



## 4 GAS PIPELINES



Gas pipelines provide a transportation link between upstream gas producers and downstream energy customers. This chapter focuses on gas pipelines in jurisdictions for which the Australian Energy Regulator (AER) has regulatory responsibilities—namely, those in jurisdictions other than Western Australia.

High pressure *transmission* pipelines transport gas from production fields to major demand centres (hubs). The pipelines typically have wide diameters and operate under high pressure to optimise shipping capacity. Australia's gas transmission network covers over 20 000 kilometres.

The construction of new pipelines and the expansion of existing facilities in the past decade has completed an interconnected pipeline network running from Queensland to Tasmania. This interconnection has enhanced the competitive environment for gas producers, pipeline operators and gas retailers, and improved security of supply. While Western Australia and the Northern Territory have also had significant pipeline investment, they have no transmission interconnection with other jurisdictions.

A network of *distribution* pipelines delivers gas from demand hubs to industrial and residential customers. A gas distribution network typically consists of high, medium and low pressure pipelines. The high and medium pressure mains provide a 'backbone' that services areas of high demand and transports gas between population concentrations within a distribution area. The low pressure pipes lead off the high pressure mains to end customers.

Gas is reticulated to most Australian capital cities, major regional areas and towns. The total length of gas distribution networks in eastern Australia is around 74 000 kilometres. The networks have a combined asset value of \$8 billion.

Figure 4.1 illustrates the routes of major transmission pipelines and the locations of major distribution networks in jurisdictions for which the AER has regulatory responsibilities. Figure 3.1 includes a more extensive mapping of gas transmission pipelines, including those in Western Australia. Tables 4.1 and 4.2 summarise the major gas pipelines and networks.

## 4.1 Ownership

Australia's gas pipelines are privately owned. APA Group is the principal owner in both gas transmission and distribution, through both direct ownership and its interest in Envestra. State Grid Corporation of China and Singapore Power International own a number of pipelines through Jemena and SP AusNet (tables 4.1 and 4.2).

### 4.1.1 Transmission pipeline ownership

*APA Group*, a publicly listed company, has the most extensive portfolio of gas transmission assets in Australia. It owns three pipelines in New South Wales (including the Moomba to Sydney Pipeline), the Victorian Transmission System, five major Queensland pipelines (including three pipelines linking the Cooper Basin in central Australia to Brisbane) and a Northern Territory pipeline. It has a 50 per cent interest in the SEA Gas Pipeline running from Victoria to South Australia, and a 20 per cent interest in Energy Infrastructure Investments (EII), which owns pipelines in the Northern Territory.

During 2012 APA Group acquired Epic Energy's gas transmission portfolio from Hastings Diversified Utilities Fund. The Epic portfolio included the Moomba to Adelaide Pipeline System (MAPS), the South West Queensland Pipeline and QSN Link, and the Pilbara Energy Pipeline (in Western Australia). The Australian Competition and Consumer Commission (ACCC) did not oppose the acquisition, after accepting a court enforceable undertaking from the APA Group to divest MAPS. APA Group in May 2013 completed the sale of MAPS to QIC Global Infrastructure for \$400 million.

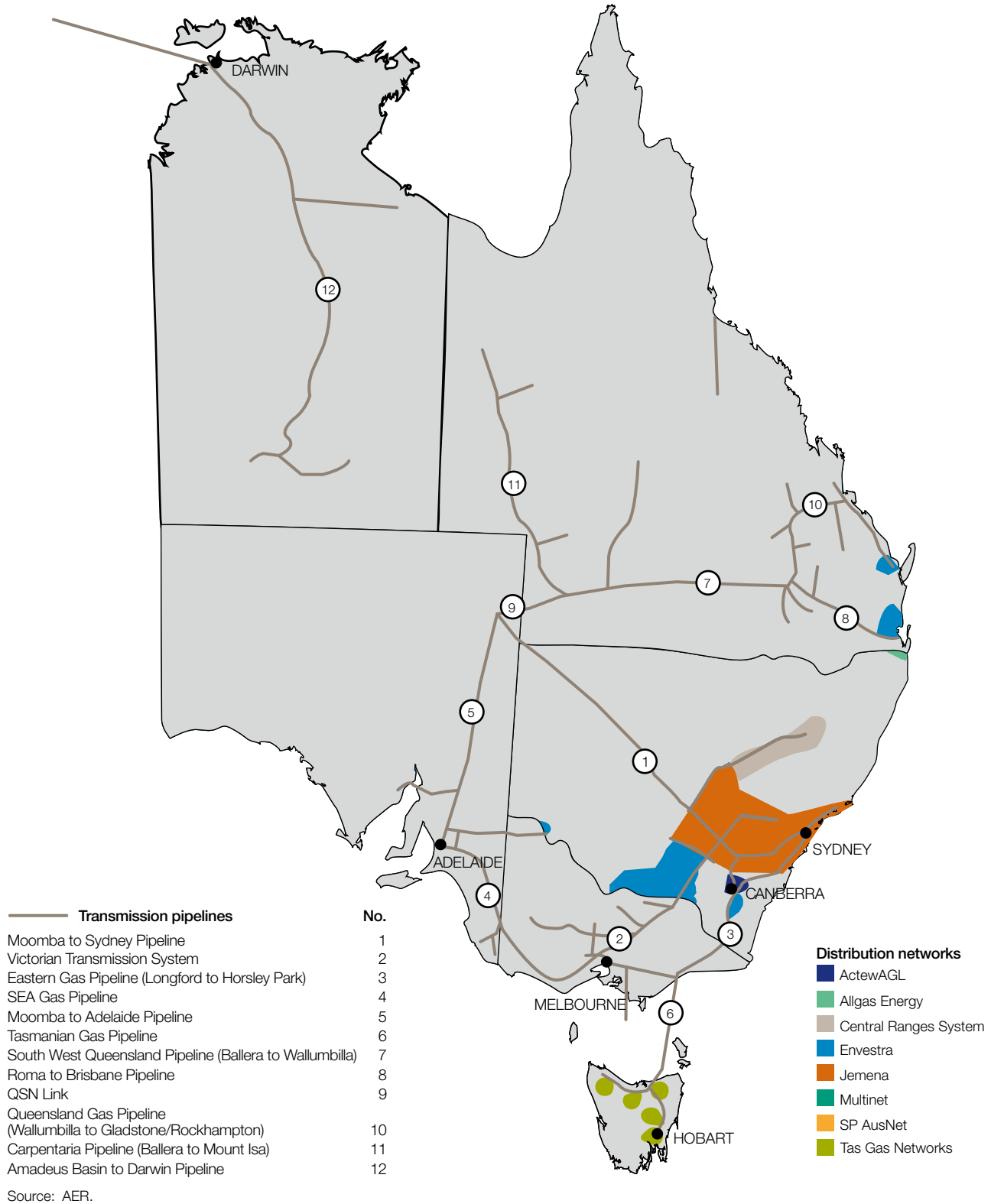
*Jemena* owns and operates the Eastern Gas Pipeline, VicHub and the Queensland Gas Pipeline. *Singapore Power International* contracted to sell a 60 per cent stake in Jemena to *State Grid Corporation of China* in 2013, but retain a 40 per cent minority share. The transaction was before the Foreign Investment Review Board in November 2013.

