December 2021

Victorian Transmission System

Tariff derivation approach

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Contents

1 VTS tariff derivation

This document explains the basis and derivation of pipeline tariffs, including the allocation of total revenue and costs to pipeline services and the reference tariff variation mechanism.

Tariffs – transmission pipelines (see r. 95 of the NGR)

15.2 For each *tariff* proposed by *VTS* for the next *access arrangement* period, in the materials submitted to the *AER* explain how it has been designed to:

(a) to generate from the provision of each *reference service* the portion of total *revenue* referable to that *reference service*; and

(b) as far as is practicable consistently with paragraph 15.2(a), to generate from the *user* (or class of *users*), to which the *reference service* is provided, the portion of total *revenue* referable to providing the *reference service* to the particular *user* (or class of *users*).

1.1 Revenue and cost allocation to services

Rule 93(2) requires costs to be allocated between reference and other services as follows:

(a) Costs directly attributable to reference services are to be allocated to those services;

(b) Costs directly attributable to pipeline services that are not reference services are to be allocated to those services; and

(c) Other costs are to be allocated between reference and other services on a basis (which must be consistent with the revenue and pricing principles) determined or approved by the AER.

Revenue is to be allocated between reference and other services in the same ratio in which costs are allocated between reference and other services.

As set out in the approved Reference Service proposal, APA VTS offers a single service, the reference service, which is the tariffed transmission service. As a result, all costs associated with the VTS are allocated to this service.

1.2 Derivation of tariffs

1.2.1 Overview of proposed changes to tariff approach

The following sections include detailed descriptions of how tariffs are derived, and in particular how costs are allocated to tariffs.

APA VTS does not propose substantive changes to the tariff approach.

1.2.2 Rule requirement

Rule 95(1) requires that a tariff for a reference service be developed:

(a) To generate from the provision of each reference service the portion of total revenue referable to that reference service; and

(b) As far as reasonably practicable consistently with paragraph (a), to generate from the user, or the class of users, to which the reference service is provided, the portion of total revenue referable to providing the reference service to the particular user or class of users.

As APA VTS only proposes to offer one reference service, Rule 95(2), which relates to the allocation of revenue between reference services, does not apply.

Rule 95(3) requires that the portion of total revenue referable to providing a reference service to a particular user or class of users is determined as follows:

(a) costs directly attributable to supplying the user or class of users are to be allocated to the relevant user or class; and

(b) other costs are to be allocated between the user or class of users and other users or classes of users on a basis (which must be consistent with the revenue and pricing principles) determined or approved by the AER.

1.2.3 Implications of the DWGM structure

APA VTS operates under the unique Declared Wholesale Gas Market (**DWGM**) structure. All other transmission pipelines in Australia operate under a contract carriage model. This has a number of important implications as follows:

- As the DWGM allocates pipeline capacity by the operation of the bidding process for gas, tariffs are necessarily flow based, as market participants cannot reserve capacity under contract for their exclusive use;

- The setting of tariffs must be based on a forecast of the gas flow paths. However, since APA VTS operates under an incentive-based regulatory model the tariffs, once set, cannot be altered to suit changed circumstances; and
- To the extent that the actual flow paths differ from the forecast, the cost allocation outcomes to customers (and the revenue received by APA VTS) will not be as was intended. This can occur even where the total forecast is accurate, but the expectation of where gas will be sourced differs materially from the forecast.[1]

The variability of flow patterns within the DWGM by virtue of specific market outcomes suggests that it is not appropriate to require too rigid an application of the cost-reflective tariff principles to the reference tariff. A cost allocation done in hindsight with full knowledge of where gas actually flowed will be different from that which is forecast. This further suggests that the tariff design for the VTS can only be a compromise between a range of potentially conflicting principles.

Accordingly, where allocation percentages are referred to in this document, they will ultimately be the subject of fine tuning adjustments through the AER's AA review process. These amounts are shown in this document in [square brackets].

1.2.4 Relevant pricing principles

Rule 72(1)(j) requires APA VTS to describe any pricing principles employed in designed tariffs. APA VTS considers that the following principles, which it applies in its tariff design for the VTS, are consistent with the rule requirements for tariff design, and with the revenue and pricing principles.

A key driver of tariff design is efficiency, in terms of the promotion of efficiency in:

- Customers' usage of the pipeline system - transmission prices should, where possible, signal to system users the economic costs of use of the system, and promote maximum utilisation of the system;
- The operation and maintenance of the pipeline system - transmission prices should be consistent with the efficient operation and maintenance of the pipeline system and minimise the costs of the service requested by users;
- Investment in system augmentation - transmission prices should signal efficient new investment in the pipeline system;

[1] Note that this does not occur under a contract carriage model, as the user contracts for capacity in a pipeline over a given flow path, and its charges are related to that pre-specified path.

- Simplicity and predictability – enabling users to identify the cost impact of their usage decisions, and ensuring administration costs are not excessive and barriers to entry are minimised;
- Robustness, in light of possible changes to the future development of the pipeline system, and changes in demand and supply patterns; and
- Price stability - avoiding unnecessarily large price shocks at subsequent reviews.

Some of these criteria are necessarily conflicting, for example the relationship between cost reflectivity in tariffs relating to a complex system, and simplicity and price stability. Principles of cost reflectivity can at times come at the expense of price stability, and vice versa.

