Australian Gas Networks

apa

Attachment 9.6

Unit Rates Report

Final Plan 2023/24 – 2027/28

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Executive summary

This Unit Rates Report provides an overview of unit rates that underpin the capital expenditure (capex) we expect to incur during the next access arrangement (AA) period[1] for the following high volume and/or repeatable, ongoing works:

1. Installation of new mains, services and meters for domestic and industrial and commercial (I&C) customers
2. Domestic and I&C customer meter replacement
3. Mains replacement and associated activities

The unit rates in this report are a key input into the Distribution Mains and Services Integrity Plan (DMSIP) and the Meter Replacement Plan (refer Attachments 9.7 and 9.8). Costs and unit rates for larger, bespoke capital projects (for example installation of high-pressure steel mains or district regulator stations) and other network or non-network activities (for example telemetry and IT) are presented in project-specific business cases.

Of the 18 unit rates covered in this report, three are forecast to be lower than the current AA benchmark, ten are expected to be higher and five are new for the next AA period. The change in forecast rates compared to benchmarks is a direct result of the revealed costs experienced in the current AA period. A summary of each of the rates is provided in the following table.

TableExecSumm 1: Summary of forecast unit rate changes from benchmark

Category	Rate for next AA period	Change from current AA benchmark
Growth capex		
New estate mains	$[redacted]/m	↑$4 (8%)
Existing home mains	$[redacted]/m	↑$21 (19%)
I&C mains	$[redacted]/m	↑$134 (33%)
New home services	$[redacted]/service	↑ $301 (28%)
Multi-user services	$[redacted]/service	↑ $3,720 (71%)
Existing home services	$[redacted]/service	↑$475 (30%)
I&C services	$[redacted]/service	↑$3,000 (57%)
New domestic meters	$[redacted]/meter	↓$45 (-19%)
New I&C meters	$[redacted]/meter	↓$1,636 (-21%)
Meter replacement		
Meters < 25m^3 (Domestic)	$[redacted]/meter	↑$68(47%)

[1] July 2023 to June 2028.

Category	Rate for next AA period	Change from current AA benchmark
Meters > 25m³ (Commercial)	$[redacted]/meter	↑$125 (6.5%)
Mains replacement		
Inlet service replacement (piecemeal)	$[redacted]/service	↓$184 (17%)
Piecemeal mains replacement	$[redacted]/meter	↑$1,692 (390%)
Mains replacement - HDPE 575 sampling and testing (DN50 & 40)	$[redacted]/site	n/a*
Mains replacement - Steel mains replacement (DN40, 50, 100 & 150)	$[redacted]/m	n/a*
Mains replacement - Steel Main (sample dig ups and inspection)	$[redacted]/site	n/a*
Inline camera inspection	$[redacted]/metre	n/a*
Services replacement MUS	$[redacted]/service	n/a*

* This is a new unit rate for the next AA period.

As shown in the above table. Most categories of unit rates are trending upwards for the next AA period. This general rise in unit rates is common across Australian gas distribution businesses, with Multinet Gas Networks (MGN) experiencing similar uplifts in costs across the board.

Several factors are contributing to higher forecast unit rates, both at a micro and macro level. For example, the impact of the global pandemic on supply chain costs is expected to continue to place upward pressure on unit rates. As discussed in a December 2021 Australian Industry (AI) Group survey[2], the COVID-19 pandemic exposed weaknesses in global and ultimately Australian supply chains. The increase in global demand for goods, lengthy lockdowns, global shipping containing shortage, reduction in shipping services and resulting scarcity of materials created supply chain chaos. According to the AI survey, given the disruptions in 2021, just over half (52%) of Australian businesses expected their ability to source inputs would continue to be disrupted in 2022.

As a natural gas network owner, AGN has not been immune to these supply chain impacts. We source many of our network components and electronics from overseas, and are competing with other major Australian construction businesses for constrained materials and resources. This has resulted in higher labour and material costs generally, causing actual unit rates to be higher than forecast. We expect this pressure to continue during the coming years as the global economy emerges from pandemic conditions.

More localised issues are also expected to impact unit rates over the next AA period. For example, the cost of conducting pipelaying works is expected to increase as additional administrative and safety standards (including access and permit requirements, third party approval processes, etc.)

[2] https://www.aigroup.com.au/globalassets/news/reports/2021/supply_chains_state_of_play_dec2021.pdf

give rise to higher contractor costs. In recent years, local authorities have designated tree protection zones, which require the use of non-destructive excavation (for example, hydro or manual excavation as opposed to mechanical).

Road reinstatement specifications and traffic management specifications are also becoming more stringent. For example, we are now required to conduct full lane with profiling for roads under five years old. Specifications can also vary by local authority. This contributes to higher costs, although the impact of this on current unit rates has been masked to some extent by volatility in the mix of work completed.

The largest increase in unit rates (+390%) occurs in the cost of piecemeal mains replacement. Higher costs have been incurred during the current AA period due to the data now including all reactive piecemeal, which was not captured prior to the current AA. Due to the reactive nature of these works, they often occur after hours (in an emergency / call out scenario) and are increasingly facing higher level of congestion below ground (due to larger number of services to homes and businesses), resulting in higher costs. These rates also do not have the benefit of planned large scale projects, which enable the fixed costs associated with projects to be spread across a large volume of work, putting downward pressure the unit rate.

The other large increase in unit rates (+71%) occurs in the cost of installing new multi-user services. The higher-than-expected costs incurred during the current AA period are due to higher than anticipated volume of complex installations coupled with the frequency in inner city fringe suburbs that have, and will, involve traffic management and high reinstatement costs.

Similarly, the 57% increase in unit rates for Existing I&C services is also driven by complexity and reflects the impact of challenging to access sites requiring extensive traffic management and non-destructive digging due to congestion; increased costs associated with soil contamination and customer specific requirements associated with the standard of resurfacing. Other notable forecast unit rate increases are expected for existing home services (+30%), new home services (+28%) and domestic meter replacement (+27%).

The higher unit rates for existing home services is due to the overall higher site-specific costs with traffic management, breakout, excavation and reinstatement costs driving the increase. The higher than benchmark unit rate for new home services is driven by the skew for new services in the Central and Northern Region of Victoria which tends to be costlier due to high costs involved in breakout and reinstatement.

Some new estates particularly in the inner Northern region have footpaths already established and therefore will have additional costs associated with the breakout, excavation, plant and equipment usage and disposal. Also contributing is costly reinstatement specially if required to adhere to particular developer/estate guidelines.

The higher unit rates for domestic meter replacement (+47%) is due to alignment with other gas distribution businesses with use of new meters, given that the manufacturer is no longer committed to refurbishments. Also, the re-categorisation of domestic meters to include meters with a capacity up to 25 m^3 per hour. The uplift in price is also reflective of the current market and the increase seen in freight and materials over the period which have been passed on in a recent contract renewal.

The unit rates for new meter installation are based on actual cost averaged across the last three years. There is a notable unit rate decrease in the next AA period for domestic (-19%) and I&C (-21%) and the reasons for this are operational efficiencies in planning works to realise savings in related materials and reducing the complexity of work on site where possible.

The unit rate categories for steel mains replacement and associated activities are a new activity and have not previously been conducted in our Victoria & Albury networks. Therefore, there is no

approved benchmark rates for the current period and the forecast for these activities has been estimated using a bottom-up approach.

The unit rate for the steel HP main replacement activity has been based on the current actuals of sufficiently similar works. The unit rate for in-line camera inspection has been estimated based on the current actuals of similar work AGN has delivered in SA. For all other activities, the unit rate estimation has been adopted based on experience AGN has had in carrying out such works for similar projects.

Consistent with NGR 74, the forecast unit rates in this Unit Rates Report have been arrived at on a reasonable basis. They are informed by recent revealed costs of the work that will be undertaken over the next AA period and reflect the best estimate possible in the circumstances.

While we have made every effort to derive accurate forecast unit rates, several factors are expected to place upward pressure on unit rates over the next AA period. For example, more stringent specifications on road reinstatement being directed by local councils, soil testing and contaminated soil disposal and additional non-destructive excavation utilisation to enhance site safety by preventing asset strikes. These specifications are likely to drive costs upwards and, given their recent introduction, are not yet fully reflected in our actual costs. Therefore, the unit rate estimates provided in this report are conservative.

Further details on individual unit rates and variances from benchmark are provided in the remaining sections of this report.

1 Introduction

1.1 Overview

This report explains the derivation of the unit rate forecasts that underpin the capex forecasts for the next AA period. We use unit rates to develop our capex forecasts for repeatable or high volume works such as mains and meter replacement and new customer connections, which together form the majority of our ongoing capital works program for the Victoria & Albury natural gas distribution networks. To forecast our capex requirements, we multiply the unit rate for replacing (or refurbishing) each type of asset by the volume of those assets we propose to replace/refurbish.

The capex categories and subcategories derived using this 'unit rate x volume' forecast approach are:

- Growth capex:
  - Mains – new estates, existing homes and industrial and commercial (I&C) customers
  - Services – new homes, multi-user sites, existing homes and I&C customers
  - Meters – new domestic and I&C customers meter connections
- Meter replacement: periodic meter change (PMC) (domestic and I&C meters)
- Mains replacement: piecemeal mains replacement, high density polyethylene (HDPE) inspections, service replacement (multi-user services), and high pressure mains (decommissioned)

This document explains how AGN has derived the unit rates for each of the above capex categories.

1.2 Consistency of forecasts with AER's approved approach

When developing the unit rate forecasts, we have adopted the same forecasting approach accepted by the Australian Energy Regulator (AER) in our recent South Australian AA review (regarding the five-year period beginning 1 July 2021). To estimate each unit rate, we use one of three methods:

1. **Current actuals**

We use the current actual unit rate being achieved to forecast unit rates where:

- the expenditure category involves high volumes of work; and
  - the work is subject to regular and ongoing changes in industry practices (e.g., from a safety or technical perspective);
  - the work can be subject to increasing requirements and administrative standards specified by third parties (other infrastructure owners); or
  - the work is affected by other factors that are expected to place upward pressure on unit rates over the next AA period.

Examples of works where the current actual provides the best forecast are periodic meter replacement and news connections.

Current actual unit rates in this Unit Rates Report are based on the actual year-to-date unit rates for the first nine months of the 2020/21 financial year.

2. **Weighted average of historical actuals**

We use a three-year weighted average of historical actuals (by volume) to forecast unit rates where:

- the expenditure category involves lower volumes of work; and
- the scope and complexity of the work is subject to a high degree of variability, making it difficult to derive meaningful assumptions on the forecast mix of work to be carried out.

Examples of work where the weighted average historical actuals provide the best forecast are new mains or new meters for I&C customers. This is because the technical requirements of one I&C customer can vary significantly from the next.

The three-year weighted average of historical actuals in the Unit Rates Report is based on the full 2019 and 2020 calendar years, and the first ten months of 2020/21.[3]

3. **Bottom-up estimate**

We use a bottom-up estimate where current or historical actuals are not available. For example, if this is a new type of works where no tender submissions have been made or no historical data recorded. We also use bottom-up estimates to validate unit rates estimated via the current actuals method in certain circumstances (for example, where there has been a material change in works practices in recent years).

We develop the bottom-up unit rates using informed management estimates and evidence from peers or advice from independent technical expert consultants, contractors or vendors where available.

All three methods outlined in this approach provide a reasonable basis for the forecast unit rates and represent the best forecast or estimate possible in the circumstances. Therefore, all forecast unit rates in this report meet the requirements of Rule 74 of the National Gas Rules (NGR 74).

Note we also apply the same estimation methods when developing cost estimates and unit rates for larger, more bespoke pieces of work such as installation of transmission pressure steel mains or district regulator stations and other network or non-network activities such as telemetry and IT. The unit rates for discreet capex projects are provided in the individual business cases associated with each project and are outside the scope of this Unit Rates Report.

The remainder of this report provides further detail on how the unit rates for the growth capex, meter replacement and mains replacement capex driver categories have been derived.

1.3 Basis of costs

All costs presented in this report are direct (excluding overheads) unescalated costs expressed in real dollars of June 2021 unless otherwise stated.

1.4 Summary of unit rates

Table 1-1 presents the unit rates for our Victoria & Albury networks over the next AA period.

[3] If, however, a sufficient time series is not available, it may be necessary to use a shorter measurement period.