### 4.1.2 Distribution network ownership

The major gas distribution networks in southern and eastern Australia are privately owned, with four principal players:

- *Envestra*, a public company in which APA Group (33 per cent) and Cheung Kong Infrastructure (17 per cent) have shareholdings, owns networks in Victoria, South Australia, Queensland and the Northern Territory.
- *Jemena* owns the principal New South Wales gas distribution network (Jemena Gas Networks) and has a 50 per cent share of the ACT network (ActewAGL). As noted, *Singapore Power International* contracted to sell a 60 per cent stake in Jemena to *State Grid Corporation of China* in 2013, but retain a 40 per cent minority share. Singapore Power International also has equity interests in Victoria's SP AusNet gas distribution network.

Figure 4.1  
Major gas pipelines—eastern Australia



**Table 4.1 Major gas transmission pipelines**

PIPELINE	LENGTH (KM)	CAPACITY (TJ/D)	CONSTRUCTED	COVERED?
<b>EASTERN AUSTRALIA</b>				
<b>QUEENSLAND</b>				
North Queensland Gas Pipeline	391	108	2004	No
Queensland Gas Pipeline (Wallumbilla to Gladstone)	629	142	1989–91	No
Carpentaria Pipeline (Ballera to Mount Isa)	840	119	1998	Yes (light)
Berwyndale to Wallumbilla Pipeline	113		2009	No
Dawson Valley Pipeline	47	30	1996	Yes
Roma (Wallumbilla) to Brisbane Pipeline	440	219	1969	Yes
Wallumbilla to Darling Downs Pipeline	205	400	2009	No
South West Queensland Pipeline (Ballera to Wallumbilla)	756	181	1996	No
QSN Link (Ballera to Moomba)	180	212	2009	No
<b>NEW SOUTH WALES</b>				
Moomba to Sydney Pipeline	2029	420	1974–93	Partial (light)
Central West Pipeline (Marsden to Dubbo)	255	10	1998	Yes (light)
Central Ranges Pipeline (Dubbo to Tamworth)	300	7	2006	Yes
Eastern Gas Pipeline (Longford to Sydney)	795	268	2000	No
<b>VICTORIA</b>				
Victorian Transmission System (GasNet)	2035	1030	1969–2008	Yes
South Gippsland Natural Gas Pipeline	250		2006–10	No
VicHub		150 (into Vic)	2003	No
<b>SOUTH AUSTRALIA</b>				
Moomba to Adelaide Pipeline	1185	253	1969	No
SEA Gas Pipeline (Port Campbell to Adelaide)	680	303	2003	No
<b>TASMANIA</b>				
Tasmanian Gas Pipeline (Longford to Hobart)	734	129	2002	No
<b>NORTHERN TERRITORY</b>				
Bonaparte Pipeline	287	80	2008	No
Amadeus Gas Pipeline	1512	104	1987	Yes
Daly Waters to McArthur River Pipeline	330	16	1994	No
Palm Valley to Alice Springs Pipeline	140	27	1983	No

km, kilometres; TJ/d, terajoules per day.

1. Singapore Power International contracted to sell a 60 per cent stake in Jemena to State Grid Corporation of China in 2013, but retain a 40 per cent minority share. The transaction was before the Foreign Investment Review Board in November 2013.

Sources: Capacity: National Gas Market Bulletin Board ([www.gasbb.com.au](http://www.gasbb.com.au)); corporate websites. Other data: access arrangements for covered pipelines; EnergyQuest, *Energy Quarterly* (various issues); corporate websites, annual reports and media releases.

VALUATION (\$ MILLION)	CURRENT ACCESS ARRANGEMENT	OWNER	OPERATOR
160 (2005)	Not required	Victorian Funds Management Corporation	AGL Energy, Arrow Energy
	Not required	Jemena (State Grid Corporation 60%, Singapore Power International 40%) <sup>1</sup>	Jemena Asset Management
	Not required	APA Group	APA Group
70 (2009)	Not required	APA Group	APA Group
8 (2007)	2007–16	Westside 51%, Mitsui 49%	Westside
418 (2012)	2012–17	APA Group	APA Group
90 (2009)	Not required	Origin Energy	Origin Energy
	Not required	APA Group	APA Group
165 (2009)	Not required	APA Group	APA Group
835 (2003)	Not required	APA Group	APA Group
28 (1999)	Not required	APA Group	APA Group
53 (2003)	2005–19	APA Group	Jemena Asset Management
450 (2000)	Not required	Jemena (State Grid Corporation 60%, Singapore Power International 40%) <sup>1</sup>	Jemena Asset Management
618 (2013)	2013–17	APA Group	APA Group, AEMO
50 (2012)	Not required	DUET Group	Jemena Asset Management
	Not required	Jemena (State Grid Corporation 60%, Singapore Power International 40%) <sup>1</sup>	Jemena Asset Management
370 (2001)	Not required	QIC Global Infrastructure	Epic Energy SA
500 (2003)	Not required	APA Group 50%, Retail Employees Superannuation Trust 50%	APA Group
440 (2005)	Not required	Palisade Investment Partners	Tas Gas Networks
170 (2008)	Not required	Energy Infrastructure Investments (APA Group 20%, Marubeni 50%, Osaka Gas 30%)	APA Group
92 (2011)	2011–16	APA Group	APA Group
	Not required	Power and Water	APA Group
	Not required	Envestra (APA Group 33.4%, Cheung Kong Infrastructure 18.9%)	APA Group

## Notes:

For covered pipelines subject to full regulation, valuation refers to the opening capital base for the current regulatory period. For non-covered pipelines, listed valuations are estimated construction costs, subject to the availability of data.

