

Review of gas distribution network reference tariff variation mechanism and declining block tariffs

Issues paper for stakeholder feedback

May 2023

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Have your say

Interested parties are invited to make written submissions to the AER regarding this issues paper by close of business, 16 June 2023. Submissions should be sent electronically to: aerpricing@aer.gov.au.

Alternatively, you may mail submissions to:

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We ask that all submissions sent in an electronic format are in Microsoft Word or other text readable document form.

We prefer that all submissions be publicly available to facilitate an informed and transparent consultative process. We will treat submissions as public documents unless otherwise requested. All non-confidential submissions will be placed on the AER's website.

For further information regarding the AER's use and disclosure of information provided to it, see the ACCC/AER Information Policy.

We request parties wishing to submit confidential information:

- clearly identify the information that is the subject of the confidentiality claim
- provide a non-confidential version of the submission in a form suitable for publication.

If you have enquiries about this paper, lodging a submission, or would like to meet with us to discuss issues raised in this paper, please contact Dale Johansen, Director – Network Pricing on Dale.Johansen@aer.gov.au.

1 Introduction

This section provides background and context for our review.

1.1 Who we are

The Australian Energy Regulator (AER) is the economic regulator for fully regulated gas distribution networks in South Australia, Victoria, New South Wales and the Australian Capital Territory. We aim to ensure that distribution network service providers operate these assets reliably and cost effectively in the long-term interest of consumers. We undertake our role as economic regulator in the gas network sector using powers conferred to us by the National Gas Law and National Gas Rules. Our work is guided by the National Gas Objective.¹

1.2 About this issues paper

Our review relates to the gas transportation (haulage) service provided by gas distribution network service providers (distributors). This issues paper is the first step in our review of:

- weighted average price caps (reference tariff variation mechanism) which regulate the revenues distributors receive for providing reference haulage services
- declining block tariffs which set the parameters for how customers are billed for reference haulage services.

We are considering whether to continue to approve these elements of existing gas distribution access arrangements or whether changes are required. We invite stakeholders to express views to us on these issues. Specifically, we invite views on whether price caps for haulage services are the most appropriate haulage reference tariff variation method or is an alternative method more appropriate? And are declining block tariffs appropriate going forward, or should we mandate a change in tariff structures?

Price cap regulation incentivises distributors to grow the volume of natural gas transported through their networks. Declining block tariffs, when passed through to customers by retailers, incentivise customers to consume larger quantities of natural gas.² However, the context in which haulage services are provided and used by stakeholders is changing. We consider it timely to review these key aspects of the regulatory regime as they have material impacts on the prices consumers pay.

We are undertaking this review for several reasons:

- stakeholders have called on us to review these matters in the context of recent access arrangement reviews
- energy ministers have announced their intention to amend the National Gas Objective by adding an emissions objective

¹ *National Gas (South Australia) Act 2008*, Division 1.

² A declining block tariff is one where the rate per unit of gas is high for the initial block of consumption and decreases for increasing blocks of consumption.

- some state and territory governments are implementing policies to encourage the transition to renewable energy sources – it is appropriate for us to consider the alignment of current regulatory approaches with jurisdictional policies.

We seek stakeholder views on the issues raised in this paper. In addition to encouraging written submissions, we will hold an online public forum in late May 2023 to further assist stakeholders in understanding the issues and so we may hear firsthand stakeholder views. We are also open to meeting with interested parties on request.

When considering the issues raised in this paper, we will do so in consideration of clause 97(3) of the National Gas Rules which prescribes matters we must have regard to when deciding an appropriate tariff variation mechanism. Clause 97 is discussed in detail in section 4 of this paper, along with alternative tariff variation mechanism options.

In terms of this paper's structure, Section 2 outlines how we regulate gas distribution network service providers.

Section 3 of this paper describes the context for our review.

Section 4 of this paper describes revenue outcomes achieved by gas distributors under weighted average price caps.

Section 5 of this paper describes tariff variation mechanisms and discusses their implications for different customer types.

Section 6 of this paper describes the current declining block tariff structures offered by gas distributors and sets out brief descriptions of alternatives. Section 6 also discusses the potential implications of any move away from declining block tariffs to alternative tariff structures.

Section 7 of this paper describes stranded asset risk and discusses potential interactions between that risk and changes to the tariff variation mechanism or tariff structures. Section 7 further notes that customer investments in gas appliances are also relevant to our review.

1.3 Our review process

This issues paper is the first step in a process we expect to conclude in October 2023. The key steps of our consultation and decision-making process are set out in Table 1.

Date	Key step
May 2023	Publish consultation paper and call for submissions
May 2023	Hold an online public forum
May and June 2023	Hold bilateral meetings as needed
June 2023	Submissions close
July 2023	Publish an AER draft decision and call for submissions

August 2023	Submissions close
October 2023	Publish an AER directions paper as the final decision of our review

We are undertaking this review now, independent of a network access arrangement review for any single gas network, because the issues under consideration are fundamental to a distributor's access arrangement. Distributors require advance notice of our thinking on tariff variation mechanisms and tariff structures to inform their own stakeholder engagement prior to their individual access arrangement reviews.

Whatever the result of this process it will be given effect through the schedule of individual gas pipeline access arrangement reviews undertaken in staggered fashion over several years.

