2014, *An appropriate regulatory estimate of gamma.*
[133] Australian Competition Tribunal, *Application by Energex Limited (No 2) ACompT*, October 2010 @ 149-150.

7. <u>Pricing Methodology</u>

In the development of the NGR by the AEMC, it has accepted the principle that distribution pricing is an element that must meet the long term interests of consumers. It is the pricing approach that provides incentives for consumers to make the most efficient use of the infrastructure provided by the networks. At the same time, it is also accepted that under a price cap regulatory approach provides an incentive for the NSP to seek increases in demand and consumption as this will increase their revenue and thereby increasing use of the infrastructure which should reduce costs for existing users.

Just as the regulator is tasked with ensuring that the costs allowed for the monopoly infrastructure are efficient, the regulator should ensure that the individual prices for each service are set as close to cost reflective as is reasonably achievable. This means that the prices must be developed by an NSP on sound economic principles.

Jemena has proposed a considerable reduction in forecast volume from D tariff customers. What needs to be clarified is the degree to which MDQ is forecast to be affected by this forecast reduction. There does not seem to be much about the forecasts of MDQ other than the MDQ is expected to be roughly constant for the forecast period (see AAI paragraph 149 in the section on demand)

> "JGN forecasts that:
>
> - total gas consumption will decrease from 80.01 PJ in 2015-16 to 77.84 PJ in 2019-20, representing an annual decline of 0.94 per cent over the next AA period
> - total gas consumption for volume market customers will increase from 34.06 PJ in 2015-16 to 34.44 PJ in 2019-20, representing an annual decrease of 0.49 per cent over the next AA period
> - MDQ/CD for demand customers will decrease from 262.4 TJ in 2015-16 to 254.2 TJ in 2019-20, representing an annual decline of 0.74 per cent over the next AA period
> - total customer numbers will increase from 1.26 million in 2015-16 to 1.39 million in 2019-20, representing an annual increase of 2.41 per cent over the next AA period"

Whilst Jemena shows that during the current access period, the amount of gas used by the D tariff customers fell significantly (see table 4-4), the impact on the revenue from demand customers was less as demand customers pay on the capacity they use (ie on maximum daily quantity - MDQ) rather than the volume of gas used.

It is important that any assessment of tariff adjustment must reflect the impacts of changed usage, the value of the assets providing to service to each customer, the way the revenue is obtained and the extent to which the tariffs recovered the allowed revenue[134].

7.1 A shared network: the underlying principles

As consumers are the prime providers of funds to support the distribution network, they accept that having a jointly shared facility is by the far the most cost effective approach to the provision of a natural monopoly service. Not only would it be absurd for each user to have a separate supply arrangement for its provision of gas, it is economically inefficient from a national viewpoint for this to occur. Having established that a joint facility is the most appropriate approach for infrastructure provision, there is an unstated but real requirement that the costs each user is liable for must be equitably shared and that the prices they pay are representative of the use they make of the shared facility.

Consumers see network pricing as an essential element of the AER regulatory reviews of energy transport providers. Pricing is the allocation of the revenue streams into clearly identifiable elements so that consumers can readily see that the allocation of the permitted revenue is equitably allocated between all consumers as representing their share of the cost of the provision of the network. The outcome of this approach provides for all consumers to see that they each pay their equitable share of the jointly used assets. It also provides certainty that decisions made by each consumer (such as location, time of and frequency of use, and overall use of the network) are adequately recognised by the consumer, and that no one consumer is effectively supporting less rational decisions by another consumer.

Inappropriate pricing of services leads to inefficient outcomes. A user that is convinced that it is paying too much for the service will take a number of actions to reduce its costs, perhaps leading to nationally inefficient outcomes. The user that is not paying its fair share for the service undervalues it and makes inappropriate use of the facility. Over-allocation of network costs can lead to firms deciding to relocate overseas or curtail activities, causing remaining users to provide the contribution no longer provided from the business ceasing its operations. Equally, under-allocation of costs results in the proliferation of occasional users who do not recognise the impact of the decisions they are making.

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[134] Analysis of the way the revenue was recovered compared to the changed usage provides a good basis on how cost reflective the tariffs were structured in previous access periods. For example, if the actual revenue matched the allowed revenue despite a fall in volume, then this provides a strong indication of the extent to which there was a lack of cost reflectivity in the tariffs set applied

Consumers have observed that networks have an incentive to maximise prices in elements which they identify as the most likely to exceed the estimates for consumption and demand used in their development, and to minimise prices where elements are likely to be less than forecast. Gaming of the network pricing methodology is a fine art and can lead to very large rewards for the DNSPB.

