



A guide to the AER's review of gas network prices in Victoria

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Inquiries about this document should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001
Tel: (03) 9290 1444
Fax: (03) 9290 1457
Email: AERInquiry@aer.gov.au

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Brief overview

Most Victorian households and businesses consume natural gas, which is supplied through a network of underground pipes. This pipeline network is owned by four privately-owned businesses. We, the Australian Energy Regulator (AER) control the prices these businesses can charge.

The network or pipeline charges do not appear directly on most customers' gas bills. Nevertheless, these charges are important as they account for a significant component of each customer's final bill.

We have just completed a review of network charges for the next five years (2013 to 2017).

This paper aims to give consumers a better understanding of our final decisions on the proposals made by the four Victorian businesses—APA GasNet (gas transmission), Envestra, Multinet and SP AusNet (the three gas distributors). Further background information on the gas industry and our role is also provided.

We have not approved the proposals made by each of the four businesses. Instead, we propose network prices that allow the businesses to collectively recover **\$3.2 billion** over the next five years. This will allow them to cover the costs of developing and maintaining their gas networks over the 2013–17 period. If we had accepted their initial proposals in full, they would have recovered about \$4.3 billion.

The release of the final decisions follows a thirteen month process of assessing the businesses' spending proposals to develop, operate and maintain their networks. We sought the views of stakeholders throughout this process, including consumer groups.

We consider that the outcome of this review reflects a reasonable balance of the interests of customers with the interests of the network businesses. The businesses will receive sufficient revenue to continue to deliver gas services with the safety and reliability that Victorian customers have come to expect. The revenue will also allow the businesses to expand the gas network into new areas.

How to use this document

We have tried to make this paper accessible to a wide ranging consumer audience. However, we understand parts of our decision are inherently complex.

To account for different levels of knowledge we have layered the paper to allow readers to be more selective in what they read. For issues that can be more complex, look out for text boxes that explain the issues at a more detailed level.

We know from reading submissions by customer representative groups that some stakeholders already have a good understanding of our approach. For a more complex and technical discussions of the issues, see section 3.1 for links to the final decision documents and other related material.

You also may wish to look at the *Customer consultation paper*, which was released with the draft decision for this gas review. The consultation paper gives a basic explanation of the 'building block' approach. We use this approach to determine how much revenue a business requires to cover its 'efficient costs'. These 'building blocks' summed together basically give the required revenue.

1 Background

This section provides information about us and the gas network businesses. If you are familiar with AER processes and the industry, feel free to skip ahead to the section on 'consumer questions'.

1.1 Who we are and what we do

The Australian Energy Regulator (AER) is Australia's national energy market regulator and an independent statutory authority. Our functions are set out in national energy market legislation and rules, and mostly relate to energy markets in eastern and southern Australia. These functions include:

- setting the prices charged for using energy networks (electricity poles and wires and gas pipelines) to transport energy to customers
- monitoring wholesale electricity and gas markets to ensure suppliers comply with the legislation and rules, and taking enforcement action where necessary
- publishing information on energy markets, including the annual State of the energy market report and more detailed market and compliance reporting, to assist participants and the wider community
- assisting the Australian Competition and Consumer Commission with energy-related issues arising under the Competition and Consumer Act, including enforcement, mergers and authorisations.

Specific to this review, we are responsible for the economic regulation of gas pipelines in all Australian states and territories except Western Australia. The National Gas Law and National Gas Rules set out the regulatory framework. Various levels of regulation apply to particular pipelines and services, based on the level of competition and the importance of the pipeline or service.

The gas transmission and distribution businesses are subject to full regulation by us. Full regulation requires a pipeline provider to periodically (usually every five years) submit an access arrangement to us for approval. The process that we follow to assess and approve (or not approve) an access arrangement is often called a price review.

An access arrangement sets out the tariffs, and terms and conditions under which the users of a distribution or transmission pipeline (such as gas retailers) can use a pipeline. This includes the charges that retailers and other parties pay for gas transmission and distribution services. Customers, including households, ultimately pay for these services through their gas bills. It is open to the gas businesses and their users to negotiate different arrangements than those approved by us.