As we are currently concluding our review of the Victorian gas distribution network 2023-28 access arrangements, the outcomes of this sector wide review of the form of control and declining block tariff will not be incorporated into Victorian networks until their 2029-34 access arrangement reviews.

2 Background on gas distribution tariff setting

Before addressing the substance of our review in the following sections of this paper, we first provide background and describe how gas distribution network haulage tariffs are set. Note that this description relates only to our role in respect of fully regulated gas distribution network service providers.³

2.1 Gas distribution tariff setting

The National Gas Rules prescribe that the tariffs we determine are reference tariffs linked to defined reference services which we also determine.

A reference service is a gas pipeline service for which we have determined a regulated price (tariff). Typically, we identify a haulage service for moving gas from one part of the pipeline (the injection point) to another part of the pipeline (the withdrawal point)

The National Gas Rules set out factors which guide our decision on which services to regulate.⁴ A key driver of our reference service decision is the expected demand for the service. Strong expected demand equates to a higher likelihood of price regulation.

A reference tariff is the regulated price for a reference service. Our decision on tariff structures is guided by the revenue and pricing principles set out in the National Gas Law and clause 94 of the National Gas Rules.

The level of tariffs is an outcome of our assessment of distributors' revenue proposals. We assess revenue proposals using the building block model discussed in section 5.3.1.

Distributors take the reference services and tariffs we determine as the services and tariffs they offer to network users. This means that our determinations on distributor revenue, tariff structures and related matters are directly relevant to gas bills paid by consumers.

For a 5 year access arrangement period we determine both the tariff structures and tariff levels for year 1 within our access arrangement determinations. This means year 1 tariffs are set out in an approved access arrangement. Tariff structures for years 2 to 5 are also set out in an approved access arrangement. However, the tariff levels for years 2 to 5 are determined in advance of each of those years using an approved tariff variation mechanism.⁵ Typically, tariffs in years 2 to 5 are specified as the initial tariffs in year 1 which are then escalated by CPI-X.

Distributors submit proposed tariffs for years 2 to 5 to us for assessment ahead of each of those regulatory years. We undertake a compliance check to ensure proposed tariffs comply with the approved access arrangement, including the approved tariff variation mechanism in addition to the network service provider's approved total annual revenue target.

³ For a number of gas distribution networks the AER does not set tariffs but we are available to arbitrate disputes referred by access seekers. For those light regulation distribution networks we neither determine reference services nor determine reference tariffs.

⁴ NGR, cl. 47A(15).

⁵ 'Tariff variation mechanism' is the terminology of the National Gas Rules. Under the National Electricity Rules the equivalent to a gas network tariff variation mechanism is a 'form of control'.

We directly regulate 6 gas distribution networks across 4 jurisdictions:

- Victoria – Australian Gas Networks (Victoria and Albury); Multinet Gas Networks; AusNet Gas Services
- South Australia – Australian Gas Networks (South Australia)
- NSW – JGN NSW
- ACT - Evoenergy

The above 6 gas distributors are currently regulated under weighted average price cap tariff variation mechanisms and all offer declining block tariffs for haulage services.

3 The context for our review

In this section we describe the new context within which we are now making gas network access arrangement determinations. There are important differences to the context within which we have made determinations in the past, including:

- stakeholder views on declining block tariffs and price caps
- changes proposed by energy ministers to the National Gas Objective, which guides our work
- state and territory government emissions targets and related policies on natural gas consumption.

3.1 Stakeholder views

Some stakeholder views submitted to us in recent access arrangement reviews have called for changes to declining block tariff structures. These calls have been couched in terms of new state and territory government policies aimed at transitioning energy consumption from natural gas to electricity. Stakeholders consider there is an inconsistency between weighted average price cap regulation and declining block tariffs applied to gas networks on the one hand, and jurisdictional policies to transition away from natural gas consumption on the other.

Stakeholder submissions included:

“...we recommended an AER review to consider whether ... the current NGL/NGR are fit for purpose given emerging Government policy on zero emissions ... required changes can be achieved through a change in the interpretation and application of the existing rules or whether amendments are needed”⁶

“The Conservation Council recommends that Evoenergy ... Revise tariffs consistent with ‘polluter pays’ and equity principles so as to reduce gas consumption and support vulnerable customers”⁷

“ACTCOSS” recommends that Evoenergy respond to consumer feedback by undertaking analysis of equity and sustainability impacts of declining block tariffs to ensure there is alignment with the key themes of Evoenergy’s consumer engagement”⁸

“Measures to maintain and stimulate demand should be rejected, specifically ... block tariffs whereby the price of gas falls the more is used”⁹

⁶ CCP24, *CCP24 advice to the Australian Energy Regulator on Evoenergy gas network 21 plan ... July 2021-June 2026*, September 2022, p.41.

⁷ Conservation Council ACT Region, *Submission re Evoenergy 2021–26 gas access arrangement proposal*, September 2022, p.5.

⁸ ACT Council of Social Services, *Evoenergy’s gas network 2021-26 access arrangement proposal to the Australian Energy Regulator*, September 2022, p.20.

⁹ Darebin Climate Action Now, *Submission to the Australian Energy Regulator - Distributor’s access arrangements 2023-2028*, September 2022, p.3.