Coverage of the Moomba to Sydney Pipeline was partly revoked in 2003. The revoked portion runs from Moomba to the offtake point of the Central West Pipeline at Marsden. The covered portion became a light regulation pipeline in 2008. The listed valuation of the pipeline is that determined by the Australian Competition Tribunal for the regulatory period before the pipeline converted from full to light regulation.

**Table 4.2 Gas distribution networks in eastern Australia**

NETWORK	CUSTOMER NUMBERS	LENGTH OF MAINS (KM)	ASSET BASE (\$ MILLION) <sup>1</sup>	INVESTMENT—CURRENT PERIOD (\$ MILLION) <sup>2</sup>	REVENUE—CURRENT PERIOD (\$ MILLION)	CURRENT REGULATORY PERIOD	OWNER
<b>QUEENSLAND</b>							
Allgas Energy	84 400	2 900	432	135	343	1 Jul 2011–30 Jun 2016	APA Group 20%, Marubeni 40%, RREEF 40%
Envestra	89 100	2 640	323	142	315	1 Jul 2011–30 Jun 2016	Envestra (APA Group 33%, Cheung Kong Infrastructure 17%)
<b>NEW SOUTH WALES AND ACT</b>							
Jemena Gas Networks (NSW)	1 050 000	24 430	2 425	759	2 316	1 Jul 2010–30 Jun 2015	Jemena (State Grid Corporation 60%, Singapore Power International 40%) <sup>3</sup>
ActewAGL	124 000	4 720	292	92	295	1 Jul 2010–30 Jun 2015	ACTEW Corporation (ACT Government) 50%; Jemena (State Grid Corporation 60%, Singapore Power International 40%) 50% <sup>3</sup>
Wagga Wagga	23 800	680	62	21	51	1 Jul 2010–30 Jun 2015	Envestra (APA Group 33%, Cheung Kong Infrastructure 17%)
Central Ranges System	7 000	180	na	na	na	2006–19	APA Group
<b>VICTORIA</b>							
SP AusNet	602 000	9 860	1 255	459	870	1 Jan 2013–31 Dec 2017	Listed company (Singapore Power International 31%, State Grid Corporation 20%) <sup>3</sup>
Multinet	668 000	9 960	1 038	239	827	1 Jan 2013–31 Dec 2017	DUET Group
Envestra	587 400	10 220	1 100	396	834	1 Jan 2013–31 Dec 2017	Envestra (APA Group 33%, Cheung Kong Infrastructure 17%)
<b>SOUTH AUSTRALIA</b>							
Envestra	410 700	7 790	1 036	500	1 046	1 Jul 2011–30 Jun 2016	Envestra (APA Group 33%, Cheung Kong Infrastructure 17%)
<b>TASMANIA</b>							
Tas Gas Networks	9 800	730	122	Not regulated	Not regulated	Not regulated	Tas Gas (Brookfield Infrastructure)
<b>TOTALS</b>	<b>3 656 200</b>	<b>74 110</b>	<b>8 086</b>	<b>2 742</b>	<b>6 897</b>		

na, Not available.

1. For Tasmania, the asset base value is an estimated construction cost. For other networks, it is the initial capital base, adjusted for additions and deletions, as reset at the beginning of the current access arrangement period.
2. Investment data are forecasts for the current access arrangement period, typically of five years duration.
3. Singapore Power International contracted to sell a 60 per cent stake in Jemena to State Grid Corporation of China in 2013, but retain a 40 per cent minority share. The transaction was before the Foreign Investment Review Board in November 2013.

Note: Asset base, investment and revenue data are converted to June 2012 dollars.

Sources: Access arrangements for covered pipelines; company websites.

- *APA Group* has minority interests in Envestra and the Allgas Energy network in Queensland, and owns the Central Ranges system in New South Wales. It manages and operates these assets. APA Group in July 2013 approached Envestra with a proposal for the two businesses to merge. In August 2013 Envestra rejected the proposal.
- *DUET Group* owns Multinet in Victoria.

The ownership links between gas and electricity networks are significant. Jemena, SP AusNet, APA Group, Cheung Kong Infrastructure and DUET Group all have ownership interests (some substantial) in both sectors (section 2.1.1).

## 4.2 Regulation of gas pipelines

The National Gas Law and Rules set out the regulatory framework for the gas pipeline sector. The AER regulates pipelines in jurisdictions other than Western Australia, in which the Economic Regulation Authority is the regulator.

### 4.2.1 Full regulation

The National Gas Law and Rules apply economic regulation to covered pipelines. Different forms of regulation apply, based on competition and significance criteria. Under *full regulation*, a pipeline provider must periodically submit an access arrangement to the regulator for approval. An access arrangement sets out the terms and conditions under which third parties can use a pipeline. It must specify at least one reference service that a significant part of the market is likely to seek, and a reference tariff for that service.

The AER regulates five transmission pipelines and 10 distribution networks under full regulation, including:

- transmission pipelines supplying Brisbane, Melbourne and Darwin (table 4.1)
- all major distribution networks in New South Wales, Victoria, Queensland, South Australia and the ACT.

An *Access arrangement guideline* (available on the AER website) details the regulatory process. Separate guidelines address dispute resolution and compliance with obligations under the National Gas Law. Figure 4.2 sets out the timelines for regulatory reviews of transmission pipelines and distribution networks.