1.2 The structure of the Victorian gas industry

Gas production plants are often located a long way from residential and commercial customers where the gas is used. Gas is typically transported long distances from where it is produced to metropolitan and regional areas via big high pressure transmission pipelines. Smaller, lower pressure distribution pipelines then transport the gas from points along the transmission pipelines to end customers.

To elaborate, the Victorian gas market is made up of four parts:

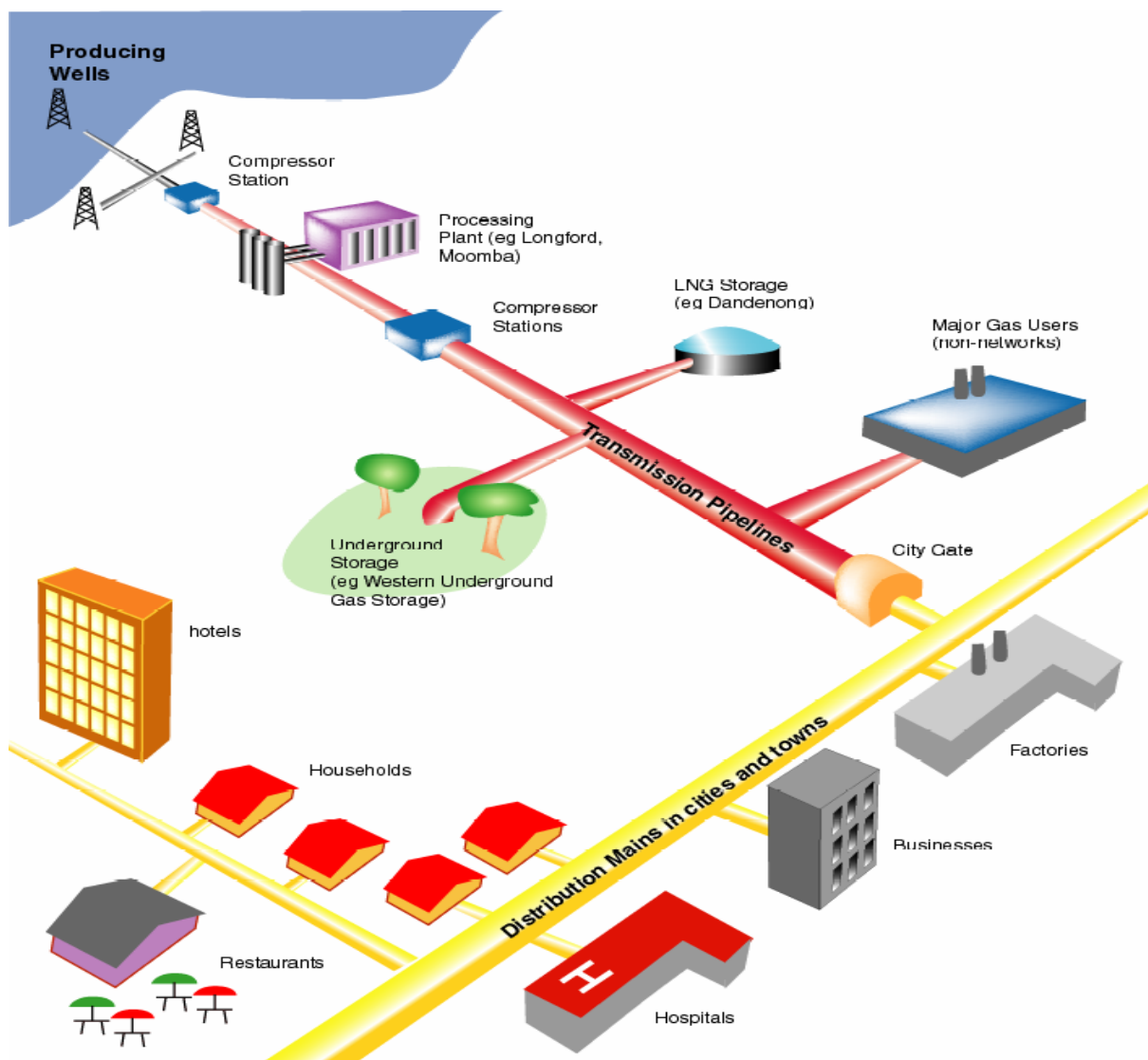
- A wholesale market in which gas producers (such as BHP Billiton and Exxon Mobil) and storage providers sell gas to energy retailers and other large gas users.