Table 1-1: Summary of forecast unit rates for July 2023 to 30 June 2028, $ real 2021

Category		Unit rate	Forecasting approach
Growth capex			
New mains	New estate	$[redacted]/m	Weighted average of historical actuals
	Existing home	$[redacted]/m	Weighted average of historical actuals
	I&C	$[redacted]/m	Weighted average of historical actuals
New service	New home	$[redacted]/service	Weighted average of historical actuals
	Multi-user	$[redacted]/service	Weighted average of historical actuals
	Existing home	$[redacted]/service	Weighted average of historical actuals
	I&C (<10TJ per year)	$[redacted]/service	Weighted average of historical actuals
New meter	Domestic	$[redacted]/meter	Weighted average of historical actuals
	I&C	$[redacted]/meter	Weighted average of historical actuals
Meter replacement			
Meters ≤ 25m^3 (Domestic)		$[redacted]/meter	Current actuals
Meters > 25m^3 (Commercial)		$[redacted]/meter	Weighted average of historical actuals
Mains replacement			
Inlet services replacement (piecemeal)		$[redacted]/service	Weighted average of historical actuals
Piecemeal mains replacement		$[redacted]/m	Weighted average of historical actuals
Mains replacement	HDPE 575 (sampling and testing) - DN50 & 40	$[redacted]/site	Bottom-up estimate
	Steel mains replacement – DN40, 50, 100 & 150	$[redacted] meter	Bottom-up based on current actuals
	Steel mains (sample dig ups and inspection)	$[redacted]/site	Bottom-up estimate
Inline camera inspection	HDPE 575 – inspected	$[redacted]/m	Bottom-up estimate based on SA current actuals with a factor allowing for additional complexity in Victoria
Services replacement	MUS replacement	$[redacted]/service	Bottom-up estimate
High pressure regulators decommissioning	Redundant HPR Sets Decommissioning	$[redacted]/set	Bottom-up estimate

1.5 Relevant contracts

We conduct growth capex, meter replacement and mains replacements works using a range of contractors. Contracts are awarded following a formal tendering process, which helps promote competition and ensure the contractor unit rates are driven by the market. The tendering and contract awarding is also scrutinised via our internal procurement processes. This includes consideration of how the new contractor rates compare with historical and present-day data, and whether market conditions are conducive to achieving a rate that reflects sustainable and efficient forward-looking costs.

Contractor rates can vary depending on the scope of works being conducted and the complexity of asset installations/replacements. We continually review and monitor contractor rates and performance to help ensure our costs are reasonable and our customers receive a quality service.

A summary of the status of relevant contracts that apply to the growth capex, meter replacement and mains replacement and associated works outlined in this Unit Rates Report is provided below.

1.5.1 Growth capex and meter replacement contracts

The previous contract for installing new mains and services commenced in March 2014 with a panel of approximately 30 contractors across a number of regions and expired 30 June 2019. Tenders for the new mains and services contracts (incorporating new estates, existing homes, multi-user sites and I&C customers) for a five-year term were issued to market in October 2018. Tenders were received in December 2018 and the new contracts commenced in July 2019. The contracts are for a fixed five-year term.

For new meter installations and meter replacement, we have recently entered into new contracts for:

- **Supply of new domestic and commercial meters** with meter suppliers, [redacted], commenced in June 2021 and has a five-year term expiring 1 June 2026
- **Domestic meter fitting and replacement in Victoria Metropolitan Area** with [redacted] commenced in August 2018 and has a five-year term expiring August 2023
- **Domestic meter fitting and replacement in Victoria Regional Area** with several regional suppliers commenced in August 2018 and has a five-year term expiring August 2023
- Industrial and commercial meter set fabrication and installation with [redacted] expiring 30 June 2022

1.5.2 Mains replacement contracts

All areas identified for mains replacement are tendered on a case-by-case basis to a panel of pre-qualified contractors. The current panel for mains replacement contracts commenced in 2017 and is due to expire in December 2022, with the panel subject of a current review by APA. Areas identified for replacement are subject to an RFQ process, with suppliers submitting both pricing and non-pricing responses for APAs consideration. Contract awards are made several months prior to ensure work is planned and resourced effectively.

Table 1-2 provides a summary of the status of all relevant contracts.

Table 1-2: Summary of the status of all relevant contracts

Contract	Description	Contract Term	Contract Commencement	Contract Expiry
Gas meter fitting and replacement services – Victoria Metro	Contract to install meters, changeover meters and attend first response activities	5 years	15 Aug 2018	14 Aug 2023
Gas meter fitting and replacement services – Victoria Regional	Contract to install meters, changeover meters and attend first response activities	5 years	15 Aug 2018	14 Aug 2023
Acquisition of meters, (domestic, I&C, rotary, turbine)	National contract to purchase new and refurbished meters	5 years	1 June 2021	31 May 2026
New mains and services – National	Contract to lay mains and services, split by 5 regions	5 years	1 July 2019	30 June 2024
National mains replacement panel of prequalified contractors	Mains Replacement Panel of prequalified contractors - work tendered on a project-by-project basis.	3 + 1 + 1 + 1 years	15 January 2017	30 December 2022

2 Growth capex

2.1 Summary

Installing new domestic mains, service and meters[4] to connect new domestic customers to our network is high volume work, with around 16,000 new domestic customers connected each year. It is also subject to ongoing upward cost pressures (see section 2.1.1) and therefore the forecast unit rates for these works will be conservative.

Installing I&C mains, services and meters to accommodate growth in I&C customers is lower volume work, with around 200-400 new I&C customers connected each year. It is also subject to variability and is driven by each I&C customer's individual requirements. This makes it difficult to derive meaningful assumptions on the work mix. We therefore use the weighted average of historical unit rates to forecast the unit rates for these works over the next AA period.

There are nine forecast unit rates under the growth capex program. Two of the nine unit rates are forecast to be lower in the next AA period than the current AA benchmark, while five are expected to be higher (see Table 2-1).

Table 2-1: Summary of growth capex unit rate changes from benchmark

Category	Unit rate for next AA period	Change from current AA benchmark
New home services	$[redacted]	↑ $301 (28%)
Multi-user services	$[redacted]	↑ $3,720 (71%)
New domestic meters	$[redacted]	↓$45 (-19%)
New I&C meters	$[redacted]	↓$1,636 (-21%)
New estate mains	$[redacted]	↑$4 (8%)
Existing home mains	$[redacted]	↑$21 (19%)
I&C mains	$[redacted]	↑$135 (33%)
Existing home services	$[redacted]	↑$475 (30%)
I&C services (<10TJ per year)	$[redacted]	↑$3,000 (57%)

An explanation of the variances from benchmark for the unit rates in Table 2-1 is provided in sections 2.2 to 2.4.

2.1.1 Factors impacting growth capex unit rates

Consistent with NGR 74, the forecast unit rates for the growth capex activities have been arrived at on a reasonable basis. They are informed by recently revealed costs of the work that will be undertaken over the next AA period and reflect the best estimate possible in the circumstances.

[4] New estate, existing home, multiusers and domestic meters. Excluding I&C meters.

While we have made every effort to derive accurate forecast unit rates, several factors are expected to place upward pressure on unit rates for growth capex activities over the next AA period. These are:

- Costs of carrying out work will increase over time as additional administrative and safety standards (including access and permit requirements, third party approval processes, etc.) give rise to higher contractor costs. For example, in recent years, local authorities have designated tree protection zones, which require the use of non-destructive excavation (for example, hydro or manual excavation as opposed to mechanical).
- Road reinstatement specifications and traffic management specifications are becoming more stringent. For example, we are now required to conduct full lane with profiling for roads under five years old. Specifications can also vary by local authority. This contributes to higher costs, although the impact of this cost pressure on current unit rates has been masked to some extent by volatility in the mix of work completed.

Given the expected ongoing upward pressure on growth capex unit rates that will inevitably be realised during the upcoming period, the unit rates forecast for installing new domestic mains, services and meters in this Unit Rates Report are conservative.

2.2 New mains

The costs we incur when laying mains differ depending on whether the mains are used to supply:

- New greenfield residential areas (new estates)
- Existing brownfield residential areas (existing homes)
- I&C customers

Typically, the cost of laying mains in greenfield sites is considerably lower than installing mains in brownfield sites. This is because with greenfield sites we are often excavating unsealed ground, plus there is usually less need for traffic management and customer notices advising of disruption. Greenfield developments can also offer the opportunity to use common trenches or install mains at the same time as other utility infrastructure.

The cost of I&C customer mains is typically greater than laying domestic mains, as these developments often require higher pressure and larger diameter pipes.

2.2.1 New estate mains

Forecasting approach:	Weighted average of historical actuals

2.2.1.1 Nature of works and costs

This work involves installation of gas supply and reticulation mains (usually installed within common trenches) within new residential greenfield estate developments. The volume of new estate mains installation activity is driven by house and land development market conditions. An average of approximately 130-150 kilometres per annum of new estate mains is installed each year and because the work is quite consistent and the unit rate is relatively stable.

2.2.1.2 Historical and forecast unit rates

Table 2-2 sets out the actual unit rates incurred in laying mains in new housing estate over the current AA period and the forecast for the next AA period.

Table 2-2: New estate mains forecast unit rates, $ real 2021

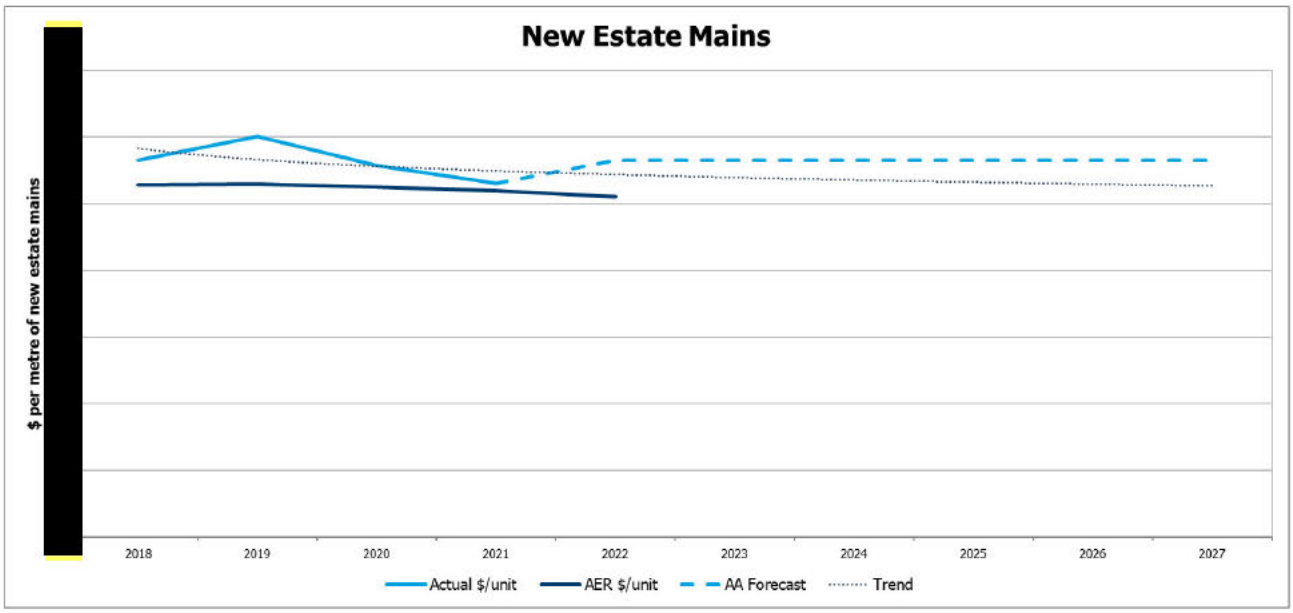
New estate mains $2021	Historic Rates 2018	2019	2020	2021	3-Year Weighted Average	Forecast for Next AA Period
Contractor Rates	[redacted]					
Material/Other Rates	[redacted]					
Actual $/Unit	[redacted]					
Volume (metres)	184,537	181,073	205,693	137,100		
AER Volumes	136,917	129,518	129,369	132,202		
Benchmark $/Unit	[redacted]					

Note: Totals may not add due to rounding.

Comparison of historical rates with AER approved rates

Figure 2-1 shows that the actual unit rates incurred in 2018, 2019, 2020 and 2021 are on average in line with the benchmark unit rates approved by the AER in the current AA period.

Figure 2-1: New estate mains unit rates, $ real 2021



The rates fluctuate slightly year on year, driven by location. Historically the central and northern region tends to have a higher unit rate due to the site conditions where the soil has a significant amount of rock. Alternatively, in the southern and eastern regions the unit rate reflects favourable soil conditions. The unit rate will reflect the region skew.

Rates are expected to trend back towards the benchmark over the next AA period, with major new greenfield developments in locations such as Clyde North and Southern Victoria. In mid-2019 a contract change resulted in developers becoming responsible for the bulk of trenching works associated with new estates. This has removed significant risk concerns from the unit rates with issues associated with rock and contaminated soil no longer an issue. While the requirement for large diameter mains and/or continued cost increase to materials and labour above traditional

inflation rates may cause fluctuations in price, at this point in time the price is largely anticipated to stabilise.

2.2.1.3 Are current costs efficient?

The current costs incurred reflect competitively tendered contractor and material costs. These rates are efficient as they have been determined through competitive market processes in line with our procurement processes. As we operate networks across Australia, we will compare to rates experienced in other jurisdictions where the work is sufficiently similar.

2.2.1.4 Forecast unit rates

The forecast unit rate for new estate mains during the next AA period is $[redacted]/metre.

The forecast is based on the current three-year weighted average unit rate for both contractor and materials/other costs, measured over the period 2019-2021. Historical rates have been used in this case because the volume and type of work we expect to carry out in the next AA period is similar in nature to what has recently been delivered. The historical rates therefore provide an appropriate basis for estimating the costs that are expected to be incurred over the forecast period.

