2020-24 Draft Plan

ATCO Mid-West and South-West Gas
Distribution System

1 May 2018

An appropriate citation for this paper is:

2020-24 Draft Plan

Contact Person

Matthew Cronin
General Manager - Regulation
Phone: +61 (8) 6163 5000
Email: matthew.cronin@atcogas.com.au

ATCO Gas Australia

ACN 089 531 957
81 Prinsep Road
Jandakot WA 6164
Phone: +61 8 6163 5000
Website: www.atcogas.com.au

Postal Address

Locked Bag 2
Bibra Lake DC, WA 6965

Table of Contents

Abbreviations and document notes

AA4	ATCO's fourth Access Arrangement (2014-19)
AA4 FD	The ERA's final decision on ATCO's AA4 submission
AA5	ATCO's fifth Access Arrangement (2020-24)
AER	Australian Energy Regulator
AER	Australian Energy Regulator
ALARP	As low as reasonably practicable
AMP	Asset Management Plan
ATCO	ATCO Gas Australia
CAPEX	Capital Expenditure
DBNGP	Dampier to Bunbury Natural Gas Pipeline
ERA	Economic Regulation Authority
GDS	Gas Distribution System
GRP	Gross Regional Product
GSP	Gross State Product
HHV	Higher Heating Value
HP	High Pressure
HPR	High Pressure Regulator
IGC	Investment Governance Committee
KPI	Key Performance Indicator
MHQ	Maximum Hourly Quantity
NGL	National Gas Access (Western Australia) Law
NGR	National Gas Rules
OPEX	Operating Expenditure
PE	Polyethylene
PGP	Parmelia Gas Pipeline
PIG	Pipeline Inspection Gauge
PMD	Pressure Monitoring Device
PRS	Pressure Reduction Station
PVC	Unplasticised Polyvinyl Chloride
SCADA	Supervisory Control and Data Acquisition
TRU	Transformer Rectification Unit
VoC	Voice of Customer
WA	Western Australia

Document notes:

- All forecast and past expenditure values are expressed in real dollars as at 31 December 2019 unless otherwise stated.
- All revenue amounts are expressed in nominal dollars unless otherwise stated.
- Some tables may not add up due to rounding.

Foreword from the President

I present this 2020-24 Draft Plan with a sense of pride. In the seven years since ATCO acquired Western Australia's largest natural gas distribution system, we have accomplished a great deal. With the support of strong global expertise, we have built a great company for all 750,000 customers we serve, and the 350 of our ATCO team members.

I firstly want to acknowledge the Aboriginal people as the Traditional Custodians of the land that we operate on and pay our respect to their cultures, and Elders past and present. In the spirit of reconciliation, we commit to working together for our shared future. ATCO globally has a long history of valuing the importance of indigenous owners, including partnerships with the First Nations in Canada. I wish to acknowledge and respect their continuing culture and the contribution they make to the life of the city and this region.

We are a global energy and infrastructure company with a large presence across Australia, but at the heart of our business, we are much more than that. We are the business that keeps Western Australians warm in winter, allows them to cook meals for their families, and provides them with a hot shower in the morning. Regardless of how our energy environment evolves, I never lose sight of this important role. Keeping the gas flowing safely and affordably to Western Australians remains our priority.

Our strong and balanced performance over the past five years is the result of a clear focus on safe, reliable, and affordable energy solutions. Our customer-centred business model serves as the guiding principle for all that we do. We have done what we said we would do and more. Our successes since 2010 include considerable progress with our mains replacement program; we expect to replace 270km of metallic and PVC mains over 2014-2019 that are at risk of leaking. We have delivered an average of 18,000 new residential connections, and nearly 600 new commercial and industrial connections per year. By 2019, our strong cost control discipline is expected to reduce our opex per kilometre of main by 4% and our opex per new connection by 11%. The team and I are very proud of these major accomplishments.

> Our customers and stakeholders have played a significant role in shaping this plan.

Customers, retailers, and other stakeholders have played an important role in shaping this plan. To ensure we are providing solutions, not just rhetoric, we conducted an extensive Voice of Customer program with our customers and stakeholders. I personally attended many of the face to-face workshops and found out first-hand what our customers and stakeholders are thinking. I thank the many people who kindly participated in our workshops, interviews and surveys whose contribution has been invaluable. We have used these insights to guide our proposed investments in the gas network and tailor the range and scope of services to our customers.

In the current economic climate, I am committed to ensuring affordability remains at the forefront

of our planning. We have an excellent track record already; ATCO leads our industry in efficiency due to our strong financial discipline and cost controls. But clearly, we cannot become complacent. Over 2020-24, we are proposing to maintain consistent levels of service, safety, and reliability while maintaining prices in line with 2014-19 levels.

This is also an important time in the Australian energy sector. With a volatile global economy, energy security problems in the eastern states, and the challenge to decarbonise our society; innovation has never been more important than it is today. Importantly, our customers are telling us that gas will continue to play a role in their energy mix and are looking for innovative and more efficient ways of using gas in the evolving energy supply chain.

Fortunately, innovation is in the DNA of ATCO; we actively encourage a culture of innovation throughout our local and global business. This is why we are reviewing alternative methods of energy delivery that address carbon emissions, such as the preparation of our infrastructure to carry renewable gases such as biogas and hydrogen. Hydrogen offers a similar service experience for consumers, while reducing the emissions associated with other fuels. This technology is also being trialled in South Australia, UK, and Japan with some early and encouraging success.

I am confident that our 2020-24 Draft Plan aligns to the long-term interests of our customers. I encourage you to review this document and provide your feedback for consideration as we finalise our plan for submission in September 2018.

Pat Donovan

President, ATCO Gas Australia.

2020-24 DRAFT PLAN HIGHLIGHTS

Our 2020-24 Draft Plan builds on our top quartile performance over the previous period. Recent benchmarking ranked ATCO as one of the most productive and efficient operators in our Australian peer group.

Our plan outlines the prices we propose to charge retailers over the 2020-24 period, our intended investments, and our planned services to customers. The plan demonstrates that we have carefully considered where we spend money – considering our customers' needs, our network priorities of safety and reliability, and our rapidly changing energy environment.

Enabling the GROWTH OF THE WA ECONOMY...

- Connecting nearly 90,000 new residential customers and over 3,000 commercial and industrial customers.
- Collaborating with the other utilities to enable the efficient delivery of upgrade works, minimising the disruption and cost to residents and businesses.

...while supporting a COMPETITIVE RETAIL MARKET...

- Systems and process improvements to support larger volumes of consumers switching retailers.
- Evolving our digital platforms and our omni-channel approach to make it easier for customers to interact with us before they are connected, while they are connected, and when they disconnect.

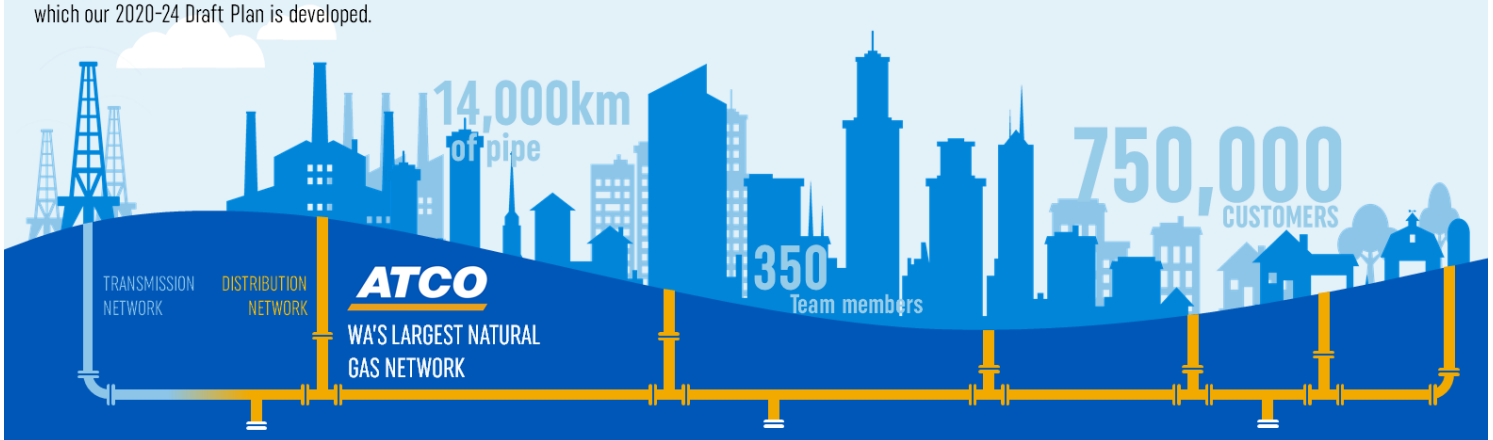
... and building a CLEAN ENERGY FUTURE:

- Adopting network designs and systems that support injection of biogas and a future conversion to hydrogen.
- Investments in gas smart meters to enable consumers to make informed choices that support a clean energy future.

OUR **VOICE OF CUSTOMER** PROGRAM

The VoC program is a key input into our many business activities and projects. Meaningful and ongoing engagement with our customers and communities is at the core of how we operate, and is the foundation on which our 2020-24 Draft Plan is developed.

COMMERCIAL & INDUSTRIAL · BUILDERS & DEVELOPERS · SMALL-MEDIUM ENTERPRISES · PEAK/INDUSTRY BODIES · RESIDENTIAL · RETAILERS



SAFE

ASSET MANAGEMENT: Managing our ageing assets to ensure that our network operates at an acceptable level of risk and complies with the relevant legislation.

EMERGENCY RESPONSE: Maintaining our local call centre and our 24/7 operational response field crews to allow us to respond to safety incidents raised by the public in a timely manner.

STAFF TRAINING: Ongoing training of our people to ensure technical excellence, and a clear focus on the safety and welfare of our customers and the community.

RELIABLE

NETWORK SECURITY: Investing in security of supply by adding additional supplies to critical parts of the network.

NETWORK OPERATIONS: Investments in technology to enable better performance of the network at peak times and improve network resilience against failures.

NETWORK PROTECTION: Supporting construction activities occurring near our assets (in particular high-pressure pipelines) to prevent outages and damage.

REINFORCEMENT: Reinforcing the gas distribution network to maintain reliability as additional customers connect.

AFFORDABLE

MAINTAIN PRICES: Keeping average prices over 2020-24 at a comparable level with average prices over 2014-2019 (in real terms). The proposed price (in real terms) for an average residential customer at the end of 2024 is *less than it was at the start of 2015.*

STRONGER INCENTIVES: Introducing stronger incentives through the regulatory framework to encourage innovation and greater efficiency across our business.

IT INVESTMENT: Investments in information technology that will maintain efficient delivery of our services.

Executive summary

ATCO Gas Australia (**ATCO**) own and operate Western Australia's largest natural gas network - delivering natural gas to more than 750,000 homes and businesses. Our company vision is to realise the full potential of our infrastructure for the benefit of our customers, suppliers, retailers, and the broader community.