In summary, the regulator assesses the revenues needed to cover efficient costs (including a benchmark return on capital), then derives reference tariffs for the pipeline. It uses a building block model that accounts for a pipeline's operating and maintenance expenditure, capital expenditure,

asset depreciation costs and taxation liabilities, and a return on capital. Figure 4.3 illustrates the revenue components of Queensland's Roma to Brisbane Pipeline (2012–17) and Victorian distribution networks (2013–17).

The largest component is the return on capital, accounting for up to two-thirds of revenue. The scale of a pipeline's asset base (and projected investment) and its weighted average cost of capital (the rate of return covering a commercial return on equity and efficient debt costs) affect the return on capital. An allowance for operating expenditure typically accounts for a further 30 per cent of revenue requirements.

The rules allow for income adjustments via incentive mechanisms that reward efficient operating practices. In a dispute, an access seeker may request the regulator to arbitrate on and enforce the terms and conditions of the access arrangement. Regulatory decisions on full regulation pipelines are subject to merits review by the Australian Competition Tribunal (section 4.4).

### 4.2.2 Reforms to setting the rate of return

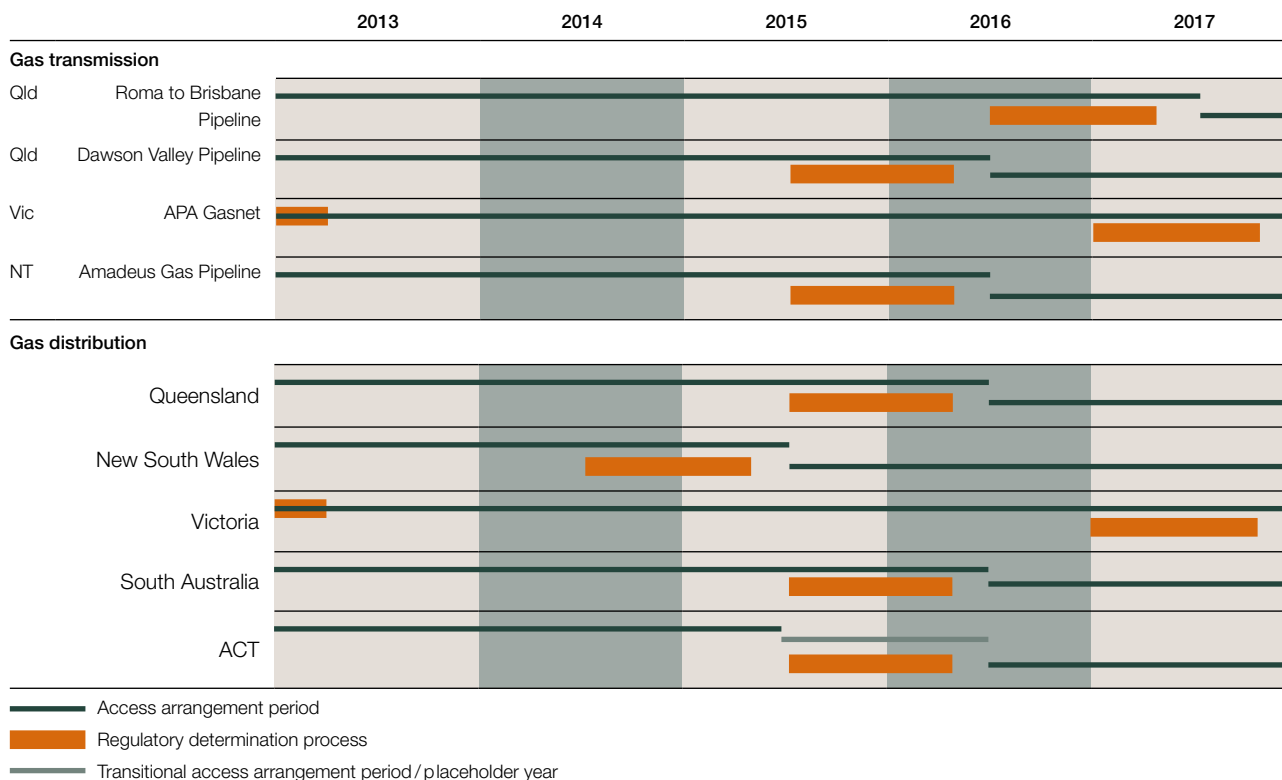
Following a rule change proposal by the AER in 2011, the Australian Energy Market Commission (AEMC) in November 2012 implemented a common approach to setting the rate of return for the electricity and gas sectors. The new rule requires a holistic assessment of the overall rate of return that a benchmark entity needs to meet its efficient costs. The AER was previously locked into a parameter-by-parameter assessment of the rate of return, with limited scope to consider the appropriateness of the overall allowance. Additionally, the regulatory assessment can now account for a wider range of information, allowing for decisions that better reflect conditions in capital markets.

### 4.2.3 Light regulation

A pipeline may, in some circumstances, convert to *light regulation* without upfront price regulation. When light regulation applies, the pipeline provider must publish access prices and other terms and conditions on its website. In eastern Australia, the Carpentaria Gas Pipeline in Queensland, the covered portions of the Moomba to Sydney Pipeline, and the Central West Pipeline in New South Wales are subject to light regulation. No distribution network is currently subject to light regulation.



**Figure 4.2**  
**Indicative timelines for regulatory reviews of gas pipelines**



Note: The timeframes are indicative. The standard review period begins when a network business submits an access arrangement proposal to the AER. Timeframes may vary if the AER grants a time extension for the proposal submission. An access arrangement period is typically five years, but a provider may apply for a different duration.

#### 4.2.4 Changes in coverage status

The National Gas Law includes a mechanism for reviewing whether a particular pipeline needs economic regulation. The coverage of several major transmission pipelines has been revoked over the past decade. Additionally, only one transmission pipeline constructed in the past decade is covered.