2.2.2 Existing home mains

Forecasting approach: Weighted average of historical actuals

2.2.2.1 Nature of works and costs

This work involves laying mains in brownfield areas. Typically, this will comprise of small network extensions using 63 mm polyethylene mains. The volume of work averages around 5 kilometres per annum. It is subject to a degree of inter-year variability because the scope and complexity of work can differ depending on the location (e.g., within roadway or verge), diameter of the mains and other site-specific factors.

2.2.2.2 Historical and forecast unit rates

Table 2-3 sets out actual unit rates incurred in laying mains for existing homes over the current AA period and the forecast for the next AA period.

Table 2-3: Existing home mains forecast unit rates, $ real 2021

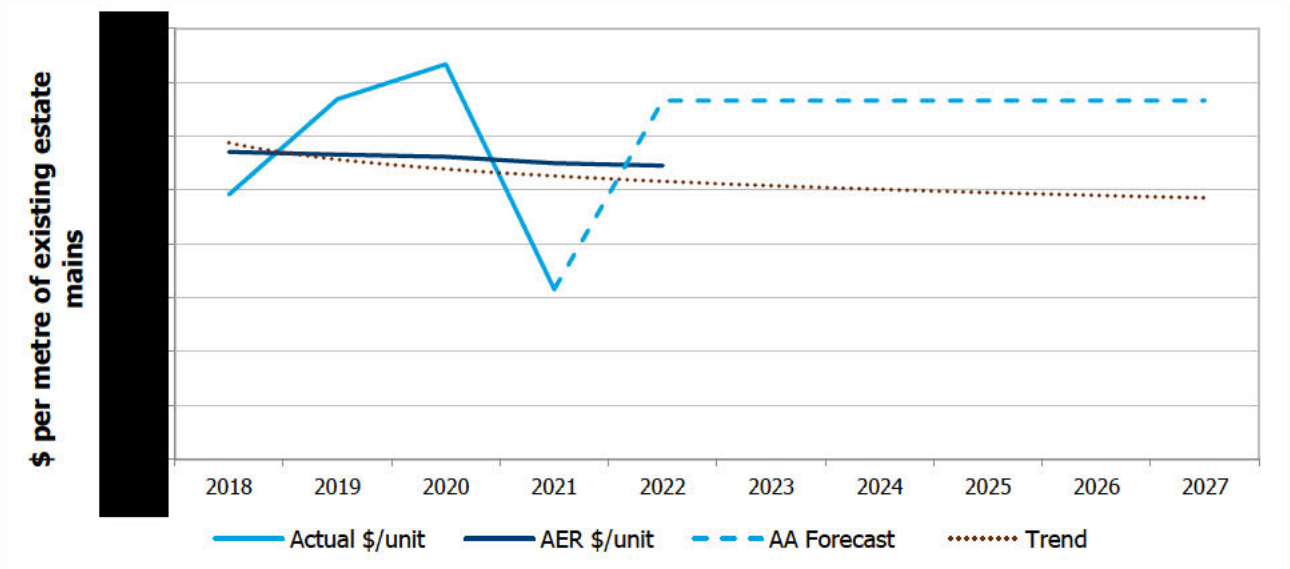
	Historic rates					
Existing home mains $2021	**2018**	**2019**	**2020**	**2021**	**3-year weighted average**	**Forecast for next AA period**
Contractor rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Material/Other rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Actual $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Volume (metres)	7,339	6,949	5,293	1,072		
AER volumes	8,454	7,974	7,959	8,134		
Benchmark $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

Note: Totals may not add due to rounding.

2.2.2.3 Comparison of historical rates with AER approved rates

Figure 2-2 shows the actual unit rates incurred for laying mains to existing homes in the current AA period have exhibited a high degree of variability (i.e. because the scope of work can differ in each year). As this figure highlights, the actual unit rates have been on average above the approved benchmark except for an outlier in 2021.

Figure 2-2: Existing homes new mains unit rates, $ real 2021



The higher contractor rates observed in 2019 and 2020 were largely due to the congested locations of installed mains. The reduction in unit rates that occurred in 2021 can be attributed to uncomplicated mains in low density brownfield locations. We expect rates will trend in line with the three-year average over the next AA period, with a reduction in the proportion of regional projects and an increase in Melbourne inner suburban projects.

Labour costs for delivering these works are rising each year in line with CPI, but the contractor component of the unit rate is also affected by the mix of work completed, as are materials costs.

2.2.2.4 Are current costs efficient?

The current costs incurred reflect competitively tendered contractor and material costs. These rates are efficient as they have been determined through competitive market processes in line with our procurement processes. As we operate networks across Australia, we will compare to rates experienced in other jurisdictions where the work is sufficiently similar.

2.2.2.5 Forecast unit rates

The forecast unit rate for existing home mains during the next AA period is $[redacted]/metre, which is 19% higher than the benchmark the AER approved in the current AA period. This forecast rate reflects the higher proportion of work delivered in inner city suburbs than forecast for the period.

The forecast is based on the three-year weighted average unit rate for both contractor and material/other costs, measured over the period 2019-2021. This approach is consistent with the approach AGN has used for other expenditure categories that involve low volumes of work, are subject to a high degree of variability, and/or where it is difficult to derive meaningful assumptions on the work mix.

2.2.3 New I&C mains

Forecasting approach: Weighted average of historical actuals

2.2.3.1 Nature of works and costs

This work involves laying new mains to the boundaries of I&C premises consuming less than 10 TJ of gas per annum.[5] It typically comprises up to 110 mm polyethylene and up to 80 mm steel mains. The work is lower volume and subject to a high degree of inter-year variability because the scope and complexity of work can vary from small diameter extensions in low density urban areas to high volume large distribution network extensions within the Melbourne CBD.

2.2.3.2 Historical and forecast unit rates

Table 2-4 sets out actual unit rates incurred in laying new mains for I&C customers over the current AA period and the forecast for the next AA period.

Table 2-4: I&C new mains forecast unit rates, $ real 2021

	Historical rates					
I&C mains $2021	**2018**	**2019**	**2020**	**2021**	**3-year weighted average**	**Forecast for next AA period**
Contractor rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Material/Other rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Actual $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Volume (metres)	4,746	3,260	1,010	2,056		
AER volumes	5,879	5,914	5,949	5,984		
Benchmark $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

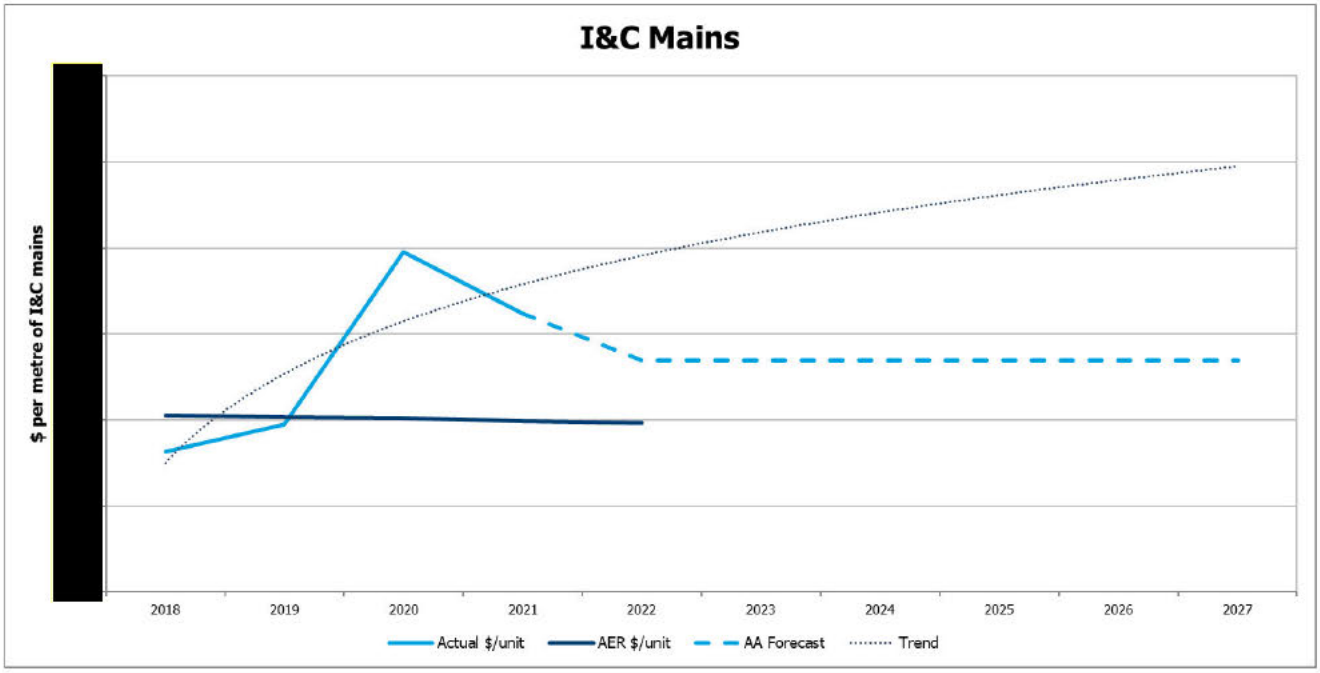
Note: Totals may not add due to rounding.

2.2.3.3 Comparison of historical rates with AER approved rates

Figure 2-3 shows the actual unit rates for I&C new mains have been higher on average than the approved benchmark but have exhibited a significant degree of inter-year variability.

[5] Note that no unit rates are used in respect of forecasting capex for Demand consumers (>10 TJ) because the frequency of connection of such consumers is low and the work is not of a generic nature.

Figure 2-3: I&C new mains unit rates, $ real 2021



The inter-year variability is due to the increase in Melbourne CBD commercial developments constructed with large diameter steel trunk supply mains, which occurred in 2020, and 2021. The unit rates was below approved benchmark in 2018 and 2019 due to volume of commercial mains laid in low density areas such as outer Eastern and Northern Suburbs.

We expect rates are to be in line with 2020 and 2021 that reflect the current pricing and growth in the high-density locations with similar complexity of installation.

2.2.3.4 Are current costs efficient?

The current costs incurred reflect competitively tendered contractor and material costs. These rates are efficient as they have been determined through competitive market processes in line with our procurement processes. As we operate networks across Australia, we will compare to rates experienced in other jurisdictions where the work is sufficiently similar.

2.2.3.5 Forecast unit rates

The forecast unit rate for new I&C mains during the next AA period is $[redacted]/metre.

The forecast for contractor and material/other costs has been based on the weighted average of historical actuals. This approach is appropriate for forecasting the cost of laying new I&C mains as this activity involves lower volumes of work that are subject to a high degree of variability and customer/site-specific requirements.

2.3 New services

The unit rates we incur when installing services differ depending on whether the services are used to supply:

- New homes
- Existing homes
- Multi-user properties

- I&C customers

The costs of installing a gas service differ across these connection types depending on whether services can be installed as part of a greenfield development. Greenfield developments cost less as brownfield/established developments require additional road and footpath excavation and reinstatement costs.

There is a high degree of variability between high density multi-user dwellings and I&C jobs. This is because they tend to be site and customer specific, meaning the cost of these activities can vary significantly depending on the complexity of the work involved.

2.3.1 New home services

Forecasting approach: Weighted average of historical actuals

2.3.1.1 Nature of works and costs

This work involves laying services to new homes, either in greenfield or brownfield conditions. Approximately 14,000 new services are installed each year in new residential dwellings under construction, with the location of new home services varying from urban infill and regeneration projects (which require reinstatement and traffic management services) to dwellings built in new greenfield estates.

The unit rates for this type of work tend to be relatively stable, but can be influenced on a year-to-year basis by:

- the proportion of work carried out in greenfield versus brownfield developments;
- the volume of road crossings driven by the mix of same side versus opposite side connections; and
- the location of service positions on a customer's property.

2.3.1.2 Historical and forecast unit rates

Table 2-5 sets out actual unit rates incurred laying services to new homes over the current AA period and the forecast for the next AA period.

