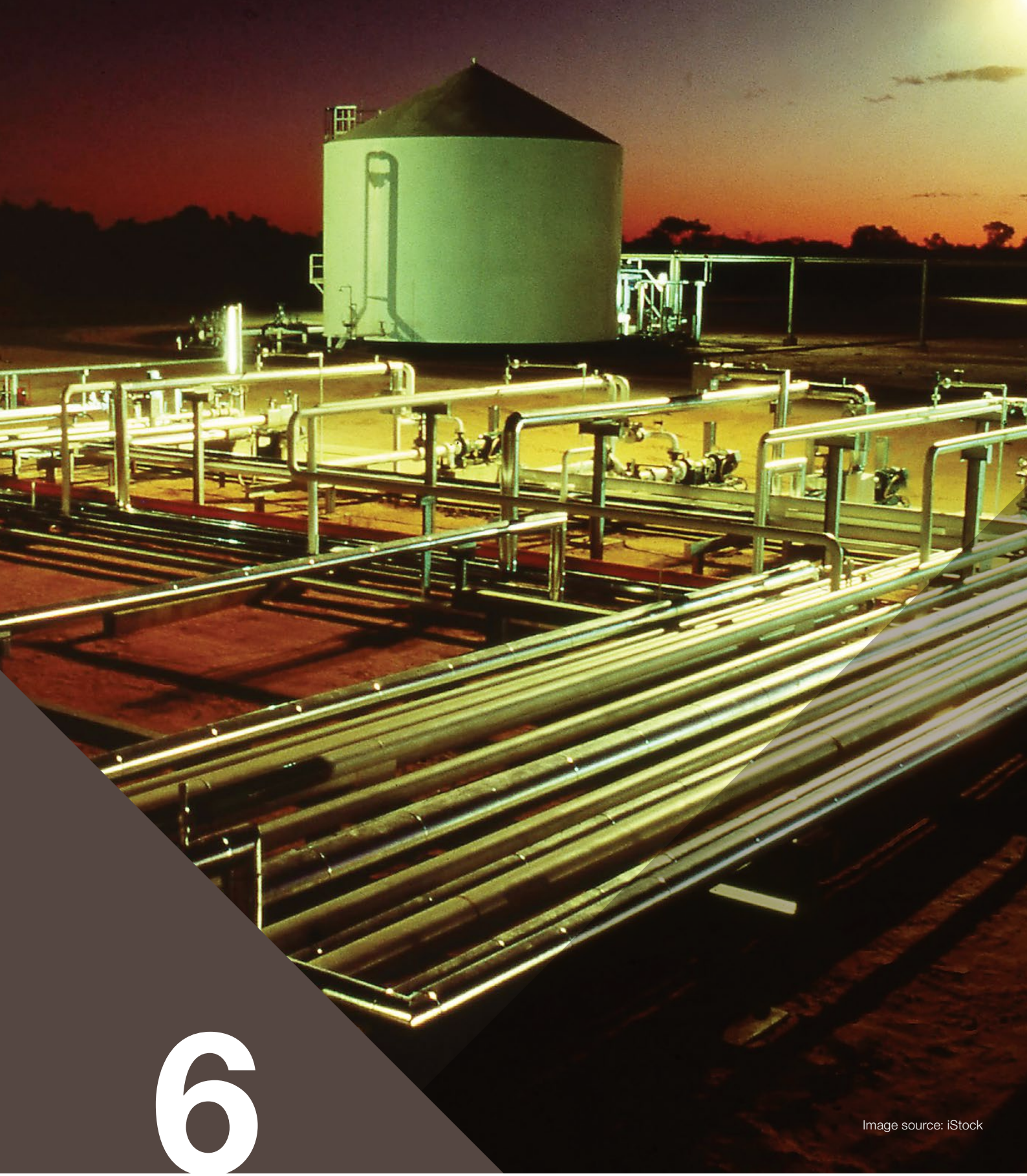


Image source: iStock

6

Regulated gas pipelines

Australia's gas pipeline infrastructure consists of transmission and distribution pipelines. Together, these pipelines transport gas from upstream producers to residential, commercial and industrial customers. The role of the transmission pipelines is to carry gas from producing basins to major population centres, power stations, and large industrial and commercial plants. Smaller urban and regional distribution pipelines transport gas to customers in local communities.

This chapter covers the scheme pipelines regulated by the AER, which is the regulator in all states and territories except Tasmania and Western Australia.[1]

6.1 Snapshot

In December 2022, the AER finalised the access arrangement for the Victorian transmission pipeline APA Victorian Transmission System. The terms of this access arrangement and the reference prices determined by the AER are now set through to 31 December 2027.

In June 2023, the AER finalised access arrangements for 3 Victorian distribution pipelines – AusNet Services, Australian Gas Networks and Multinet Gas Networks. The access arrangements and reference prices for these distribution pipelines are now set through to 30 June 2028.

Over the 12-month period to 30 June 2022, AER determinations covered access prices for 9 pipeline service providers:

- Those service providers earned $40 million (2.4%) less revenue than in the previous year and $111 million (6%) less than the average annual revenue earned over the previous 5 years[2] (section 6.7).
- The overall decrease in revenue from the previous year was driven by distribution pipeline Australian Gas Networks (South Australia) (down 9%) and transmission pipeline Roma Brisbane Pipeline (Queensland) (down 8%) (section 6.7).
- Investments in scheme pipelines were primarily made to replace aging mains pipelines (section 6.10).

In March 2023 a package of reforms was introduced, which updates the regulatory framework applying to regulated gas pipelines (section 6.4). The AER is currently undertaking processes to implement these reforms. Among other changes, the AER will now be responsible for making determinations on the form of regulation, which will determine whether any other pipelines should be regulated under the building block regulatory model.

6.2 Gas pipeline characteristics

The most common service provided by transmission pipelines is haulage – that is, transporting (or 'shipping') gas from an injection point on the pipeline to an offtake point further along. Haulage may be offered on a firm (guaranteed) or interruptible (only if spare capacity is available) basis. Some customers seek backhaul too, which is reverse direction transport. Gas can also be stored (parked) in a pipeline on a firm or interruptible basis. As the gas market evolves, more innovative services are being offered, including compression (adjusting pressure for delivery), loans (loaning gas to a third party), redirection and in-pipe trades.

Transmission pipelines typically have wide diameters and operate under high pressure to optimise shipping capacity. An interconnected transmission grid links gas basins and retail markets in all states and territories other than Western Australia (Figure 6.1).

Distribution pipelines are installed underground and consist of high, medium and low-pressure mains. The high and medium pressure pipes provide a 'backbone' that services high demand zones, while the low-pressure pipes lead off high pressure mains to commercial and industrial customers and residential homes.

The services provided by transmission pipelines are evolving to meet changing market needs, but distribution pipelines tend to offer fairly standard services – namely, allowing gas injections into a pipeline, conveying gas to supply points and allowing gas to be withdrawn.

1 The Economic Regulation Authority (ERA) administers separate regulatory arrangements in Western Australia. The Office of the Tasmanian Economic Regulator (OTTER) administers separate regulatory arrangements in Tasmania.

2 Excludes revenue earned by Amadeus Gas Pipeline. Amadeus Gas Pipeline's actual revenue is confidential because it contains commercially sensitive information.

Gas is distributed to most Australian capital cities, major regional areas and towns. Queensland and Victoria each have multiple pipeline service providers, while New South Wales (NSW), South Australia, Tasmania and the Australian Capital Territory (ACT) are each served by a single regulated service provider.[3] In 2022, distribution pipelines supplied natural gas to almost 4.3 million residential customers and over 110,000 commercial and industrial customers (Figure 6.3).

The total number of customers on the distribution pipelines increased by 1.2% in 2022. However, this increase marked the lowest annual growth in distribution customers within the available data (dating back to 2012).

In 2022, residential customers accounted for more than 97% of the total distribution customer base but only consumed around 50% of the total gas delivered. The other 3% of customers were either industrial or commercial customers and consumed the remaining 50% of the gas delivered.

The capital base of the transmission and distribution service providers for which the AER sets access prices is worth a combined $12.3 billion (Figure 6.2 and Figure 6.3).[4]

Box 6.1 Changing forms of regulation

Recent reforms to improve and simplify the gas pipeline regulatory framework have resulted in several significant changes to the National Gas Law and National Gas Rules (section 6.4).

Prior to the reforms, the National Gas Law provided for the following forms of regulation:

- full regulation for scheme pipelines
- light regulation for scheme pipelines
- Part 23 (National Gas Rules) regulation for non-scheme pipelines that provided third party access to pipeline services.

Under the new regulatory framework, gas pipelines are classified as either:

- scheme pipelines, or
- non-scheme pipelines (section 6.4.1).

Expansions of the capacity of a pipeline are treated as part of the same pipeline.

Previous publications of the State of the energy market focused on the pipeline service providers for which the AER assesses the terms and conditions of access to nominated reference services using a building block approach to assess the service provider's efficient costs (section 6.6). Prior to the reforms this included all fully regulated scheme pipelines.

In this report we continue to focus on the pipeline service providers we have focused on in the past[a] – the pipeline service providers that were previously classified as 'full regulation'.

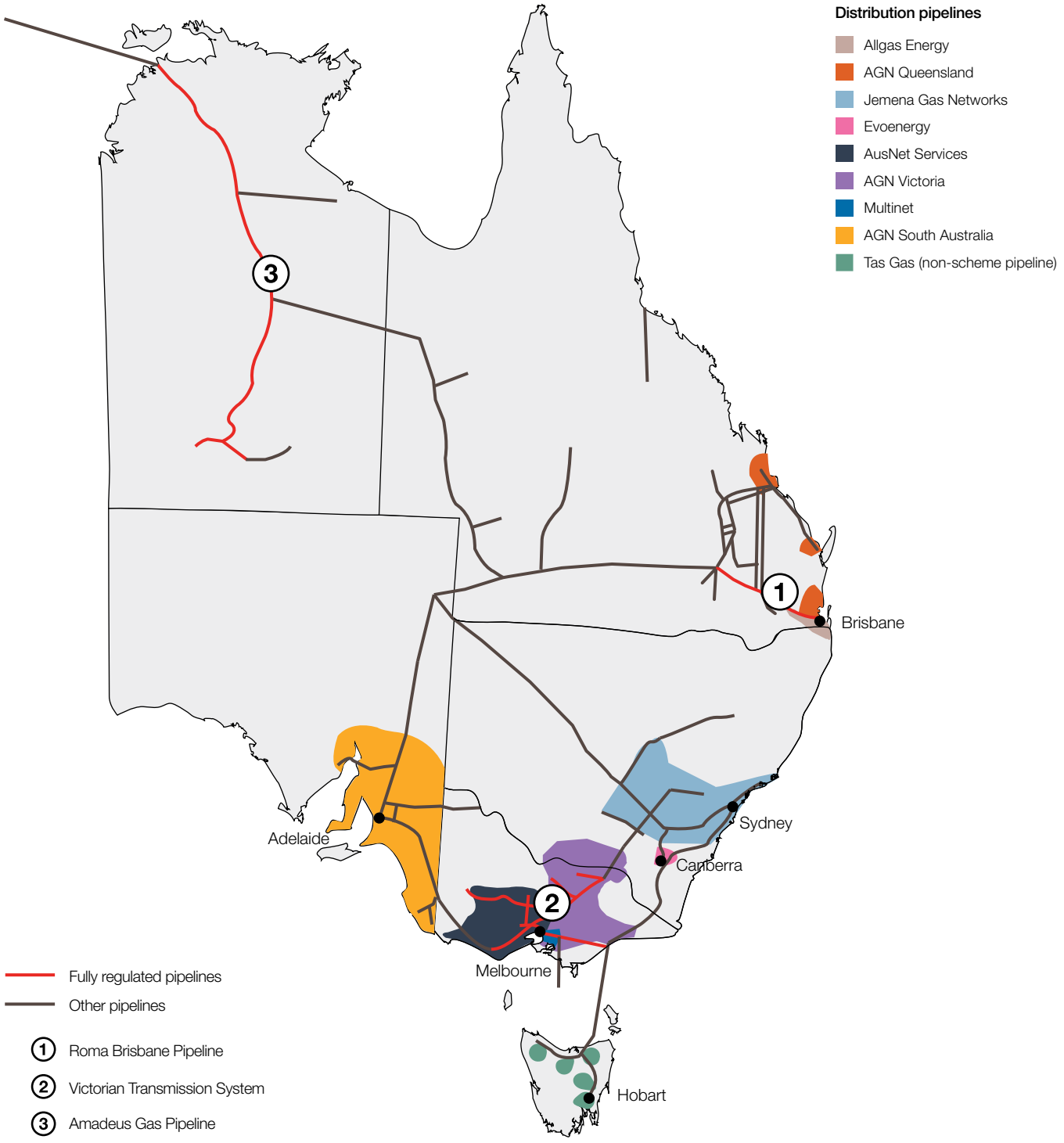
While the newly classified 'scheme pipelines' capture both 'full and light regulation' pipelines any reference to 'scheme pipelines' within this report refers exclusively to those previously classified as fully regulated (unless otherwise stated).

a Three transmission pipeline service providers – Roma Brisbane Pipeline (Queensland), APA Victorian Transmission System (Victoria) and the Amadeus Gas Pipeline (Northern Territory) – and 6 distribution pipeline service providers in NSW, Victoria, South Australia and the ACT.