In September 2018, ATCO will submit its fifth Access Arrangement Proposal (**AA5**) to the Economic Regulation Authority (**ERA**). Our proposal covers the five-year period 1 January 2020 to 31 December 2024. The ERA will then run a transparent and public process to test that our plans are in the long-term interests of customers.

Our commitment for the AA5 period, is to focus on the long-term interests of customers by providing a safe, reliable, and affordable gas distribution network while supporting a competitive retail market, enabling growth for Western Australia, and building the foundation for a clean energy future.

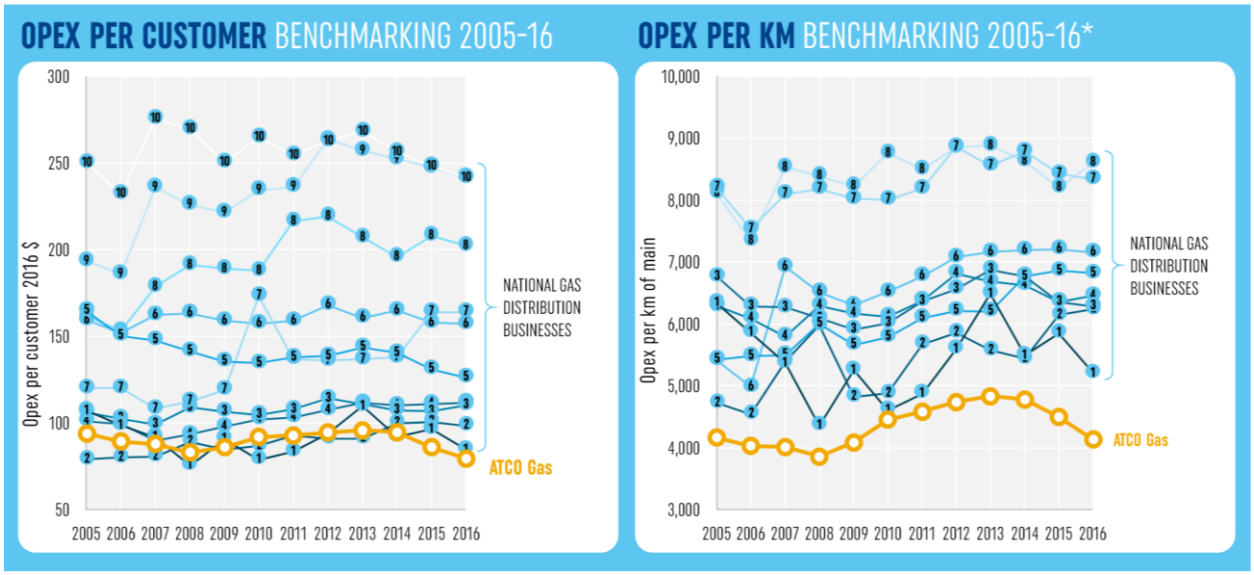
"We are operating efficiently while also delivering superior customer service, reliability, and safety.
Our 2020-24 Draft Plan will sustain this performance, while responding to an external environment that is becoming increasingly competitive, with our customers looking for innovative and affordable energy solutions."

Our AA5 Proposal will be underpinned by an extensive Voice of Customer (**VoC**) engagement program. The publication of this 2020-24 Draft Plan is part of our program, and through it we seek to obtain feedback on our planned activities, investment, and proposed services.

1.1 Our strong track record

We have been independently recognised as one of the most efficient operators in our peer group, with leading performance in operating expenditure (**opex**) benchmarks (see Figure 1.1).

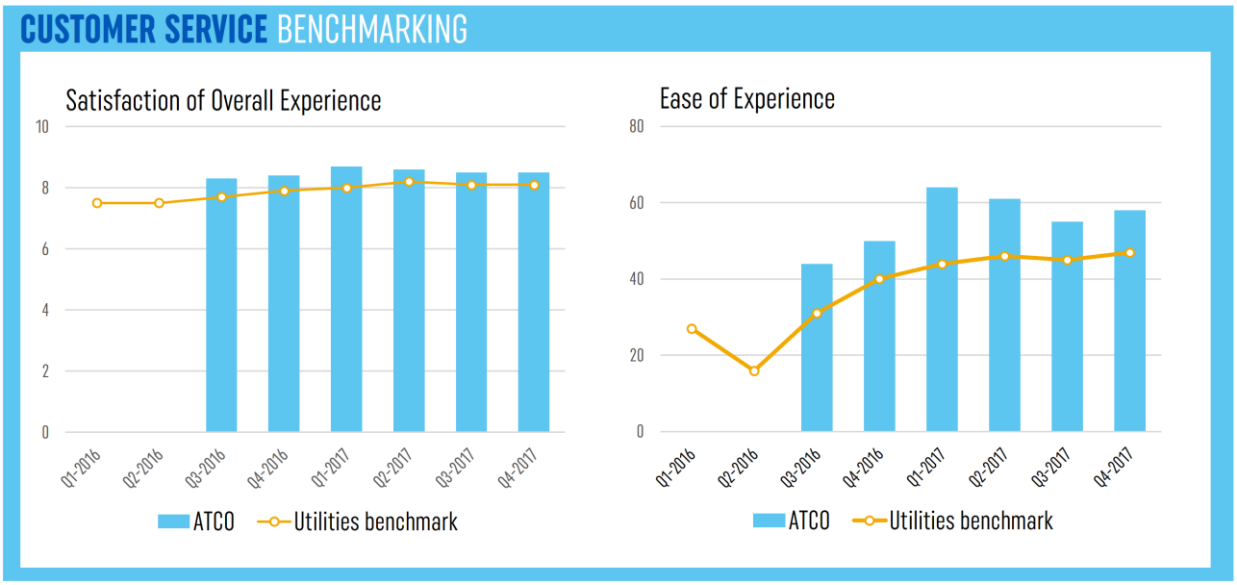
Figure 1.1: Operating efficiency benchmarking[1]



[1] *Total Factor Productivity, Partial Factor Productivity and DEA efficiency scores for ATCO Gas Australia*. Synergies Economic Consulting 2016

We have also been independently recognised for our superior customer service, consistently leading the customer service benchmarking study[2] against our national peers since the study began in 2016 (see Figure 1.2).

Figure 1.2: Customer service benchmarking



Our major achievements since 2014 also include:

- High customer satisfaction rating. 98.5% of our customers rated us as good or excellent when dealing with new connections and faults.
- 99.9% of broken mains are responded to within one hour of receiving notification.
- Providing high reliability of gas supply to our customers, with customers experiencing supply interruptions less than 0.5%[3] of the time.
- Facilitating on average 18,000 new residential connections, and nearly 600 new commercial and industrial connections per year.
- Operating efficiency achievements, including asset management practice improvements and enhancements to our governance oversight practices.
- Delivery of the mains replacement program, with ATCO replacing 170km of ageing and deteriorating mains to the end of 2017.
- Ensuring ongoing safety of our employees, with a Lost Time Injury Frequency Rate (LTIFR) below industry benchmarks set by Safe Work Australia.

1.2 Sustained performance in 2020-24

Our strong performance will continue through 2020-24, recognising that the delivery of stable and affordable energy is critical to Western Australia's growth and prosperity. In addition, we remain focussed on providing flexible, innovative solutions to support the State economy now and as our energy environment continues to evolve.

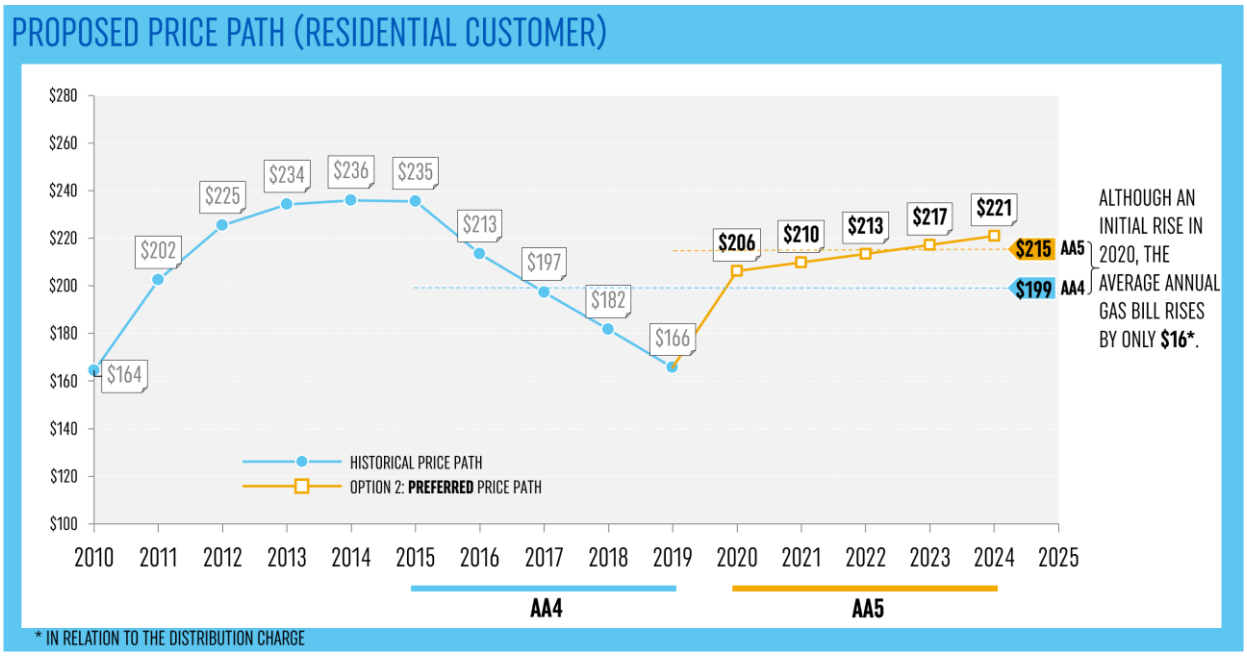
2 Customer Service Benchmarking Australia (CSBA)

3 Measured through System Average Interruptions Frequency Index (SAIFI)

Our 2020-24 Draft Plan will:

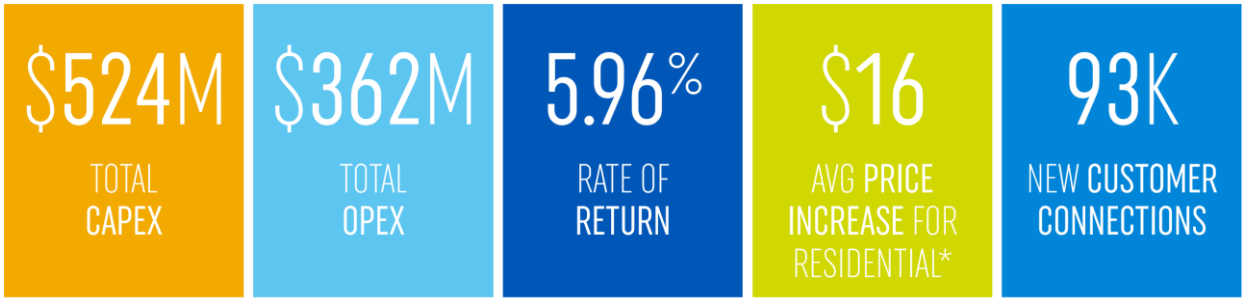
- Continue to provide a **safe** gas distribution network in accordance with good industry practice, by:
  - Managing our ageing assets to ensure that our network complies with the relevant legislation and operates at an acceptable level of risk. *See Section 10.6.*
  - Continuing to invest in the training of our people to ensure technical excellence with a clear focus on the safety and welfare of our customers and the Western Australian community.
  - Maintaining our local call centre and our 24/7 operational response field crews to allow us to respond to safety incidents raised by the public in a timely manner.
- Maintain **reliable** access to gas by:
  - Investing in security of supply to support critical parts of the network and reduce the risk of interruption. *See Section 10.6.1.*
  - Providing reinforcement of the network to ensure reliable gas supply is continued as additional customers are connected. *See Section 10.6.2.*
  - Investments in technology to enable better performance of the existing network at peak times and to make the existing network more resilient to damages or failures. *See Section 10.6.4.*
  - Supporting reliability through ongoing replacement, continuous maintenance, and asset protection to prevent outages and damage to our network. *See Sections 10.6 and 10.7.*
- Provide **affordable** access to gas at a price reflecting our underlying efficient costs resulting in:
  - Investments in IT systems that will allow us to continue to deliver our services efficiently. *See Section 10.7.6.*
  - Keeping average prices over AA5 at a comparable level with prices (in real terms) in the previous access arrangement period (AA4), with an average increase over the *total five years* of approximately 8%; less than inflation for the same period. Figure 1.3 outlines the proposed price path for an average residential customer, showing that the average annual price over AA5 is only $16 higher than it was over AA4. The price in real terms at the end of 2025 is *less than it was at the start of the AA4 period in 2015*. *See Section 17.5.*

Figure 1.3: Price path for residential customers - AA4 to AA5



- Support a **competitive retail market** by:
  - Continuing to improve our systems and processes to support larger volumes of consumers switching retailers, including upgrading our existing billing system. *See Section 10.7.6.*
  - Evolving our digital platforms and the omni-channel approach (on-line systems and apps) to make it easier for customers to interact with us before they are connected, while they are connected to the network and when they disconnect. *See Section 10.7.6.*
- Enable the **growth of the Western Australia state economy** by:
  - Connecting nearly 90,000 new residential customers and over 3,000 commercial and industrial customers during 2020-24. *See Chapter 7.*
  - Supplying an efficient gas energy source to all our customer segments through ATCO's dedicated account managers; supporting industry leading connection timeframes for new and existing customers.
  - Collaborating with the other utilities to enable the efficient delivery of upgrade works, minimising the disruption to residents and businesses during upgrades and to minimise the cost of the works.
- Build the **foundation for a clean energy future** by:
  - Ensuring our network designs remain efficient, while enabling a future decarbonising of the network through the introduction of renewable gas e.g. biogas and hydrogen.
  - Investing in systems and processes that allow us to monitor higher heating value (**HHV**) and facilitate differential pricing for larger customers. *See Section 10.6.4.*
  - Investments in gas smart meters to enable consumers to make informed choices that support a clean energy future. *See Section 10.7.3*

1.3 2020-24 Highlight numbers



*Average annual bill for a residential customer will be $16 higher in 2020-24 than it was in 2015-2019.

PART A:

Introduction

2. Purpose of this Plan

2.1 Introduction

This 2020-24 Draft Plan is part of our extensive engagement program with ATCO customers and interested stakeholders. We believe it is important that our decisions and plans for the Mid-West and South-West Gas Distribution System (**GDS**) are supported and guided by effective customer and stakeholder engagement.

The GDS is a designated pipeline under *the National Gas Access (WA) Act 2009*. This means that we are required to periodically submit revisions to our access arrangement to the Economic Regulation Authority (**ERA**) in accordance with the requirements of the National Gas Rules (**NGR**). Our next submission for the AA5 (2020-24) period is due to the ERA by 3 September 2018. The ERA will then review our submission against the NGR and will undertake further public consultation before issuing a draft decision. The ERA will then publish their final decision on our revisions to the access arrangement, see Figure 2.1.

YOUR FEEDBACK IS IMPORTANT TO US

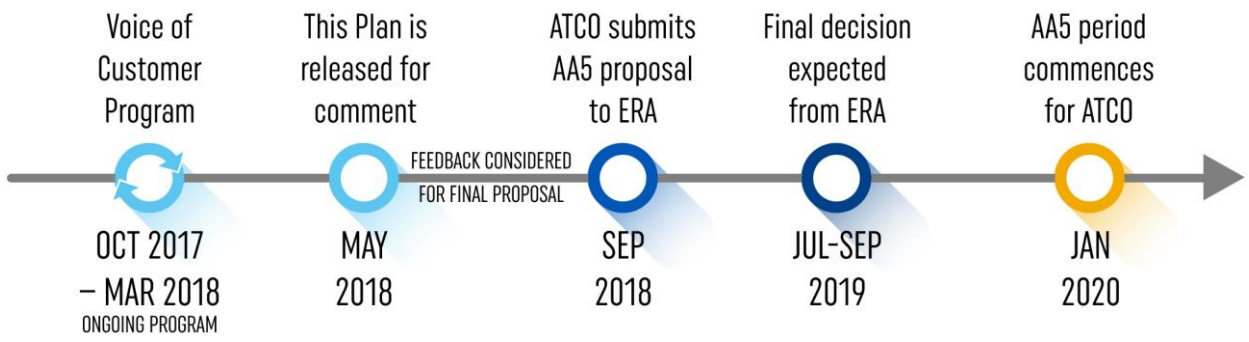
We encourage stakeholders to provide feedback on the activities and issues raised in this 2020-24 Draft Plan. We are open to your feedback on any of the topics relating to our business and the services that we intend to provide over the AA5 period. Most chapters end with several related questions for your consideration. We also invite you to consider these general questions after reviewing the Plan:

- Do you support our overall direction, investment plans, and associated price impacts?
- Is the information contained in this plan clear and understandable?
- Is there any information that we haven't provided that is important to you?

This document outlines the prices we propose to charge retailers over the AA5 period, our intended investment plans, our planned services to Western Australians and the findings that are emerging from our current customer and stakeholder engagement.

By providing the information in this document, we intend to stimulate robust discussion about the priorities for our gas network and our services for Western Australian customers. Customer feedback about our planned activities will ensure that we can provide a credible and authentic foundation for our September 2018 proposal to the ERA.

Figure 2.1: Expected timeline for the ATCO AA5 proposal



2.2 Next Steps

After considering this information, we encourage all our customers and stakeholders to provide feedback so that we can finalise our plan for submission in September 2018. A full list of questions for your consideration is contained in Appendix A, although we encourage your feedback on any topic included in this draft plan.

We may publish your feedback on our 2020-24 Draft Plan website: www.yourgas.com.au/draftplan.

2.3 How to provide your feedback

You can provide feedback via the following options:

1. **Through our website:** www.yourgas.com.au/draftplan
2. **Send us an email:** haveyoursay@atco.com.au
3. **Call us:** 08 6163 5000
4. **Post your feedback:** Locked Bag 2, Bibra Lake DC, WA 6965.
5. **Visit us in person**: Please contact Matthew Cronin, GM Regulation via email matthew.cronin@atcogas.com.au to arrange an appointment.

So that we can finalise our plan in time for September, we ask that you please provide your feedback by **30 May 2018**.

2.4 Using your feedback

2.4.1 Your consent

We may publish stakeholder feedback on our website and may include some submissions, or reference information contained in submissions, in the final access arrangement proposal that we submit to the ERA.

Your consent will continue until you inform us that you want to withdraw it, and at that point, we will not publish your feedback in any further material. If you have a preference on how you would like your feedback referenced, please let us know in your submission.

2.4.2 Your Confidentiality and Privacy

Please let us know in your submission whether you wish us to treat all or any part of your feedback as confidential. Where a submission contains only some confidential or commercially sensitive information, you may consider providing a public version of the submission with a clear indication of where the confidential information is included.

The ERA provides guidance on how it treats confidentiality claims on its website (www.erawa.com.au). The information on the ERA website indicates that your submission may still be disclosed under the terms of the Economic Regulation Act 2003 or the Freedom of Information Act 1992 (or any other applicable written law), despite being marked as confidential.

ATCO has a Privacy Policy to provide individuals, about whom we collect or receive personal information, with information about how we collect, hold, and use that personal information. Our privacy policy is available on our website at: http://www.atco.com.au/Privacy.