Table 2-5: New home services forecast unit rates, $ real 2021

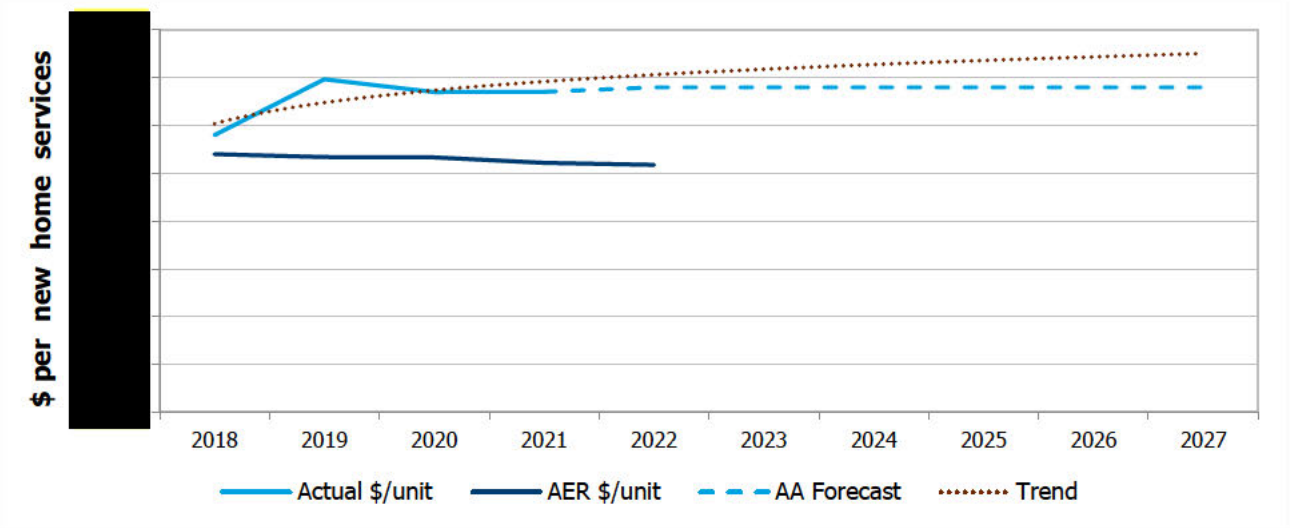
	Historical rates					
New home inlets $2021	**2018**	**2019**	**2020**	**2021**	**3-year weighted average**	**Forecast for next AA period**
Contractor rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Material/Other rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Actual $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Volume (units)	15,560	15,469	13,402	13,773		
AER volumes	12,770	12,070	12,053	12,318		
Benchmark $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

Note: Totals may not add due to rounding.

2.3.1.3 Comparison of historical rates with AER approved rates

Figure 2-4 shows the actual unit rates for new home services have been consistently higher than the benchmark approved by the AER across the period.

Figure 2-4: New home services unit rates, $ real 2021



The higher unit rates can be largely attributed to the following factors, which will continue to put upward pressure on the unit rate (along with the factors outlined at 2.1.1):

- A greater proportion of services than expected were installed in the central & inner northern region, which impacted the unit cost. Many new estates, particularly in the inner northern region, have footpaths already established and therefore additional costs were associated with the excavation, plant and reinstatement costs
- With more footpaths now being established before the connection of a new service, AGN must comply with the reinstatement guidelines for the incumbent developer. These guidelines are more extensive than previous periods, with the introduction of such things as full width path reinstatements

2.3.1.4 Are current costs efficient?

The current costs incurred reflect competitively tendered contractor and material costs. These rates are efficient as they have been determined through competitive market processes in line with our procurement processes. As we operate networks across Australia, we will compare to rates experienced in other jurisdictions where the work is sufficiently similar.

2.3.1.5 Forecast unit rates

The forecast unit rate for new home services in the next AA period is $[redacted]/unit which is 28% higher than the benchmark approved by the AER in the current AA period, due to the following:

- Higher expenses for traffic management for metropolitan areas
- Expenses for breaking out existing concrete footpaths, driveways, etc.
- Non-destructive digging (NDD)
- Horizontal directional drilling (HDD)

The forecast unit rate for new home services is based on weighted average of historical actuals for both contractor and material/other costs. This approach is appropriate because the volume and

type of work that we expect to be carried out in the next AA period is similar in nature to what has recently been delivered.

2.3.2 Existing home services

Forecasting approach:	Weighted average of historical actuals

2.3.2.1 Nature of works and costs

This work involves laying services to existing homes (brownfield conditions). The volume of work is relatively low, however, there is some variation depending on the mix of same side and opposite side connections, the location of gas meters on customer properties (e.g., front boundary, garden, wall box) and the complexity of remaining properties available for connection.

2.3.2.2 Historical and forecast unit rates

Table 2-6 sets out actual unit rates incurred in laying services in existing homes over the current AA period and the forecast for the next AA period.

Table 2-6: Existing home new services forecast unit rates, $ real 2021

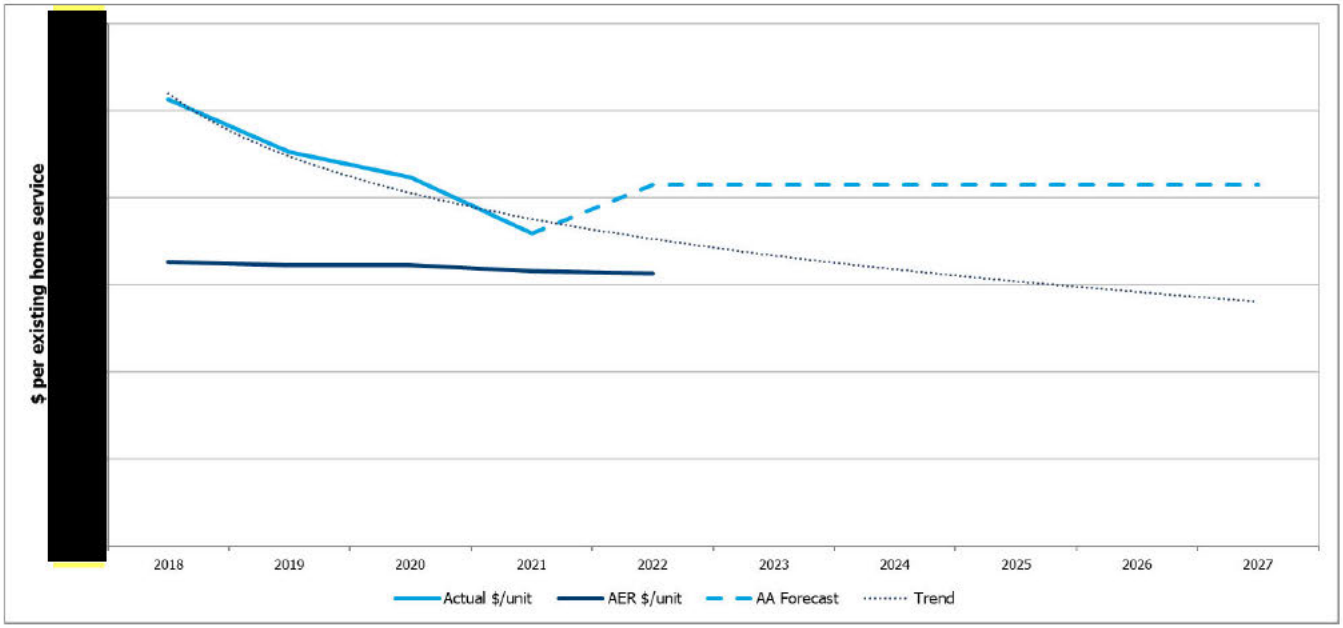
	Historical rates					
Existing home inlets $2021	**2018**	**2019**	**2020**	**2021**	**3-year weighted average**	**Forecast for next AA period**
Contractor rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Material/Other rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Actual $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Volume (units)	578	480	495	393		
AER volumes	872	825	824	842		
Benchmark $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

Note: Totals may not add due to rounding.

2.3.2.3 Comparison of historical rates with AER approved rates

Figure 2-5 shows the actual unit rate has been consistently higher than the benchmark unit rate over the current AA period and is expected to remain that way going forward.

Figure 2-5: Existing home services unit rates, $ real 2021



The factors that have contributed to the higher unit rates are:

- The volume of existing home new services installations that are complex. Complex installations are likely to require HDD, NDD (more prominent inner metro region), breakout costs, concrete cutting, rock breaking and removal and high reinstatement requirements (e.g. Concrete thickness, bike paths and other markings).
- Site specific conditions including traffic management requirements for highly dense areas.
- The overall downward trend is not expected to continue or plateau to the 2021 levels as the trend is a function of the blend of the services for the reported years. It is expected to return to the more volatile trending going forward, as would be more aligned to historical performance.

2.3.2.4 Are current costs efficient?

The current costs incurred reflect competitively tendered contractor and material costs. These rates are efficient as they have been determined through competitive market processes in line with our procurement processes. As we operate networks across Australia, we will compare to rates experienced in other jurisdictions where the work is sufficiently similar.

2.3.2.5 Forecast unit rates

The forecast unit rate for installing new services at existing homes during the next AA period is $[redacted]/unit which is 30% higher than the benchmark approved by the AER in the current AA period, due to the anticipated volume of complex installations and site-specific costs associated with traffic management.

This approach is appropriate for existing home new services as the work involves lower volumes which are subject to a high degree of variability. The scope and complexity of work can vary from small diameter extensions in low density urban areas to high volume large distribution network extensions within the Melbourne CBD which make it difficult to derive meaningful assumptions on the work mix over the next AA period.

2.3.3 Multi-user services

Forecasting Approach: Weighted average of historical actuals

2.3.3.1 Nature of works and costs

This work is laying services to premises that have more than one customer, such as units and apartment buildings. These projects usually arise due to site redevelopment and are therefore rarely greenfield projects. The volume of multi-user services completed each year is relatively low and subject to a degree of inter-year variability because the scope of work can vary from small unit sites containing three or four dwellings to large multiple dwelling developments. The scale of a multi-user site directly affects both contractor and material costs.

2.3.3.2 Historical and forecast unit rates

Table 2-7 sets out actual unit rates incurred in laying multi-user services over the current AA period and the forecast for the next AA period.

Table 2-7: New multi-user services forecast unit rates, $ real 2021

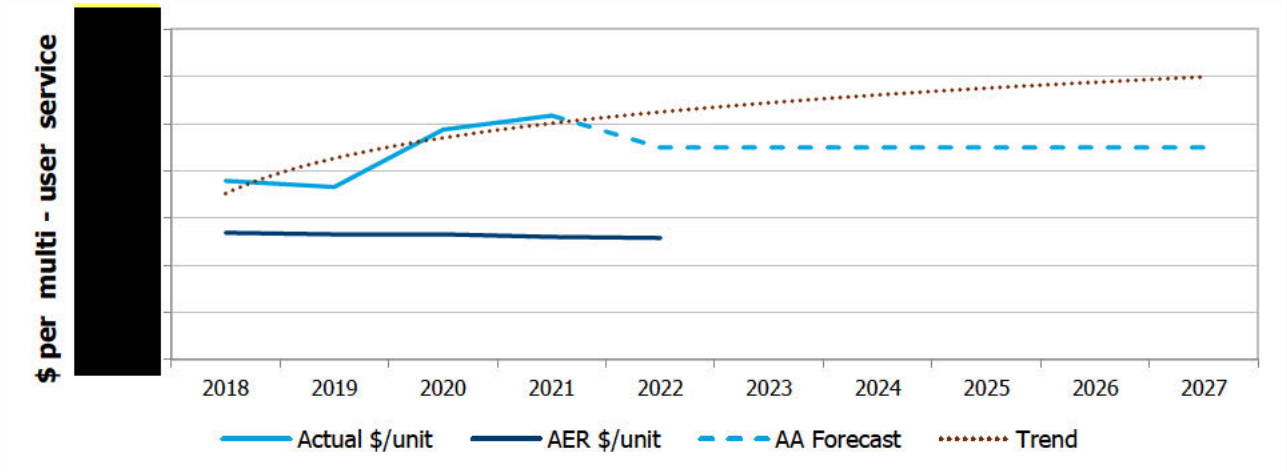
Multi User Inlets $2021	Historic Rates 2018	2019	2020	2021	3-Year Weighted Average	Forecast for Next AA Period
Contractor Rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Material/Other Rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Actual $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Volume (units)	358	557	467	427		
AER Volumes	704	665	664	678		
Benchmark $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

Note: Totals may not add due to rounding.

2.3.3.3 Comparison of historical rates with AER approved rates

Figure 2-6 shows the actual unit rates have been consistently well above the benchmark unit rate over the current AA period and is expected to remain that way going forward.

Figure 2-6: New MUS Unit Rates ($2021)



As this figure highlights, the actual unit rates for multi-user services have been higher than the benchmark approved by the AER, with a reasonable degree of inter-year variability, which as reflects the low volume and varied scale of these projects. The actual unit rate was lower in 2019 because of the volume of outer suburban locations and less complexity.

Material and other costs for 2021 are higher than previous years as they are an estimate based on annualised actuals and reflect replenishment during a challenging period with significant external cost pressures.

2.3.3.4 Are current costs efficient?

The current costs incurred reflect competitively tendered contractor and material costs. These rates are efficient as they have been determined through competitive market processes in line with our procurement processes. As we operate networks across Australia, we will compare to rates experienced in other jurisdictions where the work is sufficiently similar.

2.3.3.5 Forecast unit rates

The forecast unit rate for installing new multi-user services during the next AA period is $[redacted]/unit which is higher than the benchmark adopted in the current AA period.

The forecast is based on the three-year weighted average unit rate for both contractor and materials/other costs, measured over the period 2019-2021. Weighted average of historical actuals is appropriate for new multi-user services as the work involves lower volumes which are subject to a high degree of variability and/or where it is difficult to derive meaningful assumptions on the work mix over the next AA period.

