



10

GAS DISTRIBUTION



Natural gas distribution networks take gas from transmission pipelines and reticulate it into residential homes, offices, hospitals and businesses. Their main customers are energy retailers, which aggregate loads for sale to customers. For small gas customers, distribution charges for metering and transport often represent the most significant component—up to 60 per cent—of retail gas prices.

10 GAS DISTRIBUTION

This chapter considers:

- > Australia's gas distribution sector
- > the structure of the sector, including industry participants and ownership changes over time
- > the economic regulation of distribution networks
- > new investment in distribution networks
- > financial indicators and the service performance of the distribution sector.

10.1 Role of distribution networks

A 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.

Gate stations (city gates) link transmission pipelines with distribution networks. The stations measure the natural gas entering a distribution system, for billing and gas balancing purposes. They also adjust the pressure of the gas before it enters the distribution network. Distributors can further adjust gas pressure

at regulating stations in the network to ensure gas is delivered at a suitable pressure to operate customer equipment and appliances.

10.2 Australia's distribution networks

The total length of Australia's gas distribution networks expanded from around 67 000 kilometres in 1997 to over 82 000 kilometres in 2009. The networks deliver over 370 petajoules of gas a year and have a combined valuation of almost \$8 billion. Investment to augment and expand the networks is forecast at around \$2 billion in the current access arrangement periods (typically five years). Table 10.1 provides summary details of the major networks.

Table 10.1 Australian natural gas distribution networks

DISTRIBUTION NETWORK	LOCATION	LENGTH OF MAINS (KM)	OPENING CAPITAL BASE (2008 \$ MILLION) ¹	INVESTMENT—CURRENT ACCESS ARRANGEMENT (2008 \$ MILLION) ²	CURRENT REGULATORY PERIOD	OWNER
QUEENSLAND						
APT Allgas	South of the Brisbane River	2 605	362	141	1 July 2006 – 30 June 2011	APA Group
Envestra	Brisbane, Gladstone and Rockhampton	2 489	261	104	1 July 2006 – 30 June 2011	Envestra (APA Group 30.6%, Cheung Kong Infrastructure 18.5%)
NEW SOUTH WALES AND THE ACT						
Jemena Gas Networks (NSW)	Sydney, Newcastle/Central Coast, Wollongong and parts of country NSW	23 800	2 300	542	1 July 2005 – 30 June 2010	Jemena (Singapore Power International)
ActewAGL	ACT, Palerang (Bungendore) and Queanbeyan	3 604	266	66	1 July 2004 – 30 June 2010	ACTEW Corporation (ACT Govt) 50%; Jemena (Singapore Power International) 50%
Wagga Wagga	Wagga Wagga and surrounding areas	622	49	8	1 July 2005 – 30 June 2010	Country Energy (NSW Govt)
Central Ranges System	Tamworth	180	n/a	n/a	2006–19	APA Group
VICTORIA						
SP AusNet	Western Victoria	9 284	955	342	1 Jan 2008 – 31 Dec 2012	SP AusNet (listed company: Singapore Power International 51%)
Multinet	Melbourne's eastern and south eastern suburbs	9 585	888	232	1 Jan 2008 – 31 Dec 2012	DUET Group 79.9%, BBI 20.1%
Envestra	Melbourne, north eastern and central Victoria, and Albury–Wodonga region	9 603	859	411	1 Jan 2008 – 31 Dec 2012	Envestra (APA Group 30.6%, Cheung Kong Infrastructure 18.5%)
SOUTH AUSTRALIA						
Envestra	Adelaide and surrounds	7 477	942	213	1 July 2006 – 30 June 2011	Envestra (APA Group 30.6%, Cheung Kong Infrastructure 18.5%)
TASMANIA						
Tas Gas Networks	Hobart, Launceston and other towns	730	112 ¹	Not regulated	Not regulated	Tas Gas (BBI)
WESTERN AUSTRALIA						
WA Gas Networks	Mid-west and south western regions	12 176	749	163	1 Jan 2005 – 31 Dec 2009	BBI 74.1%, DUET Group 25.9% Operated by WestNet Energy (owned by BBI)
National totals ³		82 155	7 743	2 222		

BBI, Babcock & Brown Infrastructure. n/a, not available.

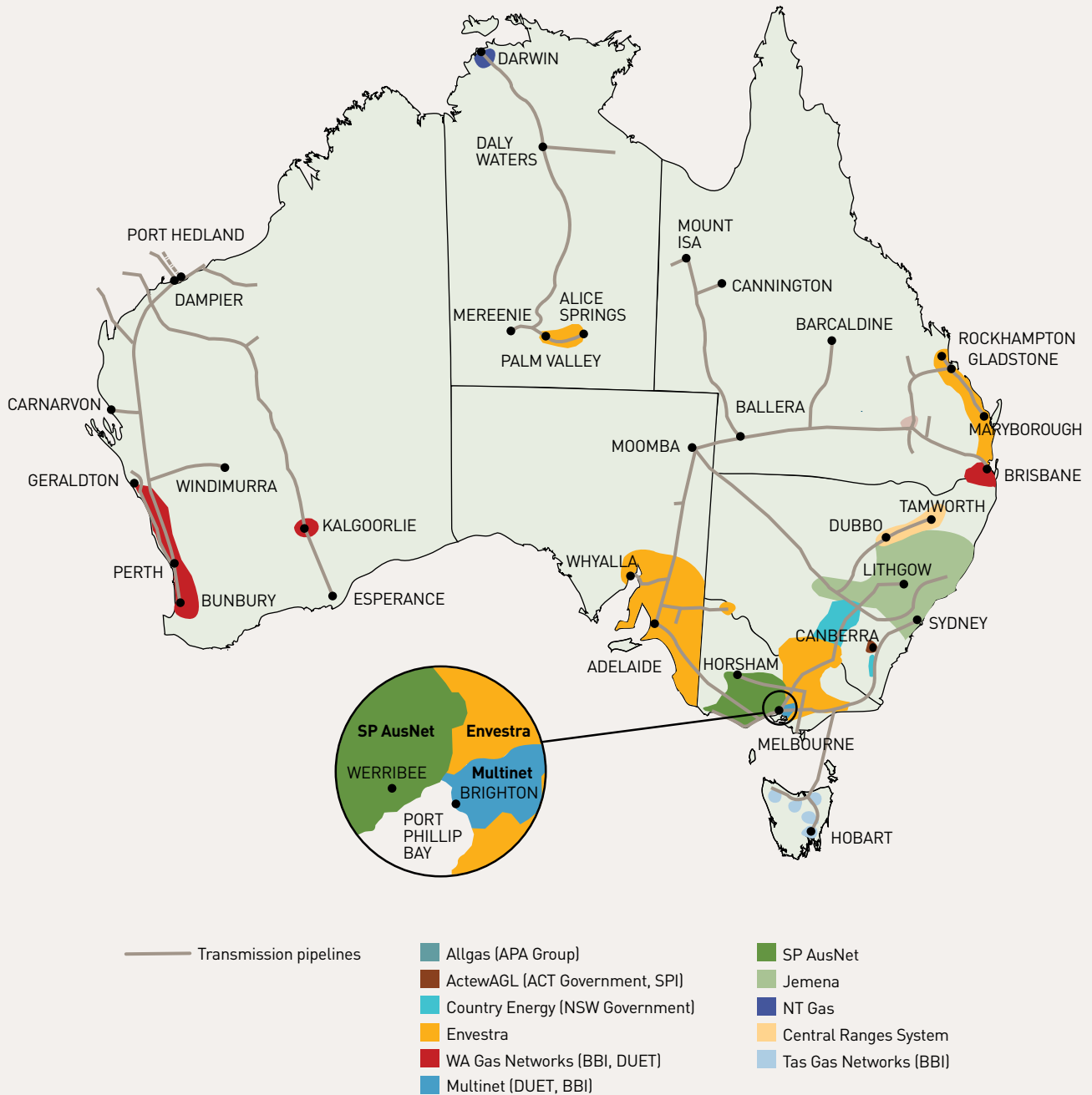
1. For Tasmania, the opening capital base value is an estimated construction cost. For other networks, the opening capital base is the initial capital base, adjusted for additions and deletions, as reset at the beginning of the current access arrangement period. All data are converted to June 2008 dollars.