3 Some pipelines cross state or territory boundaries. For example, Australian Gas Network's Victorian pipeline and Evoenergy's ACT pipeline both extend into NSW. Some jurisdictions also have smaller unregulated regional pipelines, such as the Wagga Wagga pipeline in NSW.

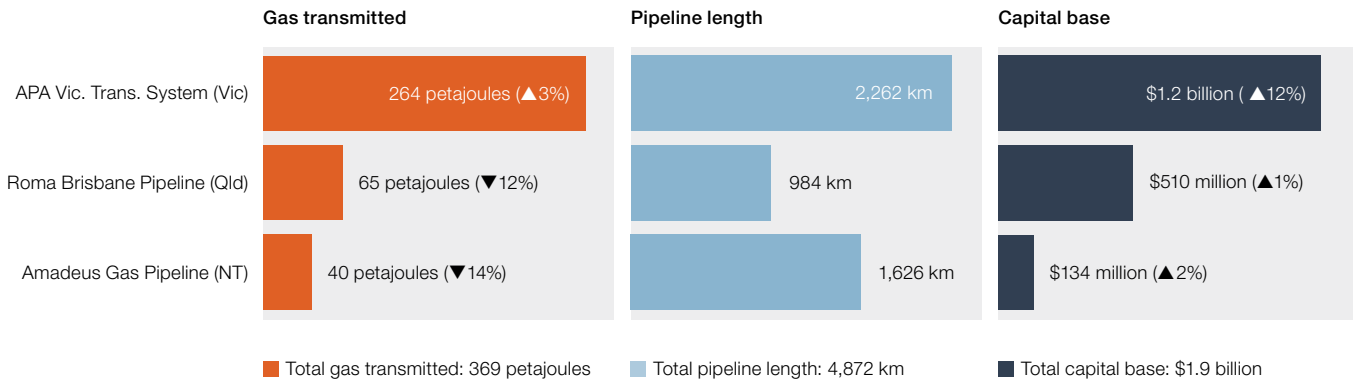
4 Capital bases capture the total economic value of assets that are providing pipeline services to customers. These assets have been accumulated over time and are at various stages of their economic lives.

Figure 6.1 Major gas transmission and distribution pipelines



Source: AER.

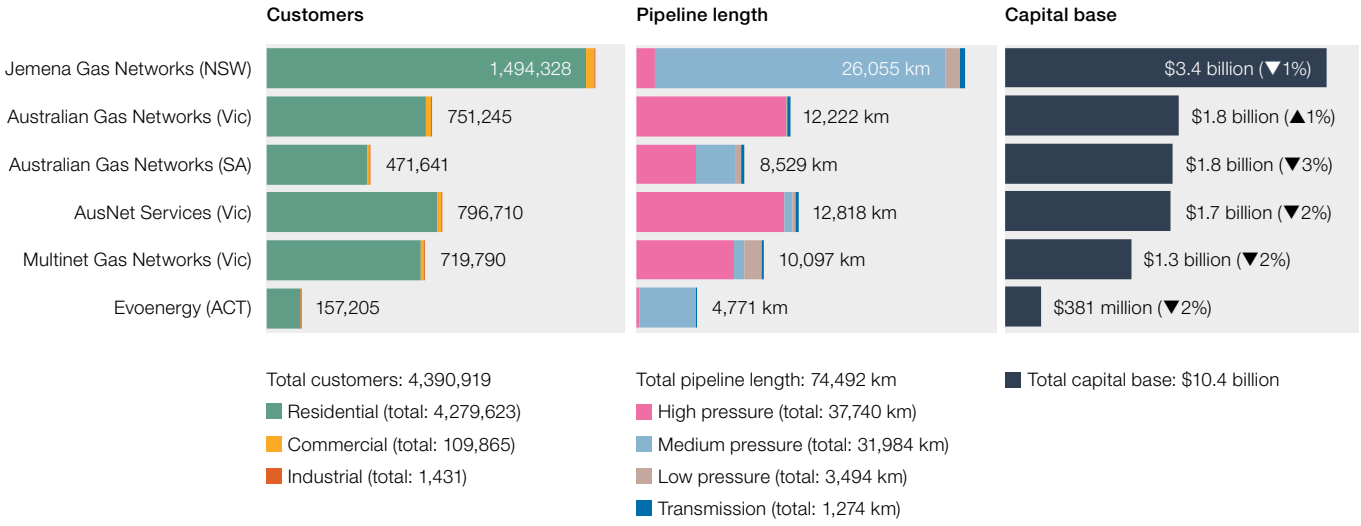
Figure 6.2 Gas transmission pipelines regulated by the AER



Note: Capital base is adjusted to June 2022 dollars. The capital base is the forecast value of pipeline assets based on the closing capital base at 30 June 2022, except for APA Victorian Transmission System (31 March 2022). Pipeline length includes looping where applicable. Looping refers to 2 or more lengths of pipeline along a route – for example, where the existing pipeline has been duplicated.

Source: AER access arrangement decisions and annual regulatory information notices (RINs).

Figure 6.3 Gas distribution pipelines regulated by the AER



Note: Capital base is adjusted to June 2022 dollars. The capital base is the forecast value of pipeline assets based on the closing capital base at 30 June 2022, except for the Victorian distribution pipelines (31 December 2022).

Source: AER access arrangement decisions and annual regulatory information notices (RINs).

Pipeline service providers earn revenue by providing access (selling capacity) to parties needing to transport gas. These parties include:

- energy retailers seeking to buy natural gas in large volumes and on-sell it to consumers
- commercial and industrial users
- liquefied natural gas (LNG) exporters, which buy gas directly from producers and contract with a pipeline service provider to transport it to export terminals.

Distribution service providers transport gas to energy customers, but they do not sell gas. Energy retailers purchase gas from producers and pipeline services from pipeline service providers and sell them as a packaged retail product to their customers. Many retailers offer both gas and electricity products.

6.3 Gas pipeline ownership

Australia's gas pipelines are privately owned. The publicly listed APA Group (APA) is Australia's largest pipeline service provider, with a portfolio mainly in gas transmission. Other sector participants include Jemena Gas Networks (Jemena, owned by State Grid Corporation of China and Singapore Power International) and Cheung Kong Infrastructure Holdings Limited (CKI Group), which operates Australian Gas Networks. State Grid Corporation of China and Singapore Power International also have interests in the publicly listed AusNet Services (Victoria).

Table 6.1 summarises ownership of key gas transmission pipelines.

Table 6.1 Ownership of key gas transmission pipelines

Pipeline service provider	Location	Capacity (TJ/day)	Regulatory status	Owner
Roma Brisbane Pipeline	Qld	211 (145)	Scheme pipeline	APA Group
Victorian Transmission System (GasNet)	Vic	1,169	Scheme pipeline	APA Group
Amadeus Gas Pipeline	NT	165	Scheme pipeline	APA Group
South West Queensland Pipeline (Wallumbilla to Moomba)	Qld–SA	453 (340)	Non-scheme pipeline	APA Group
Queensland Gas Pipeline (Wallumbilla to Gladstone)	Qld	149 (37)	Non-scheme pipeline	Jemena (State Grid Corporation of China 60%, Singapore Power 40%)
Carpentaria Pipeline (South West Qld to Mount Isa)	Qld	119 (65)	Scheme pipeline	APA Group
GLNG Pipeline (Surat–Bowen Basin to Gladstone)	Qld	1,430	15-year no coverage	Santos 30%, PETRONAS 27.5%, Total 27.5%, KOGAS 15%
Wallumbilla Gladstone Pipeline	Qld	1,598	Non-scheme pipeline/ 15-year no coverage	APA Group
APLNG Pipeline (Surat–Bowen Basin to Gladstone)	Qld	1,560	15-year no coverage	Origin Energy 37.5%, ConocoPhillips 37.5%, Sinopec 25%
Moomba to Sydney Pipeline	SA–NSW	489 (193)	Non-scheme pipeline	APA Group
Moomba to Adelaide Pipeline	SA	249 (85)	Non-scheme pipeline	QIC Global Infrastructure
Eastern Gas Pipeline (Longford to Sydney)	Vic–NSW	350	Non-scheme pipeline	Jemena (State Grid Corporation of China 60%, Singapore Power 40%)
Vic–NSW Interconnect	Vic–NSW	223 (226)	Non-scheme pipeline	Jemena (State Grid Corporation of China 60%, Singapore Power 40%)
SEA Gas Pipeline (Port Campbell to Adelaide)	Vic–SA	254	Non-scheme pipeline	APA Group 50%, Retail Employees Superannuation Trust 50%
Tasmanian Gas Pipeline (Longford to Hobart)	Vic–Tas	129	Non-scheme pipeline	Palisade Investment Partners
Northern Gas Pipeline (Tennant Creek to Mount Isa)	NT–Qld	90	Non-scheme pipeline	Jemena (State Grid Corporation of China 60%, Singapore Power 40%)
Bonaparte Pipeline	NT	108	Non-scheme pipeline	Energy Infrastructure Investments (APA Group 19.9%, Marubeni 49.9%, Osaka Gas 30.2%)

Note: TJ/day: terajoules per day.
For bi-directional pipelines, reverse capacity is shown in brackets.

Source: AER; ACCC, interim reports of gas inquiry 2017–2025; corporate websites; Gas Bulletin Board.

Table 6.2 summarises ownership of gas distribution pipelines.

Table 6.2 Ownership of gas distribution pipelines

Pipeline service provider	Location	Owner
Jemena Gas Networks	NSW	Jemena (State Grid Corporation of China 60%, Singapore Power 40%)
AusNet Services	Vic	Australian Energy Holdings No 4 Pty Limited
Multinet Gas Network	Vic	CK Infrastructure Holdings
Australian Gas Networks	Vic	CK Infrastructure Holdings
Australian Gas Networks	SA	CK Infrastructure Holdings
Evoenergy	ACT	ICONWater (ACT Government), 50%; Jemena, 50%
Allgas Energy	Qld	Marubeni, 40%, SAS Trustee Corp, 40%; APA Group, 20%
Australian Gas Networks	Qld	CK Infrastructure Holdings

Source: AER gas pipeline performance data; corporate websites.

6.4 Regulating gas pipelines

Gas pipelines are capital intensive and require significant investment to install, operate and maintain the necessary infrastructure. This gives rise to a natural monopoly industry structure, where it is more efficient to have a single pipeline service provider than to have multiple providers offering the same service. Because monopolies face little competitive pressure, they have the opportunities and incentives to charge higher prices than they could charge in a competitive market. This poses risks to consumers because pipeline charges make up a significant portion of residential gas bills (chapter 7).

The National Gas Law and National Gas Rules set out the regulatory framework for gas pipelines. The regulatory objective of the National Gas Law is to promote efficient investment in, and operation and use of, gas services for the long-term interests of consumers in terms of the price, quality, safety, reliability and security of supply of gas. The National Gas Rules set out revenue and pricing principles, including that pipeline service providers should have a reasonable opportunity to recover efficient costs.

In May 2023, Energy Ministers agreed to amendments to the national energy laws to incorporate an emissions reduction objective into the National Gas Objective. The amendments are designed to ensure governments and market bodies have the necessary legislative and regulatory levers to keep Australia's energy sector affordable, secure and reliable, in the best interest of consumers. This amendment is expected to take place in late 2023.

In March 2023, a regulatory package commenced operation to implement reforms to gas pipeline regulation. These reforms were agreed on by Energy Ministers and are intended to deliver a simpler regulatory framework, increased market transparency and improved access to pipelines on fair terms.[5]

The reforms have significantly changed the way in which gas pipelines are regulated. Under the reforms:[6]

- The 3 previous forms of regulation (full or light regulation for scheme pipelines, and non-scheme pipelines) have been condensed into 2 forms of regulation. Under the new regulatory framework, gas pipelines are classified as either 'scheme' or 'non-scheme' pipelines, and expansions of the capacity of a pipeline are treated as part of the same pipeline.
- The AER is now responsible for determining the form of regulation by applying a form of regulation test.
- Pipeline service providers may apply to the AER for a greenfields incentive determination and a greenfields price protection determination prior to commissioning new pipelines.
- All pipeline service providers must publish prescribed transparency information under a unified information disclosure framework. Additionally, standalone compression and storage facilities are required to publish standing terms and price information. The AER has a role in monitoring and reporting on this information.
- All pipelines are subject to the same access negotiation frameworks and ring-fencing requirements.

5 Australian Government, Reform package to improve gas pipeline regulation takes effect, Department of Climate Change, Energy, the Environment and Water, accessed 13 June 2023.