2.3.4 I&C services (Services <10TJ per year)

Forecasting approach: Weighted average of historical actuals

2.3.4.1 Nature of works and costs

This work involves laying services for I&C premises that consume less than 10TJ of gas per year. It is lower volume work and subject to a high degree of variation because the scope and complexity of work is site and customer specific. Projects can vary from small diameter basic commercial connections in suburban streets to complex industrial connections along VicRoads or within the Melbourne CBD.

2.3.4.2 Historical and forecast unit rates

Table 2-8 sets out actual unit rates incurred laying services at I&C premises over the current AA period and the forecast for the next AA period.

Table 2-8: New I&C services forecast unit rates, $ real 2021

	Historic Rates					
I&C Inlets $2021	2018	2019	2020	2021	3-Year Weighted Average	Forecast for Next AA Period
Contractor Rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

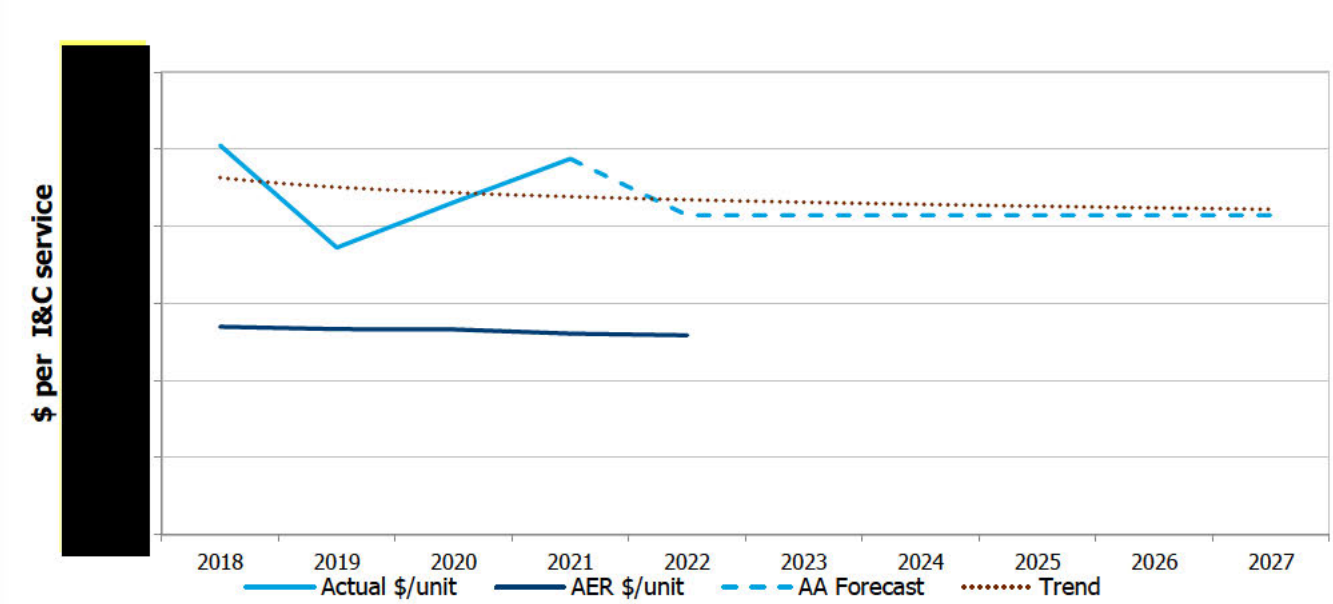
Material/Other Rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Actual $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Volume (units)	326	405	223	181		
AER Volumes	356	359	361	363		
Benchmark $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

Note: Totals may not add due to rounding.

2.3.4.3 Comparison of historical rates with AER approved rates

Figure 2-7 shows actual unit rates have been consistently well above the benchmark unit rate approved by the AER.

Figure 2-7: New I&C services (<10TJ) unit rates, $ real 2021



The inter-year variability of costs are due to the bespoke nature of installation and costs, which are also influenced by location and complexity. These types of developments are expected to be of the same nature for the next AA period.

2.3.4.4 Are current costs efficient?

The current costs incurred reflect competitively tendered contractor and material costs. These rates are efficient as they have been determined through competitive market processes in line with our procurement processes. As we operate networks across Australia, we will compare to rates experienced in other jurisdictions where the work is sufficiently similar.

2.3.4.5 Forecast unit rates

The forecast unit rate for installed new I&C services during the next AA period is $[redacted]/unit.

The forecast for contractor and material/other costs is based on the weighted average of historical actuals. This is consistent with the approved approach in the recent South Australian AA.

This approach is appropriate for new I&C services as the work involves lower volumes which are subject to a high degree of variability. The complexity of each project is site/customer specific, making it difficult to derive meaningful assumptions on the work mix over the next AA period.

2.4 New meters

The unit rates we incur when installing a new meter differs depending on the type of meter installed (i.e. whether it is a domestic or an I&C meter). The new meter unit rates include both the cost of the meter and costs associated with the installation of the meter.

2.4.1 New domestic meters

Forecasting approach: Weighted average of historical actuals

2.4.1.1 Nature of works and costs

Installing domestic gas meters for new connections involves:

- Procuring new meters, including quality control;
- Planning and scheduling of meter installations;
- Organising resources (combination of direct and contractor) to carry out the meter installation; and
- Installing the new meter and carrying out a safety check and appliance commissioning.

This work is high volume and associated unit rates are relatively stable.

2.4.1.2 Historical and forecast unit rates

The table below sets out the actual unit rates incurred installing domestic gas meters for new connections over the current AA period and the forecast for the next AA period, which is based on the three-year weighted average unit rate.

Table 2-9: New domestic meters forecast unit rates, $ real 2021

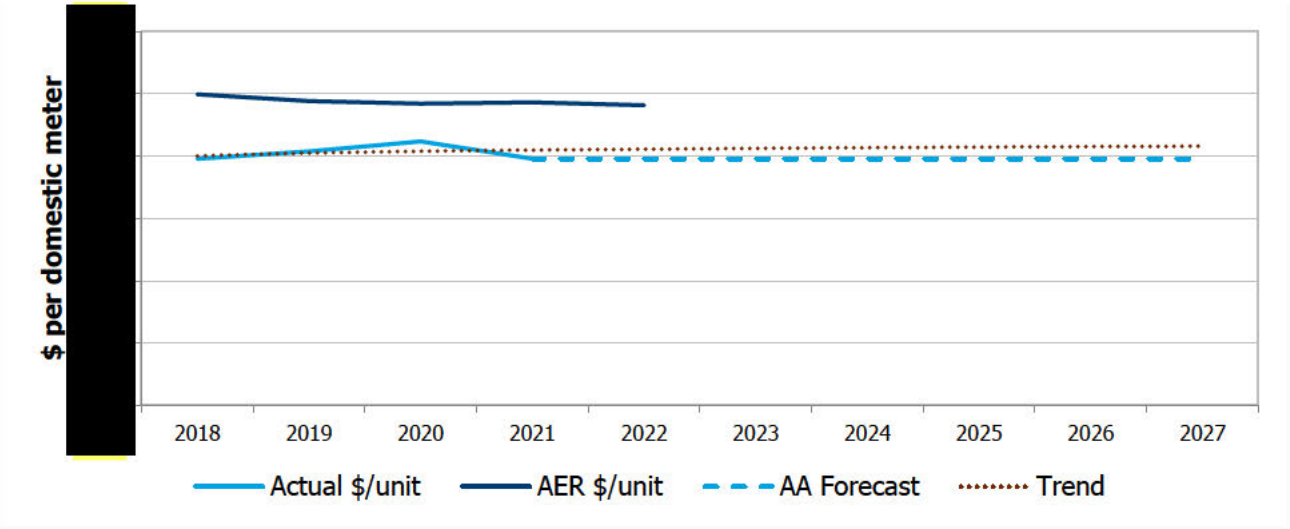
	Historic Rates					
Domestic Meters $2021	**2018**	**2019**	**2020**	**2021**	**3-Year Weighted Average**	**Forecast for Next AA Period**
Contractor Rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Material/Other Rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Actual $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Volume (units)	17,765	17,371	16,033	15,300		
AER Volumes	16,457	15,553	15,531	15,872		
Benchmark $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

Note: Totals may not add due to rounding.

2.4.1.3 Comparison of historical rates with AER approved rates

Figure 2-8 shows actual unit rates for new domestic meters have been lower than the approved benchmarks and are expected to remain that way over the remainder of the current AA period.

Figure 2-8: New domestic meters forecast unit rates, $ real 2021



The lower rates are driven by lower materials/other costs incurred over the current AA period compared to the benchmark. This is in part due to more availability of choice for larger gas installations and less AL1000 I&C meters being used in domestic gas fitting applications.

The current contract for acquisition of new domestic meters with suppliers EDMI, Landis & Gyr, Pietro Fiorentini and Gameco, commenced in June 2021 and has a five-year term expiring 1 June 2026.

2.4.1.4 Are current costs efficient?

The current costs incurred reflect competitively tendered contractor and material costs. These rates are efficient as they have been determined through competitive market processes in line with our procurement processes. As we operate networks across Australia, we will compare to rates experienced in other jurisdictions where the work is sufficiently similar.

2.4.1.5 Forecast unit rates

In the next AA period, the unit rate for domestic meter connections is forecast to be $[redacted]/meter, which is 19% lower than the benchmark for the current AA period.

The forecast is based on three-year weighted average unit rate for both contractor and materials/other costs. This approach is appropriate because the volume and type of work that is expected to be carried out in the next AA period is similar in nature to what has recently been delivered.

There remains upward pressure on costs due to increased health, safety, technical and council requirements. The current actuals therefore provide an appropriate and conservative basis for estimating the costs we expect to incur over the next AA period.

2.4.2 New I&C meters

Forecasting Approach: Weighted average of historical actuals

2.4.2.1 Nature of works and costs

Installing gas meters for new I&C meters (<10TJ p.a.), involves:

- Procuring new meters, including quality control;

- Fabrication of meter and regulator sets
- Planning and scheduling of meter installations;
- Organising resources (combination of direct and contractor) to carry out the meter installation; and
- Installing the new meter and carrying out any relevant safety checks.

The work is lower volume and subject to a significant degree of volatility because the scope of work can differ from year to year depending on the number and size of I&C meters that need to be connected. The nature and complexity of work poses a challenge, particularly with the limited access and high installation cost around the Melbourne CBD.

2.4.2.2 Historical and forecast unit rates

Table 2-10 sets out the actual unit rates incurred when connecting I&C meters over the current AA period and the forecast for the next AA period.

Table 2-10: New I&C meters forecast unit rates, $ real 2021

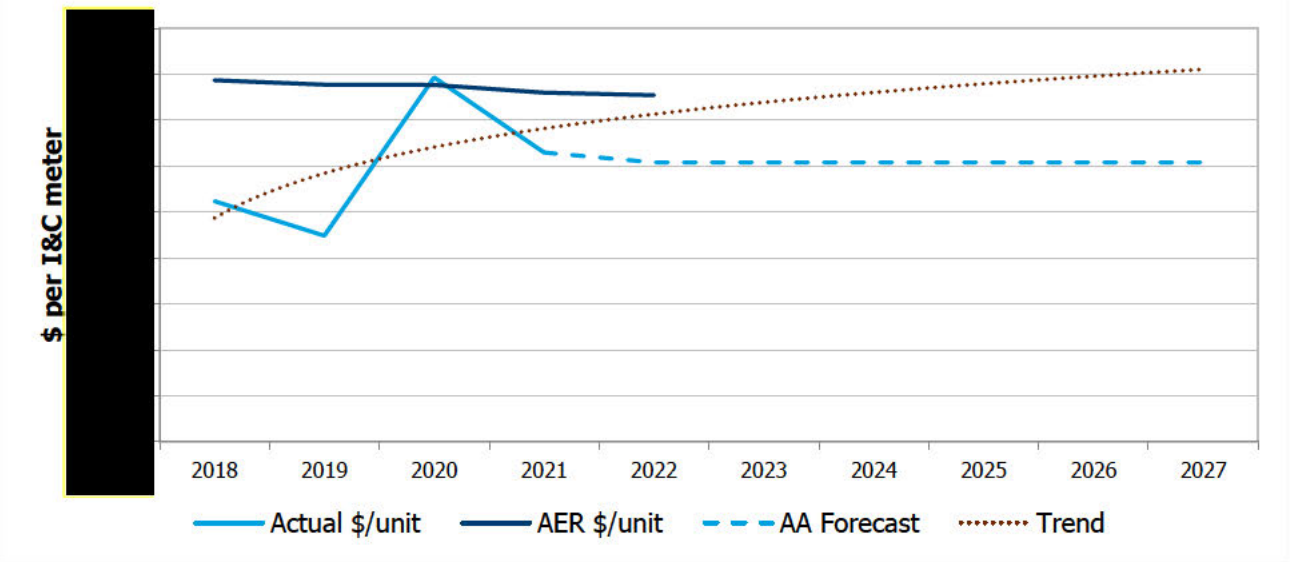
	Historic Rates					
I&C Meters $2021	**2018**	**2019**	**2020**	**2021**	**3-Year Weighted Average**	**Forecast for Next AA Period**
Contractor Rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Material/Other Rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Actual $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Volume (units)	464	415	324	293		
AER Volumes	356	359	361	363		
Benchmark $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

Note: Totals may not add due to rounding.