2. Investment data are forecasts for the current access arrangement period, adjusted to June 2008 dollars.

3. National totals exclude the Northern Territory.

Sources: Access arrangements for covered pipelines; company websites.

Figure 10.1
Gas distribution networks in Australia



Notes:

Locations of the distribution systems are indicative only.

Some corporate names have been abbreviated.

Figure 10.2
Gas distribution network ownership

	NETWORK	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
Qld	APT Allgas	Qld Government													APA Group			
	Envestra	Boral			Envestra													
NSW and the ACT	Jemena	AGL												Alinta	Singapore Power			
	Wagga Wagga	Country Energy (NSW Government)																
	ActewAGL	AGL						ActewAGL (ACT Government, AGL)						ACT Govt, Singapore Power				
Vic	SP AusNet	GasCor (Victorian Government)		Westar		TXU				SP AusNet (SPI 51%)								
	Multinet	GasCor (Victorian Government)		Multinet		AMP and Utilicorp				DUET (79.9%), Alinta (20.1%)				DUET (80%), BBI (20%)				
	Envestra	GasCor (Victorian Government)		Stratus		Envestra												
SA	Envestra	Boral			Envestra													
Tas	Tas Gas Networks									Powerco		Babcock & Brown Infrastructure						
NT	NT Gas	Amadeus Gas Trust						Amadeus Gas Trust (96% APA Group)										
WA	WA Gas Networks	SECWA (WA Govt)	AlintaGas				WAGH (45%)			Alinta (74%), DUET (26%)				BBI (74%), DUET (26%)				

BBI, Babcock & Brown Infrastructure; SECWA, State Energy Commission of Western Australia; WAGH, WA Gas Holdings.

Note: Some corporate names have been abbreviated or shortened. Some minor networks are not shown.

Figure 10.1 shows the locations of the major networks. New networks have been rolled out in north western New South Wales (Central Ranges) and Tasmania following construction of transmission pipelines in these regions. Natural gas is now reticulated to most Australian capital cities, major regional areas and towns.

10.3 Ownership of distribution networks

The major gas distribution networks in Australia are privately owned. South Australia, Victoria, Western Australia and Queensland privatised their state owned networks in 1993, 1997, 2000 and 2006 respectively. The principal New South Wales network and the new Tasmanian network have always been in private hands.¹ AGL developed the Australian Capital Territory (ACT) network, but in 2000 formed a joint venture with the government owned Actew Corporation.

Structural reform and capital market drivers have led to specialist network businesses acquiring most gas distribution assets. Figure 10.2 shows key ownership changes since 1994.

By 2008 ownership consolidation had reduced the number of principal players to four:

- > *Singapore Power International* owns the principal New South Wales gas distribution network (Jemena Gas Networks). It has a 51 per cent share in the Victorian network (SP AusNet) and a 50 per cent share of the ACT network (ActewAGL). In August 2008 Singapore Power International rebranded its directly owned distribution entities as Jemena.
- > *Envestra*, a public company in which APA Group (31 per cent) and Cheung Kong Infrastructure (19 per cent) have shareholdings, owns networks in Victoria, South Australia, Queensland and the Northern Territory.
- > *Babcock & Brown Infrastructure* owns the Tasmanian distribution network and is the majority owner of the WA Gas Networks.
- > *APA Group* owns the APT Allgas networks in Queensland and has a 31 per cent stake in Envestra.

¹ There are remnants of state owned networks in rural New South Wales (the Wagga Wagga network owned by Country Energy) and Queensland (the Roma network owned by the Roma Regional Council and the Dalby network owned by the Dalby Regional Council).

In addition, DUET Group is the majority owner of Victoria's Multinet network and a minority owner of WA Gas Networks.² It contracts out the operation of these networks.

There are significant ownership links between gas distribution and other energy networks. In particular, Singapore Power International, Babcock & Brown Infrastructure and APA Group own and/or operate gas transmission pipelines. In addition, Singapore Power International, APA Group, Cheung Kong Infrastructure and DUET Group all have ownership interests—in some cases, substantial interests—in the electricity network sector (see chapters 5, 6 and 9).

10.4 Regulation of distribution networks

Gas distribution networks are capital intensive and incur declining marginal costs as output increases. This gives rise to a natural monopoly industry structure. In Australia, most networks are regulated to ensure energy retailers and other parties can transport gas on reasonable terms and conditions.

The National Gas Law (Gas Law) and National Gas Rules (Gas Rules) provide the overarching regulatory framework for the gas distribution sector. The Gas Law and Gas Rules commenced on 1 July 2008 in all states and territories except Western Australia, which expects to implement the pipeline access provisions in the second half of 2009. These instruments replace the Gas Pipelines Access Law and the National Gas Code, which had provided the regulatory framework from 1997.

The regulation of distribution networks in southern and eastern Australia transferred from state and territory agencies to the Australian Energy Regulator

(AER) on 1 July 2008. The AER is working closely with jurisdictional regulators and network businesses to maintain regulatory certainty in the transition from state based to national regulation. In Western Australia, the Economic Regulation Authority continues to regulate gas distribution services.

10.4.1 Which networks are regulated?

The Gas Law includes a coverage mechanism to determine which pipelines are subject to economic regulation. At July 2009 the Gas Law covered 12 distribution networks, including all major networks in New South Wales, Victoria, Queensland, Western Australia, South Australia and the ACT. The recently constructed Tasmanian distribution network is the only major unregulated network. In addition, a number of small regional networks are not covered.³

10.4.2 Regulatory framework

In Australia, the providers of gas distribution services negotiate contracts to sell pipeline services to customers such as energy retailers. The contracts, which set the terms and conditions of network access, are negotiated on commercial terms that may differ from those that may be set through regulatory processes.