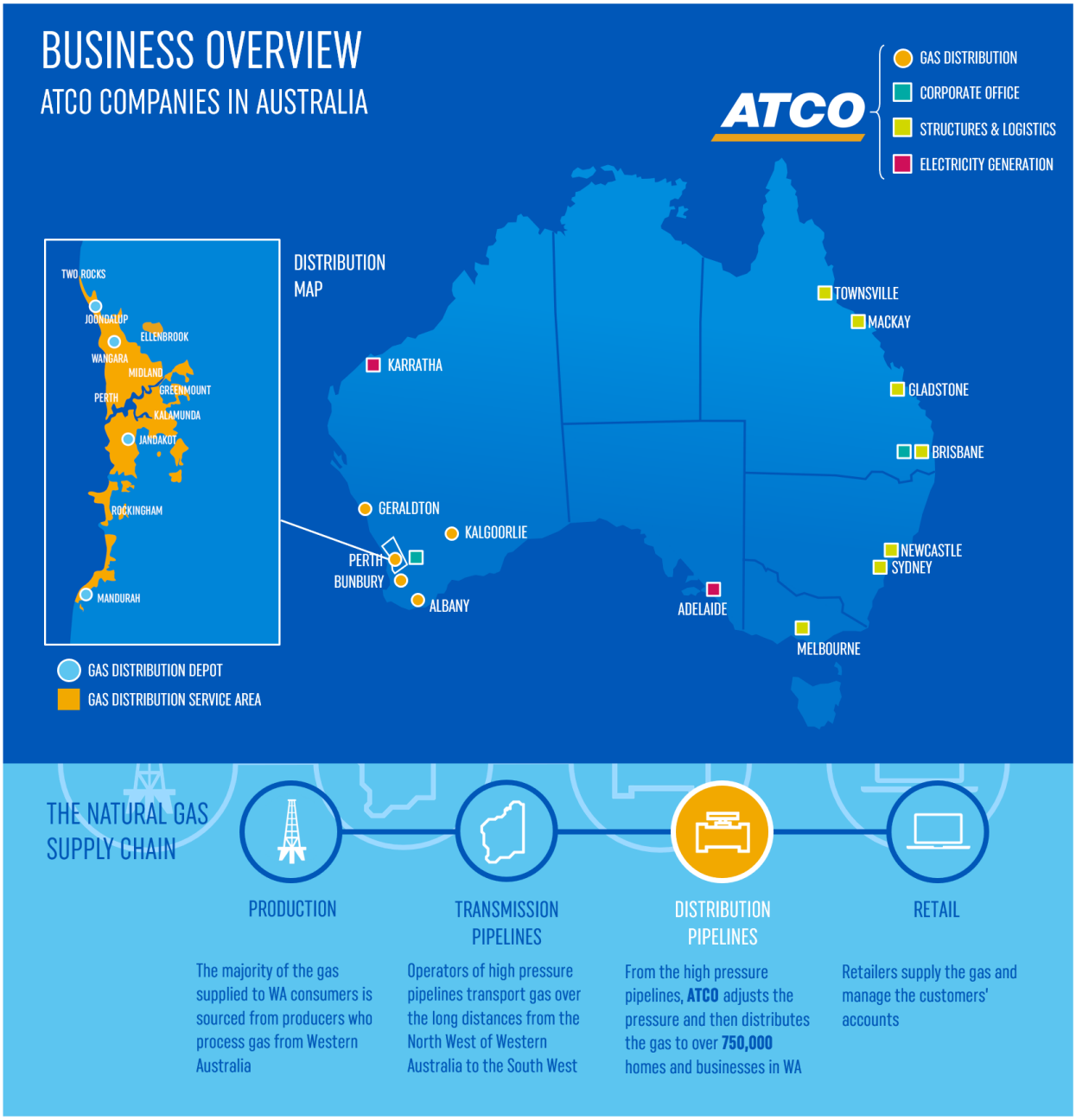
3. Business overview

3.1 About our business

ATCO Gas Australia (**ATCO**) owns and operates the largest gas infrastructure network in Western Australia; the Mid-West and South-West GDS. Our core business is owning, operating, and maintaining natural gas distribution networks and providing a safe, reliable, and affordable natural gas delivery service to residential, commercial, and industrial customers, see Figure 3.1.

We are ATCO, the largest gas distributor in Western Australia. We help 750,000 customers keep warm in winter, take hot showers, and cook family meals.

Figure 3.1: Business Overview



Our network supplies approximately 750,000 customers through a network of pipes that are over 14,000 kilometres in length. Our networks are located in Geraldton, Bunbury, Busselton, Harvey, Pinjarra, Brunswick Junction, Capel, and the Perth greater metropolitan area. The network is supported by an ATCO workforce of 350 personnel and an additional contracted workforce to deliver a reliable and safe energy source to our Western Australian customers.

This 2020-24 Draft Plan does not include our gas distribution networks in Albany and Kalgoorlie, as these networks do not require an access arrangement proposal to the ERA.

3.2 Our role in the natural gas supply chain

Natural gas is widely recognised as one the safest, most reliable, and cleanest sources of energy, and it has been used as a fuel in Australia for nearly 60 years. Natural gas features strongly in Western Australia's current energy profile – it accounts for around half of the total energy consumption in Western Australia.

Natural gas produces about half the carbon emissions of coal when used for generating electricity and is an important fuel that will support a future with intermittent forms of renewable energy (e.g. wind and solar). Natural gas is, and will remain, a crucial part of Australia's energy mix.

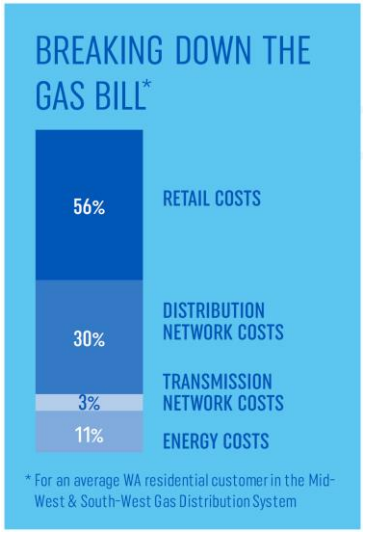
Our role in the natural gas supply chain is to distribute the gas to consumers. Following production and processing, the gas is delivered through high-pressure *transmission pipelines* (such as the Dampier to Bunbury Pipeline and the Parmelia Pipeline).

The gas is then delivered to homes and businesses through our gas distribution network. ATCO owns, operates, and maintains the distribution pipelines up to the meter box of the customer, owns and maintains the meter in the meter box and conducts the meter readings at each property.

Retailers then organise gas contracts from producers and on-sell gas to consumers. Retailers are also responsible for managing the customers' accounts and are the primary consumer contact point.

All the costs associated with the gas supply chain are inputs into customers' gas bills. The network distribution component (ATCO costs) represents 30% of the average residential gas bill[4] (see Figure 3.2).

Figure 3.2: The Gas Bill



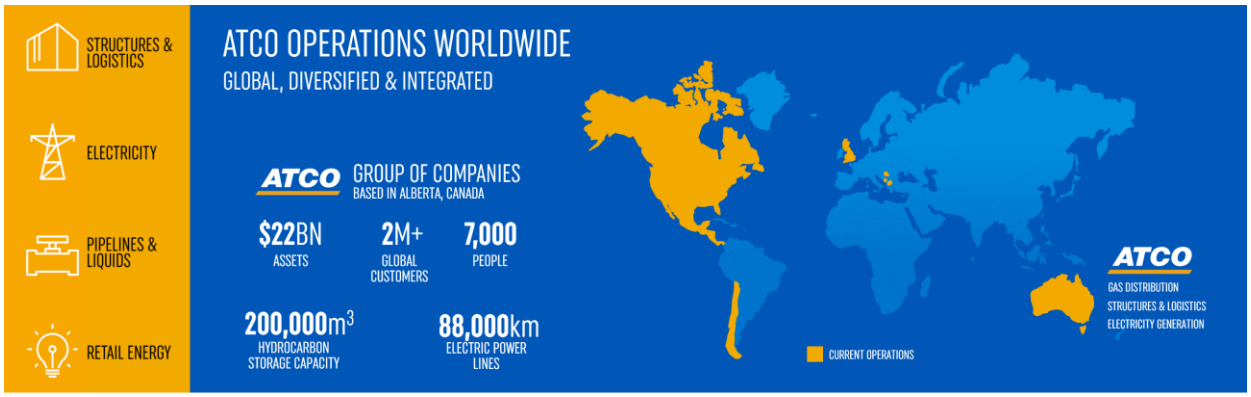
3.3 Corporate structure

We are the Natural Gas Distribution business within the Pipelines & Liquids Global Business Unit of the ATCO Group of global companies.

The ATCO Group of companies has more than 7,000 employees and assets worth approximately $22 billion (see Figure 3.3). The ATCO Group is engaged in structures and logistics, electricity (generation, transmission, and distribution), pipelines and liquids (natural gas transmission, distribution and infrastructure development, energy storage, and industrial water solutions), and retail energy. Our core vision is to improve the lives of our customers by providing sustainable, innovative, and comprehensive solutions globally.

[4] Note, the 56% retail component includes GST.

Figure 3.3: ATCO Operations Worldwide



3.4 Our vision and AA5 commitment

ATCO's vision is to realise the full potential of its infrastructure, with natural gas recognised as an important and valuable energy solution for the people of Western Australia.

Over 2020-24, we expect the continued evolution of a cleaner, more competitive and customer driven energy system. We are confident that safe, reliable, and affordable natural gas will continue to play a major role in the energy mix, and importantly, our customers are telling us the same.

> Our commitment for 2020-24 is to focus on the long-term interests of customers by providing a safe, reliable, and affordable gas distribution network while supporting a competitive retail market, enabling growth for Western Australia, and building the foundation for a clean energy future.

In line with our vision and the evolving environment, we believe our business priorities are clear. Our commitment for the AA5 period (2020-24), is to focus on the long-term interests of customers by providing a safe, reliable, and affordable gas distribution network whilst supporting a competitive retail market, enabling growth for Western Australia, and building the foundation for a clean energy future.

3.5 Our Operating Environment

3.5.1 Western Australian Economy

The Western Australian economy is now in a phase of transition. Western Australian economic conditions remain subdued post the mining construction boom, affecting consumer spending power and placing pressure on energy affordability. Our goal is to maintain our position as one of Australia's most efficient operators and to ensure that our prices reflect this efficiency.

3.5.2 Retail Gas Market

Following the ERA's 2017 decision to grant gas supply licences to Origin, AGL, and Simply Energy, most Western Australia residential customers can now choose between five gas retailers to buy their energy. Alinta Energy's gas retail monopoly ceased in 2013 when Wesfarmers-owned Kleenheat entered the market.

We expect that the new retailers will compete heavily for Western Australia's residential customers and small use business customers. Greater competition will help to drive down gas prices, and we expect that the number of customers wanting to switch retailers will increase substantially. As the network service provider, we want to ensure that our customers can switch quickly and seamlessly, and that we are facilitating this environment of increased competition.

3.5.3 A Sector in Change: *Western Australia's Energy Future*

It is almost impossible to predict what our energy system will look like in the future. Several very different scenarios could occur, and the long-term structure of the energy system will depend on social, political, technological, and economic developments. If history teaches us anything, it is that these developments do not follow smooth and predictable pathways. This scale of market uncertainty presents big challenges for industry players, as well as policymakers and regulators.

Founded on entrepreneurial spirit, ATCO has embraced adaptability and innovation from its earliest days. Adaptability is critical; companies that are prepared for this disruption will survive and flourish, while those that cling to rigid business models will struggle.

This scale of market uncertainty presents big challenges for industry players, as well as policymakers and regulators.

Although we can't stop change from occurring, we can plan for how we respond and take advantage of it. We recently completed a study paper as part of our routine strategic surveillance and long-term planning program. The study paper aimed to help Western Australian energy market participants understand, prepare, and respond to our uncertain energy future.

3.5.3.1 *What's driving the change?*

Like most jurisdictions, the overarching global trend toward decarbonisation is shaping an increasingly complex national and local energy policy response. It is also a catalyst for innovation and the emergence and adoption of new technologies. Customers, who are now more empowered than ever before, are realising the value of these technologies and the environmental benefits they provide.

We believe the three factors of energy policy, technological change, and customer behaviour will influence the shape of the future energy landscape, see Table 3.1.