2.4.2.3 Comparison of historical rates with AER approved rates

Figure 2-9 shows actual unit rates have been lower than the approved benchmarks and are expected to remain that way over the remainder of the current AA period.

Figure 2-9: New I&C meter sets forecast unit rates, $ real 2021



As with I&C services, it is difficult to compare unit rates for I&C meters over time and with a benchmark because they can vary substantially from year to year depending on the number and size of I&C meters that need to be installed as well as the location (i.e., meter room, ventilation requirements, sleeved services) the load, the number of meters installed and the type of end user.

2.4.2.4 Are current costs efficient?

Large I&C meter connections are predominantly carried out by a mixture of internal staff and contractors depending on the scale of the job. While the work is not subject to a competitive tender, it can still be viewed as efficient given:

- There are incentives to minimise connections costs under the outsourcing arrangement with our operations and management service provider, APA; and
- Materials are procured through a competitive procurement process.

2.4.2.5 Forecast unit rates

The forecast unit rate for I&C meter connections in the next AA period is $[redacted]/meter, which is 21% lower than the benchmark for the current AA period. The forecast for contractor and material/other costs is based on the three-year weighted average of historical actuals. This is also consistent with the method approved by the AER in the South Australian Draft Decision.[6]

This approach is appropriate as installing new I&C meters involves lower volumes of work that are subject to a high degree of variability. This makes it difficult to derive meaningful assumptions on the work mix over the next AA period.

[6] AER, Draft Decision: Australian Gas Networks (SA) - Access arrangement 2021-26, November 2020.

3 Meter replacement

3.1 Summary

The unit rates we incur when replacing meters differ depending on the type of meter being replaced (I&C or domestic application) and the use of new or refurbished meters. There are two forecast unit rates under the meter replacement capex program.

1. Meters ≤ 25 m^3 (Domestic)
2. Meters > 25 m^3 (Commercial)

The unit rate for replacing domestic meters is forecast to be higher in the next AA period than the approved benchmark in the current AA period.

This is because of the discontinued use of refurbished domestic meters due to the inability of the manufacturer to commit to the service. Also, there has been a recategorisaton of domestic meters to include meters with a capacity up to 25 m^3 per hour, which are used to supply residential, small commercial and industrial customers.

We have used the current actual unit rate as the basis for forecasting the domestic meter unit rate and based on current information we expect increased unit rate over the next AA period. The unit rate for replacing commercial meters is calculated by using an average of historical actuals. The commercial meter unit rate is forecast to be reasonably consistent with that achieved over the current AA period.

Meter replacement unit rate	Rate for next AA period	Change from current AA benchmark
Meters ≤ 25 m^3 (Domestic)	$[redacted]/meter	↑$94 (52%)
Meters > 25 m^3 (I&C)	$[redacted]/meter	↑$125 (6.5%)

3.2 Meter replacement – Meters ≤ 25m^3 (Domestic)

Forecasting approach: Current actuals

3.2.1 Nature of works and costs

Replacing domestic gas meters involves:

- procuring any new or refurbished meters required, including quality control;
- planning and scheduling of meters to be changed over;

- organising resources (combination of direct and contractor) to carry out the meter change, which includes testing of outlet service and relighting appliances, and if required, re-attending premises after hours if the customer requires assistance;
- testing meters brought in from the field;
- life extension; and
- refurbishing large meters as required.

The replacement of domestic meters over the next AA period is required to ensure meters are calibrated and fit for purpose in accurately measuring gas usage as required by Australian Standard AS4944 and Victorian Gas Distribution Code.

3.2.2 Historical and forecast unit rates

Table 3-1 sets out actual unit rates incurred in replacing domestic gas meters over the current AA period and the forecast for the next AA period.

Table 3-1: Meters ≤ 25 m³ (Domestic) meter replacement forecast unit rates, $ real 2021

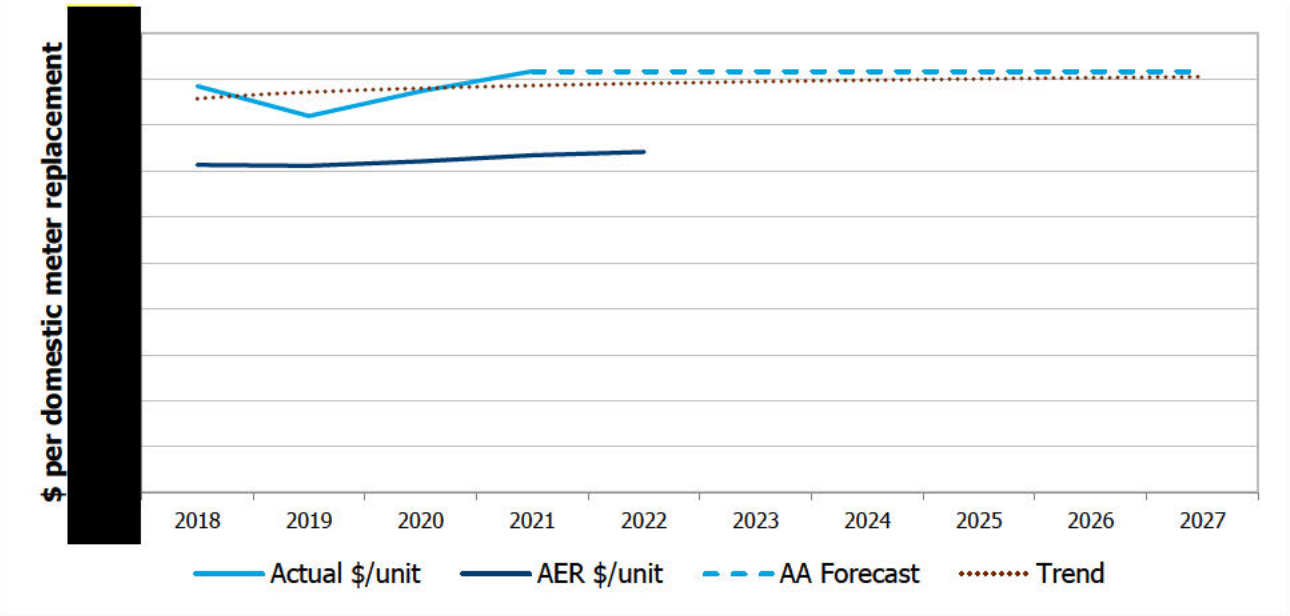
	Historical rates					
Domestic PMC $2021	**2018**	**2019**	**2020**	**2021**	**3-Year weighted average**	**Forecast for next AA period**
Contractor rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Material/Other rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Actual $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Volume (units)	38,362	33,175	30,736	28,231		
AER volumes	37,926	37,926	37,926	19,422		
Benchmark $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

Note: Totals may not add due to rounding.

3.2.3 Comparison of historical rates with AER approved rates

Figure 3-1 shows the actual unit rates for domestic meter replacement have been consistently higher than the benchmark.

Figure 3-1: Meters≤25m³ (Domestic) meter replacement unit rates ($2021)



The primary cause of the higher-than-expected domestic meter replacement unit rate is a change in the mix of refurbished to new meters in recent years. The availability of refurbished meters has decreased[7], which means an increasing proportion of new meters have been installed over the past three years. Refurbished domestic meters are being phased out, in line with other GD businesses and the manufacturer is not committing to providing the service.

A further reason is that domestic meters have been re-categorised to be meters with a capacity up to 25 m³ per hour that are used to supply both residential, small commercial and industrial customers.

Table 3-2 shows the proportion of new compared to refurbished meters has increased steadily from the previous AA period and has continued to rise year on year in the current AA period.

Table 3-2: Percentage of new and refurbished meters ≤25 m³ (Domestic)

Domestic PMC	2015 (partial year)	2016	2017	2018	2019	2020	2021 (OCT YTD)
New meters	28%	50%	61%	49%	57%	63%	64%
Refurbished meters	72%	50%	39%	51%	43%	37%	36%

We expect this trend of installing a greater proportion of new meters to continue into the next AA period. This results in higher costs for each replacement.

The increase in unit rates between 2018/19 and 2019/20 (as shown in Figure 3-1) is also driven in part by the commencement of the new meter fitting/replacement contracts that commenced in April and May 2019. These new contracts have a higher rate as the technician is required to conduct extra proactive ancillary safety and condition works when carrying out periodic meter changes, such as replacing or sealing the meter box and changing regulators.

7 We have recently changed our practices to conduct more field life extension testing, with a view to increasing the useful life of meters. As a result, fewer meters are being taken out of the field, which means there are fewer meters available for refurbishment.

This extra work reflects the general ageing of these components of the meter set (which have a longer life than the meter itself). It is more cost effective to address these issues during the periodic meter replacement program than under their own program or in a piecemeal/reactive fashion. It is also administratively more costly (compared to the benefit) to split out the costs of these additional pieces of work into their own cost line.

3.2.4 Are current costs efficient?

The current costs incurred reflect competitively tendered contractor and material costs. These rates are efficient as they have been determined through competitive market processes in line with our procurement processes. As we operate networks across Australia, we will compare to rates experienced in other jurisdictions where the work is sufficiently similar.

3.2.5 Forecast unit rates

The forecast unit rate for changing domestic gas meters during the next AA period is $[redacted]/meter, which is 52% higher than the benchmark approved by the AER in the current AA period.

As explained above, the manufacturer has withdrawn its commitment to repair meters and new meters will be used going forward, which is aligned to other GD businesses. In addition, the re-categorisation of domestic meters i.e. meters with a capacity of up to 25m^3 per hour that are used to supply both residential and small commercial and industrial customers lead to a further increase in the unit rate of meter changed. The rate experienced in the 2021 represents the most recent market tested cost of performing the labour component of the work as the new contracts commenced in Aug 2018 (date).

The forecast is based on the current year to date actual unit rate for 2021 for both contractor and materials/other costs. This approach is appropriate because the volume and type of work that is expected to be carried out in the next AA period is similar in nature to what has recently been delivered.

In addition, the unit rate continues to experience an upward trend in costs associated with increased health, safety and technical requirements. The current actuals therefore provide an appropriate and conservative basis for estimating the costs that are expected to be incurred over the next AA period.

3.3 Meter replacement – Meters > 25m³ (I&C)

Forecasting approach: Weighted average of historical actuals

3.3.1 Nature of works and costs

Replacing commercial gas meters involves:

- procuring any new or refurbished meters required, including quality control;
- fabrication of site-specific fittings and pipework;
- planning and scheduling of meters to be changed over;
- organising resources to carry out the meter change in conjunction with customer requirements/restrictions;
- testing meters brought in from the field;
- life extension; and
- refurbishing meters, as required.

This work is lower volume, however scope of work can differ depending on the mix of sizes of the non-domestic meters that need to be replaced.

3.3.2 Historical and forecast unit rates

Table 3-3 sets out actual unit rates incurred in changing non-domestic gas meters over the current AA period and the forecast for the next AA period.

Table 3-3: Meters > 25 m³ (Commercial) meter replacement forecast unit rates, $ real 2021

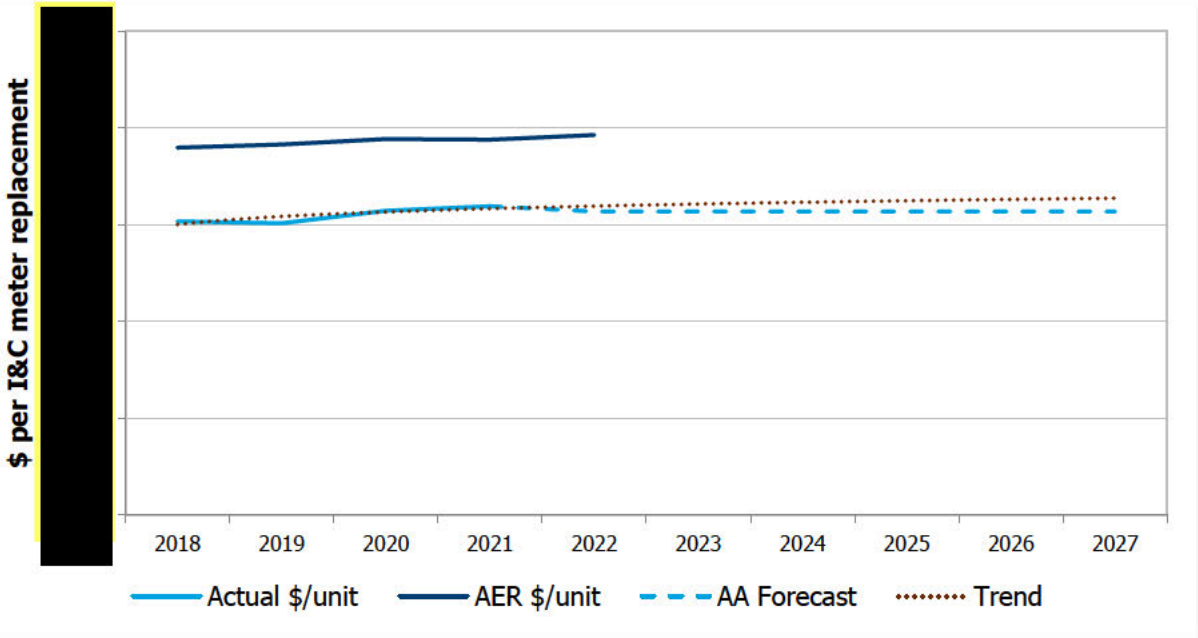
	Historic Rates					
I&C PMC $2021	2018	2019	2020	2021	3-Year weighted average	Forecast for Next AA period
Contractor rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Material/Other rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Actual $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Volume (units)	589	1,152	1,620	2,149		
AER volumes	1,411	1,411	1,411	1,411		
Benchmark $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

Note: Totals may not add due to rounding.