There are different forms of economic regulation for covered pipelines, based on criteria set out in the Gas Law.⁴ Currently, most Australia distribution networks are subject to full regulation, which requires the service provider to submit an access arrangement to the regulator for approval.⁵ An access arrangement sets out terms and conditions for third parties to use a pipeline. It must specify at least one reference service that most customers commonly seek, and a reference tariff for that service.

2 DUET Group comprises a number of trusts, for which Macquarie Bank and AMP Capital Holdings own the responsible entities.

3 A party may seek a change in the coverage status of a pipeline by applying to the coverage body, which is the National Competition Council. At present, the non-covered networks include the South West Slopes and Temora extensions of the NSW Gas Network; the Dalby and Roma town systems in Queensland; the Alice Springs network in the Northern Territory; and the Mildura system in Victoria.

4 The AER published an *Access arrangement guideline* in March 2009, which sets out the forms of regulation (see part 2). The guideline is available on the AER website at www.aer.gov.au.

5 The service provider may be the controller, owner or operator of the whole pipeline or any part of the pipeline.

A reference tariff may apply to one or more of the reference services offered to different groups of customers, and might cover capacity reservation (managed capacity services), volume (throughput services), peak, off-peak and metering (data) services. A network may also provide non-reference services, for which the AER does not approve the terms and conditions of access.

An access arrangement must also set out non-price terms and conditions, such as capacity expansion policies, queuing requirements and gas quality specifications.⁶ More generally, an access arrangement must comply with the provisions of the Gas Law, including pricing principles, ring-fencing requirements and provisions for associate contracts. In the event of a dispute, an access seeker may request the regulator to arbitrate and enforce the terms and conditions of the access arrangement.⁷ The AER has published a guideline on dispute resolution under the Gas Law.⁸

In some instances, a distribution pipeline may be subject to light regulation, in which the service provider is obliged to publish the terms and conditions of access on its website. While there are currently no light regulation distribution networks, the Gas Law establishes a process that may allow a distribution pipeline to convert to this form of regulation. However, light regulation may not apply to the Victorian and South Australian distribution pipelines listed in table 10.1.

10.4.3 Regulatory process

For a pipeline subject to full regulation, the Gas Law requires the network provider to submit an initial access arrangement to the regulator and revise it periodically. The revisions generally occur once every five years as scheduled reviews, but can occur more frequently—for example, if a trigger event compels an earlier review or the service provider seeks a variation to the access arrangement.

The Gas Rules prescribe the process and timeframe for an access arrangement review.⁹ A provider may consult with the AER to help develop a complete and well framed proposal. The AER recommends that this consultation process would ideally commence about six months before the scheduled submission date. Once a provider has submitted its access arrangement, the AER has six months to decide whether to approve the proposal. The review process allows time for stakeholder consultation and the engagement of specialist consultants. The consultation and information gathering processes ‘stop the clock’ and do not count towards the six month decision making time. This means the review process generally takes about nine to 12 months to complete. The decision making timeframe can be extended a further two months, with an absolute time limit of 13 months for a decision to be made.¹⁰

An AER decision on an access arrangements is subject to merits review by the Australian Competition Tribunal and judicial review by the Federal Court of Australia.

6 For further information on non-price matters, see AER, *Access arrangement guideline, final*, Melbourne, March 2009, at s.5.4.1.

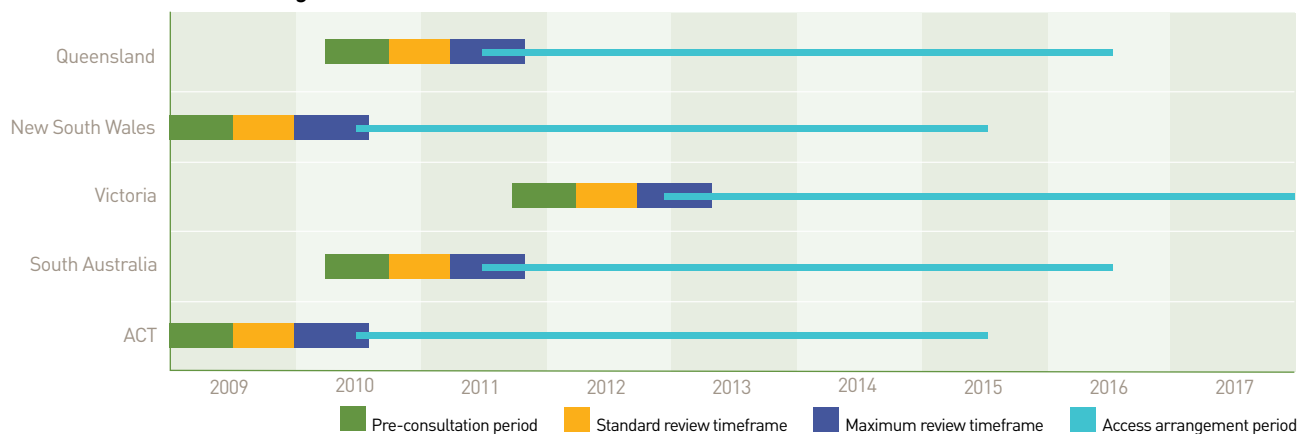
7 In Western Australia, a separate arbitrator hears access disputes.

8 AER, *Guideline for the resolution of distribution and transmission pipeline access disputes under the National Gas Law and National Gas Rules, final*, Melbourne, November 2008.

9 The AER published an *Access arrangement guideline* in March 2009, which sets out these processes. The guideline is available on the AER website at www.aer.gov.au.

10 The regulatory process in Western Australia is undertaken by the Economic Regulation Authority.

Figure 10.3
Indicative decision making timelines



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

Figure 10.3 shows indicative timeframes for the networks. The AER's first access arrangement review in gas distribution will set prices and other access terms and conditions from July 2010 for covered networks in New South Wales and the ACT. ActewAGL and Country Energy submitted their access arrangement revisions on 30 June 2009 and 1 July 2009 respectively. Jemena submitted its access arrangement revisions on 25 August 2009.