“FoE Melbourne calls for a move away from declining block tariffs because they offer an incentive to use more gas than is necessary”¹⁰

“We recommend consultation on a move away from declining block tariff structures for the upcoming period, at least for residential consumers”¹¹

3.2 The National Gas Objective, incorporating an emissions objective

This issues paper is about the incentives for gas distributors and gas customers to grow the consumption of gas. Because natural gas is a fossil fuel, emissions reduction policies are relevant to our review and in fact are a large part of the reason for our review.

On 20 December 2022 the Department of Climate Change, Energy, the Environment and Water published a consultation paper on incorporating an emissions reduction objective into the national energy objectives, including the National Gas Objective (the ‘National Energy Objective Consultation Paper’).¹² This follows a decision by energy ministers to fast track introducing an emissions reduction objective into the national energy objectives.¹³

Section 23 of the National Gas Law sets out the current National Gas Objective (‘NGO’):¹⁴

...to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.

Attachment A to the national energy objective consultation paper sets out a proposed amendment to the National Gas Objective.

(1) Section 23—delete from “consumers of natural gas with respect to” and substitute:

consumers of energy with respect to—

(a) price, quality, safety, reliability and security of supply of natural gas; and

(b) the achievement of targets for reducing Australia’s greenhouse gas emissions to which the Commonwealth, a State or a Territory has made a public commitment, including—

(i) Australia’s greenhouse gas emissions reduction targets provided for under the Climate Change Act 2022 of the Commonwealth; and

(ii) other targets for reducing, or that is likely to contribute to reducing, Australia’s greenhouse gas emissions—

¹⁰ Friends of the Earth Melbourne, *Distributors access arrangement proposals 2023-2028 from AusNet and AGIG (owners of AGN and Multinet)*, September 2022, p.1.

¹¹ Brotherhood of St Laurence, *2023-2028 Victorian gas distributors’ access arrangement*, September 2022, p.27.

¹² Equivalent objectives for the gas and retail sectors are set out in the National Electricity Law and National Energy Retail Law respectively.

¹³ Energy ministers agreed to amend the national energy objectives on 12 August 2022.

¹⁴ National Gas Law, s.23.

(A) stated in a law of the Commonwealth, a State or a Territory; or

(B) stated in, or made under, an international agreement to which the Commonwealth, a State or a Territory is a party; or

(C) stated publicly as a matter of policy by the Commonwealth, a State or a Territory.

The National Energy Objective Consultation Paper states:¹⁵

The proposed reform reflects the commitment by all Australian governments to net zero emissions by 2050 or earlier ... The proposed reform is intended to support a managed transition to an energy system with a higher proportion of firmed renewables, which will serve the long-term interests of consumers with regard to price, quality, safety reliability and security.

Also:¹⁶

...the emissions reduction objective is not intended to sit above, or be prioritised over, the existing components within the objectives, but rather will be considered and balanced alongside the other existing components, in a way that maximises the overall objectives, in the long-term interests of consumers.

We consider the proposed amended National Gas Objective, if adopted by energy ministers, would require us to balance achievement of the emissions reduction objective along with the other elements of the National Gas Objective. Further context for our work is provided by state and territory policies with respect to natural gas pipelines and emissions, discussed in section 3.3 below.

3.3 Jurisdictional policies on natural gas consumption

This section sets out a summary of State and Territory Government policies on natural gas pipelines and emissions that we consider are relevant to our review. All jurisdictions with gas distribution networks fully regulated by us have announced emissions targets. Some jurisdictions are now intervening in gas markets to transition customers from natural gas to electricity.

ACT

The ACT Government announced on 4 August 2022 its intention to phase out natural gas consumption in the ACT by 2045. To transition towards that goal the ACT Government has announced that it will prohibit new gas connections from 2023. It expects customers to now begin replacing gas appliances with electric appliances over a 15 year period and forecasts significant cost increases for customers remaining on the ACT gas network from the end of that period.

Victoria

¹⁵ DCCEEW, *Incorporating an emissions reduction incentive into the national energy objectives*, December 2022, p.1.

¹⁶ DCCEEW, *Incorporating an emissions reduction incentive into the national energy objectives*, December 2022, p.2.

The Victorian Government published on 14 October 2022 the Gas Substitution Roadmap as an element of its broader policy to achieve net zero emissions by 2050. The Gas Substitution Roadmap promotes a switch to electricity (while also identifying a future role for renewable gases and hydrogen).

NSW

The NSW Government announced in 2016 its target of net zero emissions by 2050. On 23 December 2022 the NSW Government announced a new interim target of 70% emissions reduction compared to 2005 levels by 2035.

Queensland

The Queensland Government has announced emissions targets of net zero by 2050 and a 30% reduction compared to 2005 levels by 2030.

South Australia

The South Australian Government has announced emissions targets of net zero by 2050 and a 50% reduction compared to 2005 levels by 2030.