Requiring prices to be as cost reflective as possible eliminates much of the potential to game pricing methodologies. It is imperative that the AER devotes considerable effort into minimising the incentive on Jemena to game its pricing methodologies.

7.2 The impact of the STTM

At the 2009 review, Jemena had to recast its network pricing methodology to accommodate the integration of the short term gas trading market (STTM). To achieve this integration meant that the cost of the trunk line from Wollongong to Newcastle via Horsey Park had to be shared across all customers using the network as this provided the ability to set a single price for gas at the Sydney gas hub even though the cost for delivery to the different parts of the hub would otherwise vary due to the cost allocation of the trunk line from Wilton to other parts of the Jemena distribution network.

The EMRF accepts the need for such an approach but highlights that this aspect needs to be closely monitored as a new gas pipeline from the north (the Gloucester and Gunnedah coal seam gas fields) would inject gas at the Newcastle end of the trunk line. This injection would imply lower costs for gas at Newcastle compared to the gas delivered to Newcastle from the Moomba-Sydney pipeline or the Eastern Gas pipeline.

It is therefore incumbent on Jemena to explain how it would propose to modify its cost allocation and pricing approaches should new gas be introduced at the Newcastle end of the trunk line.

7.3 Tariff setting for large users

Jemena has advised that it anticipates a lower overall revenue requirement for AA2015 for the Jemena network services than currently applies. It has also indicated that it will increase tariffs for the 400+ demand customers by some 13% and reduce tariffs for volume customers (residential and commercial). To support this change, Jemena comments (page 39 of the tariff structures statement):

> "We seek to apply consistent and steady price movements for our demand customers to provide certainty and assist long-term planning. For

> this reason demand customers did not experience the same level of increases as the volume market from 2010-15 and are not subject to the 2015-20 price decreases applicable to the volume market."

Jemena provides no other support for its decision to apparently apply a cross subsidy and the assertion does not reflect reality. The implication of the assertion is that the 2010 demand tariffs were not cost reflective yet Jemena advised at the time that they had developed cost reflective tariffs. If the overall revenue for 2015-20 is less than that for 2010-15, then the cost of providing the service to the demand customers is less. Jemena notes in its forecasts (table 5-3) that the demand customers will impose a slight reduction in maximum daily quantity (MDQ) on the network over AA2015. Jemena has not invested capital in the network to increase the capacity of the network to serve the demand customers and the assets involved with serving the demand customers have depreciated by 5 years. Therefore the cost to provide the service to the demand customers will have reduced over the 2010-15 period[135].

As the total revenue requirement is falling for the 2015-20 period, there must be a similar fall in the cost of providing service to the demand customers coupled to the fall in the return on the depreciated assets. By increasing the cost of the service to demand customers, Jemena is imposing a higher cost onto demand customers and, therefore, there is less cost reflectivity in the prices.

Jemena advises that they see there is growth in the volume market and is intending to invest more capital in order to secure this increase in volume. This raises two questions:

1. Is the cost to increase the network to secure the additional load efficient? (ie is the cost of the additional works less than the additional revenue from the new customers?). This is particularly important as volume customers are seeing lower tariffs thereby reducing the amount of capital that would be seen as efficient.

2. The additional capital required for the extensions is forecast to be for increasing the number of volume customers (see figure 4-1) but there is no need for capital for the demand customer base as there is no forecast increase in demand for this sector. On this basis, there is a concern that D Tariff customers will be contributing to additional expansion capital costs that they get no value from.

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[135] If there is a greater load added by new volume customers, then these large supply lines would be operating at higher volumes and therefore their costs would be allocated over a greater user base and costs would fall. To ensure cost reflectivity, it is important to understand how the network is constructed in order to ensure correct allocation of asset costs to different users.