The AER will begin its next scheduled reviews—for the South Australian and Queensland networks—in the fourth quarter of 2010.¹¹

10.4.4 Regulatory approach

The Gas Rules require the use of a building block approach to determine total revenues and derive tariffs. A number of alternatives are permitted for applying this approach (see section 9.3.4 of this report). Total revenue must be sufficient to allow a business to recover efficient costs, including depreciation and an appropriate return on capital. The Gas Rules also allow for income adjustments from incentive mechanisms that reward

efficient operating practices. Once total revenue is determined, revenue is allocated to services provided by the distribution pipeline to establish reference tariffs. The tariffs are typically adjusted annually for inflation and other approved factors.¹²

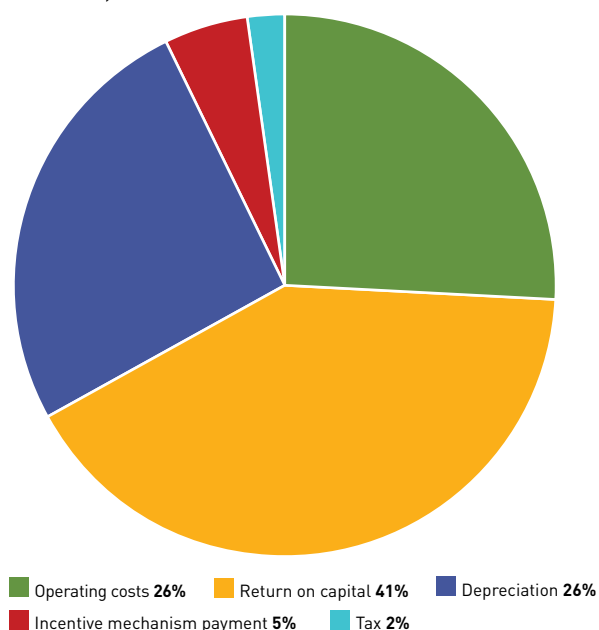
In approving a reference tariff, the AER must have regard to the costs of a prudent and efficient service provider of a pipeline service. In doing so, it will consider the circumstances in which a pipeline operates and draw on expert assessments, submissions from interested parties, benchmarking, the operation of efficiency mechanisms and key performance indicator information.

Figure 10.4 shows the revenue components of SP AusNet's current access arrangement in Victoria. It illustrates the relative importance of the building block components in a typical reference tariff determination. Depreciation and return on capital account for around two thirds of the revenue. Operating and maintenance costs, tax and incentive mechanism payments account for the balance.

11 APT Allgas is due to lodge access arrangement revisions for its Queensland distribution network on 30 September 2010. Envestra is due to lodge revisions for its Queensland and South Australian networks on 1 October 2010.

12 For further information on reference tariffs, see AER, *Access arrangement guideline, final*, Melbourne, March 2009, at s.5.4.2.

Figure 10.4
Revenue components for Victoria's SP AusNet gas network, 2008–12



Source: ESC, *Gas access arrangement review 2008–2012: further final decision*, Melbourne, 2008, p. 37.

10.5 Investment in distribution networks

Investment in gas distribution typically involves capital works to upgrade and expand the capacity of existing networks and extend the networks into new residential and commercial developments, regional centres and towns. While most major centres already have a distribution network in place, new networks have recently been constructed—for example, the Central Ranges (New South Wales) and Tasmanian networks.

Stay-in-business investment tends to be a relatively stable proportion of the capital base for most networks. However, investment that is program specific—such as meter replacement and major network refurbishment—may have ‘lumpy’ investment profiles. In addition, a network’s configuration may include high pressure or trunk pipelines that require significant upfront capital investment and additions over time, giving rise to ‘lumpy’ investment characteristics similar to those of transmission pipelines.

The cost of distribution investment depends on a range of factors, including:

- > the distance of new infrastructure from access points on gas transmission lines or gas distribution mains
- > the density of housing and the presence of other industrial and commercial customers in the area.

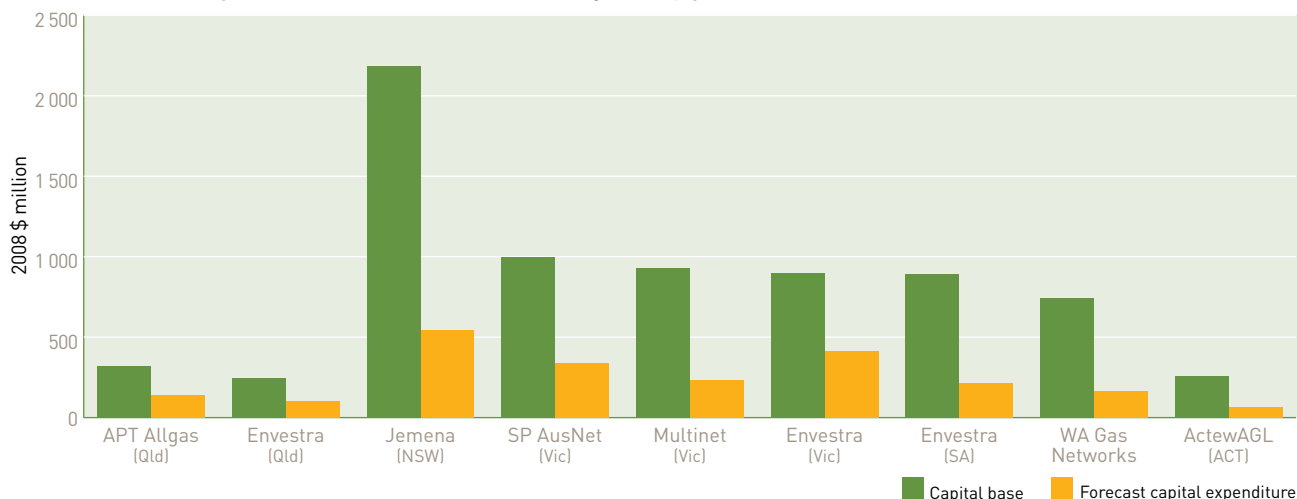
Figure 10.5 shows the opening capital bases and forecast investment over the current access arrangement period (typically five years) for the major networks. Figure 10.6 shows annual investment (in June 2008 dollars) in each network, based on actual data where available and forecast data for other years. The forecast data relate to proposed investment that the regulator has approved as efficient. The data are smoothed over the forecast period to remove the significant volatility often evident in annual forecast data. Figure 10.6 excludes Tasmanian’s unregulated network, for which data are not available.

Investment in gas distribution networks has grown steadily in recent years:

- > Investment was forecast at around \$440 million in 2008–09, and grew on average by around 8 per cent annually over the preceding five years.
- > Over the longer term, real investment of around \$2 billion is forecast during the current access arrangement periods for the major networks. This represents both substantial real investment in new infrastructure as well as rising resource costs in the construction sector.
- > Investment in current access arrangements is running at around 25 per cent of the underlying capital base for most networks, but around 35 per cent for SP AusNet (Victoria) and 40–50 per cent for Envestra (Victoria) and the Queensland networks.
- > The combined Victorian networks attract significantly higher investment than does New South Wales, partly reflecting the penetration of natural gas as a major heating source in Victoria. More generally, different outcomes across jurisdictions reflect a range of variables, including development activity, incentives or policies that encourage gas supply, market conditions, and investment drivers such as the scale and age of the networks.

Figure 10.5

Gas distribution capital and investment—current regulatory period



Notes:

The valuation for each pipeline is the capital base published in a regulator approved access arrangement.

Investment data represent forecast capital expenditure over the current access arrangement regulatory period (see table 10.1).

All estimates are converted to June 2008 dollars.

Sources: Access arrangements approved by the ESC (Victoria), IPART (New South Wales), the QCA (Queensland), ESCOSA (South Australia), the ERA (Western Australia) and the ICRC (ACT).