The AER assessed the overall tariff design (which is unchanged in this revision proposal) as part of its assessment of the 2013-2017 and 2018-2022 access arrangement revision proposals. In those decisions the AER concluded that "the level of complexity in the design and structure of the proposed tariff is an appropriate balance of cost reflectivity and complexity".[2] APA VTS submits that its overall tariff design remains consistent with Rule 95.

1.2.5 Identification and allocation to user classes

Rule 95(1) requires that tariffs generate revenue from particular users or a class of users. Rule 95(3) requires that the revenue to be allocated to particular users or a class of users is in line with the costs of supplying those users or a class of users. These rules therefore require the identification of users or classes of users to which drive specific costs.

Separation of tariffs into injection and withdrawal tariffs

Under the DWGM, market participants can operate solely as injecting parties, or as withdrawing parties. It is therefore appropriate to identify injectors and withdrawers as potentially separate classes of users, and derive tariffs for injection into the system, and for withdrawal from the system, separately.

This ensures that an 'injecting only' user does not bear costs associated with withdrawal from the system, and vice versa.

[2] Australian Energy Regulator 2012, *Access Arrangement draft decision: APA GasNet Australia (Operations) Pty Ltd 2013-2017 Part 2 Attachments*, September, p 279

Total revenue is allocated to injection and withdrawal assets with approximately [20] per cent of 2023 revenue allocated to injection tariffs, and the remainder to withdrawal tariffs.

Allocation of costs to injection zones

There are five injection zones supplying the VTS:

- Longford
- Port Campbell
- Pakenham
- Dandenong
- Culcairn

There is a separate injection tariff for each injection zone which relates to the costs of the relevant injection pipeline. The injection charge recovers the costs of the injection pipeline.

To signal peak use to market participants (which drives expansion costs), the injection charge is levied on the ten peak injection days over the winter at each injection zone. The injection charge is levied on the injector.

A smoother payment schedule is provided to users whereby injection charges are forecast annually for each injector and levied monthly on a sculpted profile. An injection charge 'wash-up' is performed after September each year when the actual peak days are known.

Allocation of costs to withdrawal zones

The withdrawal charge recovers the cost of transmission from the injection pipeline to the user.

The system is divided into withdrawal zones, where a charge is levied on the withdrawing user. The cost of transmission through the withdrawal zones is based on a forecast of physical flows. Gas is assumed to have followed the forecast physical path even if it was injected at a different injection point.

Costs are allocated to 1 in 2 winter peak flows and annual flows in the ratio of [52.5] per cent to peak and [47.5] per cent to annual. These allocations were changed for

the 2013-2018 access arrangement period, and remain at the approved revised level for the forecast access arrangement period.[3]

Withdrawals are charged within 23 withdrawal zones, with only the TasHub zone added since the earlier access arrangement period. Within each withdrawal zone there are up to three tariff classes. These tariff classes are Tariff-D and Tariff-V which are supplemented in some circumstances by a cross system tariff. There are two specific withdrawal zones servicing storage facilities which have only one tariff class being the refill tariff.

The withdrawal charge is levied on the actual flows each month (an 'anytime' charge). A different withdrawal charge applies to each tariff class.

1.2.6 Cost allocation to specific tariff classes and tariffs

This section describes how costs are allocated to specific off-takes and tariff classes.

Costs are grouped into categories and allocated as shown in Table 1-1 below. These allocations seek to directly attribute costs to specific zones where appropriate, and to apply non-allocatable costs across all zones so as not to distort shipper decisions on the use of the system.

[3] AER 2012, *Access Arrangement draft decision: APA GasNet 2013-2017 Part 2*, p 291

Table 1-1 – Cost allocation method by cost category

Cost category	Allocation method
System assets (return on and of capital, tax liability) (excluding the rolled out SWP and Interconnect assets)	Physical path
Direct operating costs	Physical path
SWP residual costs	Direct to zone
Cost rolled-in under system-wide benefits (Interconnect assets)	Postage stamp
Interconnect zone residual costs	Direct to zone
Non-system assets (return on and of assets)	Postage stamp
General & administrative operating costs	Postage stamp
Return on working capital	Postage stamp
Benefit sharing allowance and first carry over amount	Postage stamp
Capital raising costs	Physical path (system assets), postage stamp (non-system assets)
Debt raising costs	Postage stamp

Physical path cost allocation

The aim of this cost allocation procedure is to allocate costs to each user in proportion to that user's use of the transmission system assets. Therefore, a user who uses a short section of the system will, in general, pay a lower amount for using the system than a user who uses a longer section of the system.

The specific assets that are used by a user are determined by the physical path taken by the gas flow from the relevant injection zone to the user's off-take. The relevant injection zone for each off-take is determined by a process of allocating the forecast injection volumes from each injection point to the off-takes based on the physical flow dynamics of the system, until the injection volumes have been exhausted. The majority of the system is assumed to be supplied from Longford, since this is where the greatest volumes are injected. To the extent that the injection volume forecast is changed, the physical paths will also change.

The transmission system has been divided into 29 pipeline segments (now including the WORM), determined by the points at which pipeline diameter changes. Certain pipeline segments are associated with compressors and in-line system regulators.

The cost that is associated with each asset segment is determined by a procedure that avoids vintage[4] effects, as follows:

- The total return on and return of assets is determined for all of the pipeline, regulator and compressor assets separately.
- This cost is allocated amongst the pipeline segments and compressors according to the Optimised Replacement Cost (ORC) of each asset within its asset class.
- The direct pipeline operating costs are allocated to each pipeline segment according to the pipeline length. Compressor and regulator operating costs are allocated to each unit directly.
- This procedure effectively disregards the vintage of each asset. It also means that refurbishments of the system are allocated across the entire system rather than to specific zones (however, capacity augmentations are allocated to the associated pipeline segment). This procedure is intended to reflect the principle that the tariff for a segment of pipeline should be related to its service potential, and not to its age.