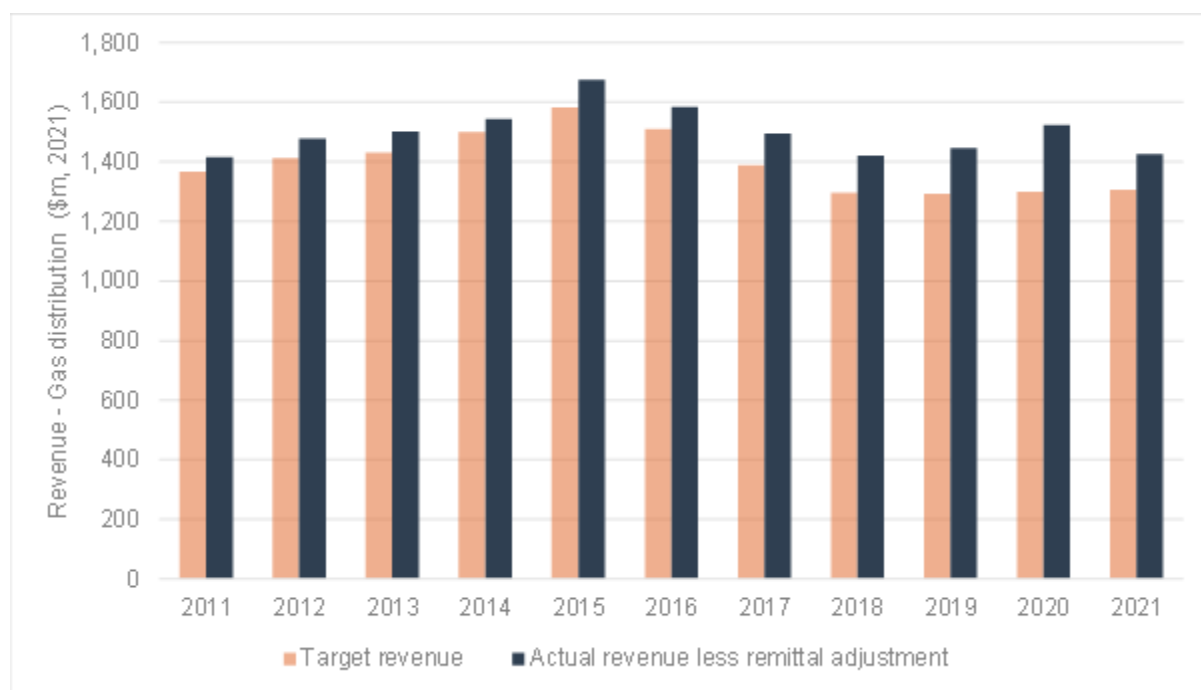
4 Gas distributor revenue outcomes under weighted average price caps

Under weighted average price caps, we determine maximum allowed tariffs that gas distributors can charge for haulage services, but we do not set maximum revenues they may earn. This means if actual gas volumes vary from forecast volumes distributors may earn more revenue or less revenue than targeted in our determinations. This section describes actual revenue outcomes achieved by distributors under the current weighted average price cap form of control. Unlike revenue caps, under price caps there is no correction for under or over recovery of revenues over a number of years.

4.1 Gas distributor revenue over recoveries

Figure 1 illustrates actual revenues earned by gas distribution network service providers in comparison to the target revenues on which haulage tariffs were set to recover.

Figure 1 Gas distribution network revenues compared to target revenues¹⁷



As shown by Figure 1, distributors have consistently recovered more revenue than targeted. After small and relatively stable revenue over recoveries in the years 2011 to 2014, the over recovery of revenue increased between 2015 to 2020. A reduction in revenue over recovery is observed in 2021.

¹⁷ Figure 1 shows actual revenue less remittal adjustments applied to JGN. JGN over-recovered revenue for the 2014 to 2020 access arrangement period while it sought a review of the AER's determination under the limited merits review framework (which is no longer applicable). JGN's application for limited merits review affected its price path and resulted in revenue over recovery of around 25% in 2015–2020. JGN is returning this value to consumers in the 2020–2025 access arrangement period through reductions in haulage tariffs.

Retail bill impacts of distributor revenue over recoveries depend on the contribution of distribution cost recovery to retail bills. Gas distribution costs represent a varying proportion of retail bills, depending on which distribution network a customer is connected to. For Victorian and Australian Capital Territory residential customers, distribution costs represent between 22% and 25% of retail bills. For New South Wales residential customers, distribution costs represent 41% (coastal) or 33% (regional) of retail bills. For South Australian residential customers, distribution costs represent 54% of retail bills. Similar variance is experienced by business customers, with distribution representing 5% of retail bills in Victoria and 50% of retail bills in South Australia, with other distribution networks being in between those extremes.

The short term bill impact of revenue over recoveries is not the full story. Larger than expected actual volumes in one access arrangement period should translate into higher volume forecasts for upcoming periods. Higher volume forecasts mean lower per unit haulage costs for customers. This is because gas network costs are relatively fixed. The costs incurred by distributors do not materially change as volumes vary up and down over time.¹⁸ Dividing fixed network costs by larger gas volumes means lower per unit transportation costs and lower per unit gas bills for customers.

4.2 Drivers of gas network revenue over recoveries

Revenue over recovery compared to target revenues –derives from actual gas volumes being higher than forecast volumes. Volume outperformance may, at least in part, be explained by the incentive properties of weighted average price caps. This is because gas distribution network service providers will rationally do what they can to grow the volume of gas carried by their networks, given that under price cap regulation they retain all revenue earned. We see the establishment by distributors of declining block tariffs in this light. That is, as a rational response to the tariff variation mechanism applied to them.