- A transmission service provider (APA GasNet) that owns and operates the high pressure pipeline networks for the transportation of gas from gas production fields to major demand centres.
- Distribution service providers (such as Envestra, Multinet Gas and SP AusNet) that own and operate pipeline networks for the transportation of gas from the transmission network to the end consumer.
- A retail market in which retailers enter into contracts with gas producers and transmission and distribution service providers to provide an aggregated service to end consumers. Consumers are able to choose their retail provider.

Of these, the wholesale and retail markets are subject to competition and we do not control prices for these sectors. However, transmission and distribution pipeline networks are natural monopolies involving large capital and operating expenses. Regulation of the network businesses is necessary to ensure that customers do not pay unnecessarily high charges or receive poor service levels.

The figure below shows the sections of the supply chain that we regulate—the transmission (highlighted in red) and distribution (yellow) networks.

Gas supply chain



1.3 Who are the Victorian gas transmission and distribution businesses?

APA GasNet is the Victorian transmission service provider. It transports gas to more than 1.4 million residential consumers and 43 000 industrial and commercial users throughout Victoria. Its network is linked to Esso's Longford gas treatment plant in south east Victoria (which processes gas from offshore Bass Strait gas fields), the Otway Basin gas field in south west Victoria and underground storage in south west Victoria.

Envestra, SP AusNet and Multinet are distribution service providers in Victoria.

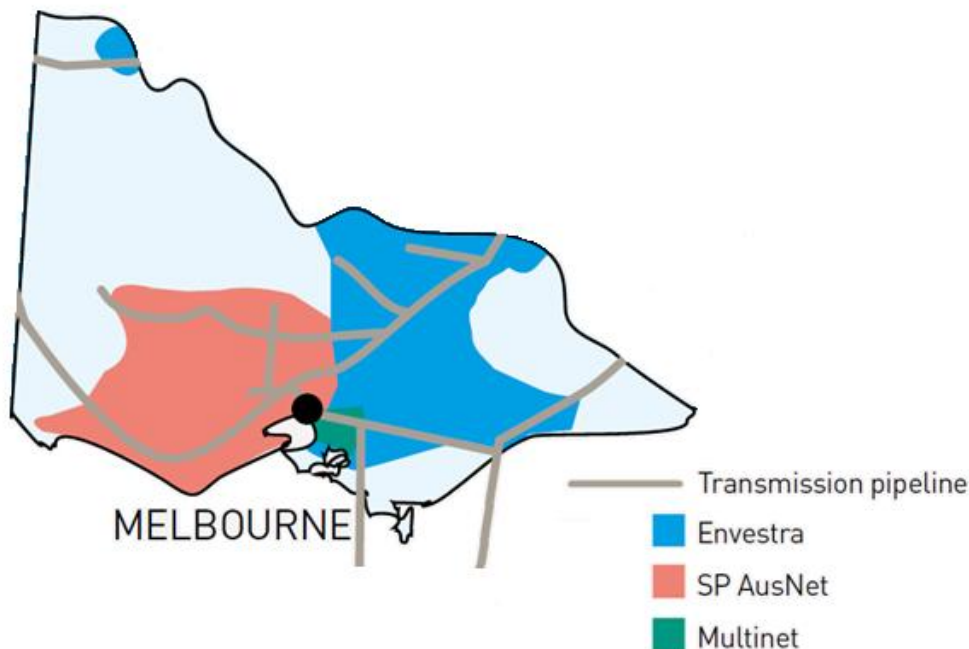
Envestra's Victorian gas network serves the northern, outer eastern and southern areas of Melbourne, Mornington Peninsula, rural communities in northern, eastern and north-eastern Victoria, and south-eastern rural townships in Gippsland. It comprises around 9900 kilometres of mains delivering gas to around 575 000 customers.