Allocations to peak and annual flows

The physical path allocation procedure described above allocates the cost of each pipeline segment to users according to the use made of that pipeline segment. Therefore it is necessary to define what is meant by ‘use’ of the pipeline segment.

The aim of allocating costs on the use of the pipeline is to send an appropriate price signal to each user, to enable that user to respond to the correct economic signal, and to ensure that each user is paying its share of the opportunity cost of each asset.

The VTS is characterised by injection pipelines that can become constrained, a relatively unconstrained hub where flows can vary depending on the pattern of injection, and low volume laterals off the hub.

The allocation between peak and annual flows in the current access arrangement allocated [52.5] per cent of costs to the peak flows. This was reduced from the previous period (where it was 55.55 per cent) in 2013. There are reasonable arguments to reduce this ratio even further given the unconstrained nature of most

[4] The allocation is not impacted by the age of the asset as there is no element of depreciation in determining the proportional allocation of costs to pipeline segments

VTS pipelines, but this would have the effect of making significant changes in the tariff relativities between high and low load factor customers. APA VTS has not proposed any further change to this ratio in the forecast period, and APA VTS has allocated costs on the injection pipeline based on the peak flows and allocated costs on the remainder of the system in the ratio of [47.5] per cent to annual flows and [52.5] per cent to peak flows (generating an average peak allocation of approximately [60] per cent).

Cost allocation to off-takes within pipeline segments

Within individual pipeline segments, direct costs are allocated to off-takes on the basis of the volumes and distances (TJ-km) within the zone for outflows at each off-take and for flows through the zone. This allocation is done for both peak and annual flows in the ratios discussed above.

The costs are then allocated to each tariff class within a zone in the following way.

- A rate ($/TJ/km) is derived for both peak and annual supply at each off-take based on the TJ-km for both peak and annual flows within the zone to each off-take and through the zone.
- A forecast is made of the Tariff-V and Tariff-D loads at each off-take,[5] and the separate components of peak and annual flows within each tariff class.
- The peak and annual rates are applied to the associated components of the Tariff-D and Tariff-V loads at each off-take, to derive the costs to be allocated to these tariff classes at each off-take.
- The costs within withdrawal zones are aggregated for each tariff class to the zonal level. The total costs within the injection pipelines are aggregated to generate the total injection pipeline cost.

South West Pipeline

A separate regime applies to the SWP. The cost allocation for the SWP was approved by the ACCC for the second access arrangement period. The ACCC acknowledged that the SWP provided both direct benefits of connecting a new gas source (both the Lochard Underground storage facility and new production) to the VTS and system wide benefits of inter basin competition in the wholesale gas

[5] For the 2023-27 access arrangement, this forecast is based on 2019 actual flows. AEMO has advised that 2020 and 2021 actual flow patterns have been affected by changes in consumption patterns driven by extensive periods of Covid-19 related lockdowns in Melbourne.

market and enhanced system security in the event of supply disruption. The ACCC approved a cost allocation for the SWP consisting of a [50] per cent allocation directly to the injection pipeline and [50] per cent to be allocated to the VTS as a whole on a postage stamp basis.

The AER's final decision for the 2013-2018 access arrangement period approved a change to this allocation to take account of investment and throughput on the SWP. The AER decided that the Port Campbell injection tariff be set in relation to the Longford injection tariff, with the allocation of rolled out costs not to exceed 50 per cent.[6]

APA VTS has applied the same considerations to setting the SWP tariff in the forecast period.

Indirect cost allocation

The indirect costs are the costs associated with the non-system assets (return on and of capital), the return on working capital, and general and administrative operating costs. In line with the existing tariff model, these costs will be allocated to all withdrawals on a per GJ basis.

This approach is consistent with Rule 95(3)(b) that requires costs that are not directly attributable to a particular user or class of user to be allocated on a basis that is consistent with the revenue and pricing principles. APA VTS considers that using the postage stamp approach for these costs is consistent with the revenue and pricing principles as it provides for the recovery of efficient costs incurred in providing the reference service, and is non-discriminatory. APA VTS also notes that the approach has been accepted in the current and previous periods, and is widely used.

Where a prudent discount is required, APA VTS has only allocated indirect costs to the extent that the tariff is competitive with the bypass option. In addition, where tariff changes from the current tariffs arising from the changes in system gas flows compared with those in the earlier access arrangement period would be excessive, APA VTS has adjusted indirect cost allocation to dampen those effects. This is to prevent tariff shock.

[6] AER 2012, *Access Arrangement draft decision: APA GasNet 2013-2017 Part 2,* p 299

Interconnect and Springhurst compressor

The Interconnect assets were approved by the ACCC in April 2000 to be rolled-in to the VTS capital base under the test in section 8.16(b)(ii) of the Code (often called the system-wide benefits test). The relevant assets are:

- the bulk of the Interconnect Pipeline ([93] per cent);
- the Springhurst Compressor; and
- the regulators at Wandong, Barnawartha, Wollert and Ballan.
- the remaining [7] per cent of the cost of the Interconnect Pipeline is treated as a direct asset recovery for the Culcairn injection tariff.