In recent coverage reviews:

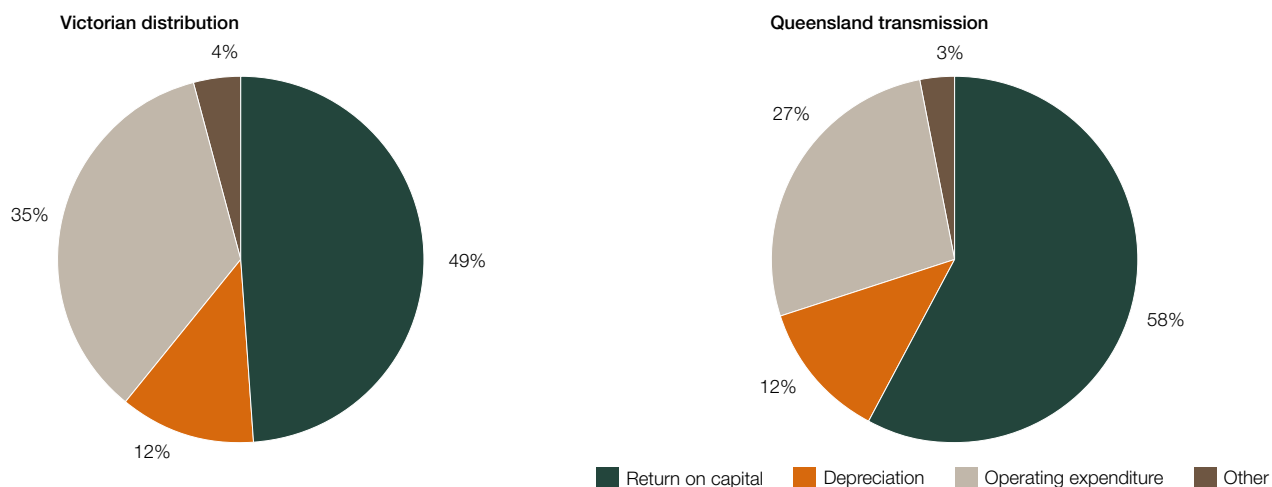
- Kimberly-Clark Australia in November 2012 applied to the National Competition Council (NCC) for coverage of the South Eastern Pipeline System (a 70 kilometre pipeline in South Australia), which QIC Global Infrastructure owns. On advice from the NCC, the South Australian Minister for Mineral Resources and Energy determined in October 2013 that the pipeline would not be covered.
- Envestra in May 2013 applied to the NCC to have coverage of its Wagga Wagga distribution network (New South Wales) revoked. In August 2013 the NCC recommended coverage should not be revoked.

In September 2013 the New South Wales Minister for Resources and Energy informed the NCC he was unable to make a decision until the State Government considers the outcomes of the AEMC's review of retail competition in the state.

The Gas Law also enables the federal Minister for Resources and Energy to grant a 15 year 'no coverage' determination for new pipelines in certain circumstances. Following recommendations from the NCC, the Minister granted 'no coverage' determinations for three pipelines supplying gas from the Surat-Bowen Basin to LNG projects on Curtis Island in Queensland:

- BG Group's Queensland Curtis LNG Pipeline (July 2010)
- the Australia Pacific LNG Gladstone Pipeline (August 2012)
- the Gladstone LNG pipeline (June 2013).

**Figure 4.3**  
Indicative composition of gas pipeline revenues



Source: AER.

## 4.3 Recent AER decisions on gas pipelines

The AER released final decisions on regulatory reviews for Victoria's gas transmission and distribution networks in March 2013.

### 4.3.1 Victorian gas transmission system

In March 2013 the AER released a final decision on APA GasNet's access arrangement proposal for the Victorian gas transmission system for 2013–17. The decision approved:

- revenues that are 22 per cent below the level proposed by APA GasNet
- reference tariffs that are 19 per cent below those proposed by APA GasNet.

The differences between the final decision and the network's proposal related to:

- the use of a lower rate of return than that proposed (7.22 per cent compared with APA GasNet's proposed 8.09 per cent)
- allowing for less depreciation than proposed (\$56.3 million compared with APA GasNet's proposed \$136.3 million).

The decision will reduce a typical residential gas bill by \$5 per year (compared with an average price increase of \$6 per year under APA Group's proposal). Elements of the decision were varied following a review by the Australian Competition Tribunal (section 4.4).

### 4.3.2 Victorian gas distribution networks

In March 2013 the AER released final decisions on revised access arrangement proposals for Victoria's three gas distribution networks—Multinet, Envestra and SP AusNet—for 2013–17. The decisions approved:

- revenues that are 6–10 per cent below those proposed by the network owners
- capital expenditure levels that are 8–23 per cent below proposed levels
- operating expenditure levels that are up to 8 per cent below proposed levels.

The differences between the final decisions and the networks' proposals related to:

- the use of a lower rate of return on capital than that proposed
- lower expectations of capital expenditure requirements than those proposed, especially in relation to distribution mains replacement
- revised operating expenditure requirements that were more in line with historical levels.

The decisions will reduce a typical residential gas bill by \$5 per year for customers in the SP AusNet network (compared with a proposed average price increase of \$13). Typical bills will increase by \$3 per year (compared with a proposed increase of \$19) for Multinet customers and \$16 per year (compared with a proposed increase of \$56) for Envestra customers.

Elements of the decisions were varied following a review by the Australian Competition Tribunal (section 4.4).

## 4.4 Tribunal reviews of regulatory decisions

Regulatory decisions on access arrangement proposals are subject to merits review by the Australian Competition Tribunal. In May 2013 Multinet applied to the Tribunal for review of the AER's decision on its Victorian gas distribution network. It sought review of the use of the Essential Services Commission of Victoria's (ESC) capital expenditure benchmark for 2012 to set the opening capital base for the network.

In July 2013 the Tribunal directed the AER to calculate the opening capital base by reference to Multinet's conforming capital expenditure in 2012, and not to the ESC benchmark. The AER remade its decision in October 2013, which increased the opening capital base by \$30 million.

Also in May 2013 APA GasNet applied to the Tribunal for a review of the AER's decision on its Victorian gas transmission system. APA GasNet sought review of:

- the calculation of depreciation
- the rate of return—specifically, the cost of equity
- adjustments to reference tariffs to account for the delay between 1 January 2013 (the start of the regulatory period) and 1 July 2013 when the new tariffs take effect
- adjustments to the opening capital base.

In September 2013 the Tribunal found in the AER's favour on the first two matters above and in APA GasNet's favour on the remaining two matters. The Tribunal's decision resulted in additional revenue of \$13.7 million to APA Group over the regulatory period.