6 AER, Compliance bulletin – new obligations on gas pipeline, compression and storage service providers, Australian Energy Regulator, 7 June 2023, accessed 14 June 2023.

Throughout 2023 the AER has sought stakeholder views when developing several new guidelines and templates to operationalise the reforms.[7]

6.4.1 Forms of regulation

Under the reforms the AER has assumed responsibility for determining the level of regulation that will apply to gas pipelines (through form of regulation determinations), the way new pipelines may be regulated (through greenfield determinations) and the classification and reclassification of pipelines. Before the reform this role was fulfilled by the National Competition Council and the jurisdictional minister.

Under the reforms, 'light regulation' has been abolished. All pipelines are now subject to a range of uniform access, transparency and ring-fencing requirements.

Scheme pipelines are now subject to a stronger form of regulation, including a regulatory-oriented access dispute resolution process. Service providers operating scheme pipelines are required to periodically submit an access arrangement to the AER for approval.[8] Service providers operating non-scheme pipelines are subject to a lighter form of regulation, a commercially oriented access dispute resolution process, and are not required to submit an access arrangement.

All new pipelines will be non-scheme pipelines when they are commissioned.

6.4.2 Pipeline classification and reclassification

The AER will implement a simplified approach to pipeline classifications and reclassifications under the new gas regulatory framework.[9]

Under the reforms, the default position is that a pipeline is a distribution pipeline if it is classified as a distribution pipeline under its jurisdictional licence or authorisation. Similarly, a pipeline is a transmission pipeline if it is classified as a transmission pipeline under its licence/authorisation. For new pipelines, if the jurisdictional licence contains no classification, the pipeline service provider must apply to the AER for a classification decision.[10] A service provider may apply to the AER for reclassification if it considers it has been wrongly classified.

6.4.3 Greenfields pipeline projects

Before the reforms commenced, '15-year no coverage' determinations were made by the relevant Minister on the recommendation of the National Competition Council. The Minister was required to make the determination unless satisfied that all the coverage criteria were satisfied.

Under the reforms, greenfields pipeline projects may apply to the AER (before commissioning) for a greenfields incentive determination. They may also apply for a greenfields price protection determination, either as part of the greenfields incentive determination application process or later if they obtain a greenfields incentives determination.[11]

6.4.4 Prescribed transparency information for pipelines

Part 10 of the National Gas Rules prescribes the new transparency information requirements that apply to all scheme and non-scheme pipeline service providers. This information is to assist users of the pipeline in negotiations with the pipeline service provider.

Prior to the reforms, service providers of light regulation pipelines and non-scheme pipelines were required to prepare prescribed transparency information under Parts 7 and 23 of the National Gas Rules, respectively. These Parts are now repealed and have been replaced by Part 10.

7 AER, Pipeline regulatory determinations and elections guide, Australian Energy Regulator, 16 June 2023, accessed 14 August 2023.

8 A pipeline is a scheme pipeline if it was a covered pipeline (other than a light regulation pipeline) immediately before 2 March 2023.

9 AER, Pipeline regulatory determinations and elections guide, Australian Energy Regulator, 16 June 2023, accessed 14 August 2023.

10 AGS, Legal briefing - Gas pipeline reforms, 17 March 2023, accessed 14 June 2023.

11 AGS, Legal briefing - Gas pipeline reforms, 17 March 2023, accessed 14 June 2023.

Exemptions from certain requirements are available for pipeline service providers that meet the exemption criteria. The requirements to prepare, publish and maintain the information set out in the National Gas Rules and the pipeline information disclosure guidelines are classified as tier 1[12] civil penalty provision under the National Gas (South Australia) Regulations.[13]

6.4.5 Ring-fencing requirements

Under the reforms, all pipelines are now subject to a set of requirements which previously only applied to some pipelines.[14] These include ring-fencing requirements. A service provider must, within 5 business days after entering into or varying an associate contract (whether approved or not), give the AER written notice of the contract or variation together with a copy of the contract (or the contract as varied). The requirement is classified as a conduct provision and tier 2 civil penalty provision under the National Gas (South Australia) Regulations.[15]

The National Gas Rules provide for a service provider to apply for an exemption from the ring-fencing requirements.

6.4.6 Monitoring and surveillance

Under the reforms, the AER is required to monitor the behaviour of pipeline service providers, including the prices charged for providing pipeline services, the information published by pipeline service providers, outcomes of access negotiations, dealings with associates and compliance with ring-fencing requirements.

Aside from these newly assigned monitoring and surveillance responsibilities, the AER already publishes an annual gas network performance report. The report provides an in-depth analysis of key outcomes and trends in the operational and financial performance of the transmission and distribution pipelines which, under the new framework, are classified as scheme pipelines. The report balances regular high-level reporting on a core set of measures with more detailed analyses on specific focus areas representing emerging issues of stakeholder interest.[16]

The 2023 gas network performance report is due to be published in late 2023.

6.5 Setting gas access prices

Pipeline service providers earn revenue by selling capacity to customers needing to transport gas. A customer purchases access to that capacity under terms and conditions that include an access price. The AER sets access prices for gas pipelines in eastern Australia and the Northern Territory under broadly similar rules to those applied to electricity networks (chapter 4).

As with electricity, the AER uses a building block approach to assess a pipeline service provider's efficient costs. The AER draws on a range of inputs to assess efficient costs, including cost and demand forecasts and revealed costs from experience. Unlike electricity, the approach is not formalised in published guidelines. An exception is the allowed rate of return assessment, for which a common AER guideline applies to both electricity and gas.

6.5.1 Incentive schemes

The National Gas Rules provide scope for pipeline service providers to earn financial rewards by outperforming efficiency targets (and incur financial penalties for underperformance). An efficiency carryover mechanism allows service providers to retain, for up to 6 years, efficiency savings in managing their operating costs. In the longer term, service providers must share efficiency gains with their customers by passing on around 70% of the gains through lower access prices. The mechanism is similar to the efficiency benefit sharing scheme (EBSS) in electricity (chapter 4, Box 4.3), but it is written into each service provider's access arrangement rather than being set out in a general guideline.

A number of pipeline service providers have proposed adopting a capital expenditure sharing scheme (CESS). The National Gas Rules do not mandate such schemes, but they allow the AER to approve their use to incentivise service providers to efficiently maintain and operate their pipelines.

12 Tier 1 provisions carry maximum penalties for corporations of $10 million, or if greater, 3 times the benefit obtained from the breach if this can be determined, or if not, 10% of annual turnover.

13 Government of South Australia, National Gas (South Australia) Regulations, accessed 14 June 2023.

14 AGS, Legal briefing - Gas pipeline reforms, 17 March 2023, accessed 14 June 2023.

15 Government of South Australia, National Gas (South Australia) Regulations, accessed 14 June 2023.

16 AER, Gas network performance report, Australian Energy Regulator, December 2022.

The Victorian distribution pipeline service providers were the first to implement a CESS as part of their 2018–2022 access arrangements. The AER subsequently approved Jemena Gas Networks' (NSW) request for a CESS for its 2020–2025 access arrangement and requests by Australian Gas Networks (South Australia) and Evoenergy (ACT) for their 2021–2026 access arrangements. To date, no transmission service providers have sought to participate in a CESS.

The CESS for gas pipeline service providers operates in a similar way to the CESS for electricity networks (chapter 4, Box 4.2). It allows a service provider to earn financial rewards by keeping new investment spending below forecast levels (and incur financial penalties for investing above forecast). In later access arrangements, the service providers must pass on around 70% of savings to customers through lower charges.

The CESS carries a risk of encouraging service providers to inflate their investment forecasts. To mitigate this risk, the AER scrutinises whether proposed investments are efficient. The design of the CESS ensures deferred expenditure does not attract rewards so that service providers are not incentivised to defer critical investment needed for safe and reliable pipeline operation. A network health index ensures that rewards depend on the service provider maintaining current service standards.

Other incentives that are applied to electricity network service providers – such as those relating to service performance and demand management – are not available to gas pipeline service providers.

6.5.2 Timelines and processes

Once a pipeline service provider submits an access arrangement proposal, the AER has 6 months (plus optional stop-the-clock time at certain stages) to make a final decision on the access arrangement. The assessment period can be extended by up to 2 months, with a maximum of 13 months to render a decision.

The AER consults with pipeline customers and other stakeholders during the process. As part of this consultation, the AER publishes a draft decision on which it seeks stakeholder input to inform its final decision. At the completion of a review, the AER publishes an access arrangement decision that sets the reference tariff that a pipeline service provider can charge its customers. The AER annually reviews pipeline tariff variations to ensure they are consistent with its decision.

The AER assesses access arrangements on a rolling cycle, with staggered review timing to avoid bunching. The (typically) 5-year review cycle helps create a stable investment environment but also risks locking in inaccurate forecasts.

Countering this risk, the National Gas Rules includes ways of managing uncertainties. The AER can approve cost pass-throughs if a specified event (such as a regulatory change or natural disaster) imposes significant costs on the pipeline service provider that were not forecast. A pipeline service provider may also approach the AER to pre-approve a contingent investment project if the need to do so was uncertain at the time of the access arrangement decision. A pre-approval allows a service provider to roll the project into the capital base in the forthcoming access arrangement if pre-determined conditions are met.

6.5.3 Consumer engagement

An important focus of gas pipeline regulation is how constructively a pipeline service provider engages with its consumers in developing an access arrangement proposal. Although not mandated in the National Gas Rules, evidence of constructive engagement can give the AER confidence that the service provider is genuinely committed to meeting its consumers' needs and preferences. Robust consumer engagement can lay the foundation for the AER to accept elements of an access arrangement proposal, including capital and operating expenditure forecasts.

The AER's framework for considering consumer engagement in pipeline access arrangement determinations is set out in the Better Resets Handbook.[17]

17 AER, Better Resets Handbook - Towards consumer-centric network proposals, Australian Energy Regulator, 18 November 2022, accessed 26 June 2023.

In the most recent round of access arrangement reviews, Victorian-based distribution pipeline service providers AusNet Services, Australia Gas Networks and Multinet Gas Networks engaged early and widely on their proposed access arrangements and demonstrated a strong commitment to building dialogue with both consumers and advocates. However, the lengthy nature of these engagements meant that a lot of the discussions pre-dated subsequent significant policy and economic changes.[18] [19] [20]

In preparing access arrangement proposals, the service providers conducted further engagement (both independently and jointly) with stakeholders to understand and respond to the concerns raised in the initial proposal.

The AER, in reviewing APA Victorian Transmission System's most recent access arrangement proposal, found that the service provider fell short of the expectations in the Better Resets Handbook for consumer partnership.[21]

The AER noted that APA Victorian Transmission System made progress in its consumer engagement compared with previous resets. The service provider's engagement on its revised proposal stopped at 'informing' stakeholders of its planned response to the AER's draft decision and left little room for influence or exploration of alternatives. The AER considered the service provider, in both its initial and revised proposal, focused on justifying its proposed positions rather than engaging with stakeholders on what alternative positions and options may be available.

We note the AER is not the only industry body focusing on consumer engagement by pipeline service providers. Each year Energy Networks Australia[22] and Energy Consumers Australia[23] recognise an Australian energy network that demonstrates best practice consumer engagement.

In September 2022, Victorian distribution pipeline service providers – AusNet Services, Australian Gas Networks and Multinet Gas Networks – won the 2022 Energy Networks Industry Consumer Engagement Award. The award recognised the 3 pipeline service providers' coming together to design and deliver a clear and consistent stakeholder engagement program which provided a single forum to discuss issues of importance to the sector.[24]

6.5.4 Regulating gas pipelines under uncertainty

In November 2021, the AER published an information paper, 'Regulating gas pipelines under uncertainty', which discussed the potential implications of a decarbonised future energy mix on the long-term gas demand forecast and the expected economic lives of gas pipeline assets.[25]

The information paper explained how these potential implications may affect the AER's regulatory approaches when undertaking access arrangement reviews for service providers operating scheme pipelines now and in the future. It canvassed a range of potential options, including their costs and benefits, for managing the pricing risk and stranded asset risk that may arise from a potential material decline in gas demand in the future. These options include:

- accelerating asset depreciation (Box 6.3)
- providing ex-ante risk compensation
- removing redundant assets from capital base
- removing capital base indexation
- revaluating capital base
- introducing exit fees
- increasing fixed charges.

The paper also discussed how the uncertainty in future gas demand (section 6.6.2) can affect specific aspects of the AER's regulatory decisions, such as:

- the assumed payback period of pipeline investment in expenditure assessments
- the incentives that regulated service providers may have in substituting capital and operating expenditure

18 AER, Draft decision – AusNet Services access arrangement 2023-28, Australian Energy Regulator, 9 December 2022, accessed 29 March 2023.

19 AER, Draft decision – AGN access arrangement 2023-28, Australian Energy Regulator, 9 December 2022, accessed 29 March 2023.