SP AusNet's gas distribution network delivers gas to approximately 605 000 customers across central and western Victoria. The network spans approximately 9400 kilometres across an area of 60 000 square kilometres.

Multinet distributes gas to more than 665 000 customers throughout the South and East areas of metropolitan Melbourne, Yarra Ranges and South Gippsland Towns. Multinet's network covers an area of 1790 square kilometres.

A map of the Victorian gas transmission and distribution networks is shown in the figure below.

Map of gas pipelines networks in Victoria



2 Consumer questions

In this section we have tried to address the questions consumers may have about the decisions on gas network prices.

2.1 How does this affect you?

Network prices will fall slightly for most residential customers in Victoria. The exception is Envestra customers, who may see a \$20 per year increase in their gas bills on average.

But remember the network charges are only one component of the total bill to customers. In Victoria, distribution charges make up approximately a third of an average residential customer's gas bill, while transmission charges make up approximately 7 per cent.

The other components of a customer's gas bill are the wholesale price of gas and the cost of retailing gas (customer billing and risk management). We do not control these parts of a customer's bill as there is enough competition between gas retailers. We encourage gas customers in Victoria to 'shop around' to make sure they are getting the best deal.

The table below estimates the impact our decision will have on an average residential bill in 2013–17, assuming retailers pass on the changes in network prices and all other things being equal. You can see that it varies by business. For all businesses, the impact of our final decision on an average bill is lower than the charges that would have resulted if the businesses' proposals had been accepted in full.

Impact of our final decision on an average residential bill (\$ nominal, average per annum)

	APA GasNet	Envestra Victoria	SP AusNet	Multinet
Average residential bill	\$1243	\$1212	\$1190	\$1055
AER final decision effect on annual bill	-\$5	+\$16	-\$5	\$0
Business revised proposal effect on annual bill	+\$1	+\$28	+\$1	+\$9

2.2 What do your network charges cover?

In order to deliver gas from the ground (or the well head) to the burner tip on your gas stove or heater, several different types of businesses are involved. As noted earlier, we can divide these businesses up into four sectors: gas production, transmission (over big pipes), distribution (smaller pipes) and retailing.

We only control the prices charged by the transmission and distribution networks. We seek to make sure that these businesses are charging just enough to provide a safe and reliable delivery of gas to households and businesses, and to give investors in the business an adequate return on their investment. In doing this we take a long-term perspective of the interests of consumers and the needs of the businesses.

In making an assessment of the revenue these businesses require to deliver gas services, we ask them to forecast how much they expect to spend over the next five years for a number of cost categories. The cost categories include:

- operating and maintenance expenditure—the money the businesses need to keep their network running on a day-to-day basis
- capital expenditure—the money the businesses need to replace their old pipes or to install new pipes due to increased demand and other facilities
- return on investment—the amount the businesses need to pay those institutions from whom the businesses have borrowed money or raised capital from
- depreciation (return of capital)—an allowance we give to the businesses, which represents the amount of the original capital expenditure that is paid back to investors each year
- taxes the businesses have to pay governments.

2.2.1 Operating and maintenance expenditure

We assessed the forecasts of the four businesses for operating expenditure and decided on a forecast need of \$1.1 billion in total over the next five years.

Since the last review, operating expenditure for the four businesses increased slightly but mainly represents 'business as usual'. In other words, the decisions are in line with expenditure levels that have historically been undertaken by the businesses.