## 4.5 Pipeline investment

Gas *transmission* investment typically involves large and lumpy capital projects to expand existing pipelines (through compression, looping or extension) or construct new infrastructure. Significant investment in the regulated and unregulated transmission sector has occurred since 2010. Additionally, a number of major projects are under construction or have been announced for development. In eastern Australia:

- APA Group completed a \$760 million stage 3 expansion of the South West Queensland Pipeline in 2012. The expansion loops the existing 937 kilometre pipeline by building an adjacent pipeline that effectively doubles capacity. APA Group is re-configuring the pipeline for bi-directional operation by mid-2014, with an eastern haul capacity of about 340 terajoules per day. APA

Group will install additional compression at Moomba and Wallumbilla by 2014–15 as part of this project.

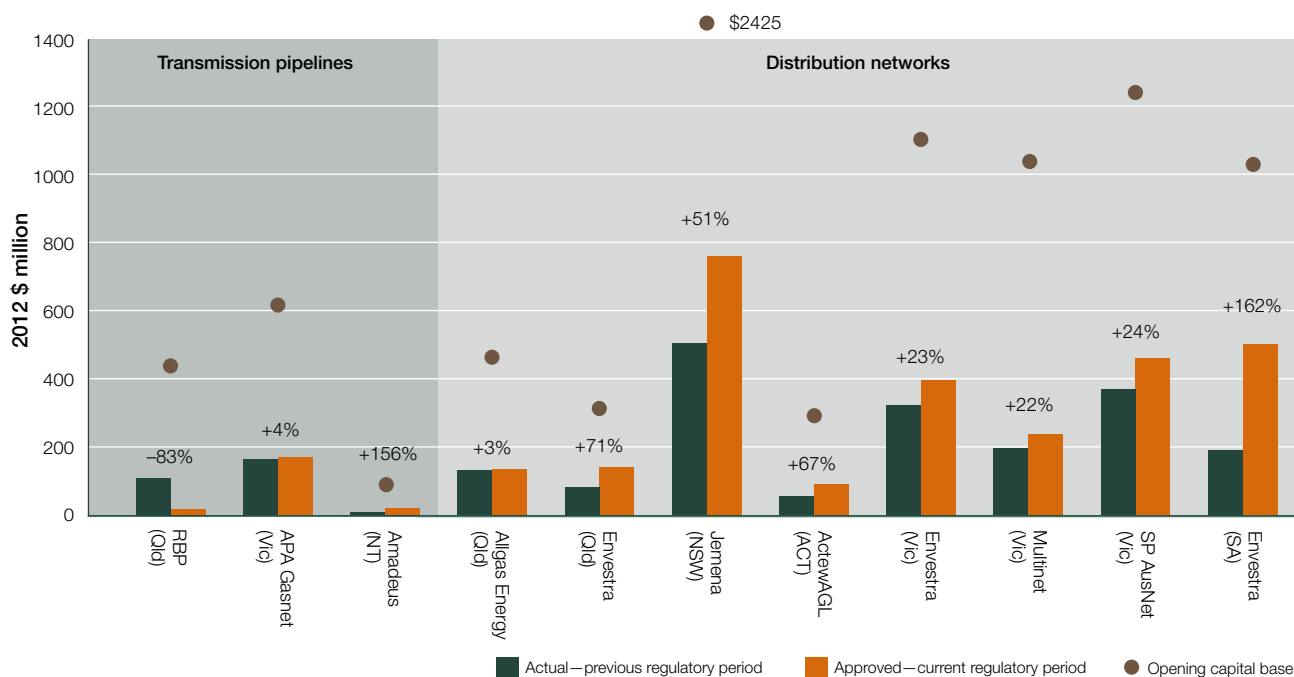
- APA Group completed a 10 per cent capacity expansion of the Roma to Brisbane Pipeline in September 2012. It also completed a five year capacity expansion of the Moomba to Sydney Pipeline. It announced in November 2013 it will expand capacity on the northern zone of the Victorian Transmission System by 145 per cent. The expansion stems from new gas transportation and storage services agreements between APA Group and Origin Energy, EnergyAustralia and Lumo Energy to support an increase in gas sales from Victoria to New South Wales. The expansion is due for completion by winter 2015.
- construction is underway on three major transmission pipelines in Queensland (each around 400 kilometres in length) to transport gas from the Surat–Bowen Basin to Gladstone for processing and export as LNG
- Pacific Aluminium released in May 2013 a draft environmental impact statement for a 603 kilometre pipeline from Katherine to Gove. The proposed pipeline is part of a project to convert the Gove alumina refinery in the Northern Territory from fuel oil to natural gas.
- APA Group and Armour Energy announced in June 2013 they had entered into a non-binding agreement to transport gas from Armour Energy's northern Australia gas fields to various markets. The arrangement involves constructing a 350 kilometre gas pipeline (initial capacity of 130 petajoules per year) that connects the gas fields with the Ballera to Mount Isa Pipeline.
- Jemena was in late 2013 considering an expansion of the Eastern Gas Pipeline linking eastern Victoria with Sydney, for possible completion by the end of 2015.

Investment in *distribution* networks in eastern Australia—including investment to augment capacity—is forecast at around \$2.7 billion in the current access arrangement periods (typically five years). The underlying drivers include rising connection numbers, the replacement of aging networks, and the maintenance of capacity to meet customer demand.

Figure 4.4 illustrates recent investment data for gas transmission pipelines and distribution networks that are subject to full regulation. It compares approved forecasts in current access arrangements with actual expenditure in previous periods.

For *distribution* networks, investment is forecast to increase by an average 47 per cent in the current access arrangement periods, compared with previous periods. Investment is equal, on average, to 34 per cent of the

Figure 4.4  
Pipeline investment—five year period



Notes:

Forecast capital expenditure in the current access arrangement period (typically five years), compared with actual levels in previous periods. See tables 4.1 and 4.2 for the timing of regulatory periods. The data account for the impact of decisions by the Australian Competition Tribunal.

Opening capital bases are at the beginning of the current access arrangement period.