One interpretation of Figure 1 is that distribution network service providers are responding to the incentive properties of price cap regulation and are achieving higher actual volumes than forecasts because of those incentive properties. That the forecast volumes we use to determine haulage reference tariffs have been lower than actuals does not necessarily mean that customers are worse off. It may only mean that volume forecasts for future periods are higher than they would otherwise be, and customers could be even better off if forecasts used in our determinations could reflect the full effect of the incentives faced by distributors.

It should be noted too that a number of factors external to the regulatory framework are also relevant. These include economic conditions across the states and territories in which fully regulated gas distribution network service providers operate; demand and supply balances in markets for products which have natural gas as either an input or a fuel; and the appliance mix (gas or electricity) in consumer residential and commercial premises.

We further note that revenue over recoveries may be due to incorrect initial demand forecasts, or forecasting error. Demand forecasting is inherently uncertain. It may be that we are approving volume forecasts that are too low.

¹⁸ However, network expansions (connecting more customers) does drive additional network investment.

5 Tariff variation mechanisms

In this section we describe the main types of tariff variation mechanisms and their key features including how they allocate financial risk. It is in response to this risk that network service providers can be incentivised to act in specific ways.

5.1 Tariff variation mechanisms in the National Gas Rules

Clause 97 of the National Gas Rules makes the AER responsible for making determinations on each gas network service provider's tariff variation mechanism. Clause 97 notes that a reference tariff mechanism may be:

- a schedule of fixed tariffs
- a formula
- result from a cost pass through event
- result from application of revenue from rebateable services
- a combination of the above.

Should a formula be chosen, clause 97 goes on to set out the broad types of reference tariff variation mechanism we may approve:

- variable caps on revenue derived from a combination of reference services
- tariff basket price control
- revenue yield control
- a combination of the above.

Clause 97 further sets out matters we must have regard to when deciding whether a particular tariff variation mechanism is appropriate to a particular access arrangement:

- the need for efficient tariff structures
- possible effects on administrative costs of the AER, distributors and pipeline users
- regulatory arrangements applicable prior to commencement of the tariff variation mechanism
- the desirability of consistency
- risk sharing arrangements implicit in the access arrangement
- any other relevant factor.

We consider the proposed changes to the National Gas Objective and relevant jurisdictional policies are appropriate for us to consider under the final point above, other relevant factors. We note they could also be considered under the need for efficient tariff structures.

5.2 Risk assignment under different tariff variation mechanisms

When considering the merits of tariff variation mechanisms, a key consideration is the assignment of financial risk. Different tariff variation mechanisms assign risk very differently between distributors and customers.

Under a weighted average price cap, a target revenue is established which the distributor uses to set its prices based on forecast volumes. If actual volumes are lower than forecast volumes used to set tariffs, the distributor will recover less money than expected. This assignment of volume risk is consistent with a basic tenet of regulatory economics – that risk should be assigned to the party best able to manage the risk. In the case of gas distribution network volumes, distributors are better placed to manage volume risk than individual customers.

A closely related risk is that of forecast error. Under weighted average price caps, forecast error risk is experienced by both distributors and customers. If volume forecasts used to set tariffs are too low, tariffs will be too high and customers will pay more than necessary for reference services. If volume forecasts are too high, tariffs will be too low and distributors will not recover the revenue we targeted with our access arrangement determination.

Under revenue caps, risk assignment is quite different. Any over or under recovery of a distributor's revenues due to higher or lower volumes than forecast in one year would be carried forward to future years to be passed back to, or recovered from, customers via an unders and overs account. Over the longer term, distributors would only ever recover the revenues allowed in their access arrangements.

Under revenue caps, distributors would no longer experience volume risk but would forego the ability to over recover revenues compared to our determinations. Customers would be protected from volume risk in the form of volumes being higher than forecast. However, should actual volumes be lower than forecast, customers would experience higher haulage tariffs than expected. This is because distributors would, under revenue caps, have a right to earn the revenue we determine, regardless of the actual volumes.

Another aspect of revenue cap regulation compared to price caps is that tariffs may be more volatile from year to year under revenue caps. This is because tariffs change in response to changing volumes to meet the distributor's allowed revenues.

In principle, tariffs are less volatile under price caps because volume changes do not drive tariff changes. Rather, distributor revenues change with volumes.

5.3 Tariff variation mechanism types

In this section we describe the most relevant tariff variation mechanism types, or options, for use in regulating gas network haulage services. We first describe key features of tariff variation mechanisms which are common across all types.

5.3.1 Common elements across tariff variation mechanisms

Each of the potential tariff variation mechanisms set out in clause 97 target a specific annual revenue requirement. Regardless of the tariff variation mechanism, we use a building block approach to determine a revenue requirement for each year of an access arrangement

period. The building block approach involves an assessment of each cost component a gas network service provider is forecast to incur in providing services over the access arrangement period. These cost components include the return on capital, depreciation, operating expenditure, revenue adjustments from incentive schemes and the expected cost of tax.

To adjust approved annual revenues from year 1 of an access arrangement period for year 2 and subsequent years, we use the CPI-X mechanism.¹⁹ This is a common regulatory revenue adjustment mechanism and is consistent across fully regulated Australian gas and electricity networks.