20 AER, Draft decision – MGN access arrangement 2023-28, Australian Energy Regulator, 9 December 2022, accessed 29 March 2023.

21 AER, APA Victorian Transmission System - Access arrangement 2023–27, Australian Energy Regulator, 9 December 2022, accessed 26 June 2023.

22 The national industry body representing Australia's electricity transmission and distribution and gas distribution networks.

23 The independent, national voice for residential and small business energy consumers.

24 ENA, Consumer engagement report, Energy Networks Australia, 15 December 2022, page 4.

25 AER, AER tackles gas pipeline regulation in an uncertain future, Australian Energy Regulator, November 2021.

- the prudency of allowing regulated service providers to recover expenditure from customers that is for repurposing gas assets to potentially transport renewable gases in the future
- the increased demand risk that regulated service providers may face under price cap regulation if gas demand falls persistently.

State and territory governments are already taking measures to reduce residential and small commercial consumers' reliance on gas. For example, the ACT Government's Climate Change and Greenhouse Gas Reduction (Natural Gas Transition) Amendment Bill 2022 establishes the legal framework to end new fossil fuel gas connections in the ACT.[26]

Further, in October 2022 the Victorian Government released its Gas Substitution Roadmap – a plan to help Victoria reduce the cost of energy bills and cut carbon emissions.[27] Victoria has committed to halve emissions by 2030 as an early step towards meeting the national target of net zero emissions by 2050.[28] This will likely mean a limited role for gas beyond this date.

To achieve its targets, Victoria must cut emissions across the entire economy, including the gas sector, which contributes around 17% of the state's net greenhouse gas emissions.

The Gas Substitution Roadmap offers options and support for Victorian residential and small commercial consumers who are interested in switching from gas to solar or electricity. Switching from gas to efficient electric appliances will help households to save money on their energy bills. For example, the Gas Substitution Roadmap found that an existing detached dual-fuel home with rooftop solar photovoltaic (PV) that moves from using gas for heating, hot water and cooking to using efficient electric appliances could reduce its average energy bill by around $1,250 per year. For a household without solar, going all-electric could save around $1,020 per year.[29]

In July 2023, the Victorian Government announced that from January 2024 all new homes requiring a planning permit will be required to be all-electric. This means new homes and residential subdivisions that require a planning permit cannot connect to the gas network.

6.6 Building blocks of gas pipeline revenue

The AER uses a 'building block' approach to assess a gas pipeline service provider's revenue needs (Figure 6.4). Specifically, it forecasts how much revenue the service provider will need to cover:

- a commercial return to investors that fund the pipeline service provider's assets and operations
- efficient operating and maintenance costs
- asset depreciation costs
- taxation costs.

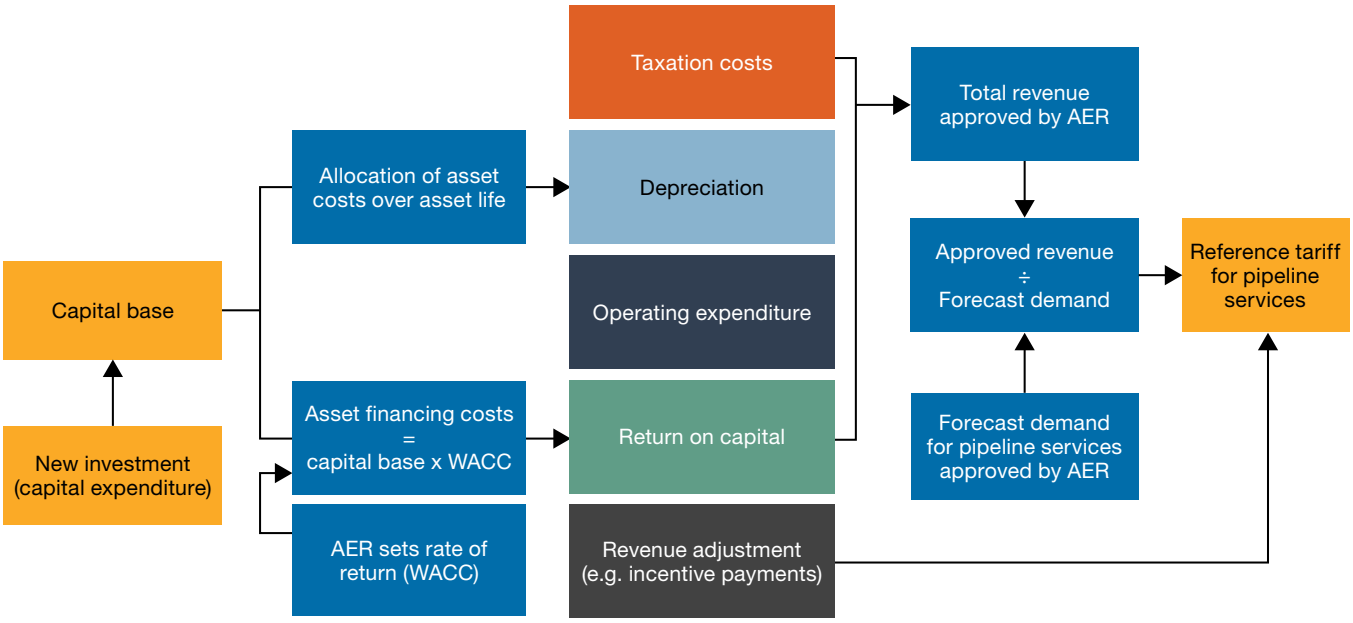
26 ACT Government, ACT reaches milestone preventing new fossil fuel gas connections, media release, 8 June 2023.

27 Victorian Government, Victoria's Gas Substitution Roadmap, Department of Energy, Environment and Climate Action, accessed 11 June 2023.

28 Australian Government, Australia's long-term emissions reduction plan, Department of Climate Change, Energy, the Environment and Water, accessed 11 June 2023.

29 Victorian Government, Victoria's Gas Substitution Roadmap, Department of Energy, Environment and Climate Action, accessed 11 June 2023.

Figure 6.4 How gas pipeline revenue and charges are set



Note: WACC: Weighted average cost of capital.

Revenue adjustments from incentive schemes encourage pipeline businesses to manage their operating and capital expenditure efficiently and to innovate.

Source: AER.

Pipeline assets have long lives, so investment costs are recovered over the economic life of the assets. The amount recovered each year is called depreciation and it reflects the lost value of pipeline assets each year through wear and tear and technical obsolescence.

Additionally, the shareholders and lenders that fund these assets must be paid a commercial return on their investment. Those returns are forecast to absorb around 40% of revenues (52% for transmission and 38% for distribution) in the current access periods. The returns are calculated by multiplying:

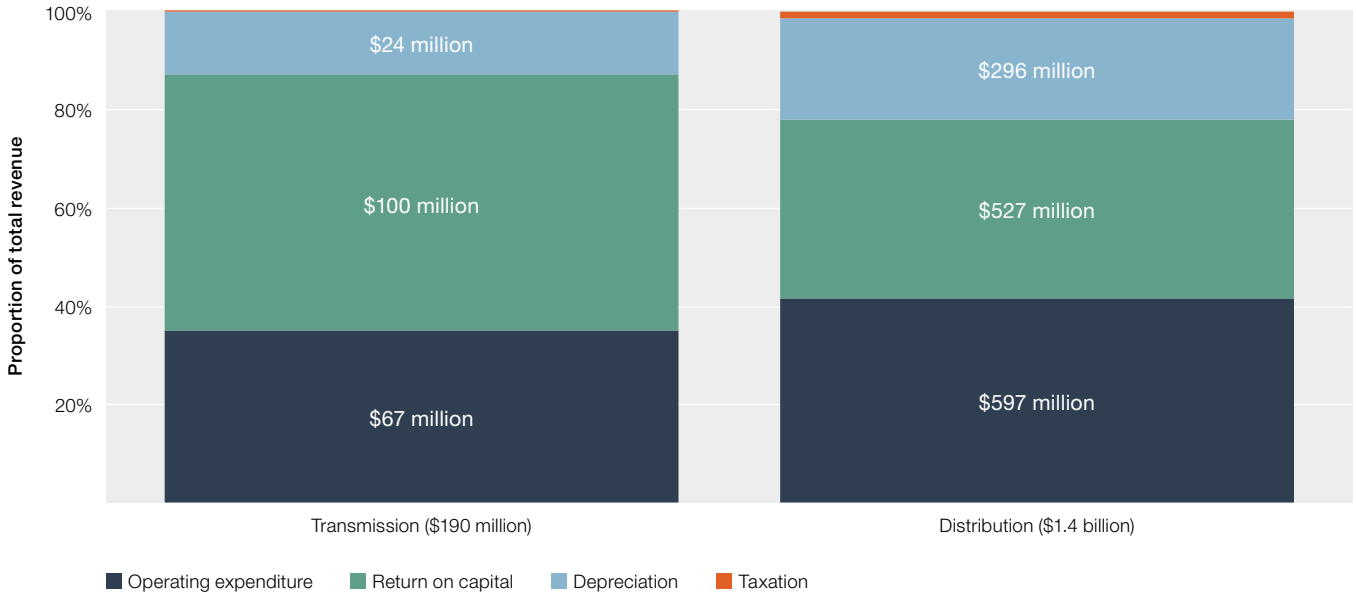
- the value of the pipeline service provider's capital base
- the rate of return that the AER allows based on the forecast cost of funding those assets through equity and debt.[30]

Operating and maintenance costs are also forecast to cause around 42% of revenue requirements (35% for transmission and 43% for distribution) in the current access periods. Overheads, taxation and other costs account for the remainder of a pipeline's revenue. Figure 6.5 illustrates the composition of pipeline revenues in current gas transmission and distribution access arrangements.

Pipeline service providers can also earn additional revenue through regulatory incentive schemes that encourage the efficient management of operating and capital expenditure programs (section 6.5.1).

30 The return on equity is the return that shareholders of the business will require for them to continue to invest. The return on debt is the interest rate that the pipeline service provider pays when it borrows money to invest.

Figure 6.5 Composition of average annual gas pipeline revenues



Note: Composition of average annual gas pipeline revenue – current periods as at June 2023. All data are adjusted to June 2022 dollars. Gas pipeline service providers also receive bonuses or penalties that impact on annual pipeline revenues. These bonuses/penalties are not material and are not considered in Figure 6.5.

Source: Post tax revenue modelling used in AER determination process.

6.6.1 Recent AER access arrangement decisions

In December 2022, the AER approved forecast revenue of $613 million ($123 million per year) for APA Victorian Transmission System for the current access period (1 January 2023 to 31 December 2027). The AER's final decision affects the component of a customer bill relating to gas transmission tariffs, which represents approximately 2.3% of a Victorian retail gas consumer's annual bill.[31]

In June 2023, the AER approved combined forecast revenues of $3.2 billion ($644 million per year) for Victorian gas pipelines AusNet Services, Australia Gas Networks and Multinet Gas Networks for the current access period (1 July 2023 to 30 June 2028) (Table 6.3). The AER's final decisions affect the component of a customer bill relating to gas distribution tariffs, which represents approximately 24% on average of a Victorian retail gas consumer's annual bill.

The total combined forecast revenue is $320 million (9%) more than the forecast revenue used to determine tariffs in the previous access period. The combined revenue allowances included increases in operating expenditure, return on capital and depreciation, which were marginally offset by decreases in revenue adjustments and net tax allowance.

31 AER, APA Victorian Transmission System - Access arrangement 2023–27, Australian Energy Regulator, 9 December 2022, accessed 26 June 2023.

Table 6.3 Recent AER access arrangement determinations

Service provider	Revenue	Capital expenditure	Operating expenditure	Annual impact on residential bill
APA Victorian Transmission System (Vic)	$613m (▲6%)	$225m (▼16%)	$176m (▲18%)	▲0.2%
AusNet Services (Vic)	$1.1b (▲5%)	$397m (▼24%)	$354m (▲19%)	▲1.3%
Australia Gas Networks (Vic)	$1.2b (▼1.7%)	$402m (▼33%)	$495m (▲30%)	▲0.7%
Multinet Gas Networks (Vic)	$983m (▼5%)	$622m (▲43%)	$422m (▲0.1%)	▲1.2%

Note: Changes in revenue and expenditure are in relation to forecasts from the previous access arrangement periods. Bill impact is the change in the average annual customer bill compared with the customer bill in the final year of the previous period, adjusted for inflation, assuming retailers pass through outcomes of the determination.

Source: AER estimates.