Labour costs are an example of increased operating expenditure. We have also allowed for an increase in the operating expenditure to account for growth of the network, which means the businesses need to hire more staff and incur greater maintenance costs. A larger network is able to serve more customers and therefore earns more revenue.

Our assessment of Multinet's operating expenditure proposal in more detail

Multinet proposed a 'bottom-up' approach to estimating operating expenditure (opex) because its future business model is different to the model it used in the past. It identified what categories of opex would be required for each year in the upcoming period, and estimated amounts of opex for each category, which when combined equalled their total opex forecast.

We did not accept Multinet's forecast opex based on its bottom-up approach as the opex did not meet the relevant requirements of the National Gas Rules. In the alternative, we applied a 'base year' approach to forecast Multinet's opex. This approach uses past opex to help determine future opex. Any additional expenditure that is required for 2013–17 period is added to the base year opex. All businesses except for Multinet applied this same method.

Differently to our draft decision, we have adjusted our base year approach. This is to reflect information that showed that Multinet's past opex was not indicative of the costs of providing the services. This was because Multinet's external provider during the 2008–12 period had incurred a loss under its contract with Multinet. We accepted that the external providers actual costs should be used to assess Multinet's future opex requirements.

Our approach takes into account Multinet's changed business circumstances. It accounts for additional opex that Multinet will require over and above its past opex.

2.2.2 Capital expenditure

Capital expenditure is the cost incurred by a network business to build new facilities—perhaps to expand or upgrade the network—or to replace existing infrastructure. Factors that influence the required level of capital expenditure include the age and condition of the existing assets (particularly pipes), and expected changes in both the number of customers connected to the network and their demand profiles.

Some capital works programs improve the reliability and safety of the network. For example, the distribution businesses are in the process of replacing the old cast iron, low pressure networks with new high pressure mains. The new pipelines reduce gas leakage and maintenance costs, and improve the safety and capacity of the network.

We assessed the forecasts of the four businesses for capital expenditure and decided to allow forecasts of around \$1.4 billion over the next five years.

The process of upgrading the low pressure mains may take up to 30 years. This decision keeps the rate of mains replacement at previous levels—balancing costs to consumers with any safety and reliability concerns. The other big area of capital expenditure for residential and commercial users is new connections. New connections have remained relatively constant since the last review.

We approved capital expenditure for Envestra's proposal to increase capacity across its network—ranging from Melbourne suburbs, such as Thomastown and Dandenong, to country areas including Echuca and Sale. Similarly, Multinet proposed to increase capacity for inner Melbourne suburbs and outer areas such as Moorabbin.

Other network investment extends the supply of gas to new towns. We approved capital expenditure proposals for SP AusNet to extend gas supply to new towns such as Huntly. Envestra also proposed to extend the supply of gas to new towns and developments, for example at Merrifield.

Although expanding a gas network into new areas is costly, doing so increases the number of customers that the network is able to supply. Those new customers contribute to covering the costs of the network expansion.

Our assessment of low pressure mains replacement programs in more detail

We accept capital expenditure (capex) forecasts that an efficient and prudent service provider would undertake. Where the businesses' proposals did not demonstrate the need for the expenditure or justify the amount of expenditure, we did not accept the proposal.

For all distribution businesses, we have proposed revisions to capex for mains replacement. Distribution mains are the pipes that convey gas to service pipes at each end user point—that is, each house or business. Mains replacement projects generally relate to the replacement of ageing distribution mains.

We did not accept all of the distribution businesses' proposed low pressure to high pressure mains replacement capex because the proposed volumes are not prudent and efficient, and the estimate of the unit rates is not the best forecast in the circumstances—as required under the National Gas Rules. Unit rates refer to the cost to the businesses of completing one metre of mains replacement.

We forecast capex needs based on the historical volumes delivered by the distribution businesses over the 2008–12 access arrangement period. This is because the businesses met the applicable safety and reliability obligations in the 2008–12 period and the risk profile of the mains for each business is unlikely to change in the forthcoming period.