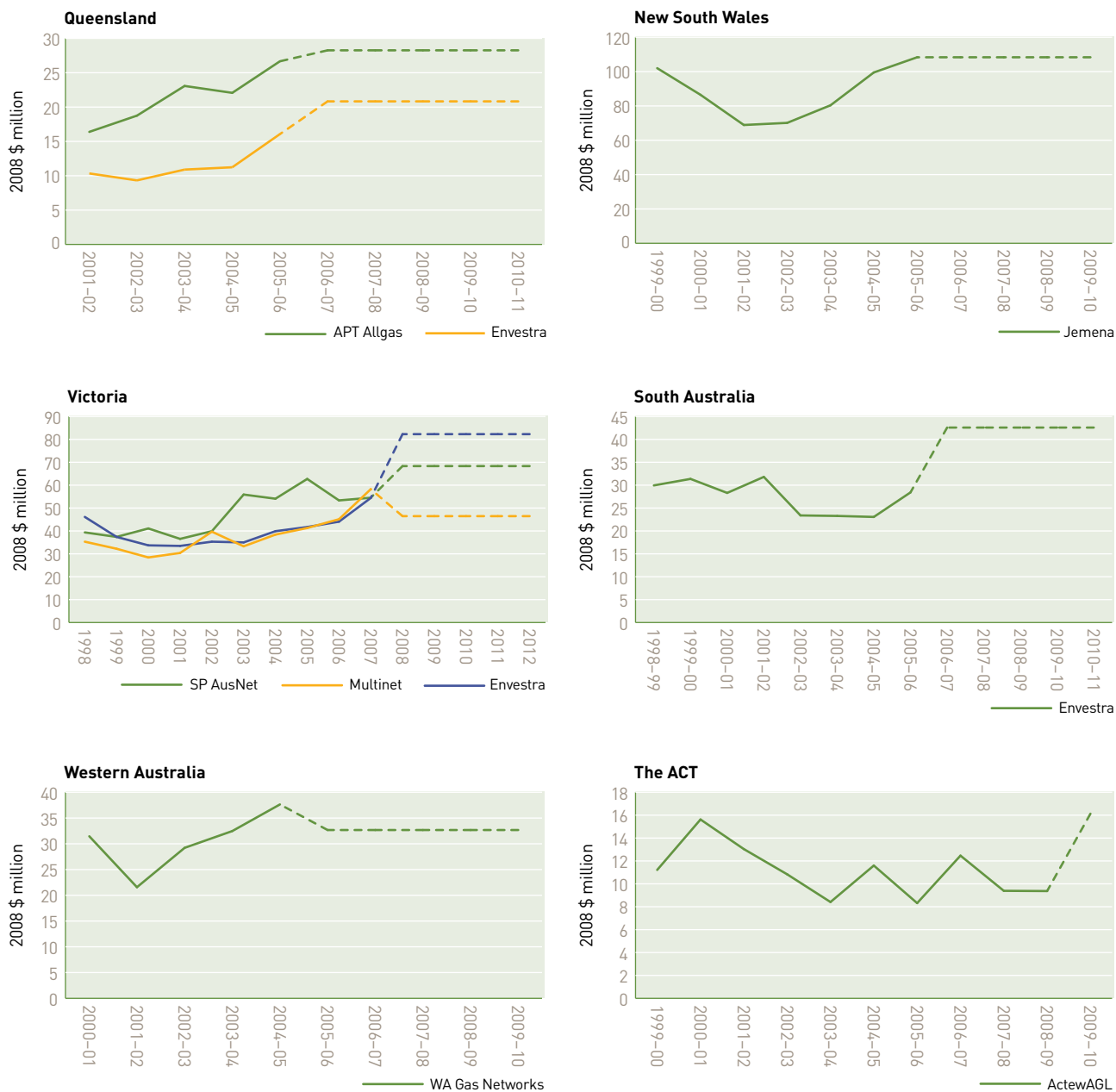
- > Investment is forecast to rise strongly in the next few years in Queensland, South Australia and Victoria. Current access arrangement decisions for these jurisdictions reflect a significant step-increase in forecast investment.
- > Looking forward, the introduction of carbon emission reduction policies may further accelerate the development of natural gas as an energy source, and influence investment.
- > The investment data mostly reflect the incremental expansion of existing networks—for example, Envestra began a \$3.7 million project in 2005 to upgrade and extend its Queensland network. The construction of new transmission pipelines also provides opportunities to develop new distribution networks—for example, the Tasmanian distribution network has been rolled out in major cities and towns following the construction of a transmission pipeline from Victoria to Tasmania.

10.6 Operating and maintenance costs

Financial performance reporting for gas networks has generally been less comprehensive than for electricity networks. Only Victoria and South Australia have tended to publish regular financial performance reports on the networks. The reporting arrangements may undergo changes with the shift to national regulation.

Regulatory decisions on access arrangements consider forecasts of a range of financial indicators, including revenues, operating and maintenance costs and returns on capital. Figure 10.7 compares forecast operating and maintenance expenditure for the networks on a per kilometre basis and on a per customer basis for 2008–09. The chart indicates that most networks have expenses ranging from about \$4000 to \$8000 per kilometre of network line length, or \$70–170 per customer. Differences may arise for a number of reasons, including the age and condition of the networks and geographic factors.

Figure 10.6
Gas distribution network investment



Notes:

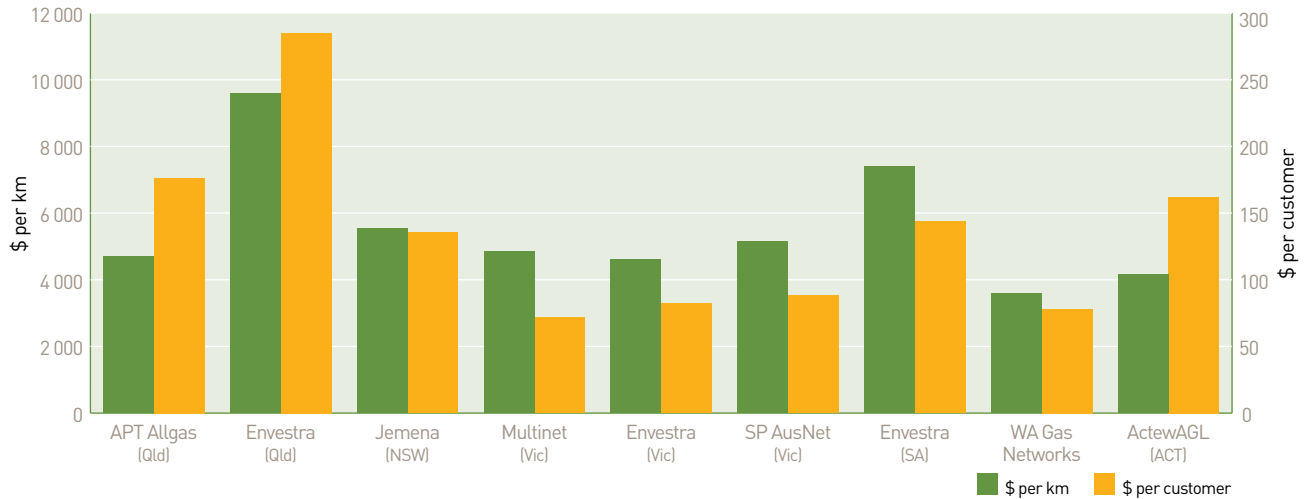
Actual investment outcomes (unbroken lines) used where available. Broken lines are forecast data from approved access arrangements, averaged over the forecast period.