The ACCC's original approval permitted APA VTS to charge for the [93] per cent of these assets under a postage-stamp tariff on all withdrawals from the system, with the exception of the Western Transmission System.

Similar to the AER decision in respect of the allocation of rolled out costs for the SWP, in its 2012 draft decision the AER required that the Culcairn injection tariff be set to be consistent with the prevailing tariff, but not to exceed the Longford Injection tariff.[7] This led to a direct allocation to the Interconnect of 24 per cent in the current period. APA VTS has maintained this approach in the access arrangement period.

Benefit Sharing Allowance and First Carry Over Amount

The Benefit Sharing Allowance and First Carry Over Amount (FCA) carry-over are costs which are associated with activities during the earlier access arrangement period, but which can be carried forward into the forecast access arrangement period.

The FCA is associated with the difference between the forecast revenue for the last year of the earlier access arrangement period and the estimate of that revenue available at the time of submission of the revision proposal and, possibly, limitations on the ability to increase tariffs each year in order to recover the target NPV for the earlier access arrangement period.

The Benefit Sharing Allowance is a recognition of savings in operating costs made during the earlier access arrangement period which are shared with users in the following period.

[7] AER 2012, *AER APA GasNet Draft Decision*, p 299

The NGR do not specifically include an allocation process for these costs. APA VTS has allocated these costs to withdrawals on a postage stamp basis, in line with other indirect costs.

Cross system flows

There are no backhaul tariffs for flows against the predominant (forecast) flows on injection pipelines. However, without some specific tariff mechanism, a flow from Longford to Iona would only attract the Longford injection charge plus the local withdrawal charge on the South West Pipeline. Similarly, a flow from Iona to Longford would only attract the Port Campbell injection charge plus the local withdrawal charges off the Longford pipeline.

APA VTS proposes to continue to levy an additional charge for carriage through the Metro zone, for withdrawals off the injection pipelines which are linked to injections at an unrelated injection point. This charge, the cross system charge, is calculated as the Metro zone tariff discounted for the indirect cost allocations (which are already recovered from the withdrawal zones).

1.2.7 Charging parameters

Background

As the VTS operates under a market carriage system, there is no concept of buying the capacity of a pipeline as occurs in a contract carriage regime. In addition, under the Victorian wholesale gas market which operates in conjunction with market carriage, there is no concept of point to point carriage of gas. Rather, all gas injected into the system is pooled and then delivered from that pool. A consequence of this combination is that shippers of gas on the VTS do not need to be in balance over any time period. There is scope for market participants who solely inject or solely withdraw from the system.

The tariff design is built upon the concept that gas is supplied from injection pipelines into a hub, from where it is distributed to users within withdrawal zones. The injection charges are not linked to the withdrawal charges (except where a matched rebate is offered). The transmission tariffs are calculated on the assumption that gas will flow along the forecast physical paths into the hub and then from the hub to the withdrawal zones.

Withdrawal zones

The withdrawing parameters for withdrawals under the current tariff are set out in Table 1-2 below.

The result of the Victorian market structure is that APA VTS has little choice but to charge for use of the VTS through charging for actual gas flows. Thus, APA VTS charges on the basis of measured withdrawals. The measured withdrawals are grouped into a number of zones for which withdrawal tariffs are derived.

Withdrawing customers are classified into Tariff-V (volume metered) and Tariff-D (daily metered) customers. This classification allows different levels of peak-related and commodity-related costs to be allocated to Tariff-V and Tariff-D customers, who generally have significantly different peak load factors. The separation of users into two tariff classes permits a more cost reflective allocation of direct costs to users.

Tariff-D customers are those customers with annual loads in excess of 10TJ. All others are Tariff-V. Note that Tariff-D customers can be directly connected to the transmission system, or can be connected to the distribution system. There are also specific tariff classes for cross system flows and for refill of storage facilities.

Table 1-2 – Charging parameters for withdrawals

Withdrawal zone tariff	Charging parameter
Tariff-D	Daily flows from the zone for each GJ.
Tariff-V	Daily flows from the zone for each GJ.
Cross System	Daily flows from the relevant zones sourced from injection zones across the VTS for each GJ.
Refill	Daily flows from the relevant zones for each GJ.

Injection pipelines

The current charging parameters for use of the injection pipelines under the current tariff are set out in Table 1-3 below.

Table 1-3 – Charging parameters for injections

Withdrawal zone tariff	Charging parameter
Longford injection zone	Ten day peak injections over winter. Matched rebate at Latrobe, Maryvale, West Gippsland, Tyers and Lurgi zones.
Pakenham Injection Zone	Ten day peak injections over winter.
Pt Campbell Injection Zone	Ten day peak injections over winter. Matched rebate at SWP and WTS zones.
Culcairn Injection Zone	Ten day peak injections over winter. Matched rebate at Interconnect zone.

The injection charges are calculated to recover the cost of the injection pipeline from the peak flows carried through the pipeline. To the extent that injections are not carried the whole length of the pipeline, a matched rebate is offered.

Under the design, the Longford charge applies only to flows in the "predominant" flow direction, as forecast at the commencement of the first access arrangement period. A similar methodology is applied to the SWP.

APA VTS intends to maintain the same design for the injection pipelines, based on:

- peak flow charges;
- charges initially set based on forecast flows; and
- matched rebates where the injection pipeline is only partially utilised.

The injection charges for each injection pipeline for the access arrangement period are described in the following sections.