Table 3.1: Drivers of the future energy landscape

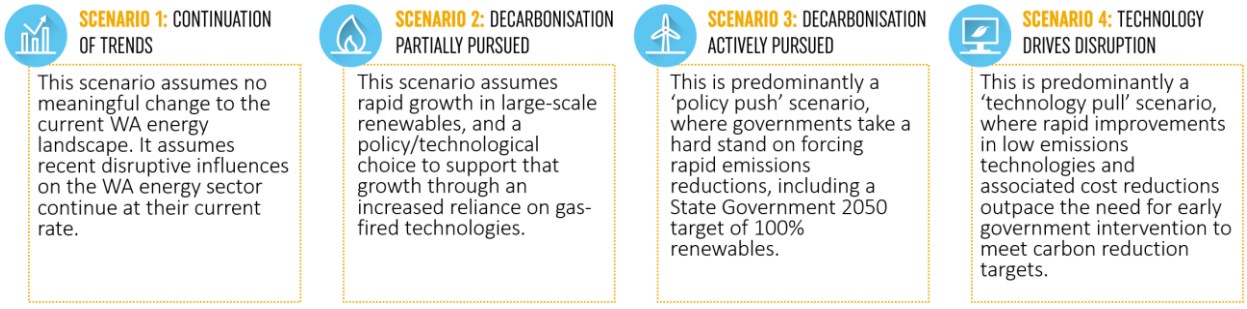
DRIVING FORCES OF SECTOR CHANGE		
ENERGY POLICY	TECHNOLOGICAL CHANGE	CUSTOMER BEHAVIOUR
The risks presented by global warming and the drive to decouple emissions from economic activity, is shaping public policy and potentially the structure of the energy sector. The Paris climate agreement resulted in 197 countries, including Australia, demonstrating a commitment to reduce greenhouse gas emissions. Many industry commentators believe that a united approach will be required from both the private sector and all levels of government if Australia is to achieve its commitment. However, energy and climate change represent two of the most politically contested areas of public policy in Australia.	Western Australians are custodians of world class renewable energy resources and have the scientific and engineering capability to transition to a clean energy economy in a carbon-constrained world. Consequently, Western Australia enjoys a significant comparative advantage in 'clean energy production' and is well positioned to capitalise on this global trend. The future direction of technology and its adoption is uncertain. For example, natural gas is produced in greater quantities today than it was five years ago because of technological advances in deep sea exploration.	Changing customer behaviour and preferences will play an important role in defining the future Western Australian energy, policy, and technology landscape. Customer sentiment can be both a cause and effect of technological and policy change. Advancing technologies are allowing customers a wider range of new choices over their energy supply options. Conversely, customer demand for new technologies can influence government to support these opportunities, or alternatively, remove regulatory barriers to their adoption. In Western Australia, the rapid uptake of residential rooftop solar and the early installations

DRIVING FORCES OF SECTOR CHANGE		
ENERGY POLICY	TECHNOLOGICAL CHANGE	CUSTOMER BEHAVIOUR
Policy uncertainty adds further complexity to challenges faced by energy utilities when trying to balance the three elements of the energy trilemma (energy affordability, energy security, and environmental sustainability). While the Federal Government's recently announced National Energy Guarantee has received support from some market commentators, the challenge of aligning all stakeholders remains significant. Continued policy uncertainty will reduce the willingness to invest in long-lived energy sector assets, including both fossil fuel and renewable energy infrastructure.	However, there is uncertainty over the rate at which greenhouse gas emitting fuels like natural gas will be replaced by very low emission or renewable alternatives. Ultimately however, as clean energy technologies become cost competitive, or even substantially cheaper than conventional alternatives, it is likely that market forces will accelerate their adoption. In particular, the increasing commerciality of energy produced from renewable sources will have major, but also somewhat unpredictable, consequences.	of energy storage devices indicate that customers are already embracing new energy solutions outside those provided by a typical utility. Existing energy players are compelled to respond to this changing demand, not only by delivering affordable, safe, and reliable energy solutions, but by delivering *new* energy solutions. Based on consistent feedback from our customers, ATCO is embracing this change and has taken the first steps in the journey through the development of our 'GasSola' solution. This system combines photovoltaic (PV) solar panels, battery storage and a gas-powered generator.

3.5.3.2 The four scenarios

The study imagined four future energy scenarios for Western Australia between 2018 and 2030 (see Figure 3.4). Using scenarios allows us to contemplate many conceivable futures and helps us resist the tendency to be locked into an outlook that is not adaptable to changing circumstances. The scenarios were developed from energy market modelling that explores the effect on energy demand, network prices and capital investment.

Figure 3.4: Energy Future Scenarios



The scenarios did not intend to predict Western Australia's energy future, but to stimulate thinking and foster discussion with, and between, customers, market participants and policy makers. By discussing these futures, we will learn more about their potential effect on our energy market, its customers and how market participants and policy makers might respond.

This response may include incentives for innovation that we believe are particularly important given these potential changes in the energy sector and the emergence of new technologies. ATCO has proposed a 'Network Innovation Scheme' to overcome the disincentive for innovation that is created through the current regulatory framework. Further detail on this scheme is provided in Section 15.3.

In respect to the gas sector, we can identify several scenario outcomes of significance:

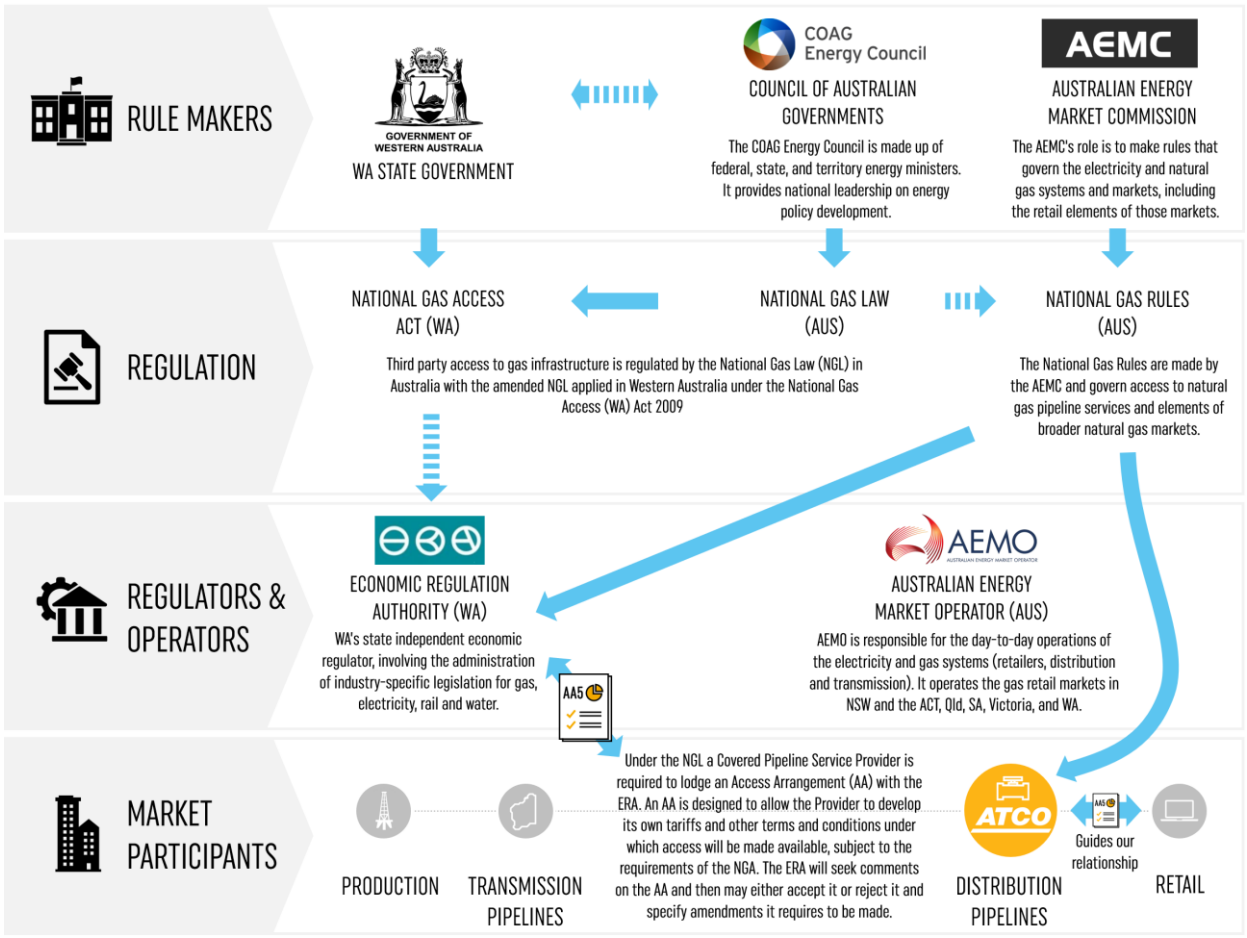
- We found that residential customers continue to demand gas under all scenarios.
- We found that Western Australia's energy future will continue to provide fuel choice for consumers, where they will continue to demand both utility scale gas and electricity.
- If there is a boom in gas fired firming capacity to support intermittent energy growth, we expect it will lead to high wholesale gas prices, in turn driving investment in new sources of gas.
- There is continued need to invest in the gas network to meet the needs of consumers, growth in gas connections and growth in consumption.
- If there is substantial adoption of disruptive gas technologies (such as hydrogen and biogas), there will be increased investment in the gas network, and due to ongoing competition in the retail sector, the gas network continues to provide valuable services to customers well beyond 2030.

These insights will be used to inform discussions with our customers and stakeholders as we continue to refine our investment plans and strategies for AA5. We are committed to working with other market participants and policy makers to identify investment opportunities that will deliver sustainable energy solutions for all Western Australians.

3.6 Relevant Regulatory Framework

We operate our networks in accordance with the *Energy Coordination Act (WA) 1994*, *National Gas Access (WA) Act 2009* (incorporating the Western Australian National Gas Access Law (**NGL**)), National Gas Rules (**NGR**), and various state-based operating guidelines. The ERA monitors our compliance with our Gas Distribution Licence, the *National Gas Access (WA) Act 2009*, the NGL and the NGR. See Figure 3.5.

Figure 3.5: Our Regulatory Framework



The NGL and the NGR together provide a framework for the preparation and approval of AA5. Our AA5 proposal will be prepared in accordance with this regulatory framework.

The overarching standard for regulatory decision making set out in the NGL is the National Gas Objective (**NGO**), stating:

> *"The objective of this Law is to promote efficient investment in, and efficient operation and use of, natural gas services for the long-term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply".*

The NGR set the process to be followed and the regulatory tests to be applied for approval of AA5 in relation to what are called the "building blocks" for allowed total revenue. These building blocks include: a return on the capital we have invested and will invest in the network; depreciation of that capital; an allowance for income tax; and our total regulated operating expenditure. Prices are then derived from this total revenue.

We expect some changes in the regulatory framework over the remainder of 2018 in relation to the rate of return. On 14 July 2017, the Council of Australian Governments Energy Council agreed to implement a binding guideline for the rate of return components of the Australian Energy Regulator (**AER**) regulatory determinations for electricity and gas and the ERA regulatory determinations for gas network businesses. Over March and April 2018, the Council of Australian Governments Energy Council consulted on the draft legislation to implement the binding rate of return under the NGL. At the time of writing, it is expected that the legislation to implement the binding guideline will be introduced into the South Australian Parliament by July 2018, but it remains uncertain if it will be passed into law in Western Australia before our September submission to the ERA.

4. Customer and stakeholder engagement

CHAPTER HIGHLIGHTS

1. The insights from our Voice of Customer (VoC) Program (customer and stakeholder engagement) underpin our 2020-24 Draft Plan.
2. Customers were consulted on their preferences towards price path options, expected service levels, support and priorities for ATCO's major investments, and their channel preferences for future ATCO communications.
3. Customers were supportive of our proposed investments and the associated average price increase during 2020-24. The majority of participants prefer an initial price step-up, then price stability, when compared to a gradual and consistent annual price increase.
4. The average support rate for our capital expenditure (**capex**) programs was 95% across our residential and small to medium enterprise (**SME**) participants. 'Mains replacement' consistently ranked as the highest priority when compared to other capex programs, including the mandatory meter replacement program.
5. Customers believed that natural gas has an important role in a low carbon future.