All data converted to June 2008 dollars.

Sources: Access arrangements and network performance reports published by the ESC (Victoria), IPART (New South Wales), the QCA (Queensland), ESCOSA (South Australia), the ERA (Western Australia) and the ICRC (ACT).

Figure 10.7

Operating and maintenance expenditure per kilometre of pipeline and per customer—gas distribution networks, 2008–09



Notes:

Forecast data, converted to 2008 dollars.

Victorian data are for the 2008 calendar year.

Sources: Access arrangements approved by the ESC (Victoria), IPART (New South Wales), the QCA (Queensland), ESCOSA (South Australia), the ERA (Western Australia) and the ICRC (ACT).

Network-specific characteristics mean benchmarking or comparison across different networks has limitations. Comparisons on a per kilometre basis, for example, will be affected by the density of customers and the length of a pipeline network. Conversely, metrics based on customer numbers will vary between networks with large and small customer bases. There are generally very different metrics between networks in rural and city locations.

10.7 Quality of service

Quality of service monitoring for gas distribution services typically relates to:

- > the reliability of the gas supply (the provision of a continuous gas supply to customers)
- > network integrity (gas leaks, the effectiveness of operational and maintenance activities)
- > customer service (responsiveness to issues such as complaints and reported gas leaks).

While the Steering Committee on National Regulatory Reporting Requirements¹³ established national reporting indicators on service quality for electricity distribution and energy retailing, no equivalent indicators were developed for gas distribution. Instead, jurisdictions have applied locally determined service standards and reporting arrangements. Some technical and service standards are connected with jurisdictional licensing and safety requirements.

In general, the monitoring and reporting of service quality have been less comprehensive in the natural gas sector than for electricity. The disparity reflects:

- > different approaches to reporting across jurisdictions
- > a lesser reliance on gas than electricity as an energy source for most customers
- > technical characteristics inherent to gas distribution.

13 The Steering Committee on National Regulatory Reporting Requirements is a working group established by the Utility Regulators Forum.

Most jurisdictions publish (or have published) annual service performance reports on gas distribution networks. The reports reflect the dual roles of some jurisdictional agencies as technical and (until 2008) economic regulators. In New South Wales, the Department of Water and Energy publishes the data; in South Australia, Western Australia, Tasmania and the ACT, jurisdictional regulators report on this area. Jurisdictional reporting arrangements may evolve over time with the shift to national regulation. The Queensland Competition Authority ceased performance reporting on gas distribution in 2007. Victoria's Essential Services Commission ceased performance reporting in this area in 2008.

The data in this section are provided for information purposes, and not for making performance comparisons across the networks. As noted, performance monitoring in gas distribution is less evolved than for electricity, and the absence of a uniform national reporting framework can lead to fundamental differences in definitions, measurement and auditing systems. Differences in network age, size, design and historical investment can also have significant effects on measured performance.

10.7.1 Reliability of supply

The reliability of gas supply refers to the continuity of supply to customers. Most jurisdictions impose reliability requirements on gas distributors as part of their licence conditions, and publish (or have published) performance data in this area. In some cases, jurisdictions impose statutory obligations on network operators and owners that relate to the continuity of gas supply.

From a reliability perspective, the inherent storage capacity of gas distribution networks can help maintain continuous gas flow to most customers despite a disruption to part of the network. In addition, gas pipes are predominantly buried underground and—unlike electricity networks—are generally not affected by bad weather. In the case of planned renewals—or unplanned incidents such as gas explosions, third

party damage, water entering the mains, or directions from the technical regulator—customers in the vicinity of the incident (or those affected by a direction of the regulator) may experience a loss of gas flow.

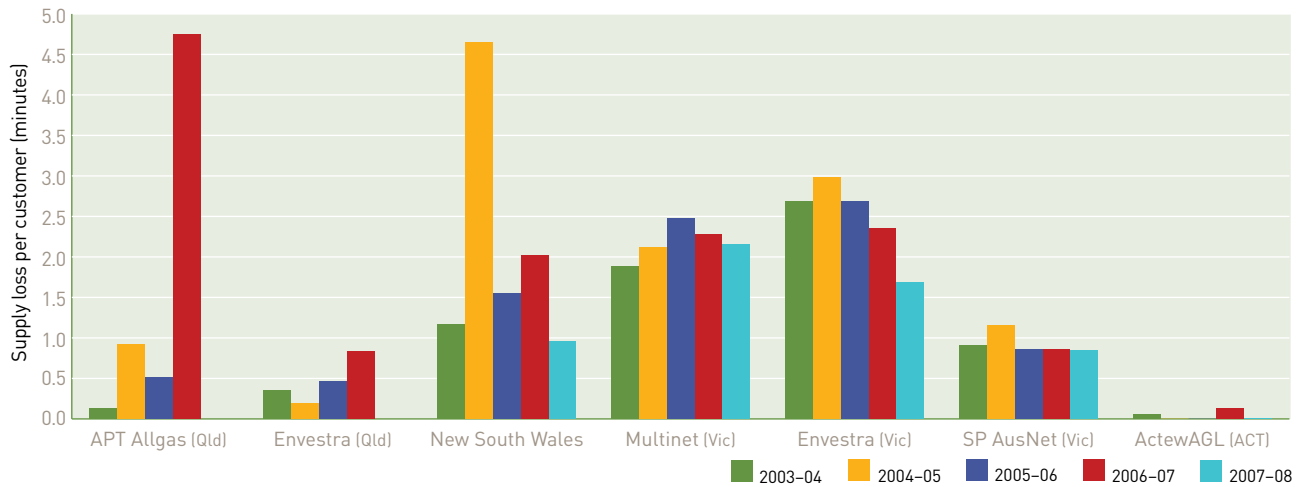
The generally high rates of network reliability mean a single incident can significantly affect data for a particular year. In particular, there may be significant short term variations in measured performance that result from factors beyond the control of the network providers. When considering network reliability, therefore, it is appropriate to focus on trends over time.

Jurisdictions publish a range of reliability indicators on gas distribution. Some jurisdictions publish reliability indicators similar to those applied in electricity distribution—for example, the average minutes without supply per customer per year (system average interruption duration index, SAIDI). Figure 10.8 sets out time series SAIDI data (unplanned interruptions) for Queensland, New South Wales, Victoria and the ACT. Differences in the jurisdictions' approaches limit the validity of comparisons. Queensland, New South Wales and the ACT account for only unplanned interruptions affecting five or more customers; the Victorian data cover all unplanned interruptions.