Longford injection charging parameter

The Longford injection charge will be levied on the ten peak day injections into the pipeline over the winter period (June-September, inclusive).

Note that the TasHub injection point, the connection to the Tasmanian Gas Pipeline, is within the Longford injection zone and therefore attracts the Longford injection tariff.

Withdrawals made in the Latrobe, Maryvale, Tyers or Lurgi zones which are matched to Longford injections will receive a matched rebate based on the shorter transmission distance on the injection pipeline.

Port Campbell injection charging parameter

The Port Campbell injection charge will be levied on the ten peak day flows through the Iona-Lara pipeline over the winter period (June-September, inclusive). These flows will be calculated from the total injections made within the Port Campbell surrounds, less the withdrawals from the Western Transmission System or other off-takes at or in the vicinity of Port Campbell.

The charge will not be levied on injections in the Port Campbell Zone which are matched to withdrawals taken from the Western Zone or from the vicinity of Iona.

A rebate will be given on the injection charge for withdrawals from the South West withdrawal zone where the withdrawal can be matched to an injection at Port Campbell.

Culcairn injection charging parameter

The Culcairn injection charge will be levied on the ten peak day injections into the pipeline over the winter period (June-September, inclusive).

Off-takes on the Interconnect Pipeline will receive a rebate on the injection charge.

In addition, a matched rebate will be offered on the withdrawal zone tariffs for withdrawals in the Wodonga, North Hume, and Murray Valley zones, where these withdrawals are matched to injections at Culcairn. This rebate reflects the lower cost of transportation to these zones from Culcairn via Barnawartha.

1.2.8 Tariff classes

Tariff-V and Tariff-D

As described above, APA VTS will charge a differential withdrawal tariff in relation to Tariff-V and Tariff-D customers to reflect the significantly different load factors for these customer classes.

Storage refill

There are two storage facilities in the VTS – Dandenong LNG and the Lochard Underground Storage Facility at Iona. While both provide storage, these facilities are used differently within the DWGM. The Iona storage facility is generally used throughout the winter period to supplement supply into the VTS. The Dandenong LNG facility has a smaller capacity and is used primarily for peak shaving.

For both facilities, gas is generally withdrawn from storage at high rates during the peak periods when alternative supplies are inadequate. Refill is undertaken at a slow rate during off-peak or non-congested periods. Because of the historic exclusively off-peak nature of storage refill, this activity has not imposed significant costs on the system, and storage refill for both facilities has been charged at a nominal level, starting at approximately 5 cents/GJ at the start of the current period, escalated by CPI across the period.

A further reason for the nominal charging approach is that storage is an interim holding point between the supply point and the final customer, rather than a delivery location in its own right. In this respect, the refill charge does not attract a cross system charge as it is expected that, once gas is reinjected into the VTS from Iona it will attract full injection and withdrawal charges.

Further, storage provides a benefit since it provides a competitive source of peak gas supply and additional security for the system. The requirement for storage refill is also dependent on the amount of supply required from storage to meet peak demand. This is, in turn, dependent on winter weather extremes. These dependencies make forecasting of refill demand extremely uncertain.

South West Pipeline – incremental pricing

Consistent with the previous access arrangement, the South West Pipeline tariff (eastbound) is set such that [21.5] per cent of the direct costs of the pipeline are allocated to all users of the system. This is because the asset provides a system-wide benefit to users, and was originally approved on this basis (the former system-wide benefits test under the Code).

Injections into the South West Pipeline are made at the Western Underground Storage facility at Iona, which has sufficient installed compressor power to inject gas at the maximum allowable operating pressure of the Iona-Lara pipeline of 10 MPa, and the SEA Gas and Otway Gas project injection points. These connection points access gas from the new fields developed offshore from Port Campbell as well as the Iona storage facility.

APA VTS will levy the injection tariff on any injections made in the Port Campbell Injection Zone, where the gas is directed along the South West Pipeline towards Lara and Brooklyn.

Where the gas is directed to the Western Transmission System, (that is, where the injections are matched to withdrawals in the Western system) or off-takes adjacent to Port Campbell, no injection charge will be levied.

The Port Campbell injection tariff is derived by applying a CPI-X tariff path to the charging parameter for the Port Campbell injection zone. The initial tariff is set so that the NPV of the tariff revenues equates to the NPV of the levelised revenue requirement for the SWP.

An allowance is made for revenues from Colac on the Iona-Lara pipeline, which will receive a matched rebate owing to its location on the pipeline.

A matched rebate will be offered for injections which do not flow along the Iona-Lara pipeline; that is, gas that is delivered to the Western zone.

Interconnect pipeline – incremental pricing

The Interconnect Pipeline carries gas from the Culcairn injection point to Barnawartha, where it joins the North Hume and Wodonga zones.

The allocation of direct costs for the Interconnect Pipeline tariff has been maintained at its current level of [76] per cent allocated to all users of the system. This is because the asset provides a system-wide benefit to users, and was originally approved on this basis (the former system-wide benefits test under the Code).

The allocated costs of the Interconnect Pipeline are recovered entirely from the Culcairn Injection Tariff. The injection tariff path is derived by applying a CPI-X tariff

to the charging parameter for the Culcairn Injection Point. The initial tariff is set so that the NPV of the tariff revenues equates to the NPV of the residual Interconnect revenue requirement.

Off-takes on the Interconnect Pipeline are given a rebate on the injection charge if the injections are matched to the withdrawals.