To allow for changing circumstances, for example if the risk profile of the network were to change such that additional mains replacement was warranted, we have provided a pass through mechanism. This will permit the gas distribution businesses to apply to us for additional expenditure allowances to complete additional volumes during the course of the access arrangement period. We will assess any such requests at the time they are made.

2.2.3 Return on investment

Significant investment is required to build a new gas pipeline network. Rather than charging existing customers for all the costs of a network expansion upfront, it usually makes sense for a network business to raise money from banks and other investors, and then to pay back the money over time.

Network businesses raise money from banks and other investors in two ways.

First, they usually borrow money from banks or other financial institutions. When a business borrows money it has to make a promise to the lenders to pay back the borrowed funds, with interest, in the future.

Second, businesses may raise money by selling shares usually to financial institutions, investment funds, or individuals. The buyers of shares expect to receive, in return, a regular stream of payments known as dividends.

Either way, network businesses will only be able to continue to raise money from banks and other investors if the investors have a reasonable assurance they will be able to get their money back, plus a reasonable return. The existing network businesses have raised money from investors in the past. It is therefore important that the network businesses today are allowed to earn enough money to pay back past investors—either through debt interest payments or through dividends.

We scrutinise very closely the return that each network business submits that it needs to pay to its investors and to lenders. This allowed rate of return is also known as the 'cost of capital'.

The broad method for calculating the allowed rate of return is generally agreed between the AER and regulated businesses. However, the determination of inputs into that method is often the subject of disagreement.

The differences in the rate of return determined by us and those proposed by the businesses may appear small (a percentage point or two). However, even a small difference can have a big impact on revenues. This is because the businesses have borrowed large amounts from lenders and other investors in the past—which is to be expected given the capital intensive nature of the sector and these have to continue to be financed as well as financing any new capital spending. Just as an interest rate rise can have a substantial impact on a householder with a large mortgage, a small change in the cost of capital we allow a business to recover can have a significant impact on consumer prices for delivered gas.

We propose to set the allowed rate of return between 7.0 and 7.4 per cent rather than the 7.8 to 8.1 per cent proposed by the businesses. This leads to a decrease in total revenue of around \$240 million compared to that proposed by the businesses.

Rates of return set by us for previous energy related decisions from several years ago were higher. The main reason for the decrease is the current lower level of interest rates in Australia. Our proposal on the rate of return for the Victorian gas businesses is similar to the rate of return recently applied to other electricity and gas businesses regulated by us.

Our assessment of the cost of equity

In this review, the cost of equity is the key area of disagreement. The businesses submitted that the cost of equity is relatively stable over time, and related to this point, that the risk free rate—which is the rate of return that investors could expect from a relatively risk free investment—and the 'market risk premium' (MRP)—which is the premium investors would expect from investing in the share market as a whole (which is a riskier investment)—are strongly negatively correlated.

We acknowledge the businesses' concerns about the impact of the lower risk free rate on their cost of equity and that this is a driving factor in their proposing a historical average risk free rate for the cost of equity.

To fully explore their concerns, we have obtained a substantial amount of expert advice on a wide range of issues on the cost of equity.

Compared with the cost of debt, the cost of equity is more challenging to estimate. This is because the cost of debt is observable while the cost of equity is not. That is, corporate bonds are traded in markets at yields which can be observed. By observing these trades, either based on individual bonds or on yield curves based on these bonds, the AER can observe the cost of debt and movements in that cost over time. The lower rate of return in this decision is, in part, driven by a lower cost of debt than that from several years ago. Because the cost of debt can be observed, and because the AER and Victorian gas businesses have agreed on the approach to the cost of debt for this decision, the AER therefore has a degree of confidence that a lower rate of return, all else being equal, is reasonable.