The data indicate that an average customer in Victoria and New South Wales is likely to experience gas supply interruptions of less than 3 minutes per year. There is a general trend of improvement in both jurisdictions. Customers in the ACT have experienced negligible supply losses. The Queensland networks generally recorded interruptions of less than 1 minute per customer, in the years for which data are available. Western Australia began publishing SAIDI data in 2009 and reported an average supply loss per customer of 26.8 minutes for WA Gas Networks in 2007–08. Tasmania also reports SAIDI data for its new distribution network, but has cautioned against performance comparisons with mainland jurisdictions until the state's natural gas market becomes more established.

Figure 10.8

Average unplanned gas supply loss per customer per year



Notes:

NSW and ACT data include only unplanned interruptions affecting five or more customers. Victorian data include all unplanned interruptions.

Victoria data are for the calendar year ending in that period. Queensland did not publish 2007-08 data. NSW and ACT data are AER estimates derived from official jurisdictional sources. NSW data are statewide across all networks.

Sources: Network performance reports published by the QCA (Queensland), the Department of Water and Energy (New South Wales), the ESC (Victoria) and the ICRC (ACT).

Another widely used reliability indicator is the number of significant unplanned supply interruptions (affecting five or more customers). Figure 10.9 sets out time series data for Queensland, New South Wales, Victoria and South Australia. Possible variations in underlying definitions limit the validity of comparisons across jurisdictions and networks. In addition, the data have not been normalised to account for differences in network scale or load. The chart does, however, indicate trends in the reliability of particular networks:

- > In Victoria, the number of significant unplanned interruptions has ranged from 45 to 83 events per year since 2001 across the three distribution networks. The Essential Services Commission reported in 2008 a deteriorating statewide trend since 2000, but no apparent major issues with distributors' asset management practices. On average, Victorian customers would expect an unplanned gas outage once every 83 years.¹⁴

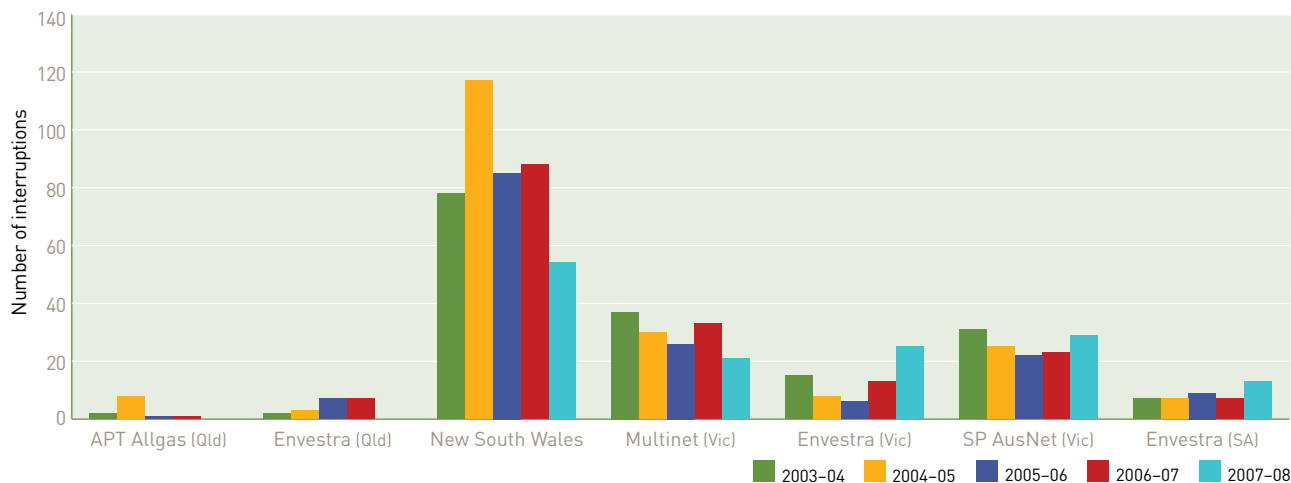
- > South Australia's Envestra network recorded 13 significant unplanned interruptions in 2007-08 (compared with seven events in the previous year). The Essential Services Commission of South Australia (ESCOSA) reported in 2008 that the number of unplanned interruptions had increased in recent years, citing more intensive measurement practices, and an increase in third party damage resulting from civil and construction activity.¹⁵
- > New South Wales recorded around 54 significant unplanned interruptions across all networks in 2007-08 (compared with 88 the previous year). The number of significant supply interruptions has declined sharply since 2004-05. The New South Wales Department of Water and Energy considered that reduced third party contact with network infrastructure might have contributed to this improvement.¹⁶
- > Queensland recorded relatively few supply interruptions in the years for which data are available.

14 ESC, *Gas distribution businesses: comparative performance report 2007*, Melbourne, 2008, pp. 14, 19, 20.

15 ESCOSA, *2007-08 Annual performance report: South Australian energy networks*, Adelaide, 2008, p. 86.

16 DEUS, *NSW gas networks: performance report 2007-08*, Sydney, 2008, pp. 13-15. Data are AER estimates derived from the DEUS report.

Figure 10.9
Significant unplanned interruptions in gas supply



Notes:

Data cover unplanned interruptions affecting five or more customers.

Victorian data are for the calendar year ending in that period. Queensland did not publish 2007-08 data.

NSW and ACT data are AER estimates derived from official jurisdictional sources. NSW data are statewide across all networks.

Sources: Network performance reports published by the QCA (Queensland), the Department of Water and Energy (New South Wales), the ESC (Victoria) and ESCOSA (South Australia).

10.7.2 Network integrity

Network integrity issues relate to the quality of network infrastructure and associated maintenance practices. Indicators of network integrity include the frequency of gas leaks and repairs, and the amount of unaccounted-for gas. Australian laws require odorant to be added to gas that enters a distribution system. The odorant makes leaks easier to detect. It is usually added at the gate station.