1.2.9 Tariff zones

Retain existing zones

Withdrawal tariff zones are defined in order to simplify the implementation and administration of the transmission tariff. APA VTS is not aware of any concerns in the market about the current extent and coverage of the existing tariff zones, including the prudent discounts applied to certain bypass opportunities in the vicinity of injection points.

In the interests of consistency and stability across access arrangement periods, APA VTS proposes to maintain the current tariff zones.

Metro South East zone

Gas from the Yolla field is processed at the Lang Lang Plant of Bass Gas and injected into the VTS at the Pakenham injection zone.

APA VTS previously identified that proponents of this project would have the opportunity to bypass the main VTS pipeline between Pakenham and Dandenong, and connect directly to the large distribution off-takes at Dandenong (thereby avoiding both the VTS and the AEMO spot market).

Therefore, APA VTS offers a prudent discount by defining a new zone at Dandenong (Metro SE) where a bypass tariff would apply to matched injections at Pakenham. The Pakenham injection tariff is set at a discount on the Longford injection tariff commensurate with the distance between Pakenham and Dandenong. This tariff structure for Pakenham injections was previously approved by the ACCC to take effect when the Bass Gas project commenced injections into the VTS.

West Gippsland zone

Currently there are no off-takes on the main pipeline between the Latrobe and Metro zones. However, in the event that a connection is made in the future, a published tariff will be defined for this zone. This tariff has been set as the average of the LaTrobe and Lurgi Zone tariffs reflecting the zone's position within the VTS.

Warnambool and Koroit

The Western Transmission System was covered by a separate access arrangement until 2003. From 2003 the separate access arrangement was merged with the VTS access arrangement and the Western Transmission Systems is designated the 'Western zone'. The Western zone serves five towns along the length of the pipeline, and carries a volume of approximately 5PJ/year.

With the construction of the SEA Gas pipeline which is installed within the same easement as the Western Transmission System for part of its length passing the towns of Warrnambool and Koroit currently served by the Western zone a bypass opportunity was available at these towns. APA VTS offered a prudent discount from 2004 as described below. APA VTS has defined new zones for the two at-risk towns excised from the Western zone.

There has been no change in circumstances for supply to these towns since approval of the earlier access arrangement. It would appear that there is little appetite for a bypass project at the current tariff level for these towns so APA VTS proposes that the current tariffs continue to apply subject to ongoing escalation.

Zone definition

A withdrawal zone is defined by reference to the transmission pipelines and the associated connection points that constitute the zone. The gas that flows from the off-takes on those pipelines is charged at the published zonal tariff. If a new withdrawal connection point is made within one of these zones, then withdrawals at that off-take will also be charged that zonal tariff.

The connection points that constitute each zone are described in Schedule C of the access arrangement included with this access arrangement revision proposal.

1.2.10 Prudent discounts

Rule 96 specifies the conditions under which a prudent discount may be offered to users or classes of users. Prudent discounts can be proposed and approved at any time (they are not related to the access arrangement period), and APA VTS has three prudent discounts in place in the current period.

APA VTS considers that the original justifications for these discounts remain valid, and has retained them in the forecast period, having escalated them for CPI.

Methodology

Rule 96 contemplates a situation where a user can obtain a lower cost service from a bypass pipeline than from the reference tariff on the regulated pipeline system. In these circumstances it may be appropriate to offer a discount to the user in order to

retain their (albeit reduced) contribution to revenue on the regulated pipeline. A discount is deemed to be prudent if, in the situation where the at-risk user is retained at a discounted tariff, the reference tariff calculated for all other users is lower than the reference tariff calculated without the at-risk user's contribution. In other words, a discount is prudent if other users are better off with the at-risk user on the system rather than off the system, even though the at-risk user pays a discounted tariff.

An important consideration in relation to prudent discounts is the additional charge levied by AEMO on all withdrawals. A bypass pipeline from a new injection point will avoid the AEMO gas market, and hence the AEMO fees and charges. In addition, the customer will not pay uplift charges and linepack account costs. Furthermore, the supply could be firm, and would not be subject to the risk of curtailment under the Rules if an emergency or constraint arose on the APA VTS system. For these reasons a user might perceive a lower risk and more certain costs by constructing a bypass pipeline. This would increase the attractiveness of the bypass beyond the "vanilla" transmission costs and AEMO charges.

Maryvale zone discount

The Maryvale Zone services the Paperlinx plant. There is only one offtake in the zone. The only physical VTS asset within the withdrawal zone is the short lateral to the Maryvale plant.

This customer must pay the Longford injection charge (discounted to reflect the lower transportation distance) plus a withdrawal charge that recovers the cost of the zonal assets and a contribution to overheads.

It is relatively straight-forward to construct a bypass pipeline from Longford to Maryvale. For the 2008-12 access arrangement period, APA VTS designed and costed such a bypass pipeline, and calculated an estimate of the bypass tariff.

Based on this analysis, APA VTS proposed a discounted tariff (including both injection and withdrawal charges) for the 2008-12 access arrangement period which was approved by the ACCC. The circumstances have not changed. APA VTS proposes to continue the discounted tariff at the same rate, escalated for CPI in the forecast period.

Western zone discount

The bypass risk in the Western zone arises from the SEA Gas Pipeline which parallels the VTS between the towns of Warrnambool and Koroit. Calculations were made in respect of the 2008-12 access arrangement revision process confirmed that discounted tariffs at both Warrnambool and Koroit were required to offset the risk of

connection of those systems to the SEA Gas pipeline. These calculations showed that the required discounts were prudent.