4.1 Introduction

As a global infrastructure and energy solutions provider for over 70 years, ATCO has built a strong reputation as a customer focussed business. We recognise that our long-term success depends not only on our ability to understand our customers' requirements today, but to anticipate their needs and expectations tomorrow.

Meaningful and ongoing engagement with our customers and communities is at the core of how we operate, and is the foundation on which our 2020-24 Draft Plan is developed.

The 'voice' of our customers is an important input into our many business activities and projects and we regularly monitor our customers' satisfaction with our service. Feedback is captured and incorporated into our planning; through listening and engagement, we have a unique opportunity to develop innovative solutions to current and future challenges.

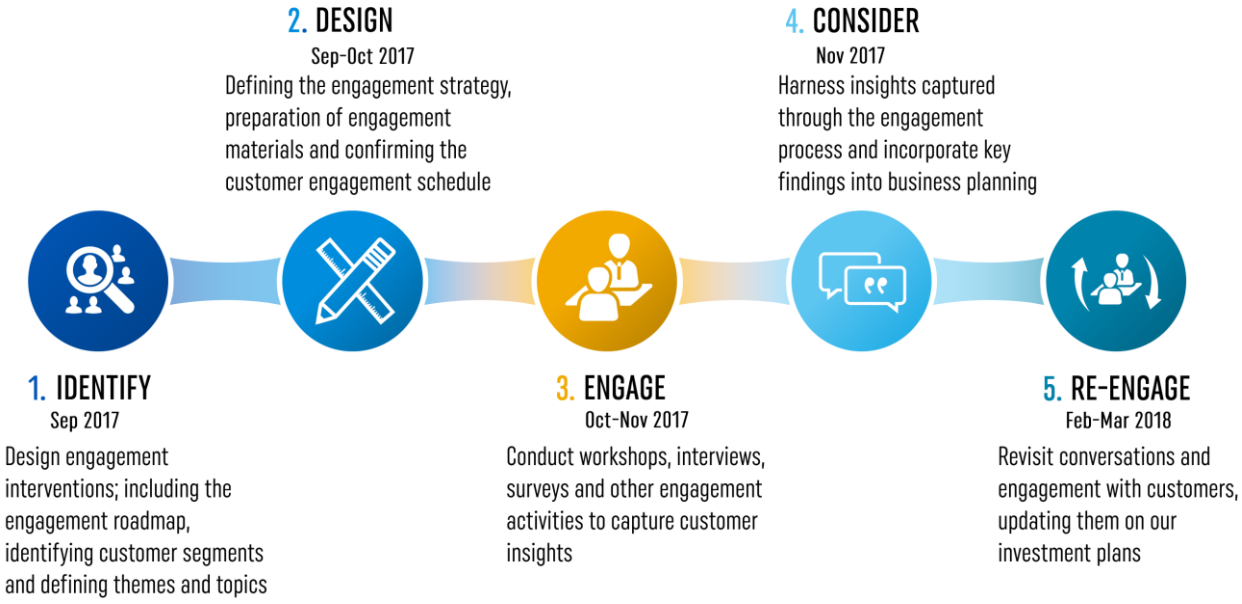
Furthermore, we actively seek opportunities to collaborate with indigenous communities to develop new infrastructure solutions. ATCO has a long history of valuing the importance of the First Nations in Canada, where we have more than 40 partnerships with indigenous communities on joint-ventures and infrastructure programs. In Australia, ATCO is in the process of developing its first Reconciliation Action Plan that builds on our current relationships and sets the future vision for reconciliation and partnerships with Aboriginal communities, organisations, and Elders.

Meaningful and ongoing engagement with our customers and communities is at the core of how we operate and is the foundation of our 2020-24 Draft Plan development. This chapter explains our approach to customer and stakeholder engagement and outlines how the process has affected our respective plan.

4.2 Our process for engagement

ATCO'S VoC program focused on creating a dialogue with customers and stakeholders across five distinct phases, as outlined in Figure 4.1

Figure 4.1: VoC timetable



4.3 Who did we engage?

To ensure a fair representation of our customers and stakeholders, our engagement approach reflected a cross-section of customers and geographic locations. Customer representation included residential and SME customers (workshop engagement), and our large commercial and industrial (C&I) customers (face to face interviews).

Customer participants were recruited by an accredited market research agency to include several demographics; including gender, age, and household income. Workshop participants were provided with an incentive to participate, in accordance with common market research practices. Stakeholder representation consisted of builders and developers (B&D) across three tiers, peak and industry bodies, and all current Western Australia retailers. See Figure 4.2.

Senior management from ATCO presented each workshop, with Deloitte facilitating each session. In executing each of the workshops, content and discussion was tailored to each customer and stakeholder group to maintain high levels of relevancy and engagement.

Figure 4.2: Our customer and stakeholder groups

4.4 Customer insights from the Engage phase

This section outlines the 13 main customer insights from the Engage phase (see Table 4.1), mapped against the five research themes.

Table 4.1: Customer insights summary

1 About ATCO	2 Affordability	3 Safety, Reliability & Growth	4 Customer Experience	5 Cleaner Energy Future
1. Natural gas users continue to see the role of gas as an important affordable and reliable source of energy. 2. There's a strong desire to learn more about ATCO - what it is we do and what we stand for. 3. Providing transparency to consumers about the natural gas supply chain should be a shared responsibility of ATCO and retailers.	4. Participants were supportive of the average price increase from AA4 to AA5 given the proposed investments. 5. The majority of participants prefer an initial price jump, then price stability, when compared to a gradual and consistent annual price increase.	6. Participants want to maintain the excellent levels of service and reliability they currently enjoy. 7. The average support rate for our capex programs is 95% across our residential and SME customer segments, with 'mains replacement' consistently ranked as the highest priority when compared to other capex programs, including the mandatory meter replacement program.	8. Participants value regular and proactive engagement. 9. Clearly defined service levels and value propositions are required for different customer segments. 10. Different customer segments have different preferences for communication channels. 11. ATCO should promote their existing products (incentives and Capital Contributions Policy) and continue to develop new products.	12. Participants believed that natural gas has a key role in a low carbon future. 13. Pace is important - don't get left behind but don't do it too fast.

The following sections outline the structure of the Engage phase workshops and the associated insights obtained.

4.4.1 About ATCO

We started the workshops educating participants on ATCO and our role in the Western Australian energy supply chain.

Natural gas is seen as an important, affordable, and reliable source of energy

> "Everyone wants gas. Gas is cheaper than electricity, everyone knows that."
> *- Major Land Developer*

Despite having a limited understanding of the gas supply chain, participants acknowledged that natural gas was a more affordable and reliable source of energy when compared with electricity. Customers were also very aware that significant competition exists in the retail gas market in Western Australia, many discussing the discounts they had obtained through switching retailers. There was a strong affinity for using gas with the benefits being identified as convenient, reliable, efficient, and clean.

Strong desire to learn more about ATCO

> "I don't think the general community know about you. I think you need to be more present in the community about what you do and who you are. I thought you were just contracted by Alinta to put the pipes in."
> *- SME Customer*

A large proportion of participants were unaware of ATCO and the services we provide. Our role is often confused with a retailer, which is expected given the recent increase in marketing activity by gas retailers in the Western Australia market.

Once informed, participants trusted the business and were very supportive of the initiatives that we were proposing. They supported an expanded marketing expenditure to ensure customers are aware of our role, services, brand, and values.

Information on the natural gas supply chain should be a shared responsibility

Our workshops confirmed that customers are also not aware of the role of the local regulator, or the costs that make up their gas bill. When presented with a graphical representation of an average residential gas bill (see Figure 4.3), customers sought clarification on services delivered by other parts of the supply chain, most significantly that of their retailer.

Figure 4.3: Services through the gas supply chain[5]

Given the lack of prior knowledge, workshop participants appreciated gaining an understanding of ATCO's role in the natural gas supply chain and believe that this is information that should be available to all customers. Customers also want transparent information on the components of their gas bill, and how distribution costs will be reflected by retailers over time. Participants considered the provision of this information to be a *shared* responsibility between ATCO and the respective retailers.

4.4.2 Affordability

Following the education component of the workshop, we presented our customers with potential price increases for the distribution component of their bill for the next period. We explained that the increases were based on proposed capital works programs for the AA5 period.

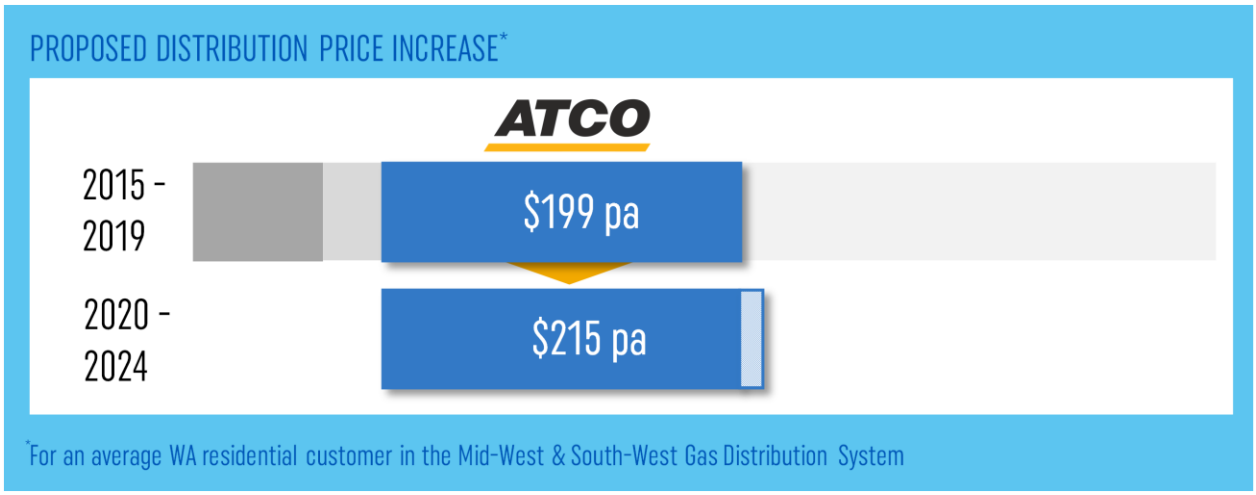
Customers supported our proposed investment and associated average price increases

In general, both residential and SME workshop participants considered the price increase for AA5 as modest, given the projects being considered. Figure 4.4 shows the average annual price increase of $16 compared to the 2015-19 period for residential customers. *Chapter 17* outlines the proposed distribution charge increases for other customer groups.