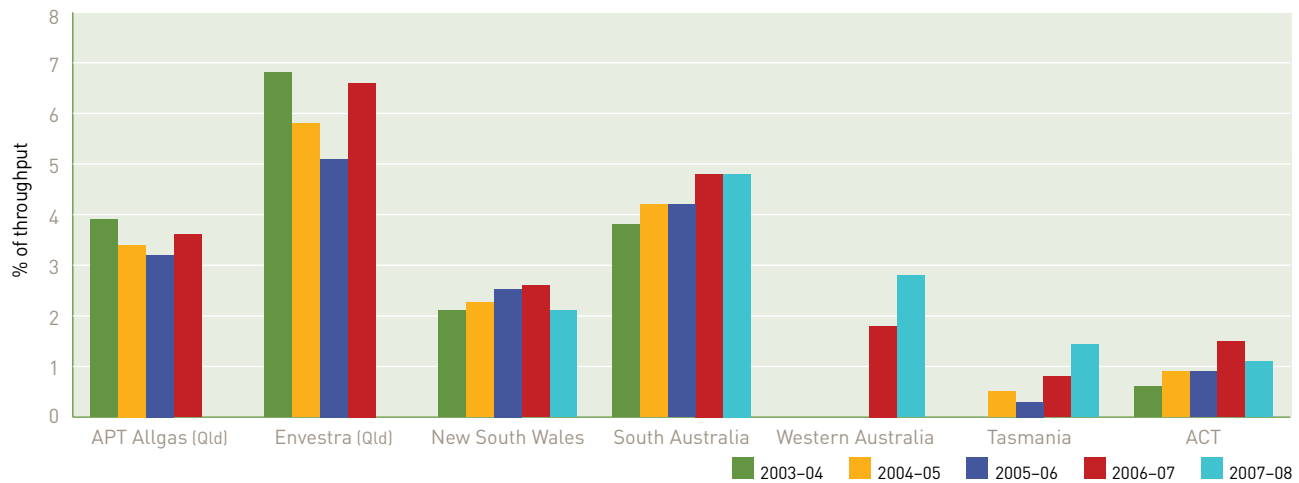
New South Wales, Victoria, Western Australia and the ACT publish data on gas leaks, but the indicators differ across jurisdictions. Some indicators focus on gas leaks reported by the public, while others focus on leaks detected via network surveys. Some indicators focus on total leaks, while others focus on repaired or unrepaired leaks. The range of approaches makes it difficult to compare outcomes between networks in different jurisdictions.

Unaccounted-for gas refers to the difference between the amount of gas injected into a distribution network and the amount of gas delivered to customers. Losses can occur for a number of reasons, including gas leaks, meter reading errors and theft. New South Wales, South Australia, Western Australia and Tasmania report annually on loss data; Queensland ceased publishing the data in 2007. Figure 10.10 sets out the available data from 2003-04. It indicates that up to 7 per cent of gas injected into a distribution network cannot be accounted for. ESCOSA has reported that about 80 per cent of unaccounted-for gas relates to leaks.¹⁷

The New South Wales Department of Water and Energy considered the performance of the state’s distribution networks in 2007-08 to be sound in this area.¹⁸ ESCOSA’s 2007-08 performance report noted the proportion of unaccounted-for gas in Envestra’s South Australian network is around 6.4 per cent

17 ESCOSA, *2007-08 Annual performance report: South Australian energy networks*, Adelaide, 2008, p. e.
 18 Department of Water and Energy (NSW), *NSW gas networks: performance report 2007-08*, Sydney, 2008, p. 8

Figure 10.10
Unaccounted-for gas



Notes:

ACT data are AER estimates derived from official jurisdictional sources.

Queensland did not publish 2007-08 data.

NSW data are statewide across all networks.

Sources: Network performance reports published by the QCA (Queensland), the Department of Water and Energy (New South Wales), ESCOSA (South Australia), the ERA (Western Australia), OTTER (Tasmania) and the ICRC (ACT).

(adjusting for gas delivered through high pressure farm taps that do not leak). ESCOSA considered that a deterioration in the network's unprotected steel and cast iron mains may be contributing to the state's high rate of unaccounted-for gas.¹⁹

Conversely, the low rate of unaccounted-for gas in Tasmania may reflect the distribution network being relatively new and embodying more recent technology than that of some other networks.

10.7.3 Customer service

The level of customer service achieved by a distributor can be measured in terms of timeliness and responsiveness across a range of customer interactions, including customer calls, the arrangement of new connections, the keeping of appointments, and the number and nature of complaints about service providers. New South Wales, Victoria, South Australia, Western Australia, Tasmania and the ACT report

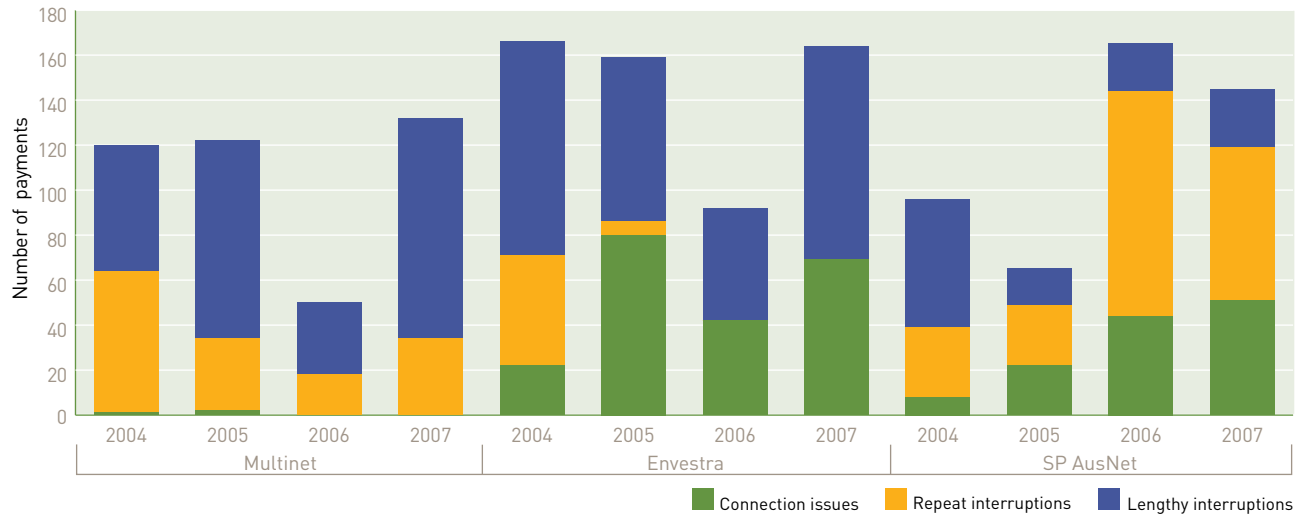
annually on at least one customer service indicator. Queensland ceased publication of these data in 2007. The use of different indicators across jurisdictions, combined with differences in measurement and auditing systems, makes it difficult to compare outcomes across jurisdictions.

In addition to performance reporting, distributors in Victoria and Western Australia must meet guaranteed service levels or pay penalties for breaches. Figure 10.11 shows trends in the number of payments for the Victorian networks. The data distinguish between the reasons that distributors were obliged to make the payments. Distributors made 444 payments in 2007 worth almost \$43 000—an increase of 45 per cent over the previous year's payments. The most significant increase related to lengthy supply interruptions not restored within 12 hours.²⁰

19 ESCOSA, *2007-08 Annual performance report: South Australian energy networks*, Adelaide, 2008, p. 82.

20 ESC, *Gas distribution businesses: comparative performance report 2007*, Melbourne, 2008, p. 26.

Figure 10.11
Guaranteed service level payments by gas distributors, Victoria



Source: ESC, *Gas distribution businesses: comparative performance report 2007*, Melbourne, 2008.