On the other hand, the cost of equity cannot be observed. Accordingly, we need to use a model to estimate the cost of equity. We and the businesses agreed to use the Sharpe-Lintner capital asset pricing model (Sharpe CAPM) for this purpose. One of the inputs into this model is the risk free rate. The risk free rate can be observed by reference to Commonwealth government bond yields. These government bond yields have decreased significantly in recent years. This decrease in the risk free rate reflects the market's assessment of supply and demand conditions for near zero risk assets. This means that, if an investor wanted to invest in a near zero risk asset at the moment, between 3-3.50 per cent is the best return they could achieve. All else being equal, this lower risk free rate has also decreased the cost of equity.

After carefully assessing the information submitted by the Victorian gas businesses, we remain of the view that the available evidence supports a MRP of 6 per cent. This reflects prevailing conditions in the market for funds.

We considered evidence that suggests there is an inverse relationship between the risk free rate and MRP. Accordingly, the AER has given careful consideration to this issue in estimating the MRP. However, the theoretical and empirical evidence on this issue is mixed. Some evidence suggests the lower risk free rate has caused an increase in the MRP, other evidence suggests that the lower risk free rate has decreased the MRP. For example, one view is that when investors believe macroeconomics conditions to be more expansionary, they tend to expect both higher returns and lower volatility in share prices. Another similar view is when share prices are high and stock markets perform well, investors expect them to keep going up. The corollary would be that in current market conditions, lower returns are expected.

2.2.4 Depreciation expense

Depreciation (or the return **of** capital) represents the amount of the original capital expenditure—as opposed to the interest **on** the capital—that a business pays back to its investors each year. Just as when you take a loan, the return on capital represents the amount of interest a borrower needs to pay back on the loan, depreciation, represents the repayment of the principal (the amount of the capital expenditure).

Capital costs are generally large and ‘lumpy’ in that there can be large variations between years. Instead of having to pay the full amount of capex back to investors in the year that it is incurred, depreciation allows the cost of the capital asset to be spread over the useful life of the asset. This in turn leads to a smoother revenue requirement and smoother prices. Over an asset’s life, the total of the depreciation amounts will equal the capital cost of the asset—adjusted for the ‘time value of money’.

Our assessment of APA GasNet’s depreciation approach in more detail

We did not approve APA GasNet’s depreciation approach. APA GasNet proposed to change its depreciation approach to one that brings forward its cash flows, by requiring customers to pay a greater proportion of an asset’s costs earlier in its life.

We assessed this would lead to tariffs varying, over time, in a way that does not promote efficient growth in the market—contrary to the National Gas Rules. We consider that APA GasNet’s depreciation approach is not needed to address capacity issues on its network or to support its reasonable cash flow needs as APA Gasnet had submitted.

We propose a depreciation approach that provides a relatively steady revenue stream to the business. This is in line with our usual approach for energy businesses and the same as we have applied to the other gas businesses in this decision. Our decision not to accept the proposed change reduced APA GasNet’s total revenue requirement by \$80 million, or 13 per cent.

In addition, changes to other building block components of APA GasNet’s proposal (including the capital base and capex) impact on the proposed regulatory depreciation allowance.

We propose to allow a forecast regulatory depreciation allowance of \$56 million (\$ nominal)—a reduction of 59 per cent to APA GasNet’s revised proposed regulatory depreciation allowance.

3 Further information

This section highlights links to the final decision documents and other related material, our consultation process and how this review relates to our Better Regulation program.

3.1 Where to find the final decisions and other related material?

The AER's final decisions for the 2013–17 access arrangements were made in accordance with the relevant sections of the National Gas Law and National Gas Rules. In forming our final decisions, we considered:

- businesses' access arrangement proposals and other supporting information provided by the businesses—we undertook our own analysis to verify this information
- submissions from interested parties, including retailers and end users of gas
- views expressed by stakeholders at various meetings
- expert advice or analysis commissioned by us and others on certain aspects of the businesses' access arrangement proposals.