> "It's justified, it's not much."
> *- SME Customer*

[5] Note, the 56% retail component includes GST

Figure 4.4: Proposed distribution price increase for residential customers

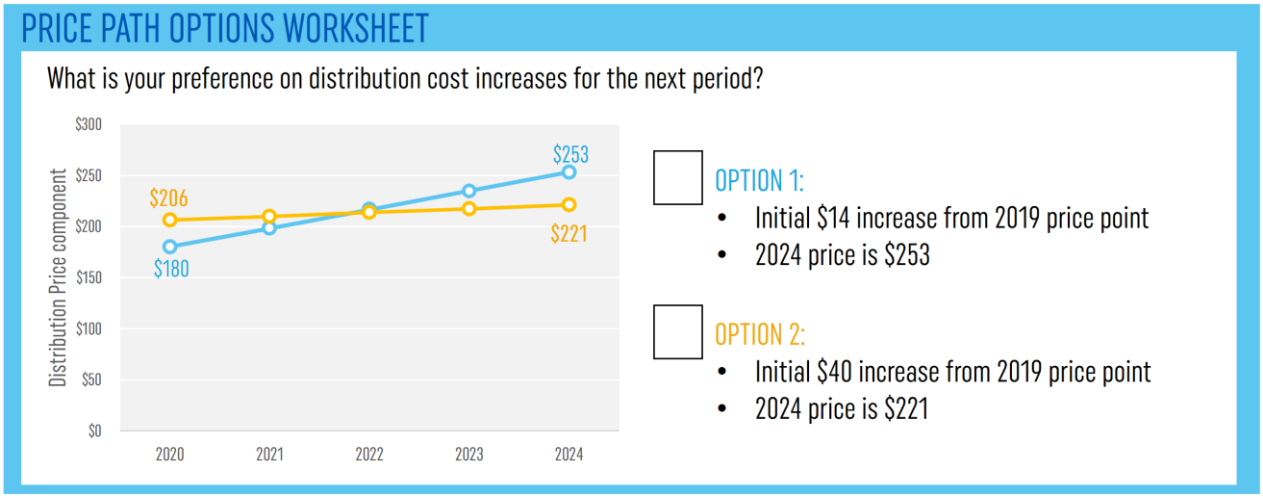


Participants value price stability

After discussion on the average price increase to customers, ATCO then sought customers' views on *how* the price increase should be introduced over the next period. Through a worksheet activity (see Figure 4.5 for residential worksheet), customers were asked for their preferences on the size of an upfront payment, and subsequent percentage increases in the remaining years of the period. Customers were presented with two options; however, this did not restrict them from providing alternate suggestions to ATCO for consideration.

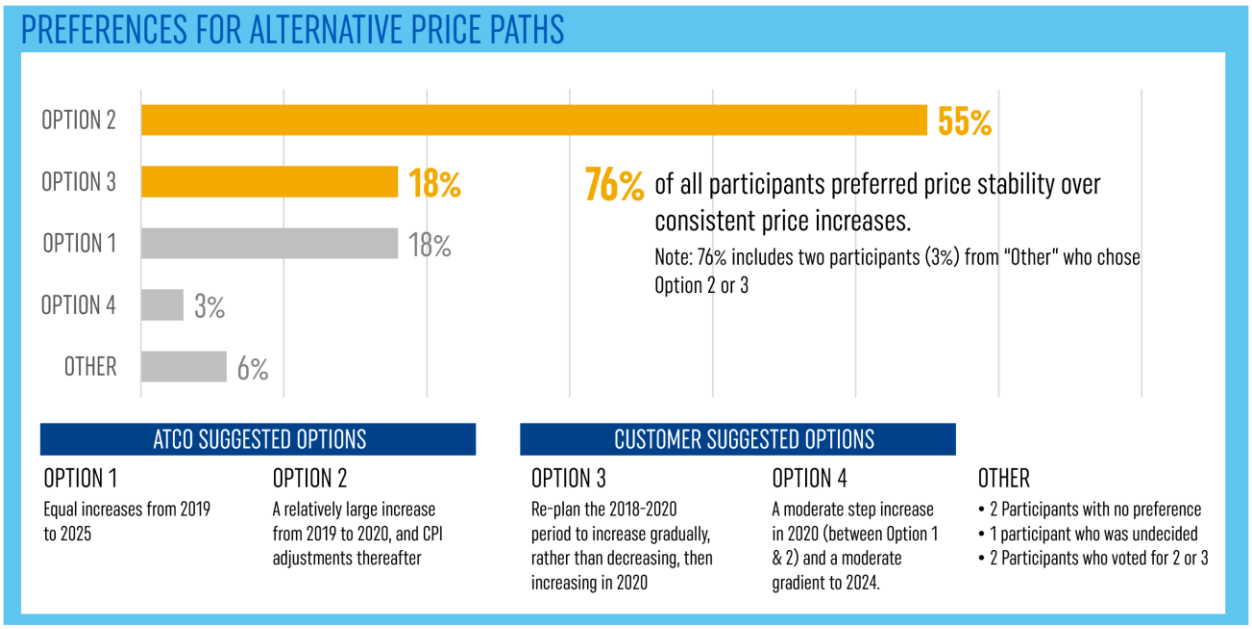
> "Knowing these increases, we can actually plan for it – we're not really concerned with either option... that's important for us. If we can't see it, we can't plan.
> *- Large Commercial & Industrial customer.*

Figure 4.5: Residential customer worksheet on price path options



Most customers (76% overall, with 86% for residential, 74% for SME and 25% for C&I customers) chose a *stable price path* as their preference for paying for the increase in costs, see Figure 4.6. We found that customers tolerated the larger cost increase in the initial year as they viewed the step change as relatively modest.

Figure 4.6: Customer preferences for various price path options



4.4.3 Safety, Reliability, and Growth

We then presented four of the major programs that we plan to undertake over AA5 to address safety, reliability, and growth. We sought customers' views on the need and priority of these programs.

Participants appreciate and want to maintain excellent levels of service and reliability at current prices

The majority of participants, with very few exceptions, stated they were satisfied with the current reliability and level of service of their gas supply. Customers acknowledged that gas outages were rare and although some recalled outages, the outages really didn't affect them.

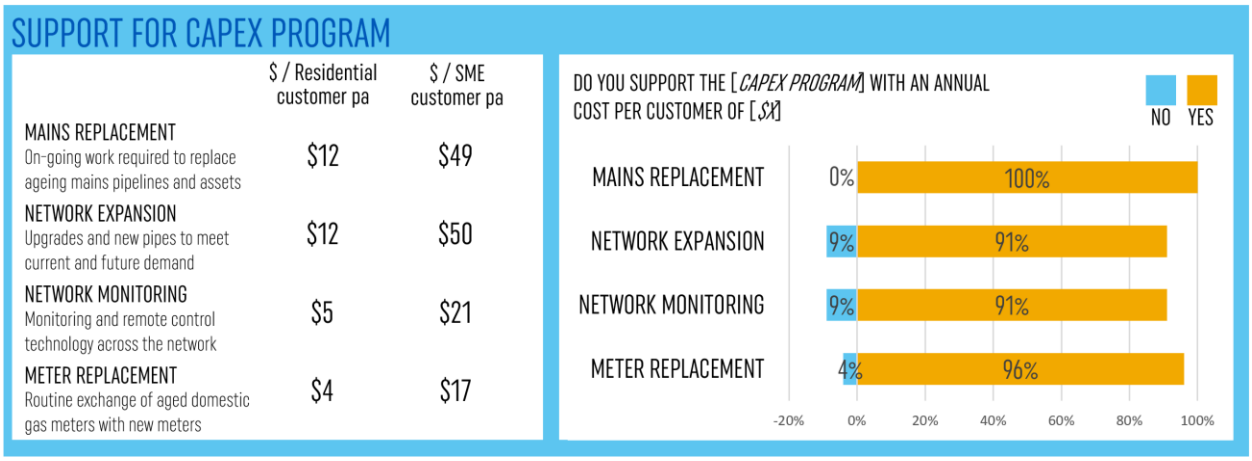
Customers also acknowledged that gas was a more reliable source of energy than electricity, particularly those who are outside of the metropolitan area. Given current levels of satisfaction, customers did not consider it cost effective to pay a higher price for an increased level of reliability, or less for reduced reliability. Customers were supportive however, of investment in the network to continue to maintain existing reliability levels and extend the network for others to be provided the same service.

Participants supported proposed capex programs

We outlined to customers that continued investment is needed to allow us to both operate and grow a safe and reliable network. As such, we took our customers through four proposed capex programs that we intend on delivering in AA5.

A summary of the programs is provided in Figure 4.7, including the effect on an average bill for residential and SME customers:

Figure 4.7: SME and Residential Customer support for ATCO capital expenditure programs[6]



Upon gaining an understanding of ATCO's values, together with visibility of our performance compared to our peers, customers were very supportive of all the major capex programs. The average support rate for our capex programs was 95% across our residential and SME participants, with mains replacement consistently ranked the highest priority above the statutory meter replacement program.

4.4.4 Customer Experience

In the next stage of the workshops and interviews we sought to understand our customers' views on *their experience* with ATCO and what we could do to improve it.

Workshop and interview participants had a good understanding of good (and bad) customer service; customers were quite clear on their expectations of the levels of service they want to receive. Customers also provided insightful advice for further improvements on the customer experience when interacting with ATCO.

Participants value regular and proactive engagement

Although the VoC program found that residential and SME customers had limited direct interaction with ATCO, those who have found the customer experience to be excellent. Our customers suggest that we have a reputation for '*getting the job done*' and support enhancing customer experience programs to encourage a direct relationship between ATCO and the end customer (rather than dealing with the retailer).

Different customer segments expect clearly defined service levels

Each customer and stakeholder group require a defined set of service levels and value propositions tailored to their specific needs. As to be expected, C&I and B&D customers had a greater expectation and reliance on positive and effective working relationships with ATCO. These groups preferred face-to-face interaction and a dedicated, single point of contact within ATCO.