Source: AER final decisions on access arrangements.

networks' opening capital bases. Forecast growth is highest in Envestra's Queensland and South Australian networks (up 71 per cent and 162 per cent respectively). More recent regulatory reviews reflect a moderation in growth. The decisions for Victoria's distribution networks, for example, allow for investment to rise by an average 23 per cent in 2013–17, compared with previous periods.

## 4.6 Pipeline revenues and retail impacts

Figure 4.5 illustrates approved revenue forecasts for gas transmission pipelines and distribution networks that are subject to full regulation. It compares approved forecasts in current access arrangements with those approved in previous periods.

For *distribution* networks, revenues are forecast to increase in the current access arrangement periods, compared with previous periods, by an average 11 per cent. The largest increases will be for Envestra's networks in South Australia and Queensland (43 per cent and 42 per cent respectively).

The drivers include rising asset bases associated with greater investment (resulting in higher returns on capital). Some outcomes reflect a rise in underlying costs, including operating and maintenance expenditure and capital financing costs.

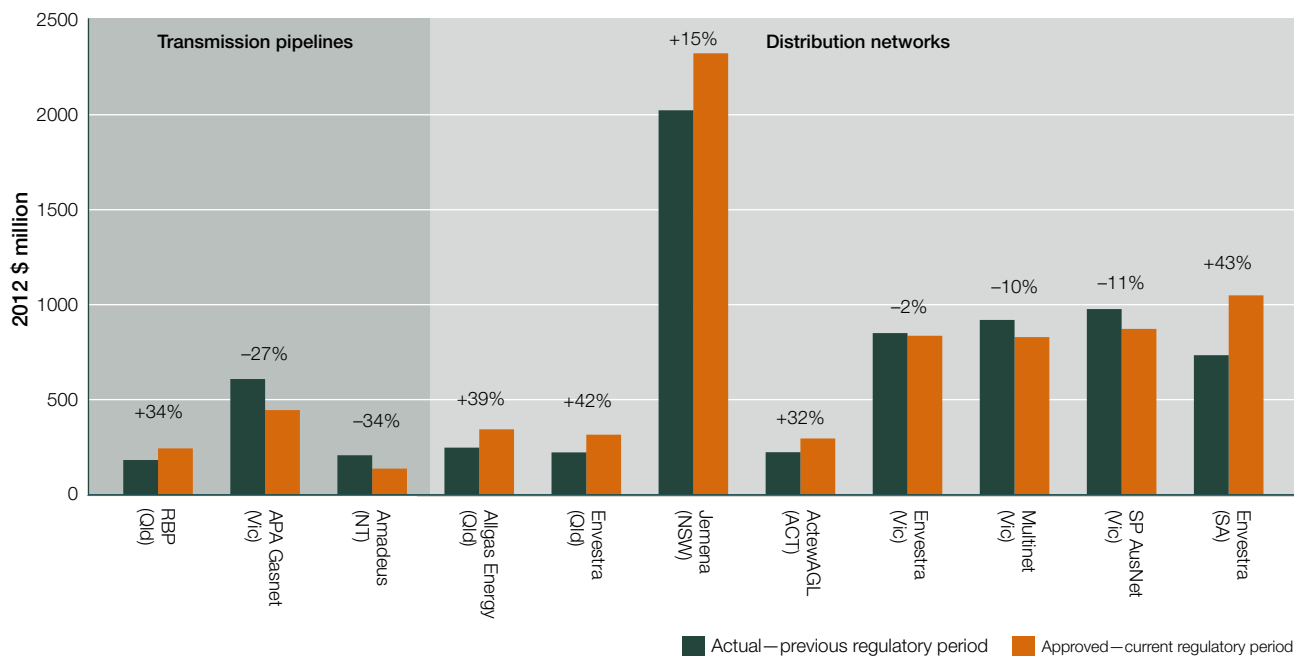
Regulatory reviews since 2012 reflect reductions in the risk free rate that have lowered the overall cost of capital. The decisions for Victoria's distribution networks in 2013 will result in revenues falling by an average 8 per cent in 2013–17, compared with revenues in 2008–12.

### 4.6.1 Operating expenditure

Operating and maintenance costs are a key driver of pipeline revenue requirements. Figure 4.6 illustrates recent data for gas transmission pipelines and distribution networks that are subject to full regulation. It compares approved forecasts in current access arrangements with actual expenditure in previous regulatory periods.

For *distribution* networks, real operating expenditure is forecast to increase in the current access arrangement

**Figure 4.5**  
Pipeline revenues—five year period



Note: Forecast revenues in the current access arrangement period (typically five years), compared with forecasts in previous periods. The data account for the impact of decisions by the Australian Competition Tribunal.

Source: AER final decisions on access arrangements.

periods by an average 15 per cent, compared with actual expenditure in previous periods. Outcomes vary across the networks, with the largest increases forecast for the Allgas Energy (Queensland) and ActewAGL (ACT) networks (each by 28 per cent).

Regulatory decisions in 2013 for Victoria’s distribution networks allow for operating expenditure to rise on average by 13 per cent in 2013–17 from that in 2008–12.