5.3.2 Weighted average price caps

A weighted average price cap, or ‘tariff basket control’, caps the average increase in prices from one year to the next. Under this control mechanism, prices for different services may adjust each year by different amounts—for example, some prices may rise while others may fall, subject to the weighted average price cap. A weighted average is used to reflect that services may be sold in different quantities. So, a small increase in the price of a popular service would need to be offset by a large decrease in the price of an infrequently provided service. The distributor complies with this constraint by setting prices so the change in the weighted average price is equal to or less than the CPI – X cap.

Important features of the weighted average price cap tariff variation mechanism for our review are that it:

- places volume risk with distributors
- allows distributors to retain all revenues they earn.

These two features of weighted average price caps give distributors a strong incentive to grow the volume of gas transported by their networks. Declining block tariff structures can be seen as a rational response to the allocation of risk and incentives established by weighted average price caps.

5.3.3 Revenue caps

A revenue cap sets a maximum regulated revenue for each year of the regulatory control period. The distributor is then bound to recover revenue equal to or less than the maximum regulated revenue. It complies with this constraint by forecasting volumes for the next regulatory year and setting prices such that the expected revenue is equal to or less than the maximum regulated revenue. At the end of each regulatory year the distributor reports its actual revenues to the AER. Differences between the actual revenue recovered and the maximum regulated revenue are then accounted for in future years. This operation occurs through an “overs and unders” account, whereby any over-recovery (under-recovery) is deducted from (added to) the maximum regulated revenue in future years.

Important features of the revenue cap tariff variation mechanism for our review are that it:

¹⁹ Under CPI-X regulation, tariffs are adjusted for inflation and an X factor. The X factor represents the results of the building block model assessment of the distributor’s efficient costs. A large X factor indicates a large year-on-year change in tariffs.

- places volume risk with customers
- does not allow networks to retain all revenues they earn.

These two features of revenue caps avoid incentivising networks to grow the volume of gas transported by their networks, at least in the short term. However, volume risk is placed with customers who have little ability to control this risk.

5.3.4 Schedule of fixed prices & caps on the prices of individual services

Ordinarily we would not consider that direct tariff control options, schedule of fixed prices and caps on the prices of individual services, are appropriate for regulation of haulage reference services. This is because they do not provide sufficient flexibility within an access arrangement period, in the context of shared network services.

However, we don't want to close off options prematurely in the new context within which we are undertaking this review. As such we are open to proposals that incorporate direct tariff control options if it can be demonstrated that they can provide appropriate outcomes.

Price caps for individual services are currently applied to ancillary network reference services such as disconnection, meter removal and special meter read. These services are provided to individual customers, in contrast to haulage services which involve shared network assets providing haulage services to large numbers of customers at the same time. In the case of discreet services provided to individual customers, ancillary network services, we consider individual service price caps are reasonable and will remain appropriate going forward.

5.3.5 Revenue yield control

An average revenue cap, or 'revenue yield control', caps the average revenue per unit of gas sold that a distributor may recover. The cap is calculated by dividing approved annual revenue by volumes. The distributor complies with this constraint by setting prices so the average revenue is equal to or less than the approved revenue per unit of output.

5.3.6 Combinations of other mechanisms (hybrids)

Hybrid tariff variation mechanisms combine two or more of the above mechanisms. Typically, a hybrid approach involves a proportion of revenue that is fixed and a proportion that varies according to pre-determined parameters, such as volumes.

Standard examples of additional parameters driving revenue recovery include service incentive payments and cost pass throughs.

A different example of a hybrid tariff variation mechanism is the Victorian Transmission System for natural gas. Ostensibly a price cap, it incorporates adjustments for extreme (cold) weather that operate more like a revenue cap.

Hybrid approaches could also reflect cost/risk sharing between customers, distributor shareholders and governments. In this context a range of different approaches could be used to control tariffs while portions of network costs are financed in other ways.

6 Distribution tariff structures

In this section we describe declining block tariff structures offered by gas distribution network service providers and review alternative tariff structures that may be appropriate for gas networks. First though, we describe the overarching regulatory principles which guide reference tariff development and our assessment of proposed reference tariffs.

6.1 The revenue and pricing principles in the National Gas Law

The National Gas Law sets out the “Revenue and pricing principles relating to scheme pipelines” (the principles).²⁰ The principles require reference tariffs to:

- give distributors reasonable opportunity to recover at least their efficient costs
- provide distributors with incentives to promote efficiency through their reference services
- allow a rate of return commensurate with the distributor’s commercial risk.

The principles also require, in determining reference tariffs, that regard must be given to the distributor’s capital base, costs, risks, and the potential for over or under investment in pipeline services.

We will undertake our review of distribution network haulage tariff structures considering the principles.

6.2 Declining block tariff structures (distribution networks)

Gas distribution network haulage tariffs are currently dominated by declining block structures. Under these tariff structures the haulage price for the first ‘block’ of gas consumed by a customer is set higher than the price for subsequent blocks. As customers consume progressively more gas within a billing period, they meet the threshold between blocks and pay progressively lower per unit prices for haulage.

Gas distributors typically offer two broad categories of haulage service with two corresponding broad sets of haulage tariffs:

- Demand tariffs
 - haulage tariffs for large commercial and industrial customers
 - comprised of capacity/demand and volume charges
 - the declining block tariff structure is expressed in both the capacity and volume charges that make up the tariff
- Volume tariffs
 - haulage services and tariffs for residential and small business customers
 - comprised of volume charges
 - the declining block tariff structure is expressed in the volume charges.