APA VTS proposes to retain discounted tariffs at both Allansford (Warrnambool offtake) and Koroit from the earlier period, escalated for CPI, rather than further discount the tariffs in these zones.

Dandenong bypass tariff

In the submission for the second access arrangement period, APA VTS provided evidence that a bypass risk existed between the Dandenong offtake of the VTS and Pakenham, where gas was to be injected into the VTS from the Bass Gas production facility.

This facility was expected to inject approximately 20 PJ/annum at a high load factor. In the event that a bypass was constructed, this gas could be used to displace gas supply from Longford through the VTS.

The bypass tariff is implemented as an Injection Tariff at Pakenham and a discounted Withdrawal Tariff in the Metro south east zone.

The Injection Tariff is determined as a proportion of the Longford Injection Tariff, pro-rated by distance from Pakenham to Dandenong.

The calculation of the prudent discount for Pakenham injections has been maintained for the access arrangement period, escalated for CPI.

APA VTS proposes to continue these tariffs.

NSW Export tariff

The tariffs proposed in the 2023-27 access arrangement strive, as much as possible, to avoid price shocks by limiting the tariff movement from 2022 to 2023 to a CPI increase. The exception to this has been the NSW Export tariff, which has seen significant reductions in volumes since the last access arrangement and, as a result, sees a significant tariff increase.

APA VTS is conscious that the level of the NSW export tariff will be a key factor for shippers in deciding whether to ship gas north through the VTS or via alternate routes. If the NSW Export tariff it too high to be competitive with alternate routes, no volumes will be shipped through Culcairn, and there would be upward pressure on other tariffs as a result.

It may be prudent, then, to discount the NSW Export tariff so that some revenue can be earned to help reduce other tariffs across the network.

Subject to the AER's review and approval of APA VTS tariffs, APA VTS will work with the AER to determine the prudence of such a discount through the AA review process.

1.3 Impact on domestic and small business consumers

In this section APA VTS discusses the impact of its proposed tariffs (and changes to those tariffs) on domestic retail consumers.

Domestic and business consumers are served by their retailers, who acquire gas supply and transportation services on their behalf. Retail tariffs are therefore an amalgamation of upstream gas supply costs, VTS gas transmission costs, gas distribution costs (through their local distribution business) and retail costs and retailer margin.

As Victoria has a number of retailers providing retail gas services across all the distribution business zones (each with their own tariffs), there would be a myriad of tariffs against which to test the impact of changes in the transmission system tariff. However, as discussed below, the transmission tariff is a very small component of the total retail tariff.

The Essential Services Commission of Victoria (ESCV) has published its Victorian energy market update in June 2021. In that report, it establishes benchmarks against which tariff impacts can be measured:

	Annual volume	Annual bill
Residential customer	54.4 GJ	$1,350
Business customer	500 GJ	$9,426

Accordingly APA VTS has demonstrated the impact of changes to its tariffs against these standard benchmark tariffs to residential and small business end use customers, as shown in RIN Workbook 5 lodged with this access arrangement submission.

As the VTS tariffs vary by tariff zone and by tariff class (V vs D), APA VTS has applied a "system average tariff", calculated as total revenue divided by total volumes.

Applying these published retail tariffs, the benchmark retail tariff is compared to the average VTS transmission tariff, as outlined below:

Table 1-4 – Impact of VTS tariffs on retail consumer bills

	Residential	Business
Average annualised cost of gas per GJ	$24.816	$18.852
System average APA VTS transmission tariff per GJ (2023)	$0.5607	$0.5607
Transmission as a proportion of retail tariff	**2.26%**	**2.97%**

As can be seen from the above analysis, the cost of VTS gas transmission accounts for only about 2 per cent of the total retail cost to domestic and small business consumers. By way of example of the scope of potential impact of a change in the transmission tariff, a 10 per cent change in VTS tariffs would therefore result in a 0.2 per cent change in end user retail costs.

A benchmark residential consumer using 54.4 GJ of gas per year would expect to be billed approximately $1,350 per year for retail gas costs. A 10 per cent change in VTS tariffs would therefore result in a 0.2 per cent change in retail costs, or approximately $3.05 per year.

A benchmark small business customer using 500 GJ of gas per year can expect to pay approximately $9,426 per year for its gas supply, of which approximately 2.9 per cent will be made up of the VTS transmission tariffs. A 10 per cent increase in VTS tariffs would result in a 0.29 per cent increase in costs, or approximately $27.99 per year.

1.4 Reference tariff variation

In deciding whether a particular reference tariff adjustment mechanism is appropriate, the AER must have regard to:[8]

- the need for efficient tariff structures;
- the possible effects of the tariff variation mechanism on administrative costs of the AER, the service provider, and users and potential users;
- the regulatory arrangements applicable in the earlier access arrangement; and

[8] Rule 97(3)

- the desirability of consistency between regulatory arrangements for similar services, both within and beyond the relevant jurisdiction.

APA VTS proposes to retain its two existing reference tariff variation mechanisms in the access arrangement:[9]

- a Scheduled Reference Tariff Variation Mechanism - which applies in respect of each Year of the Access Arrangement Period; and
- a Cost Pass-through Reference Tariff Variation Mechanism - under which APA VTS may seek to vary the Reference Tariffs as a result of a Cost Pass-through Event.