3.3.3 Comparison of historical rates with AER approved rates

Figure 3-2 shows the actual unit rates incurred over the current AA period have been consistently below the benchmark unit rate approved by the AER.

Figure 3-2: Meters >25 m³ (I&C) meter replacement unit rates, $ real 2021



Typically, there is variability in unit rates due to the differences in the number and size of the I&C meters that need to be changed each year, by way of example, costs for different bespoke metering solutions can vary by up to 13 times when comparing replacement of a small I&C meter to a large industrial turbine meter. However this period has been relatively stable.

3.3.4 Are current costs efficient?

Large I&C meter changes are carried out by a mixture of internal staff and contractors depending on the scale of the job. While the work is not subject to a competitive tender, it can still be viewed as efficient given:

- there are incentives to minimise connections costs under the outsourcing arrangement with our operations and management service provider, APA; and
- materials are procured through a competitive procurement process.

3.3.5 Forecast unit rates

The forecast unit rate for changing commercial gas meters during the next AA period is $[redacted]/meter, which is 6.5% higher than the benchmark adopted in the current AA review.

The forecast for contractor and materials/other costs is based on the weighted average of historical actuals for contractor and material/other costs. This approach is appropriate for I&C meter replacements as it involves lower volumes of work which are traditionally subject to a high degree of variability. The site and customer-specific requirements of each job make it difficult to derive meaningful assumptions on the work mix over the next AA period and therefore we have used the weighted average of historical actuals. It is also consistent with the approach that was used in the recent South Australian AA, which was approved by the AER.[8]

[8] AER, Draft Decision: Australian Gas Networks (SA) - Access arrangement 2021-26, November 2020.

4 Mains replacement

4.1 Summary

The unit rate we incur when carrying out mains replacement and related activities varies depending on the category of mains and location. Categories and location of mains are detailed in the Distribution Mains and Services Integrity Plan (DMSIP).

Mains replacement is typically high volume work and is subject to cost increases (as discussed in section 4.1.1 below), therefore for most unit rate categories we use the current actuals approach to estimate forward-looking unit rates.

Piecemeal mains replacement is lower volume work and MUS replacement is subject to variability, as such we use a weighted average of historical actuals to forecast these unit rates. The steel mains replacement program to be carried out in the upcoming AA is relatively low volume work compared to historical mains replacement, similarly it is predominantly located within a congested shopping precent in Frankston, resulting in a higher unit rate than seen on historical cast iron replacement programs.

An emerging cost increase is due to the new regulations associated with the *Environment Protection Regulations 2021*. An incremental increase forecast cost of $[redacted]/m has been calculated to enable AGN to comply with the regulation.

Using the latest available data we have reasonably assumed:

- sampling rates are required to comply with Industrial Waste Resource Regulations (IWRG) 2009 Publication 702 Soil Sampling. - it has been assumed on average a sample will be required every 100m to adhere to this standard;
- the excavated material is standard volume and density, and we used standard excavation sizes in our calculations with no extra material extraction required for the purposes of sampling; and
- a rate of contamination of 31% Cat C and 3% Cat A based on sampling completed in 2021 by the AGN operations team. The forward forecast is subject to fluctuation as significantly higher level of contamination have been observed in the Melbourne CBD, however we have taken a conservative view, and consider this an acceptable representative value for broader Victoria.

Table 4-1 shows how the unit rate categories relate to the mains categories in the DMSIP, the work activity associated with that unit rate and the forecasting approach.

Table 4-1: Mains replacement unit rate and DMSIP categories

Unit rate category	DMSIP categories	Work activity	Forecasting approach
Inlet service replacement (piecemeal)	Inlet service replacement	Reactive replacement by insertion	Weighted average of historical actuals
Piecemeal mains replacement	Piecemeal mains replacement	Replacement by insertion or direct burial	Weighted average of historical actuals
Mains replacement	HDPE 575 - DN50 & 40	Determine remaining life for vintage HDPE by taking samples for laboratory testing	Bottom-up estimate

Mains replacement	Steel – DN40, 50, 100 & 150 Mains	Inspection and reinforcement	Bottom-up estimate
Mains replacement	Steel	Steel inspected through sample dig ups	Bottom-up estimate
Inline camera inspection and repair	HDPE 575 – inspected (km)	Inspection by in line camera and reinforcement at squeeze off points	Bottom-up estimate
Service replacements	MUS replacement (units)	Replacement by insertion of services	Bottom-up estimate

Of the unit rate categories for mains replacement and related activities in the next AA period, five are new and there is no approved benchmark rates for the current period (see Table 4-2).

Table 4-2: Summary of mains replacement unit rate forecast, $ real 2021

Unit rate category	Unit rate	Comments
Inlet service replacement (piecemeal)	$[redacted]/service	Weighted average of historical actuals
Piecemeal Mains Replacement	$[redacted]/meter	Weighted average of historical actuals
Mains replacement - HDPE 575 sampling and testing (DN50 & 40)	$[redacted]/site	This unit rate has been calculated using a bottom-up approach. In AGN's view, the bottom-up approach is appropriate to use when the scope of the work to be carried out over the forecast period is materially different to what was carried out historically, or where there are no recent historical costs that can be referenced, which is the case for taking 100 samples for laboratory testing to create an end-of-life model for vintage HDPE mains and asset management strategy
Mains replacement - Steel Mains Replacement (DN40, 50, 100 & 150)	$[redacted]/meter	Consistent with the mains replacement (HDPE 575, DN50 & 40) unit rate, this unit rate has been calculated using a bottom-up approach
Mains replacement - Steel Main (sample dig ups and inspection)	$[redacted]/site	Consistent with the mains replacement (HDPE 575, DN50 & 40) unit rate, this unit rate has been calculated using a bottom-up approach.
Inline camera inspection and repair	$[redacted]/meter	Consistent with the mains replacement (HDPE 575, DN50 & 40) unit rate, this unit rate has been calculated using a bottom-up approach.
Service replacement MUS	$[redacted]/service	Consistent with the mains replacement (HDPE 575, DN50 & 40) unit rate, this unit rate has been calculated using a bottom-up approach.

4.1.1 Factors impacting mains replacement unit rates

Consistent with NGR 74, the forecast unit rates for mains replacement and associated activities have been arrived at on a reasonable basis, reflect the best estimate of the work

that will be undertaken over the next AA period and represent the best forecast possible in the circumstances.

While we have made every effort to derive accurate forecast unit rates, several factors are expected to place upward pressure on the unit rates for mains replacement activities over the next AA period. These are discussed below.

Concentration of steel MRP being in a congested area of Frankston, increasing traffic management, excavation and reinstatement costs compared to traditional cast iron MRP which is spread across a wide range of suburbs

Relatively small MRP program resulting in higher proportion of fixed project costs

Increasing focus on environmental concerns, including soil remediation and implementation of new excavation techniques such as non-destructive digging to improve site safety

4.2 Inlet service replacement (piecemeal)

Forecasting Approach:	Weighted average of historical actuals

4.2.1 Nature of works and costs

There are cases where services need to be renewed on a stand-alone basis. The need for such service renewals arises when leaks or damage occur on the service and inspection reveals that the service is heavily corroded or in such poor condition that repairs are not viable.

4.2.2 Historical and forecast unit rates

Table 4-3 sets out the actual unit rates that have been incurred over the last three years and the forecast that has been assumed for the next AA period.

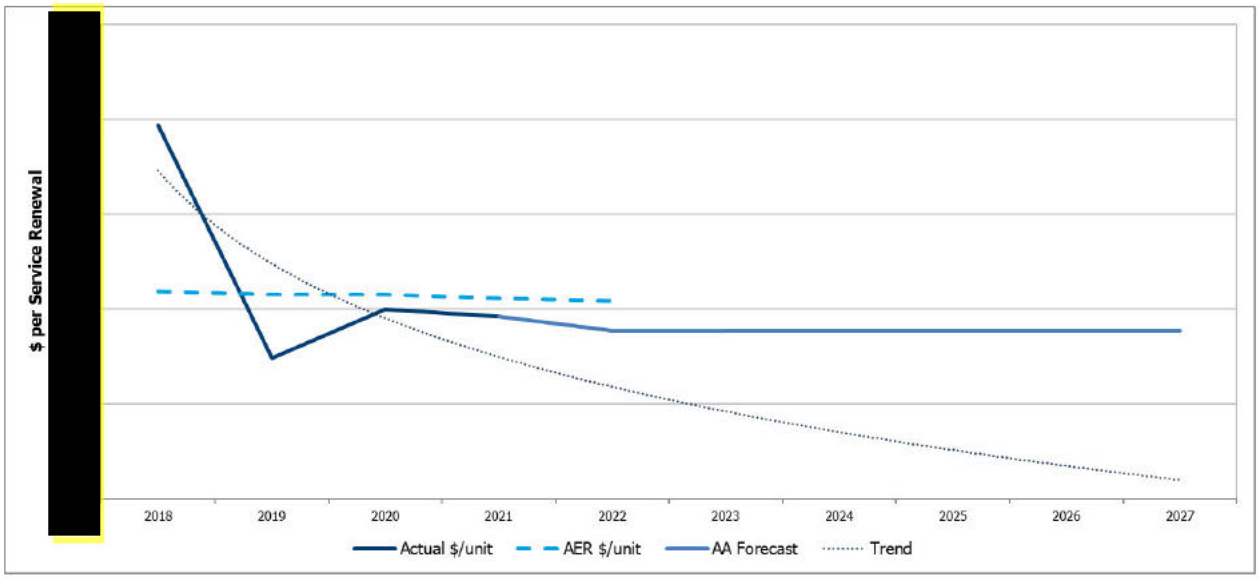
Table 4-3: Piecemeal services renewal unit Rates, $ real 2021

	Historical rates					
Service renewals $2021	**2018**	**2019**	**2020**	**2021**	**3-year weighted average**	**Forecast for next AA Period**
Contractor rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Material/Other rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Actual $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Volume (units)	-	3,237	3,377	3,255		
AER volumes	728	728	728	728		
Benchmark $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

4.2.3 Comparison of historical rates with AER approved rates

The figure below compares the actual unit rates that have been incurred in the current AA period with the unit rates the AER approved over the same period.

Figure 4-1: Piecemeal services renewal unit rates ($2021)



As this figure shows, the actual unit rate in 2018 has been considerably above the AER approved while the actual unit rates incurred between 2019 and 2021 have been lower than the AER approved rates and have exhibited a degree of inter-year variability. The inter-year variability reflects the fact that this work is largely reactive, with work undertaken when a failure occurs making a scheduled program with set volumes of work difficult to plan and undertake.

4.2.4 Are current costs efficient?

- The current costs incurred reflect competitively tendered contractor and material costs. These rates are efficient as they have been determined through competitive market processes in line with our procurement processes. As we operate networks across Australia, we will compare to rates experienced in other jurisdictions where the work is sufficiently similar.

4.2.5 Forecast unit rates

- In the next AA period, the unit rate for services is forecast to be $[redacted]/m, which is 17% lower than the benchmark in the current AA period. The forecast in this case has been based on the three-year weighted average unit rate for contractor and material/other costs, measured over the period 2019-2021. This approach is consistent with the approach AGN has used for other expenditure categories that involve low volumes of work, are subject to a high degree of variability and/or where it is difficult to derive meaningful assumptions on the work mix.

4.3 Piecemeal mains replacement

Forecasting approach: Recent actuals

4.3.1 Nature of works and costs

Some mains replacements are performed on a 'reactive' or piecemeal basis as a means of overcoming urgent leakage problems or localised cases of water ingress.

Subject to the condition of the existing mains, it is sometimes found that conventional repairs are either not possible or not economically feasible due to multiple leaks in a localised area. In these cases, piecemeal mains renewal is undertaken with replacement in the order of 100 metres or less in length using direct burial, rather than insertion.

Very little piecemeal replacement has been completed over the last three years. An allowance has been made in the forecast for a minimal amount of this type of work (2.5 km over the 5 years).

Given the HDPE program proposes short length samples and replacement, the work involved is considered similar to piecemeal. Given the lack of any historical reference for the proposed HDPE, the piecemeal rate has therefore also been applied to the proposed HDPE program as a reasonable estimate of what it would cost to do this work.