²⁰ National Gas Law, Cl. 24.

In sections 6.2.1 and 6.2.2 we set out examples of declining block tariff structures within both demand and volume tariffs.

6.2.1 Example 1 – JGN NSW

JGN offers 6 'blocks' of demand charges, within its demand tariffs, which decline in price as chargeable demand volumes increase. To illustrate, Table 2 sets out the 2022-23 demand blocks/prices that JGN offers under tariff "DC1".²¹

Figure 2 JGN DC1 tariff 2022-23 – declining block tariff structure

	First 50 GJ of CD ²²	Next 150 GJ of CD	Next 400 GJ of CD	Next 1000 GJ of CD	Next 2000 GJ of CD	Rest of CD
DC1	\$204.924	\$191.884	\$103.981	\$79.356	\$69.991	\$69.944

Similarly, JGN offers 6 blocks of volume charges, within its volume tariffs, which decline in price as volumes increase. To illustrate, Table 3 sets out the 2022-23 volume/price blocks that JGN offers under tariff "VI Coastal".²³

Figure 3 JGN VI Coastal tariff 2022-23 – declining block tariff structure

GJ per month)	First 0.63 GJ	Next 0.62 GJ	Next 1.50 GJ	Next 80.75 GJ	Next 333.5 GJ	All additional
VI Coastal	\$18.540	\$5.707	\$5.336	\$3.908	\$3.571	\$2.479

6.2.2 Example 2 – AGN Victoria

AGN offers 3 blocks of demand charges, within its demand tariffs, which decline in price as chargeable demand volumes increase. To illustrate, Table 4 sets out the 2022 demand blocks/prices that AGN offered under "Tariff D (Central)".²⁴

Figure 4 AGN Tariff D Central Zone 2022 – declining block tariff structure

	10 GJ or less	Next 40 GJ	Additional GJ
\$/GJ MHQ	\$1,524.8607	\$932.2022	\$170.2393

²¹ Jemena Gas Networks (NSW) Ltd, *Tariff variation notice 2022-23 reference tariffs, Appendix D – Reference tariff schedule for 1 July to 30 June 2023*, April 2022, p.10.

²² CD = chargeable demand; GJ = gigajoule.

²³ Jemena Gas Networks (NSW) Ltd, *Tariff variation notice 2022-23 reference tariffs, Appendix D – Reference tariff schedule for 1 July to 30 June 2023*, April 2022, p.13.

²⁴ AGN, *Annual tariff variation notice – attachment 2*, October 2021, p.3.

Similarly, AGN offers 3 blocks of volume charges, within its volume tariffs, which decline in price as volumes increase. To illustrate, Table 5 sets out the 2022 volume blocks/prices that AGN offered under Tariff V Murray Valley Zone for residential customers.²⁵

Figure 5 AGN Tariff V Murray Valley Zone (residential) 2022 – declining block tariff structure

	First 0.0274 GJ	Next 0.0219	Additional GJ
\$/GJ	\$10.1367	\$6.1323	\$3.4455

6.3 Alternative tariff structures for gas distributors & their customer implications

The most obvious alternatives to declining block tariffs are flat tariffs and inclining block tariffs. Both structures are relatively straightforward to implement in that they are no more complex than the current declining block tariffs. However, both alternative tariff structures would entail significant change to the way distributors charge for providing haulage services with corresponding changes to overall bills for gas customers.

All haulage tariffs incorporate a daily fixed charge which, for some business customers, may vary according to the capacity of a customer's connection. For small customers daily fixed charges are typically set at a single rate.

Any move away from the current tariff structures will entail administrative cost for distributors who would be required to engage stakeholders to develop new tariff structures and submit them to us for assessment. These costs would be in addition to the changes experienced by customers as described above.

Costs may also be incurred by retailers who pass through distribution costs to end customers. Retailers may need to change their billing systems if they decided to reflect new distribution tariffs in the retail products they offer to customers.

6.3.1 Flat tariffs

Flat tariffs would be considerably less complex than current tariff structures. Under flat tariffs customers pay a steady, or flat, rate per unit of gas consumed. Customers consuming relatively small volumes of gas may be expected to benefit from being switched to flat tariffs compared to remaining on declining block tariffs. This is because, in principle, small volume customers would pay less for their consumption under flat tariffs. Customers consuming relatively large volumes of gas would, in principle, be worse off under flat tariffs compared to declining block tariffs.

²⁵ AGN, *Annual tariff variation notice – attachment 2*, October 2021, p.2.

Under flat tariffs customers would not have an incentive to consume larger volumes of gas, as they currently do under declining block tariffs. Instead, customers would have an incentive to limit their gas consumption.

6.3.2 Inclining block tariffs

Inclining block tariffs would price the first consumption block lowest with subsequent blocks priced progressively higher. Small volume customers would, in principle, be even better off under inclining block tariffs compared to either declining block tariffs or flat tariffs. Large volume customers on the other hand would, in principle, be even worse off under inclining block tariffs than under either declining block tariffs or flat tariffs.

Under inclining block tariffs customers again would not have an incentive to consume larger volumes of gas and would in fact face a stronger disincentive to consume gas than under flat tariffs.