6.6.2 Gas consumption and demand forecasts

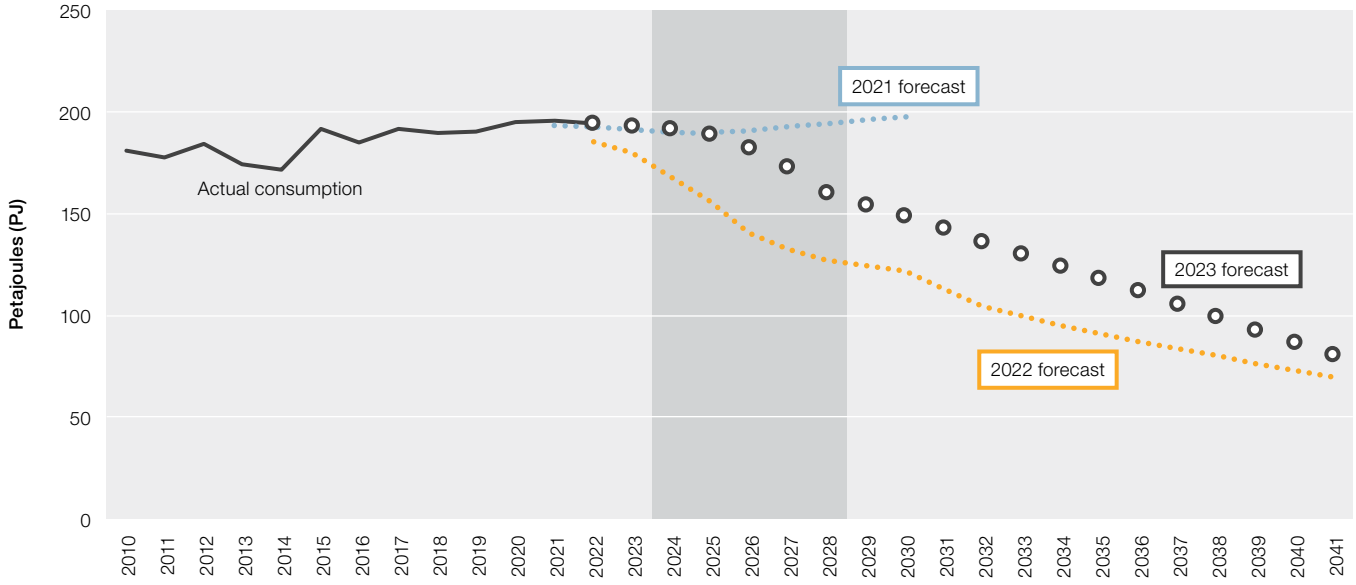
The Australian Energy Market Operator (AEMO), through its *2023 Gas Statement of Opportunities* (GSOO),[32] forecasts the adequacy of gas supplies to meet the needs of consumers in central and eastern Australia. The 'orchestrated step change' scenario is now considered the most likely scenario, wherein consumers are forecast to embrace opportunities to reduce emissions through electrification where technically and commercially practical, as well as investing in energy efficiency applications.

The AER used AEMO's 2023 GSOO demand forecasts to inform its final decisions for Victorian distribution pipelines AusNet Services, Australia Gas Networks and Multinet Gas Networks for the current access period. AEMO forecasts a 32% decrease in gas consumption by 2041, 59% for the residential and commercial sectors and 12% for the industrial sector. Residential and small commercial consumption is forecast to gradually decline in the short term, with more significant fuel switching in the medium to longer term as the economy transitions to meet net zero emissions goals.

AEMO's electrification forecasts were updated for the 2023 GSOO considering an observably slower rate of fuel switching than was evident in the 2022 GSOO forecast. The updated electrification forecasts had a discernible impact on the 2023 GSOO gas consumption forecasts, particularly for consumers in the residential and commercial sectors (Figure 6.6).

32 AEMO, 2023 Gas Statement of Opportunities, Australian Energy Market Operator, 28 April 2023, accessed 12 June 2023.

Figure 6.6 AEMO's forecast gas consumption – residential/commercial customers

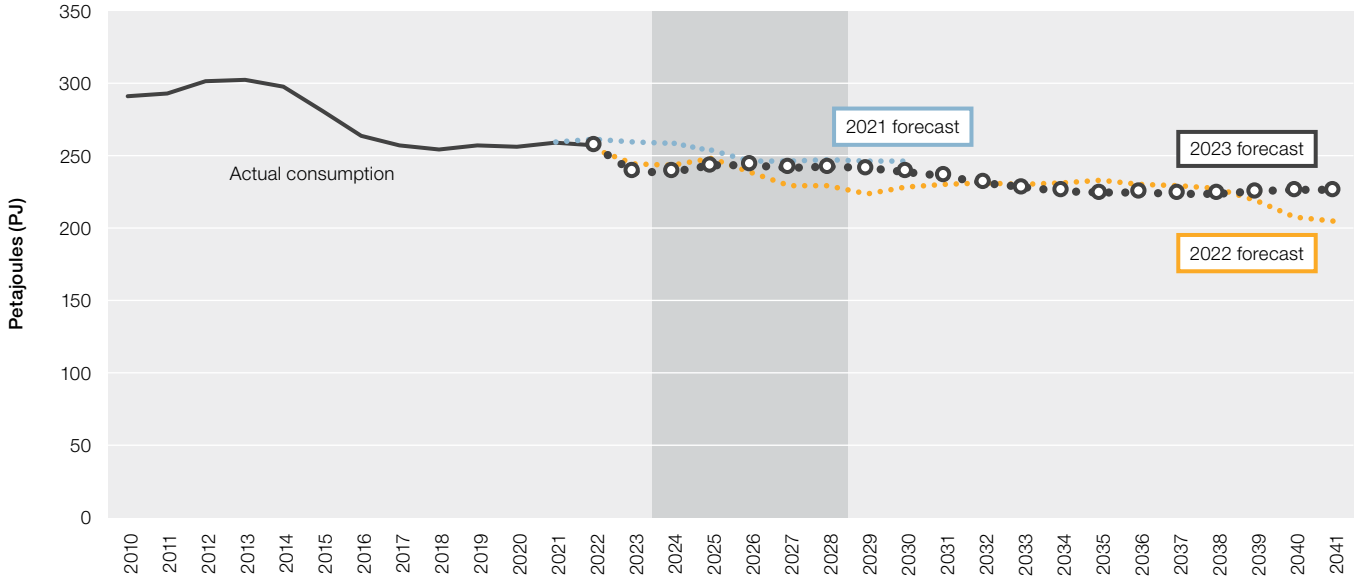


Note: Residential and commercial customers include consumers on volume-based tariffs. The shaded section reflects the period covered in the AER's most recent access arrangement decisions (1 July 2023 to 30 June 2028) (section 6.6.1).

Source: AEMO, 2023 Gas Statement of Opportunities, March 2023.

The industrial sector features a sharp decline in forecast natural gas consumption in the near term, driven by the closure of Incitec Pivot's Gibson Island facility in Brisbane in January 2023. A more gradual decline is forecast over the longer term, predominantly driven by customers switching away from natural gas to hydrogen. While electrification is expected to impact all sectors, the processes and the associated costs for industrial customers are likely to make the transition slower and more difficult than for the residential and commercial sectors (Figure 6.7).

Figure 6.7 AEMO's forecast gas consumption – industrial customers



Note: Industrial customers includes metered sites with annual consumption greater than 10,000 gigajoules (GJ) or maximum hourly quantity (MHQ) greater than 10 GJ. The shaded section reflects the period covered in the AER's most recent access arrangement decisions (1 July 2023 to 30 June 2028) (section 6.6.1).

Source: AEMO, 2023 Gas Statement of Opportunities, March 2023.

The AER closely examined AusNet Services', Australia Gas Networks' and Multinet Gas Networks' proposed capital and operating expenditures to ensure customers still reliant on gas are paying no more than necessary for safe, reliable and secure supply. Part of the reason for the decline in forecast demand on these pipelines is because of the increasing number of customers who are expected to significantly reduce their reliance on gas appliances or to leave the gas network completely. This raises important and contentious issues of cost, equity and safety.

Transformation in the energy system and the explicit policy goal of reaching net zero emissions by 2050 create considerable uncertainties in future gas demand expectations. The decline in demand for gas is expected to accelerate, but there is uncertainty as to how quickly the acceleration will happen, what the path to small customer 'electrification' will look like and whether gas pipelines will have any ongoing role in transporting hydrogen or biogas. Declining throughput on remaining connections will put upwards pressure on gas haulage. If this eventuates in future periods, it will likely encourage further decline in demand and an increase in customers leaving the network, causing self-reinforcing upwards pressure on tariffs for remaining customers. In a report for Energy Consumers Australia, CSIRO and Dynamic Analysis undertook modelling of how this scenario may arise under AEMO's 'step change' scenario.[33]

While declining demand is already having an impact on growth-driven elements of forecast expenditure, its impact on other drivers of expenditure is expected to happen more slowly. The obligation on pipeline service providers to continue to offer the same services while meeting the same regulated standards means many costs won't necessarily fall as demand falls.

Box 6.2 Temporary disconnection versus permanent abolishment of gas connections

The AER, through our assessments of AusNet Services', Australia Gas Networks' and Multinet Gas Networks' recent access arrangements, became aware that some customers seeking to move away from gas have sought temporary disconnection measures over the safer, permanent removal of connection assets.

Energy Safe Victoria, the regulator responsible for electricity, gas and pipelines safety, considers that when a customer chooses to stop using gas at their premises, permanent abolishment of the connection is required. Failure to do so impedes the pipeline service providers from meeting their safety obligations.

However, permanent abolishment of a gas connection (by removing the pipeline assets and closing off the connection or premises to the mains) is more costly than temporarily stopping the withdrawal of gas through the meter. As such, the cost of permanently disconnecting the premises has been a deterrent for customers wanting to move away from gas.

To narrow the price difference between temporary and permanent gas disconnection services, and the associated safety risks it appears to be creating, the AER has determined an upfront cost of $220 for connection abolishment with the remainder added to the regulated revenue we use to set haulage tariffs and shared between all customers.[a]

This is not a change to the total costs that distribution pipeline service providers will be allowed to recover for connection abolishment services. It only changes the way in which costs are recovered.

We acknowledge this is not a long-term solution.

Energy Safe Victoria is committed to working with the distribution pipeline service providers to understand whether other methods may be more appropriate than permanent abolishment.

a AER, AER decision supports Victorian gas consumers in energy transition, Australian Energy Regulator, 2 June 2023, accessed 12 June 2023.

33 CSIRO and Dynamic Analysis, Consumer impacts of the energy transition: Modelling report, Energy Consumers Australia, July 2023, pp. 21–22, accessed 31 August 2023.

6.7 Revenue

All gas transmission and distribution service providers operating scheme pipelines are regulated under a price cap. Pipeline service providers can earn above or below forecast revenue over time due to changes in demand. If actual demand exceeds forecast demand, the service provider keeps the additional revenue. Conversely, if actual demand is less than forecast revenue the service provider is exposed to the shortfall.

Table 6.4 provides a breakdown of the revenue pipeline service providers earned in 2022 and how this compared with previous years.

Table 6.4 Revenue in 2022 – key outcomes

Service type	Revenue (2022)	Revenue (compared with 2021)	Revenue (compared with peak)
Transmission	$205m	▼$0.7m (▼0.3%)	▼$28m (▼12%) (2012)
Distribution	$1.4b	▼$40m (▼2.7%)	▼$297m (▼21%) (2015)
Total	$1.6b	▼$40m (▼2.4%)	▼$300m (▼15%) (2015)

Note: Amadeus Gas Pipeline's actual revenue is not considered in Table 6.4 as it contains commercially sensitive information.
Source: AER estimates.