4.3.2 Historical and forecast unit rates

Table 4-4 sets out the actual unit rates that have been incurred over the last three years and the forecast that has been assumed for the next AA period.

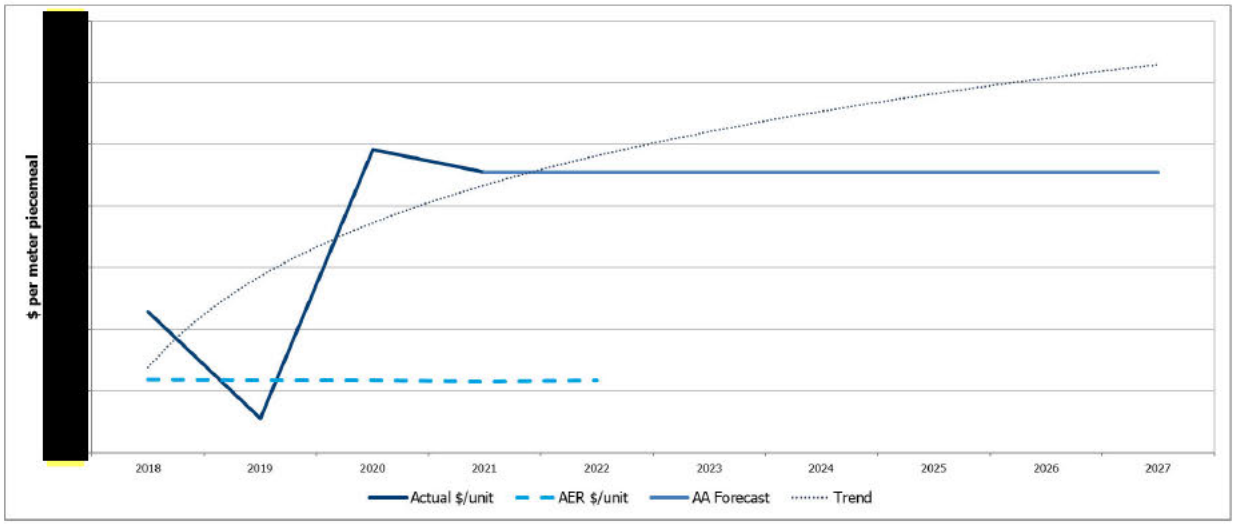
Table 4-4: Piecemeal services replacement forecast unit rate, $ real 2021

	Historical rates					
MRP piecemeal $2021	**2018**	**2019**	**2020**	**2021**	**3-year weighted average**	**Forecast for next AA period**
Contractor rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Material/Other rates	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Actual $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Volume (units)	383	2,566	242	175		
AER volumes	500	500	500	500		
Benchmark $/Unit	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	

4.3.3 Comparison of historical rates with AER approved rates

The figure below sets out the actual unit rates for jobs that have been delivered since 2018 and form the basis for the forecast that has been assumed for the next AA period.

Figure 4-2:Piecemeal mains renewal forecast unit rates ($2021)



4.3.4 Are current costs efficient?

The costs to-date reflect competitively tendered labour rates and material costs and can therefore be viewed as efficient.

4.3.5 Contract Status

Areas identified for replacement are tendered to a panel of pre-qualified contractors under the mains replacement contract. Awarding of contracts is usually based on the urgency of renewal and contractor availability meeting the construction timeframes. The current tender panel is due to be reviewed in 2024.

4.3.6 Forecast unit rates

In the next AA period, the unit rate for piecemeal replacement is forecast to be $[redacted]/m, which is higher than the benchmark in the current AA period due to increasingly complex high density locations, which has resulted in more costs to operate around other infrastructure, more challenging excavations, increases for traffic management and reinstatement requirements. The forecast in this case has been based on actual rates incurred during the period.

Historical rates have been used in this case because the volume and type of work that is expected to be carried out in the AA period is similar in nature to what has recently occurred. The historic rates therefore provide an appropriate basis for estimating the costs that are expected to be incurred over the forecast period.

This approach is consistent with the approach AGN has used for other expenditure categories that involve low volumes of work, are subject to a high degree of variability and/or where it is difficult to derive meaningful assumptions on the work mix.

4.4 Mains replacement- HDPE 575 HP mains sampling and testing (DN50 and DN40)

Forecasting approach:	Bottom-up estimate

4.4.1 Nature of works and costs

This work involves taking HDPE 575 mains samples for laboratory testing to develop an end-of-life model for these mains and asset management strategy. The sampling will be prioritised within and across asset categories to inform and support work program planning. The prioritisation of HDPE mains is developed by disaggregating the HDPE 575 mains population based on:

- age, operating pressure and diameter;
- leak history by segment; and
- a deterioration factor for mains over 30 years.

As discussed in the DMSIP, we will take 100 vintage HDPE samples from AGNs network for laboratory testing. The unit rate for this sampling activity has been based on bottom-up estimate methodology supported by data from operational leak repairs and quotations for testing.

4.4.2 Forecast unit rates

In the next AA period, the unit rate for HDPE sampling and testing program is estimated to be $[redacted]/site. An estimated unit rate has been adopted based on the experience AGN has had in carrying out such works for similar projects as this work has not previously been conducted in our Victoria & Albury networks, so we do not have actual costs from which to derive a forecast unit rate. The forecasts are set out in

Table 4-5.

Table 4-5: vintage HDPE mains sampling and testing program forecast unit rates, $'000 real 2021

Items	Inputs ($'000)	Rate $/unit
One third of the Deakin study *	[redacted]	[redacted]
HDPE camera purchases **	[redacted]	[redacted]
Sample retrievals	[redacted]	[redacted]
Total	[redacted]	[redacted]

* One third of the Deakin study (The total study costs $1,088,800 – shared with other DBs)

** 4 x HDPE camera to be purchased

4.5 Mains replacement – DN40, DN50, DN100 and DN150 HP steel mains

Forecasting approach:	Bottom-up based on current actuals

4.5.1 Nature of works and costs

This work involves replacing existing steel mains and other associated pipework in the network, including individual customer services, service risers and associated meter set rebuilds.

About 11.7 km of vintage steel mains replacement in a high-density section of Frankston and surrounding areas is forecast to be undertaken over the next AA period. The unit rate for this main replacement activity has been derived using a bottom-up estimate.

4.5.2 Historical and forecast unit rates

This vintage steel mains replacement work differs from the work undertaken in the current AA. The most comparable works undertaken is the CBD General Block Replacement; however, it is anticipated that Frankston is less congested than central Melbourne and that horizontal directional drilling and day works will be able to be utilised. We have generated a lower unit rate than the actual unit rate for the CBD block; however, it is higher than the general block unit rate.

4.5.3 Forecast unit rates

The forecast unit rate for steel HP mains (DN40, DN50, DN100 and DN150) replacement in the next AA period is $[redacted]/meter.

As there is no works similar to this project, the forecast is based on the bottom-up build using tendered costs and other standard allowances, with a top down challenge benchmarked against a section of work in Richmond in 2020, which is considered applicable in scope to assist in the forecast unit rates.

The Richmond project had an individual unit rate of ~$[redacted]/m when split out from the broader MRP program, however, it has been considered more complex that Frankston due to the night works and larger volume of open cut mains installations.

It is assumed that the bulk of the work in the upcoming AA can be delivered using HDD techniques which make it more cost effective than Richmond. We used the contractor tendered rates for 2021 to sense check the bottom-up calculations (as shown in Table 4-6 below).

Table 4-6: Bottom-up approach for DN40, DN50, DN100 and DN150 HP steel mains replacement forecast unit rates, $ real 2021

Unit rate component	$/m
Average contractor tendered rate	$[redacted]
Material/fittings allowance	$[redacted]
Contaminated soil allowance	$[redacted]
Out of scope contract variations (8%)	$[redacted]
Total	$[redacted]

4.6 Mains replacement, steel mains sample dig ups and inspection

Forecasting approach:	Bottom-up estimate

4.6.1 Nature of works and costs

This work involves sample locations dig ups on steel mains to monitor condition and performance and develop asset management strategy (that can include mains replacement).

As discussed in the DMSIP, 50 locations of older steel networks (> 55 years) have been identified for an inspection campaign to confirm condition and end of life planning for future AA submissions. The unit rate for steel main dig ups and inspection has been based on bottom-up estimate using data from leak repairs as a basis.

4.6.2 Forecast unit rates

In the next AA period, the unit rate for steel main dig ups and inspection is estimated to be $[redacted]/site. As this work is not a regular activity, the forecast for performing this type of work has been estimated using a bottom-up approach based on the experience AGN has had in carrying out such works for similar projects. The forecasts are set out in Table 4-7.

Table 4-7: Steel mains sample dig ups and inspection forecast unit rates, $ real 2021

Typical steel sample site	Cost
Traffic management, excavation and reinstatement costs	$[redacted]
Asbestos coating handling	$[redacted]
Small section steel replacement	$[redacted]
Destructive and non-destructive assessment techniques	$[redacted]
Cataloguing of assessment data	$[redacted]
Total	$[redacted]

The forecast unit rate has been calculated having regard to the following factors:

- Traffic management, excavation and reinstatement costs
- Requirement to handle asbestos coating
- Small sections of steel replacement
- Destructive and non-destructive assessment techniques
- Cataloguing of assessment data

4.7 HDPE 575 – DN50 HP and MP camera inspection and reinforcement

Forecasting approach:	Based on the current actuals in SA with a factor allowing for additional complexity in Victoria

4.7.1 Nature of works and costs

This work involves using camera inspection technology to find, excavate and reinforce 'squeeze off' points where brittle slow crack growth can occur on HDPE class 575 pipe in Northern Victoria. The works involve camera inspection and reinforcement with steel clamps on the HDPE 575 DN50 high pressure (HP) mains due to the relatively lower cost and the success evidenced to date South Australia for the reduction of risk associated with squeeze off failure.

4.7.2 Forecast unit rates

In the next AA period, the unit rate for HDPE 575 – DN50 HP and MP in-line camera inspection and reinforcement work is estimated to be $[redacted]/metre.

These camera inspection activities are new in the current AA period that involves establishing new mitigation measures to address the risk of failure at squeeze off points. The forecast is based on current actuals for similar projects raised for 2021 in SA with a factor allowing for additional complexity in Victoria.

The current actual approach is appropriate because the volume and type of work we expect to carry out in the next AA period in Victoria is similar in nature to what has recently been delivered in SA. The forecasts are set out in Table 4-7.

Table 4-8: HDPE 575 (DN50 HP and MP) in-line camera inspection and reinforcement forecast unit rates, $ real 2021

Items	Rate ($/m)
In-line camera inspection in SA, 2021	[redacted]
Increment for new job (requiring training, instructions, etc.) and higher expenses in Victoria	[redacted]
Total	[redacted]

The forecast unit rate has been calculated having regard to the following factors:

- Reflective of SA having a higher unit rate at the start of their equivalent program, taking several years for operational efficiencies to come to fruition
- Delivering a new type of work for the first time in Victoria, i.e., training, instruction and learning new skills may be required
- A greater volume of urbanised areas in Melbourne when compared to Adelaide, with greater complexity of site activities and higher cost of labour in Victoria
- No allowance for repairs

4.8 Multi-user services replacement

Forecasting approach:	Bottom-up estimate

4.8.1 Nature of works and costs

This work involves replacing multi-user services (MUS) sites.

As discussed in the DMSIP, MUS sites have been categorised to three risk-based categories and prioritised for replacement depending on an assessment of age, public safety, supply security and compliance. We will replace multi service at 170 higher priority MUS sites over the next AA period.

The unit rate for MUS replacement has been based on a bottom-up build completed by the capital delivery team. Each MUS site is unique. The rate is therefore expected to vary site by site. Some sites may be of historical significance, particularly in the inner suburbs of Melbourne.

4.8.2 Forecast unit rates

In the next AA period, the unit rate for MUS replacement is estimated to be $[redacted]/service. MUS replacement is not a regular activity, however the forecast for performing this type of work has been estimated using a bottom-up approach based on the experience AGN has had in carrying out such works for similar projects. The project is expected to have a significant amount of variability form site to site and information from the first 170 sites will be used to inform and determine more accurate unit rates for priority 2 and 3 sites (160 ad 2,670 sites respectively).

The forecasts are set out in Table 4-9.

Table 4-9: Multi-User Service (MUS) Replacement forecast unit rates, $ real 2021

Typical site	
Traffic management, excavation and reinstatement costs	[redacted]
Engineering/Design	[redacted]
Services/Blackbox replacement	[redacted]
Asset location/NDD	[redacted]
Total	[redacted]

The forecast unit rate has been calculated having regard to the following factors:

- A mix of reinstatement requirements including bluestone areas and aggregate concrete
- Challenging locations with insufficient space for heavy equipment and restricted space to locate new regulators requiring a higher level of engineering
- A variable number of customer connections per service

As with this newly determined unit rate, as well as all capital projects, only capital actually incurred will be added to the regulated asset base (RAB) and recovered via regulated tariffs.