#### 4.6.2 Retail impacts of regulatory decisions

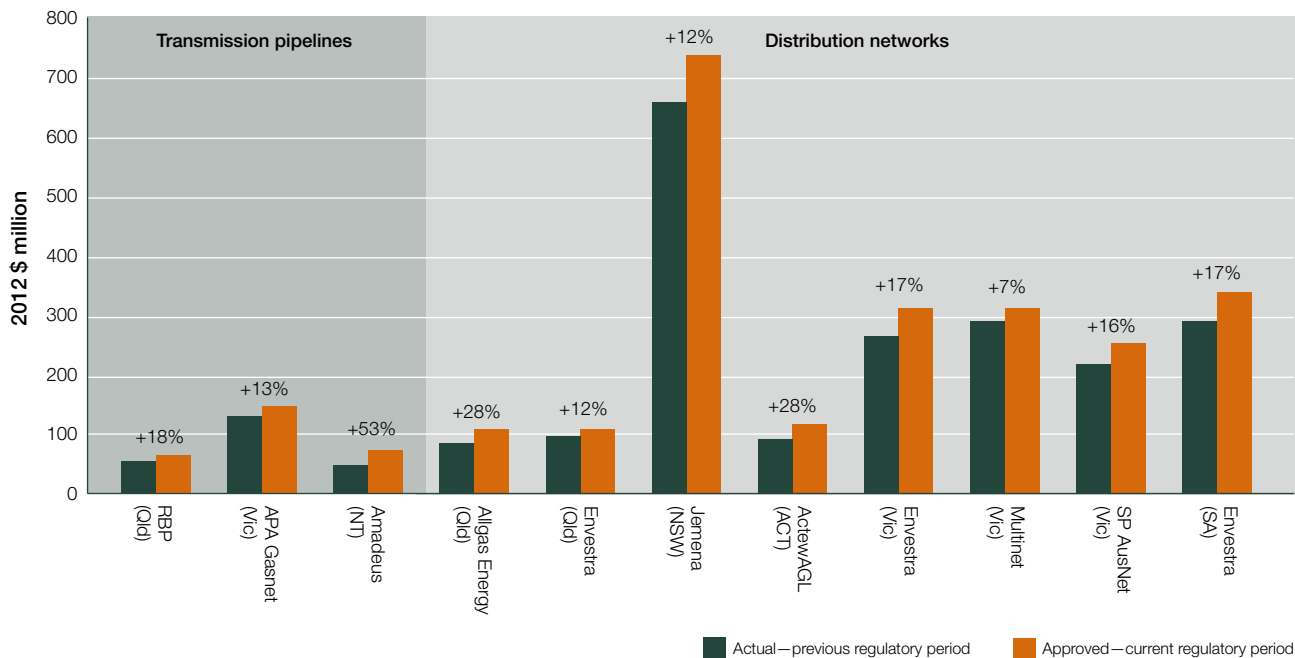
Gas *transmission* charges typically make up 3–8 per cent of a residential gas bill. The percentage is significantly higher for industrial users. The 2012 regulatory decision on Queensland’s Roma to Brisbane Pipeline is expected to cause almost no change in a typical residential customer’s bill over the five years of the determination. In Victoria, the 2013 decision on APA GasNet’s Victorian transmission pipeline will result in a typical residential bill falling by around 0.4 per cent per year.

Gas *distribution* charges typically make up 40–60 per cent of a residential gas bill. In recent years, rising capital

and operating expenditure, as well as other cost drivers (including higher financing costs and the rising cost of unaccounted for gas) raised gas distribution costs, leading to retail charges for residential customers rising by 5–6 per cent per year (figure 4.7).

However, the 2013 regulatory decisions for the Victorian distribution networks have little impact on customer charges over 2013–17. Charges will rise annually by around 1.3 per cent for the Envestra network and 0.3 per cent for Multinet. Customer charges for SP AusNet customers are expected to fall by around 0.4 per cent annually. A key reason for this trend is that reductions in the risk free rate have lowered the overall cost of capital for gas networks.

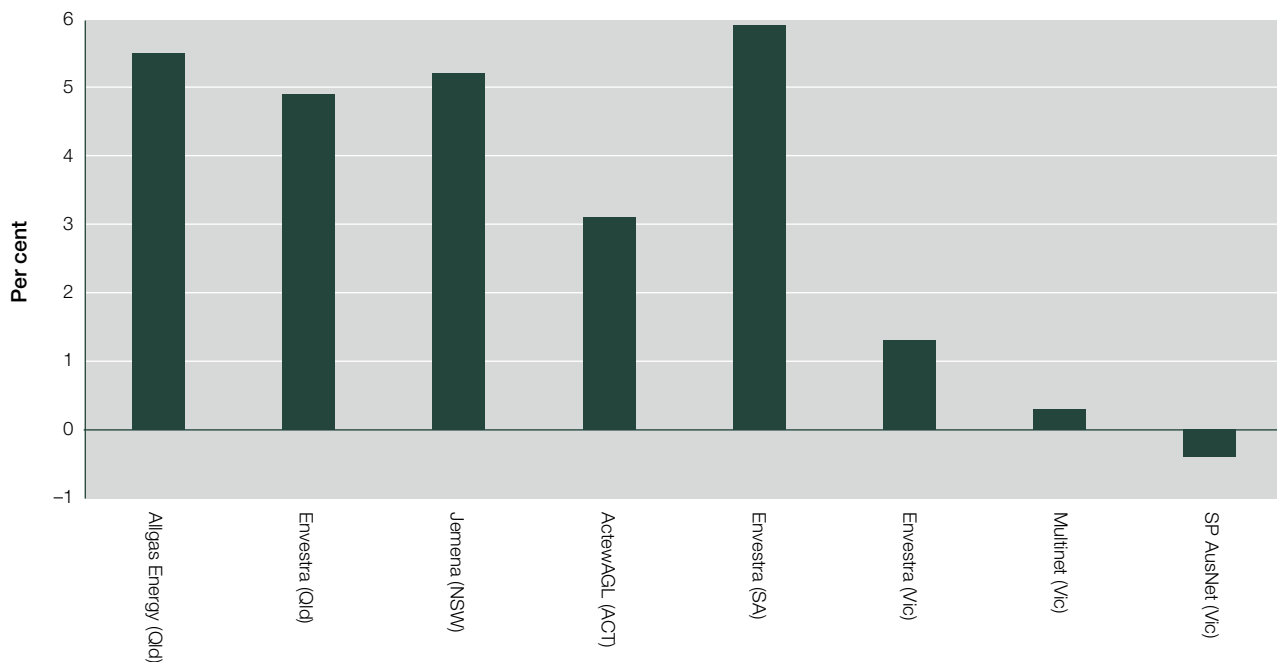
**Figure 4.6**  
Pipeline operating expenditure—five year period



Note: Forecast operating expenditure in the current period, compared with actual levels in previous periods. The data account for the impact of decisions by the Australian Competition Tribunal.

Source: AER final decisions on access arrangements.

**Figure 4.7**  
Annual impact of AER decisions on residential gas charges



Note: Impact on annual gas charges for a typical residential customer in that jurisdiction in the current access arrangement period. See table 4.2 for the timing of regulatory periods. The data account for the impact of decisions by the Australian Competition Tribunal.

Source: AER final decisions on access arrangements.