Table 6.5 provides a snapshot of the key forecasts from the AER's revenue decisions for the current access arrangement periods and how they compare with forecasts from the previous periods.[34]

Table 6.5 AER gas revenue determinations – current access arrangements

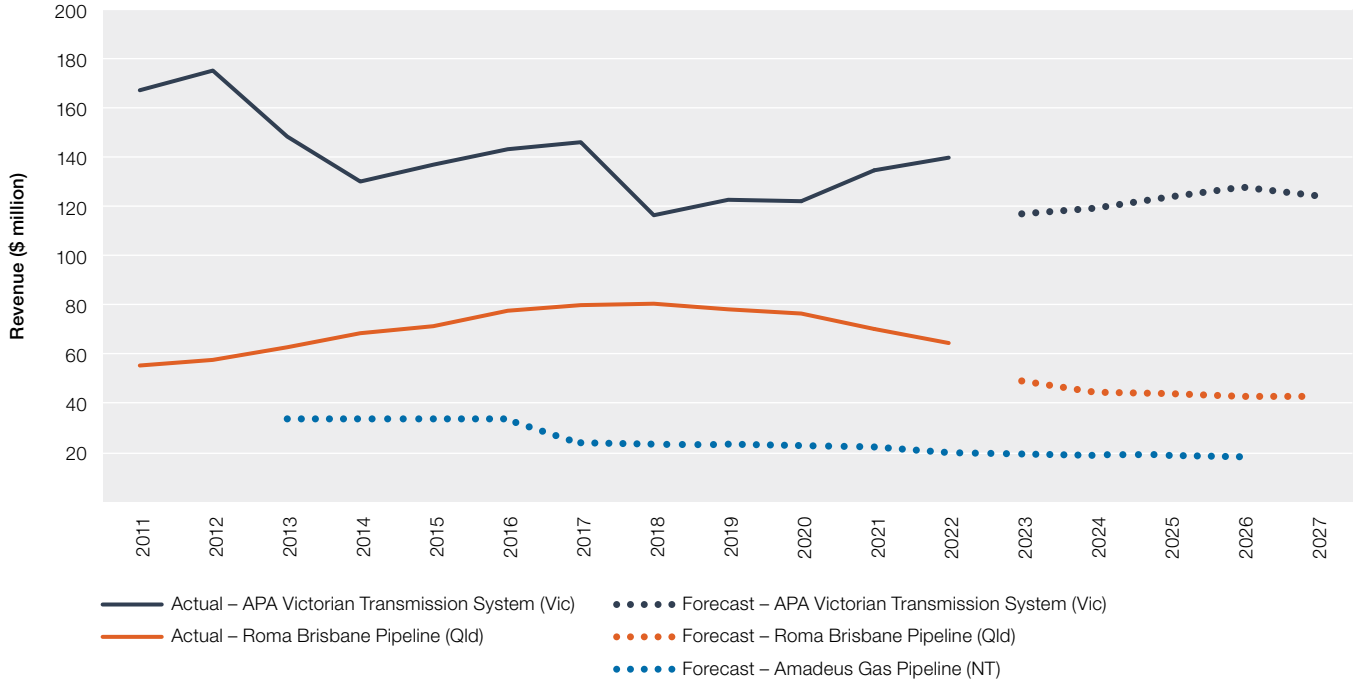
Service type	Revenue	Capital expenditure	Operating expenditure
Transmission	$933m (▼0.7%)	$279m (▼23%)	$329m (▲10%)
Distribution	$6.8b (▼2.2%)	$2.9b (▼14%)	$3.0b (▲14%)
Total	$7.7b (▼2%)	$3.2b (▼15%)	$3.3b (▲14%)

Source: AER estimates.

The total revenue forecast for transmission service providers includes decreases in revenue adjustments and net tax allowance, which are largely offset by increases in operating expenditure, return on capital and depreciation.

34 The current access arrangement period is the period in place at 1 July 2023.

Figure 6.8 Revenue – gas transmission pipelines

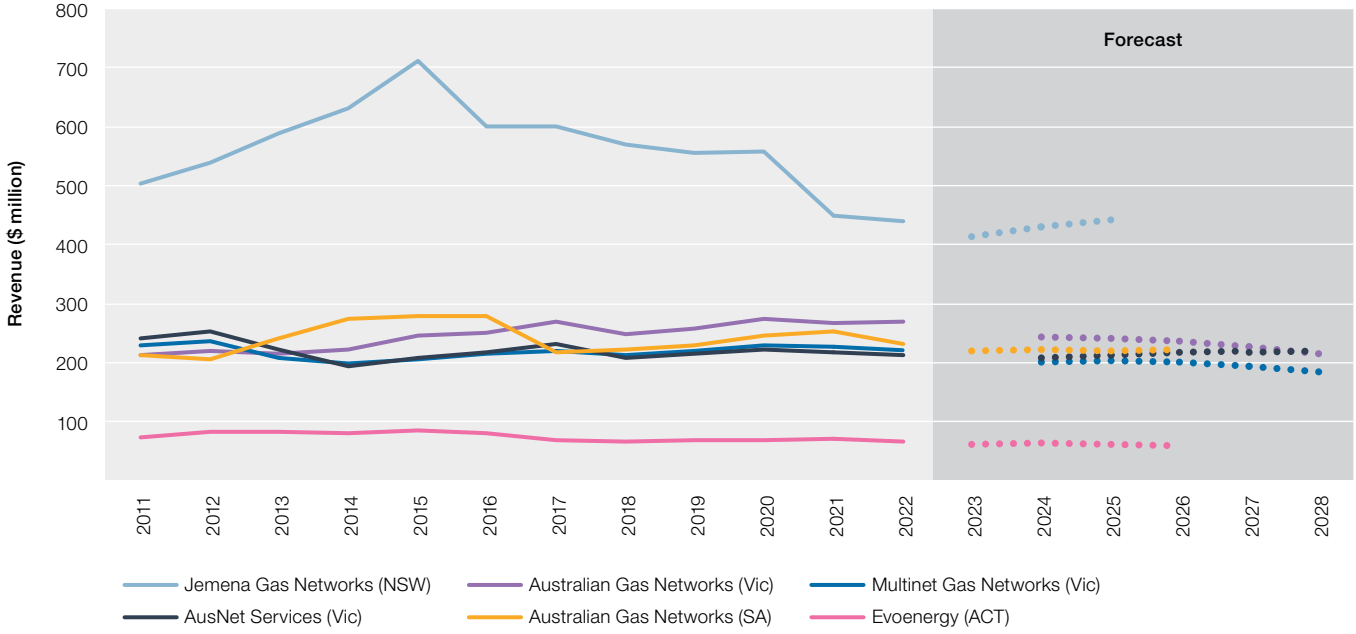


Note: All data are adjusted to June 2022 dollars. APA Victorian Transmission System (Vic) reports on a calendar year basis (year ending 31 December). All other pipeline businesses report on a financial year basis (year ending 30 June). The data show outcomes for the reporting period ending in that year (for example, the 2017–18 reporting year is shown as 2018). Amadeus Gas Pipeline's actual revenue data is confidential.

Source: AER modelling; annual reporting RIN responses.

Revenues for most of the distribution pipeline service providers are forecast to decrease in the current access arrangement period. The drivers behind the decreases in forecast revenue are the reductions in return on capital and net tax allowance offsetting the forecast increases in operating expenditure and depreciation.

Figure 6.9 Revenue – gas distribution pipelines



Note: All data are adjusted to June 2022 dollars. Victorian gas pipeline service providers report on a calendar year basis (year ending 31 December). All other pipeline service providers report on a financial year basis (year ending 30 June). From 1 July 2023 the Victorian pipeline service providers will also report on a financial year basis. No revenue forecasts were developed for the Victorian pipeline service providers for the 6 month (1 January to 30 June 2023) transition period. The data show outcomes for the reporting period ending in that year (for example, the 2017–18 reporting year is shown as 2018).

Source: AER modelling; annual reporting RIN responses.

Costs of capital and inflation have been increasing in recent years, both of which put upward pressure on gas pipeline revenue drivers (section 6.9), similar to what has occurred for electricity networks.

Specific investment requirements will also increase pipeline costs, so additional revenue is still needed to cover some new projects. For example, APA Victorian Transmission System (Victoria) has justified the need for capital expenditure to finance its South West Pipeline and Western Outer Ring main projects. These projects have been deemed necessary to avert shortfalls and increase capacity between existing sources of natural gas supply. [35]

6.8 Capital base

The capital base for a gas pipeline service provider represents the total economic value of assets that provide services to customers. The value of the capital base substantially impacts a service provider's revenue requirement.

Capital investment approved by the AER is added to a service provider's capital base, on which future returns are earned.

While the forecast demand for natural gas continues to decline (section 6.6.2), new gas infrastructure investments and ongoing asset maintenance are necessary to ensure the reliability and safety of gas supply in the short term. The impact of new investment adds to the value of the capital base, the cost of which will be recovered across a declining base of customers, pushing gas prices up for those remaining customers.[36]

Box 6.3 Accelerated depreciation to address asset stranding risk

The AER, in its recent final decisions on the access arrangements for the Victorian gas transmission and distribution pipelines, allowed for some accelerated depreciation of assets. The combined value of asset bases to be recovered across these Victorian pipelines for their remaining lives is around $6 billion. Bringing forward the recovery of assets while pipeline use remains relatively high has increased costs to consumers of the pipeline in the short term, but reduced the pool of depreciation to be recovered from consumers in the future when pipeline use is expected to be lower.

Accelerating the rate at which assets are depreciated is pertinent given the uncertain future for gas pipelines in Victoria. It is important to start taking small steps now to manage the equitable recovery of the cost of the assets from what will be a declining, and sometimes vulnerable, customer base over time.

The Australian Energy Market Operator (AEMO) forecasts a material decline in gas volumes over the next 20 years (section 6.6.2). There is also considerable uncertainty around likely medium to long-term forecast volumes of customer abolishment (Box 6.2). Further, the future role for hydrogen and other renewable gases is uncertain at this time.

The Victorian Government's Gas Substitution Roadmap commits to achieve net zero emissions by 2050 (section 6.5). This will likely mean a limited role for natural gas beyond this date. The roadmap includes several initiatives that will reduce the role for gas in Victoria, such as incentives for residential customers to switch to electric appliances, the removal of planning provisions requiring new housing developments to connect to gas and higher energy efficiency requirements for housing.

While these changes are likely to eventuate, the pace of change remains uncertain. We consider that approving some amount of accelerated depreciation is consistent with our information paper 'Regulating gas pipelines under uncertainty' (section 6.5.4), wherein we stated, '… the opportunity and flexibility for adjustment is greatest when we act as soon as we can to minimise the adverse impact of a decline in gas demand'.

The AER seeks to strike a balance between determining an appropriate level of accelerated depreciation and the impact it will have on price stability (section 6.6). For example, we did not allow the full amount of accelerated depreciation sought by some of the Victorian gas distribution service providers. We instead allowed a smaller start to accelerated depreciation that balanced the price impacts in the short term with the need for longer term price stability.

We consider that accepting some accelerated depreciation leaves open the option to change course at future reviews, where more accelerated depreciation or reversals at a future date may be required to promote efficient growth (including negative growth) of the market as required under the National Gas Rules.

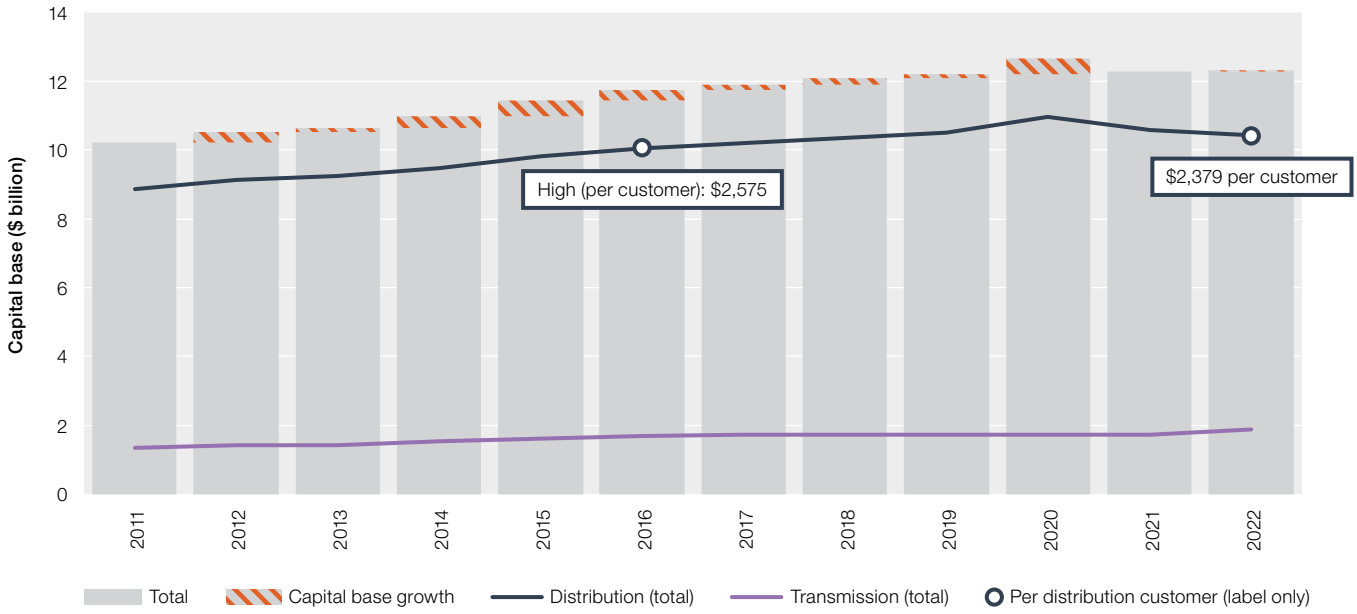
35 AER, APA Victorian Transmission System - Access arrangement 2023–27, Australian Energy Regulator, 9 December 2022, accessed 26 June 2023.

36 AER, Submission to Victoria's Gas Substitution Roadmap consultation paper, Australian Energy Regulator, 2 August 2021, accessed 11 June 2023.

6.8.1 Capital base in 2022

As at 30 June 2022 the value of the capital base for gas pipeline service providers was $12.3 billion, a decrease of $10 million (0.1%) from the previous year (Figure 6.10).

Figure 6.10 Value of gas pipelines assets (capital base)



Note: All data are adjusted to June 2022 dollars. Victorian pipeline service providers report on a calendar year basis (year ending 31 December). All other pipeline service providers report on a financial year basis (year ending 30 June). The data show outcomes for the reporting period ending in that year (for example, the 2017–18 reporting year is shown as 2018).