The EMRF also points out that the supplies to the major users of gas in the Jemena network are served by very large gas pipelines which provide the backbone of the network. From this backbone has been developed a network which supplies the many small users of gas throughout the region. This means that cost reflective tariffs must reflect the actuality of the network development and the assets used to provide service to each and every gas consumer. The cost sharing of these large capacity pipeline assets should be allocated equitably on a demand basis (ie on a maximum hourly quantity basis - MHQ basis) so as to reflect the relative usage each customer has of the assets. It is clear from the approach stated by Jemena in its AAI and its attached Tariff Structures Statement (TSS) that Jemena has not followed this principle in developing its tariffs - this is confirmed by the outcome of the new tariffs where demand customers are being levied increased costs when the actual revenue requirements are lower.

By not developing tariffs based on the actual design of the network and the usage each consumer imposes on the network, Jemena has developed tariffs which do not meet the intent of the gas Rules which require tariffs to be cost reflective.

7.4 Why a new cross subsidy?

The EMRF has assessed the reasons provided by Jemena for the proposed increase in demand tariffs and reduction in volume tariffs, especially to residential users. This implies that the previous tariff structuring work by Jemena over many revenue resets was fundamentally incorrect. The EMRF does not consider that this previous work was in error.

However, the EMRF is fully aware that the forecast large increases in gas commodity prices will put pressure on the usage of gas. In particular the volume users of gas are exposed to the impacts of global warming and much higher gas commodity prices. As the bulk of the Jemena pipeline assets are related to the volume market, and these markets have access to competitive sources of energy, it makes sense for Jemena to reduce costs to these customers to reflect their higher elasticity of demand and minimise the risk to Jemena's revenue base

In contrast, in the short to medium term, the users in the D tariff category have a much lower elasticity in demand, as each of the firms on demand tariffs attempts to remain competitive and continue to use the gas that is essential to their operations. To convert from gas to other forms of energy is expensive and takes considerable time to implement. In the meantime, these firms must continue to use gas.

Over the longer term this elasticity is much greater as firms either convert to other forms of energy or cease operations.

The impact on Jemena revenue of changes that firms make in their energy usage is unlikely to be felt by Jemena in the short term but will be larger in the long term.

So for this access period, increasing tariffs for demand users and reducing tariffs for volume users, is commercially understandable from a Jemena point of view but is likely to have profound effects in the longer term.

In addition, the proposed approach by Jemena does not comply with the requirement for tariffs to be as close to cost reflectivity as is reasonably possible. It is essential, therefore, that Jemena provides some clarity on its longer term strategy to move to cost reflectivity.

7.5 First Response category

Jemena proposes to discontinue the offer of first response tariffs.

The EMRF finds this concept unacceptable. The concept behind the first response tariff is to recognise the reality that historically large gas users are always required to curtail demand when there is a gas shortage[136].

The concept of the "first response" tariff was first introduced in the current access period and it appears that Jemena has decided that it will no longer be offered to new customers and will be "grandfathered" only for those currently using the tariff. In principle, this means that a new large customer loads would not be eligible for the discounted tariff yet will still be vulnerable to being exposed to involuntary load shedding when deemed needed by Jemena.

The EMRF strongly supports the concept of the "first response" tariff as it reflects reality. If Jemena does not offer the concept to future users, the assumption could be drawn that these users will have the same rights as volume users which are most unlikely to be exposed to involuntary load shedding. The EMRF does not see that this will occur in reality as it is more convenient to load shed a large user than a small one.

[136] This recognises that it is more efficient to require large gas consumers to curtail than small gas users. Traditionally the curtailment tables always have large consumers as first to be curtailed and because of this, large users tended to have lower gas supply tariffs. With the segmentation of the gas market into supply, retail, transmission and distribution the discounted tariffs previously available to offset the lower reliability were eliminated.

Jemena cites that removal of the "first response" tariff will reduce administrative costs but this should not take precedence over equity. If a consumer is prioritized to be load shed at the discretion of Jemena, then that consumer should have the right to expect a discounted tariff to reflect this possibility.

The EMRF considers that Jemena is wrong to eliminate this option for large users and that it should retain the option. If it is concerned that D tariff customers are not adopting this tariff to date, then perhaps that indicates that the “first response tariff’ structures and/or terms need some review. Alternatively, perhaps it has not been adequately marketed to large consumers.

If Jemena was to adopt a more comprehensive customer consultation process that included larger D tariff customers, before it cancels the tariff, it might come to a better understanding of how and when D tariff customers may respond to this.

The EMRF expects that the removal of the tariff should not take place, and if it does so, it should only be following significantly more consultation with the relevant customers to demonstrate it has no potential benefit.