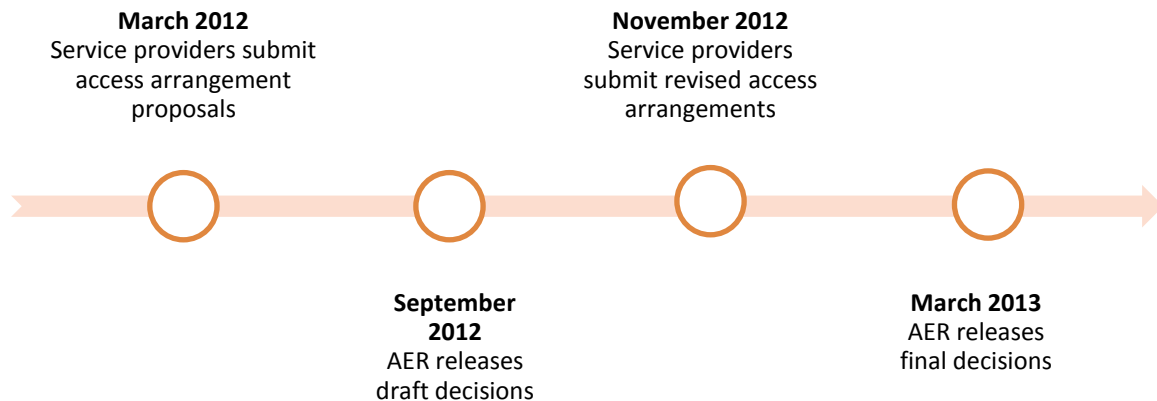
Our draft and final decisions, the business proposals, stakeholder submissions and other supporting material can be found on the AER's website:

- APA GasNet: <http://www.aer.gov.au/node/13556>
- Envestra: <http://www.aer.gov.au/node/14473>
- SP AusNet: <http://www.aer.gov.au/node/4810>
- Multinet: <http://www.aer.gov.au/node/4799>
- The National Gas Law (NGL) can be found on the following website: http://www.austlii.edu.au/au/legis/sa/consol_act/ngaa2008294/sch1.html
- The National Gas Rules (NGR) can be found on the Australian Energy Market Commission's website: <http://www.aemc.gov.au/gas/national-gas-rules/current-rules.html>

The AER Customer consultation paper, which is a useful reference for understanding our assessment approach—including the use of the 'building block' approach to determine revenue—can be found at: <http://www.aer.gov.au/node/18118>

3.2 Our consultation process

Victorian gas transmission and distribution service providers APA GasNet, Envestra, SP AusNet and Multinet submitted their access arrangement proposals to us in March 2012. We issued our draft decisions on these proposals in September 2012. Stakeholders were given the opportunity to comment on the businesses' proposals and our draft decisions, which we took into account in making our final decisions. The timeline of the review is shown in the figure below.



Understanding consumer interests is central to our role in regulating gas transmission and distribution. Indeed, the National Gas Objective is ‘to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas’.

We held roundtable discussions with consumer groups and gas retailers during the review. We also released a Customer consultation paper alongside our draft decisions. The aim of the paper was to enable consumers to better understand our draft decisions and facilitate greater customer engagement.

We are continuing to develop ways to better engage with consumers. A key part of our Better Regulation program (discussed below) are initiatives to involve customers in the regulatory decision making process.

3.3 How does the AER’s Better Regulation program impact this decision?

We are currently consulting on our Better Regulation program of work to deliver an improved regulatory framework focused on promoting the long term interests of electricity and gas consumers. This follows from changes to the National Electricity and Gas Rules that were published by the Australian Energy Market Commission on 29 November 2012. We announced the start of the program in December 2012.

Better Regulation builds upon the processes that we have developed as an independent regulator since 2005. Although the program is focused on improving our approach to regulation in the electricity market, it will also impact our approach to the regulation of gas networks. It includes improved approaches to assessing spending proposals from networks and setting the return that may be earned on network investments, which could directly impact on future gas price reviews.

Due to the timing of the Victorian gas prices review, we could not incorporate the outcomes of the Better Regulation program into our final decisions. We expect to the various Better Regulation guidelines to be finalised towards the end of 2013.