Source: AER modelling.

6.9 Rates of return

The shareholders and lenders that finance a gas pipeline service provider expect a commercial return on their investment. The rate of return estimates the financial return a pipeline service provider's financiers require to justify investing in the business. It is a weighted average of the expected returns needed to attract both equity and debt funding. Equity funding is provided by shareholders in exchange for part ownership of a pipeline service provider, while debt funding is provided by an external lender such as a bank. Given this weighted approach, the rate of return is sometimes called the weighted average cost of capital (WACC).

The AER sets an allowed rate of return based on a benchmark efficient entity, but a service provider's actual returns can vary from the allowed rate. The difference can be due to several factors, such as the impact of incentive schemes, efficiency improvements, forecasting errors or the pipeline service provider adopting a different debt or tax structure to the benchmark efficient entity. Some differences may be temporary if caused by revenue over-recovery or under-recovery under a revenue cap or the revenue smoothing process. The AER calculates allowed returns each year by multiplying the capital base by the allowed rate of return.[37]

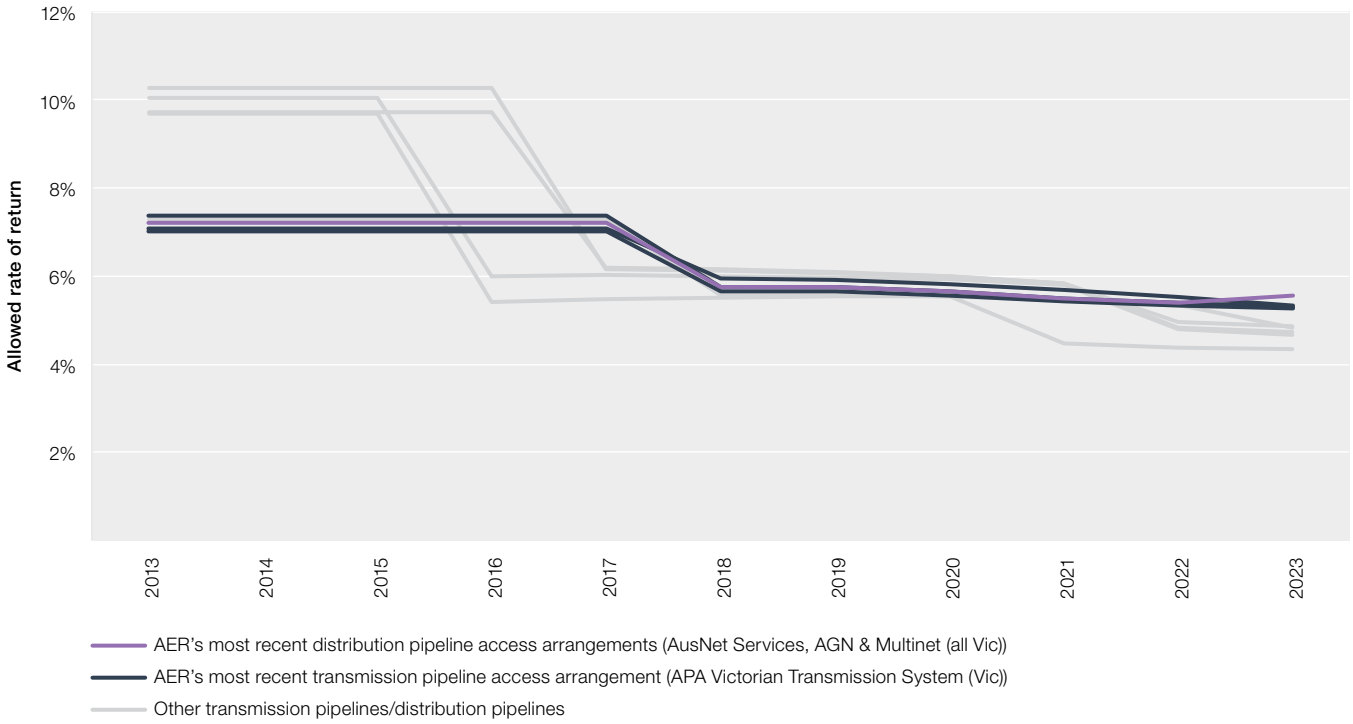
Lower financing costs and updated estimates of rate of return parameters have contributed to the average allowed rate of return declining from around 10% at the beginning of the 2010s, to less than 6% in 2023 (Figure 6.11). This reduction translated to significantly lower forecast pipeline revenue requirements.

Legislation introduced in 2018 provided for the AER to make binding rate of return determinations that apply to all regulated pipeline service providers. In February 2023 the AER released its latest Rate of Return Instrument, which binds all access arrangements from 25 February 2023 until it is revised again.[38]

37 For example, if the rate of return is 5% and the capital base is $10 billion, then the return to investors is $500 million. This return forms part of a gas pipeline business's revenue needs and must be paid for by customers.

38 AER, Rate of Return Instrument 2022, Australian Energy Regulator, accessed 22 March 2023.

Figure 6.11 Allowed rate of return



Note: Allowed rate of return = nominal vanilla weighted average cost of capital (WACC).

Source: AER decisions on gas pipeline access arrangements; AER decision following the remittal by the Australian Competition Tribunal and Full Federal Court.

Recently, some key inputs into rates of return have increased. For example, the risk-free rate is an important driver of allowed returns on equity and is estimated using required returns on Commonwealth Government Securities (CGSs), also known as Australian Government bonds. Annual yields on 10-year CGSs were as low as 0.6% in March 2020, but over 2023 (to mid-July) have averaged around 3.6%. Similarly, annual yields on 5-year CGSs were as low as 0.25% in November 2020 but over 2023 (to mid-July) have averaged around 3.4%.[39] If risk-free rates, or other key inputs, continue to increase they will put upward pressure on pipeline revenue over coming years.

6.10 Investment

Investment requirements differ between the gas transmission and distribution sectors. Investment in gas transmission typically involves large capital projects to expand existing pipelines (through compression, looping or extension) or constructing new infrastructure. Additionally, some transmission pipelines have been re-engineered for bi-directional flows.

Investment in gas distribution mainly comprises augmentation (expansion) of existing systems to cope with new customer connections, such as for new housing estate developments. Older pipelines also require replacement programs for deteriorating infrastructure. For regulated service providers operating scheme pipelines (Table 6.1), the AER assesses whether investments are prudent and efficient based on criteria in the National Gas Rules.

Long-term demand risk can influence the AER's regulatory decisions on pipeline investments. Demand forecasts that underpin the need for new investments are carefully scrutinised.

Changes in demand can lead to pipeline assets becoming 'stranded', wherein they are prematurely written down, devalued or even reclassified as liabilities. Stranded asset risk may act sufficiently as a deterrent for excess pipeline investments and may reduce the need for strong financial incentives to reward expenditure underspends.

There is little a pipeline service provider can do to counteract the effects of a declining customer base, other than limiting new expenditures and managing prices to minimise disconnections by customers. However, the costs to maintain a gas pipeline do not decrease in proportion to gas demand decline.[40] The pipeline assets are likely to

39 RBA, Capital Market Yields – Government Bonds – Daily – F2, Reserve Bank of Australia, accessed 14 July 2023.

40 Lucas Davis, Catherin Hausman, Energy Institute at Haas, Who will pay for legacy utility costs?, March 2022.

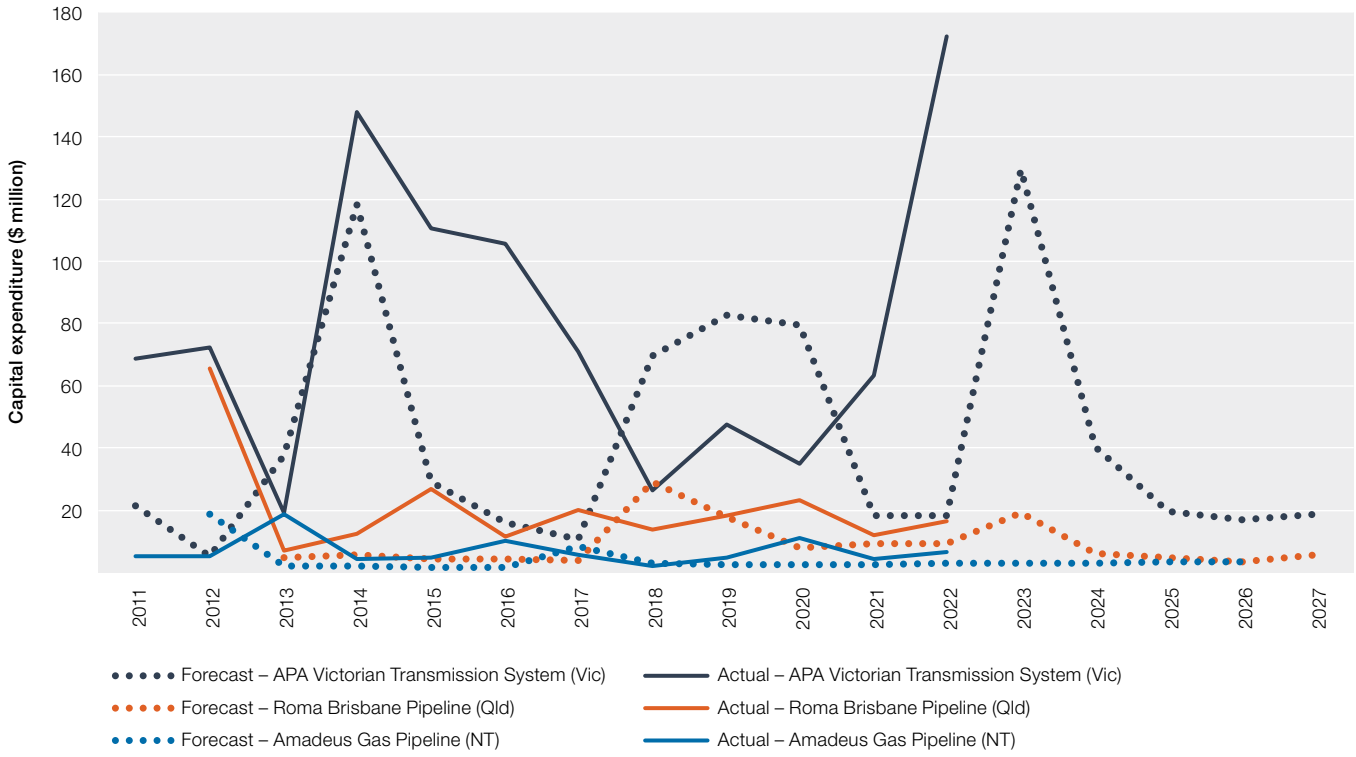
remain in use and the regulated service providers will incur ongoing maintenance and replacement costs to maintain safe and reliable reference services for the remaining customers on the network, subject to any partial shutdowns of the network.

Table 6.6 provides a breakdown of the amount of investment pipeline service providers undertook in 2022 and how this compared with previous years' expenditure and forecasts. The significant increase in capital expenditure on transmission pipelines in 2022 was driven by APA Victorian Transmission System's (Vic) expansion of the South West Pipeline and its construction of the Western Outer Ring Main project.