APA VTS submits that its proposed reference tariff variation mechanism is consistent with the requirements of Rule 97 as it retains the elements previously approved by the AER under Rule 97 for the APA VTS system, with revisions in line with the recently approved Amadeus Gas Pipeline access arrangement.

1.4.1 Scheduled Reference Tariff Variation Mechanism

Operation of the Scheduled Reference Tariff Variation Mechanism

The Scheduled Reference Tariff Variation Mechanism operates to annually adjust the tariffs for the remainder of the access arrangement period such that the combination of actual and forecast tariffs when applied to the actual and forecast gas volumes will generate a forecast revenue stream with the same net present value as the original revenue requirement. The original revenue requirement is itself adjusted for changes in circumstances through the course of the access arrangement period including:

- any carry over from the earlier access arrangement period;
- weather-related changes to gas volumes;
- amounts passed through under the Cost Pass-through Reference Tariff Variation Mechanism;
- annual updating of the return on debt; and
- annual updating of forecast inflation.

[9] Note that APA VTS has shortened the names of these mechanisms for easier referral. This has led to some consequential changes to headings and definitions in the access arrangement.

The formula for the Scheduled Reference Tariff Variation Mechanism is set out in Schedule D of the access arrangement.

The formula can be viewed as applying, in the following way, in each regulatory year of the access arrangement period:

- the net present value of the revenue forecast for the access arrangement period is compared with the revenue that the service provider is allowed to earn in accordance with the scheme of the regulatory regime of the NGR;
- if the net present value of the forecast revenue is less than the net present value of revenue allowed, the reference tariffs can be varied for the next year of the access arrangement period, subject to limitations on the extent of variation set by the price path factor, X, and the maximum allowable variation in individual tariff components (Y = 2.0 per cent);
- before this comparison is carried out, and the reference tariffs are varied, the revenue allowed under the regulatory regime is adjusted in five ways (to yield the adjusted target revenue ATR); the target revenue is adjusted:
    - for any change in the return on debt consequent upon annual updating of the trailing average estimate of that return used in reference tariff determination;
    - for any change in the forecast of inflation which is used in reference tariff determination;
    - for any change in the volume of gas withdrawn from the VTS; the forecast volume of gas withdrawn from the VTS in each regulatory year is adjusted using the actual volume withdrawn which is, itself, corrected for the effects of variations in that year's weather from the standard conditions assumed for forecasting (leading to the weather adjusted actual volume WAAV);
    - for any AER approved pass through of costs from a cost pass-through event; and
    - if relevant, for any carry forward amount correcting for differences between forecast and actual revenues during the preceding access arrangement period;
- for the purpose of making the comparison of the forecast revenue with the target revenue (adjusted in the ways noted above), both the forecast revenue and the target revenue are restated in real December 2022 dollars; and the net present values which are to be compared are calculated using real discount rates.

Scheduled tariff variation now differs in two main ways from variation under the previously approved tariff variation mechanism. Scheduled tariff variation now incorporates into the reference tariffs, through a change in adjusted target revenue, the effects of annual updating of:

- the return on debt; and
- forecast inflation.

Process for varying tariffs under the Scheduled Reference Tariff Variation Mechanism

APA VTS has not materially changed the process for varying tariffs under the Scheduled Reference Tariff Variation Mechanism as set out in the applicable access arrangement for the earlier access arrangement period.

A proposed revision to the annual update process provides for the submission of proposed revised tariffs at least 30 business days, rather than 50 business days, before they are due to come into effect.

APA VTS proposes to include, in the tariff variation mechanism, an adjustment for the difference between the forecast and actual costs of carbon offsets.

APA VTS considers that the proposed Scheduled Reference Tariff Variation Mechanism is consistent with the requirements of Rule 97, as it retains the elements previously approved by the AER under Rule 97 for the APA VTS system, with revisions in line with the recently approved Amadeus Gas Pipeline access arrangement.

1.4.2 Cost Pass-through Reference Tariff Variation Mechanism

Rule 97(1)(c) specifically allows a service provider to include in its access arrangement a mechanism that allows the reference tariff to vary as a result of a cost pass-through for a defined event. APA VTS proposes to include a cost pass-through reference tariff variation mechanism in the access arrangement to ensure APA VTS can reflect incremental costs resulting from unforeseen or uncontrollable events in the reference tariff. APA VTS considers that this is consistent with Rule 97(3)(a) in that it ensures efficient tariff structures that reflect efficient costs incurred by the service provider, even where these costs cannot be reasonably forecast.

Process for varying tariffs under the Cost Pass-through Reference Tariff Variation Mechanism

The access arrangement in place in the earlier access arrangement period effectively included a process with two steps:

- an assessment of whether a cost pass through event has occurred, by reference to a number of factors and the definitions of events set out in the access arrangement; and
- if a pass through event has occurred, an assessment of appropriate costs to be passed through.

Cost pass through event definitions

APA VTS proposes the following cost pass through events in the access arrangement:

- an insurance Cap event;
- an insurer credit risk event;
- a natural disaster event;
- a pre-approved capex event;
- a regulatory change event;
- a service standard event;
- a tax change event; and
- a terrorism event.

But for one new event, the pre-approved capex event, this list is identical to that included in the earlier access arrangement

Additional minor changes to the reference tariff variation mechanism

In addition, minor changes in the access arrangement have been made as follows:

- Reflect the move from the fifth to the sixth access arrangement period; and
- Reintroduce the “AAV” component, which exposes APA VTS to volume risk with a cap and collar of 5.5%. This was first approved in the 2008 VTS access arrangement.