7 Stranded asset risk

In this section we discuss the risk of network assets becoming economically stranded. We first define stranded asset risk, then discuss stranding risk in the context of potential changes to the tariff variation mechanism and tariff structures. Finally, we note that a different type of stranding risk may also be relevant to our review – the risk of eroding the value of customer investments in gas appliances and related assets.

7.1 What is stranded asset risk?

Stranded assets are investments that are no longer able to earn an economic return prior to the end of their economic life as assumed at the investment decision point. Their economic life may be curtailed due to either changes in technology, regulation, market changes, or some combination of these.

With the prospect of a shrinking customer base and increasing competitiveness of alternative energy sources, regulated gas distributors face a risk that they may not be able to recover the costs of their efficient investments.

Faced with a declining customer base, distributors can limit new expenditures and manage prices to minimise disconnections by customers. However, the costs to maintain a gas network do not decrease in proportion to gas demand decline. The pipeline assets are likely to remain in use and distributors will incur ongoing maintenance and replacement costs to maintain safe and reliable network services for the remaining customers on the network, subject to any partial shutdowns of the network.

When faced with a material stranded asset risk, distributors may want to bring forward the cost recovery of their investments to reduce the expected losses they may face in the future. We have approved some accelerated depreciation of gas network assets to mitigate risk of stranding.

Barring that, distributors may seek additional compensation for carrying this risk or they may not have the right incentives to make efficient investments in their network. All else being equal, bringing forward the cost recovery of the RAB, or paying compensation to network businesses for stranded asset risk, will increase gas access prices.

Material price increases caused by a shrinking customer base, or expectations of future price increases, can further incentivise customers to leave the gas network, compounding the effects of declining gas demand. This is sometimes referred to as the 'utility death spiral'.

However, it is not clear that moving away from current tariff approaches to something else would worsen stranding risk. Any such move may in fact reduce stranding risk, particularly in the short term (a 5 year access arrangement period) if revenue caps were applied, given that distributors would have a 5 year revenue guarantee under that approach.

We have not provided compensation to regulated businesses for stranded asset risk via the return on capital because stranded asset risk is generally considered non-systematic.²⁶

²⁶ AER, *Regulating gas pipelines under uncertainty*, November 2021, p.28.

In our recently published Rate of Return Instrument Explanatory Statement, we continued to apply a single equity beta for both electricity and gas networks as they are likely to face similar systematic risks, given that they share similar characteristics as natural monopolies and operate under similar regulatory frameworks. We also considered that, while there may be a potential risk of asset stranding for gas networks, we did not find evidence that such risk is primarily systematic in Australia. We decided not to adjust the equity beta to compensate for potential stranding risk and considered it more appropriate to address this issue under the broader regulatory framework, such as through depreciation policy.

7.2 Stranding risk and moving away from price caps and declining block tariffs

The impact on stranding risk of moving away from price caps and declining block tariffs is uncertain.

In the short term, meaning a 5 year access arrangement period, moving to a revenue cap would alleviate distributors of volume risk and provide revenue certainty. However, a revenue cap may create greater annual price movements and potentially less price stability within a period. If there are sufficiently large price increases during the period, some customers may leave the network earlier than had prices been held relatively stable under a price cap.

In the long term, we consider the impact of moving to revenue caps on stranding risk would be minimal as other factors would dominate the prospects of assets becoming stranded.

The impact that moving away from declining block tariffs would have on stranding risk is also uncertain and will depend on the mix of customers and the new tariff structures put in place. Historically, declining block tariffs reflected in part that large customers helped promote economies of scale for a network. Moving to flat or inclining tariffs would likely increase bills for large users and might encourage some of them to leave the gas network. Prudent discounts could be considered for such customers if the benefits of retaining that customer exceed the costs. Conversely, moving to inclining block tariffs is more likely to reduce bills for small customers and so could encourage them to remain on the network longer than otherwise.

A range of other stranding risk impacts may be possible under hybrid approaches that combined two or more different tariff variation mechanisms. Further nuancing of stranding risk may occur if a hybrid tariff variation mechanism were combined with two or more tariff structures. It may be possible, for example, to apply revenue or price caps to proportions of a distributor's total volume (potentially aligning to customer categories, or tariff classes) to achieve a balance of risk assignment between distributors and customers. Different tariff structures could be offered to the different categories of volume (different tariff classes).

We note too that over time the optimal tariff variation mechanism and tariff structure may change. We are undertaking this review now because the context for our work has changed. Further contextual changes are possible if not likely, meaning that any approach we consider appropriate for the immediate future may come to be seen as less appropriate over time.

7.3 Customer investments in gas appliances

Also relevant to our review are investments made by customers in gas appliances. Changes to gas distribution tariffs, or to the incentives faced by distributors to grow volumes, may

impact the value that customers derive from their investments. Those impacts may differ across customer types and, as outlined above, across customers who use different volumes of gas.

Small consumption customers may extract greater value from their gas appliances if tariff structures changed from declining block structures to something else. Large consumption customers may realise less value from their gas appliances if tariff structures were to change.

Should the tariff variation mechanism change to no longer incentivise distributors to grow gas volumes, over time the per unit cost of providing haulage services may rise as relatively fixed haulage costs are funded by lower throughput. While other factors are likely to influence customer decision making, any such increases in per unit haulage costs may contribute to shorter economic lives of customer gas appliances.