Table 6.6 Capital expenditure in 2022 – key outcomes

Service type	Capital expenditure (2022)	Capital expenditure (compared with 2021)	Capital expenditure (compared with peak)
Transmission	$195m (▲534% than forecast)	▲$115m (▲144%)	2022 = peak
Distribution	$519m (▼9% than forecast)	▼$103m (▼17%)	▼$171m (▼25%) (2015)
Total	$714m (▲18% than forecast)	▲$12m (▲1.7%)	▼$118m (▼14%) (2015)

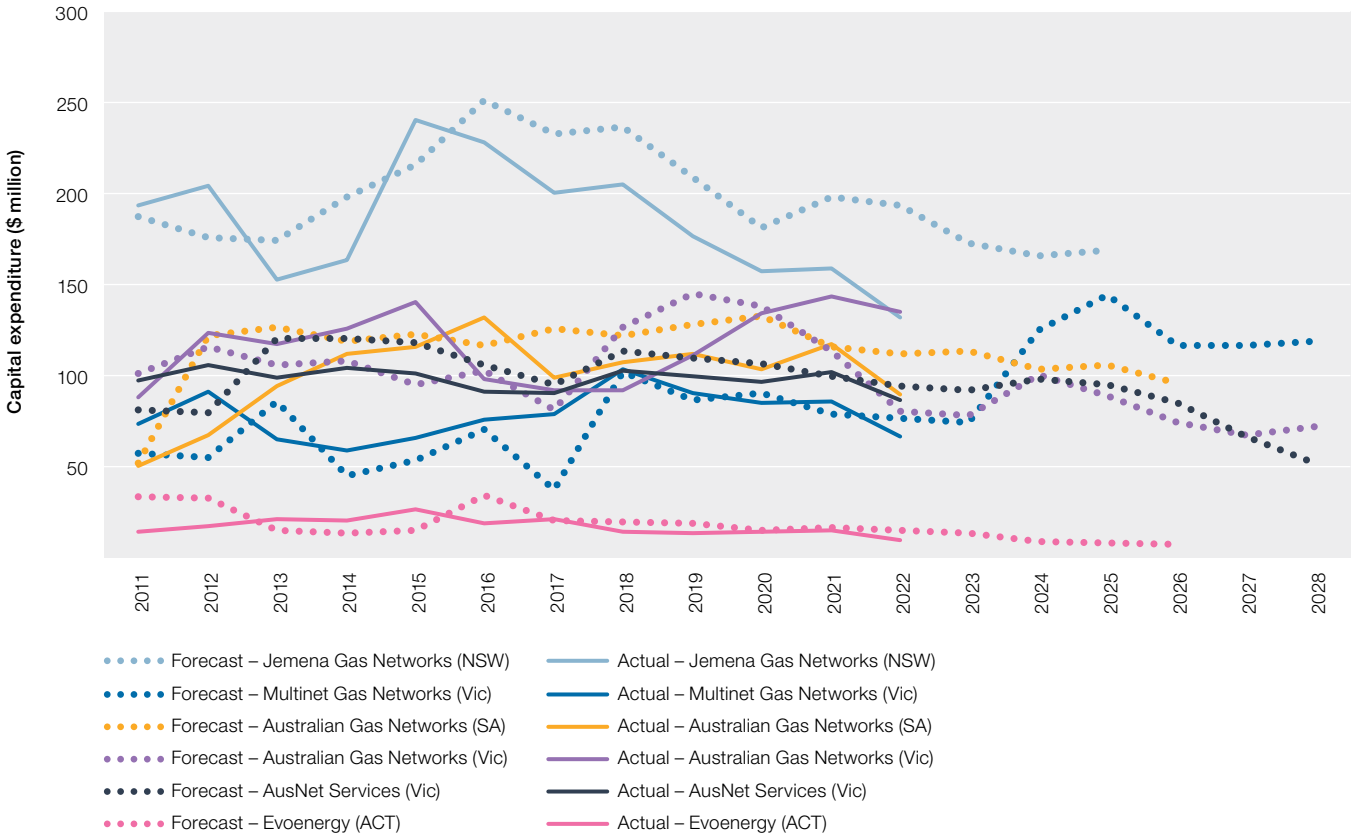
Figure 6.12 Capital expenditure – gas transmission pipelines



Note: All data are adjusted to June 2022 dollars. APA Victorian Transmission System (Vic) reports on a calendar year basis (year ending 31 December). All other pipeline service providers report on a financial year basis (year ending 30 June). The data show outcomes for the reporting period ending in that year (for example, the 2017–18 reporting year is shown as 2018).

Source: AER modelling; annual reporting RIN responses.

Figure 6.13 Capital expenditure – gas distribution pipelines



Note: All data are adjusted to June 2022 dollars. Victorian pipeline service providers report on a calendar year basis (year ending 31 December). All other pipeline service providers report on a financial year basis (year ending 30 June). From 1 July 2023 the Victorian pipeline service providers will also report on a financial year basis. From 1 July 2023 the Victorian pipeline service providers will also report on a financial year basis. To enable reporting on equivalent terms forecasts for the Victorian pipeline service providers for the 6-month transitional period (1 January to 30 June 2023) have been doubled. The data show outcomes for the reporting period ending in that year (for example, the 2017–18 reporting year is shown as 2018).

Source: AER modelling; annual reporting RIN responses.

6.11 Operating costs

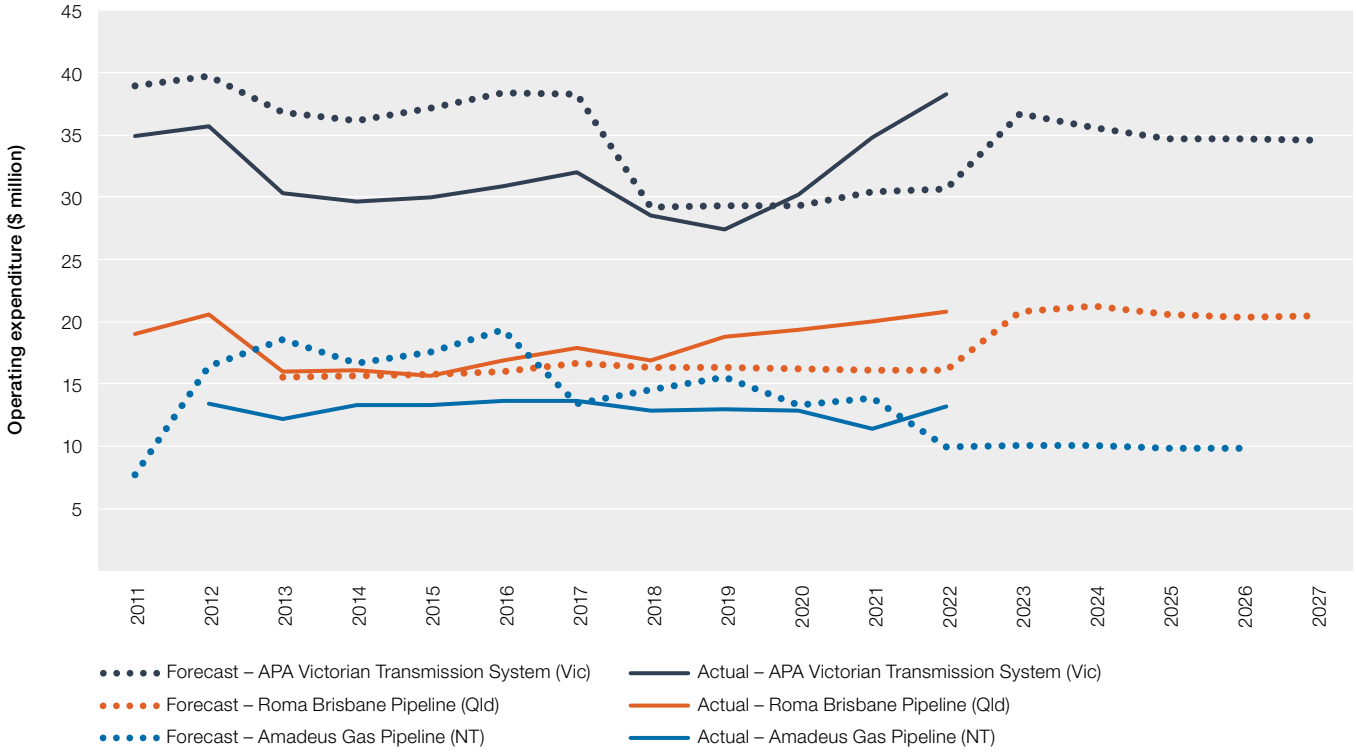
Pipeline service providers incur operating and maintenance costs that absorb around 42% of their annual revenue (35% for transmission and 43% for distribution) (Figure 6.5). When assessing a pipeline service provider's efficient operating and maintenance costs, the AER considers cost drivers such as forecast customer growth, expected productivity improvements, changes in labour and non-labour prices and changes in the regulatory environment. Pipeline service providers are subject to an efficiency carryover mechanism, which incentivises them to reduce operating expenditures where efficient to do so.

Table 6.7 provides a breakdown of pipeline service providers' operating costs in 2022 and how this compared with previous years' expenditure and forecasts.

Table 6.7 Operating expenditure in 2022 – key outcomes

Service type	Operating expenditure (2022)	Operating expenditure (compared with 2021)	Operating expenditure (compared with peak)
Transmission	$72m (▲28% than forecast)	▲$6m (▲8%)	2022 = peak
Distribution	$476m (▼15% than forecast)	▲$9m (▲1.9%)	▼$44m (▼8%) (2012)
Total	$556m (▼10% from forecast)	▲$17m (▲3%)	▼$41m (▼8%) (2012)

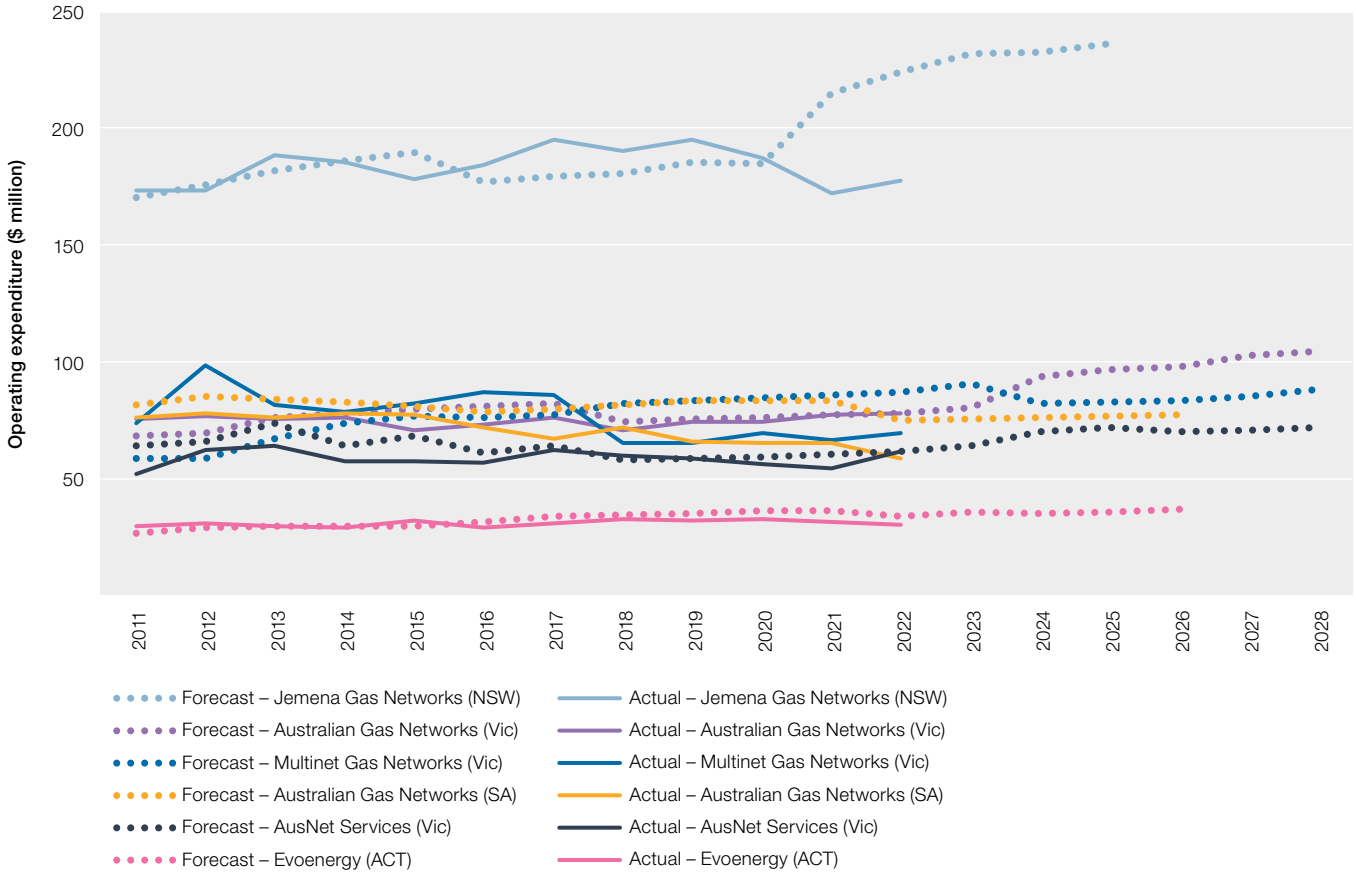
Figure 6.14 Operating expenditure – gas transmission pipelines



Note: All data are adjusted to June 2022 dollars. APA Victorian Transmission System (Vic) reports on a calendar year basis (year ending 31 December). All other pipeline service providers report on a financial year basis (year ending 30 June). The data show outcomes for the reporting period ending in that year (for example, the 2017–18 reporting year is shown as 2018).

Source: AER modelling; annual reporting RIN responses.

Figure 6.15 Operating expenditure – gas distribution pipelines



Note: All data are adjusted to June 2022 dollars. Victorian pipeline service providers report on a calendar year basis (year ending 31 December). All other pipeline service providers report on a financial year basis (year ending 30 June). From 1 July 2023 the Victorian pipeline service providers will also report on a financial year basis. From 1 July 2023 the Victorian pipeline service providers will also report on a financial year basis. To enable reporting on equivalent terms forecasts for the Victorian pipeline service providers for the 6-month transitional period (1 January to 30 June 2023) have been doubled. The data show outcomes for the reporting period ending in that year (for example, the 2017–18 reporting year is shown as 2018).

Source: AER modelling; annual reporting RIN responses.