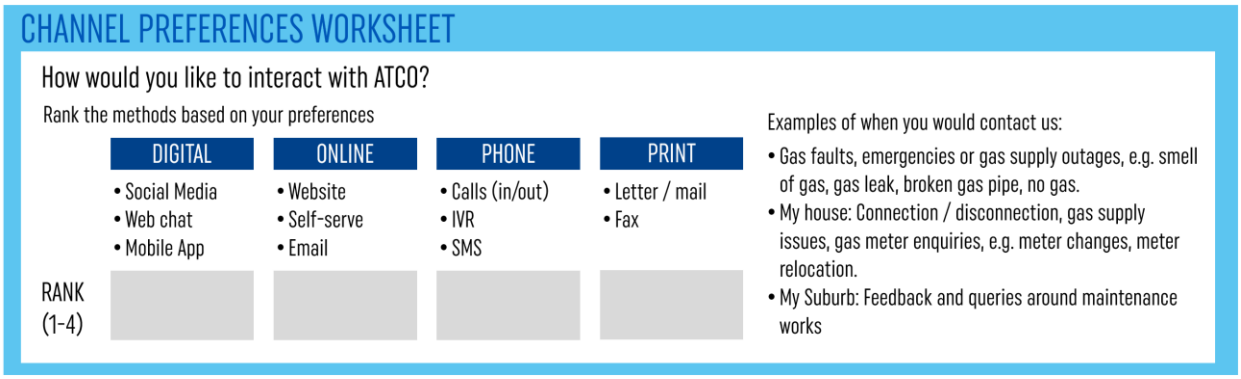
> "From a development manager's perspective... we know you're there, we know it goes in, it all happens seamlessly.
> *- Major land developer*

[6] The average price increase between AA4 and AA5 (e.g. $16 for residential) is the net effect of '$/Residential customer pa' and the $/SME customer pa' figures

Customers want more options to interact with ATCO

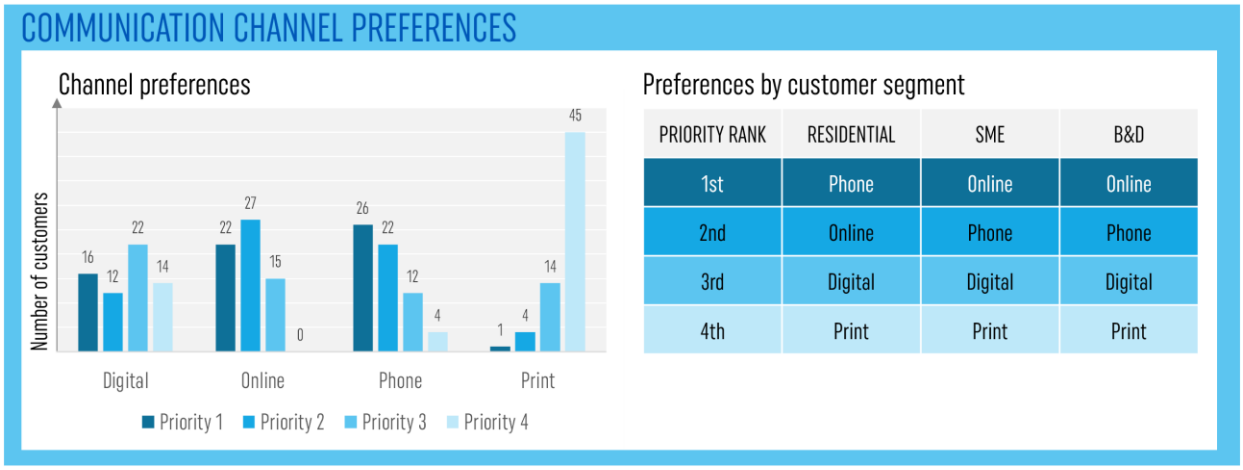
Despite limited interactions with ATCO, customers would like to see broader channel options to facilitate easy and effective interaction. During the workshops, customers were presented with a worksheet (see Figure 4.8) seeking their input on preferred channels for communication.

Figure 4.8: ATCO channel preferences worksheet



While many participants did not understand the circumstances where they would need to contact ATCO, the need for providing a greater choice of communication channels was clear. Channel preferences varied greatly depending on the customer or stakeholder segment.

Figure 4.9: Customers' communication channel preferences



Our main findings:

- Phone was the most preferred channel (first preference for 38% of participants).
- Online was the second most preferred option, heavily relied on by SME customers.
- Digital was ranked third overall as a channel for communication; ease of access and the flexibility it offers customers appeared attractive.
- Print media was ranked as the lowest preference by 70% of participants.

Existing products should be promoted more broadly

Customers flagged brand awareness, marketing, and community education as areas for improvement; particularly when introduced to incentives and clean energy programs. More specifically, there was strong support to continue the Capital Contributions Policy, with many seeing

> "It never crossed my mind that you would be promoting incentives."
> *Builders & Developers customer*

the benefit for greenfield developments. However, in most cases, customers were unaware the policy existed.

Customers considered that lack of advertising and knowledge of our business incentives was a concern. Peak and industry bodies suggested ATCO should improve customers' awareness of initiatives through case studies and industry engagement, to help inform decisions on how gas could be used more effectively.

4.4.5 Cleaner Energy Future

In the final part of the workshops and interviews, we sought to understand customers' views on the changes occurring in the energy market given the uptake of renewable energy. We explained that we believe gas networks have an important role to play in enabling renewable technologies, as well as offering solutions that balance a changing market, environmental issues, costs, and security of supply.

Participants believe that natural gas has an important role in a low carbon future

Our VoC program sought customer views on our initiatives towards a low-carbon future. Most residential customers agreed that steps should be taken towards low-carbon energy solutions. All participants in the B&D workshops showed interest in clean energy solutions, acknowledging possible collaborative opportunities to trial or showcase new gas technologies, especially for micro-grids or community-scale initiatives.

Keep up with the pace

Customers were very supportive of the initiatives underway by ATCO and were pleased at the pace and leadership we were providing. Customers believed that taking a steady approach and measured investment in new technology was sensible and logical.

There was overwhelming support for our 'GasSola' trial with many participants interested in the enabling technology, highlighting the opportunities for off-grid living and reducing carbon emissions.

> "The energy world is changing rapidly, why wouldn't you want to be fully engaged with it? If you don't... you'll get left behind.
> *- Resident*

4.5 Re-engagement and ongoing engagement

The insights provided by customers during the Engage phase informed the development of our 2020-24 Draft Plan. Customers that participated in the Engage phase were invited back to share their views on our plans as part of the Re-engage phase.

The majority of the content of the Re-engage phase was to inform the customers about the considerations that we had made to our plans based on the insights provided during the Engage phase. These included refinements and deferrals made to our major capex programs. Customers were also presented with two alternative approaches for the rollout of the proposed mains replacement program. Content and discussion in the workshops was tailored to each group to maintain high levels of relevancy and engagement.

Customers accepted the refinements made to the four major capex programs, indicating that they trusted ATCO to make the right decisions to maintain safety and reliability. At a program level, customers expressed support for a mains replacement program that minimised disruption and inconvenience.

Consistent with the findings of the Engage phase, customers in the Re-engage phase also supported our proposed average price increases and reiterated their preference for a stable price path following a step change in the initial year.

ATCO also engaged separately with the Western Australia Council of Social Services and the St Vincent de Paul Society as part of the Re-engage phase. This engagement explored affordability issues and community and customer expectations in relation to energy services.

As a business, we are committed to ongoing and effective customer engagement. Drawing from the lessons learnt in our VoC program, we intend to undertake more regular engagement with our customers and stakeholders. It is likely that this will be two-fold: through periodic workshops and feedback options on our website welcoming customer commentary on an ongoing basis. The publishing of this plan is part of this commitment and we welcome any feedback that you may have.

Considerations for our stakeholders

1. Did our customer and stakeholder engagement program test the right topics? Are we engaging with the right groups of customers and stakeholders?
2. Does the release of this 2020-24 Draft Plan assist in the engagement process?
3. How could we improve our future engagement programs?

PART B:

Our Proposal

5. What we will deliver

CHAPTER HIGHLIGHTS

1. Our 2020-24 Draft Plan continues to focus on the long-term interests of customers by providing a safe, reliable, and affordable gas distribution network.
2. Our major initiatives are designed to deliver benefit to Western Australians *well beyond AA5* – future proofing the network and supporting our low carbon and energy innovation plans.
3. We will deliver programs that support a competitive retail market, enables growth for Western Australia and builds the foundation for a clean energy future.
4. Our investment plans have been supported by insights from our VoC program activity.

5.1 Introduction

We are experiencing a transformation in the energy sector as the economic, political, and technological underpinnings of our energy supply change in rapid and unpredictable ways. Conventional energy systems are transforming, and the needs of our customers here in Western Australia are changing too.

We have explored the needs of our customers during this time of transformation through our extensive VoC engagement program. We found that our customers strongly support us continuing to explore future energy solutions but prefer us taking a measured approach to moving forward.

We recognise that the delivery of stable and affordable energy is critical to Western Australia's growth and prosperity and we plan to maintain our performance levels into AA5. In addition, we remain focussed on providing flexible, innovative solutions to support the State economy now and as our energy environment continues to evolve.

5.2 Our Plans for 2020-24

Given this landscape, our commitment for the five years 2020-24 is to continue to focus on the long-term interests of consumers by providing a safe, reliable, and affordable gas distribution network whilst supporting a competitive retail market, enabling growth for Western Australia, and building the foundation for a clean energy future.

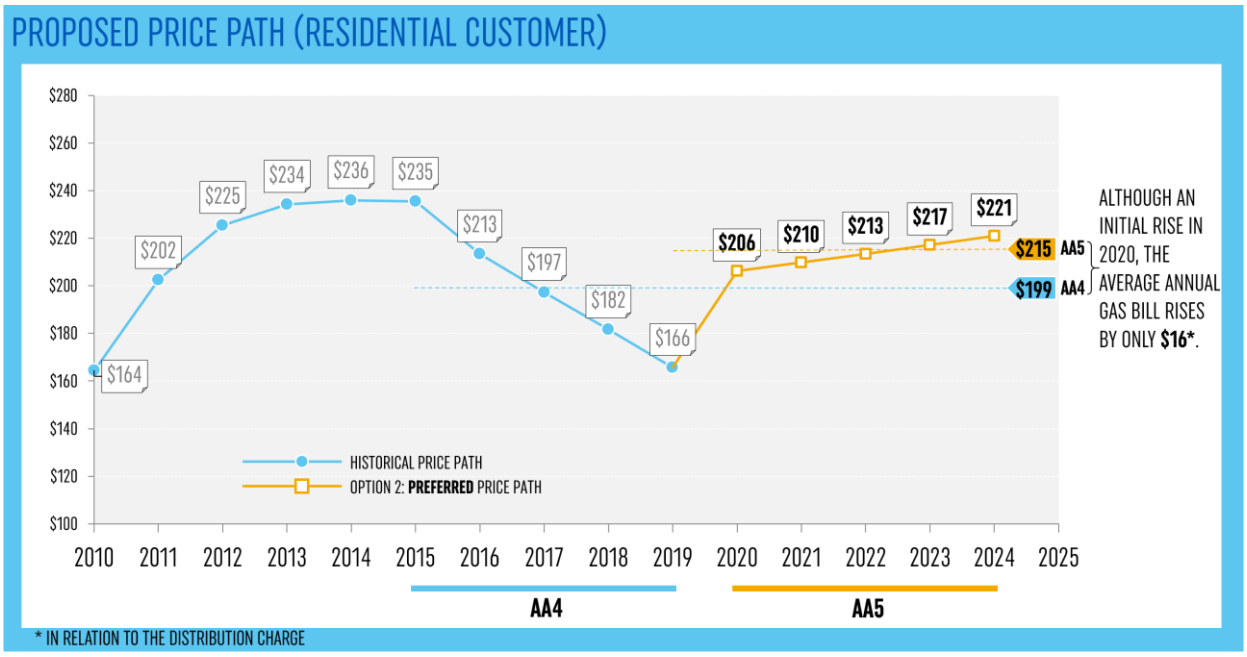
Our 2020-24 Draft Plan will:

- Continue to provide a **safe** gas distribution network in accordance with good industry practice, by:
  - Managing our ageing assets to ensure that our network complies with the relevant legislation and operates at an acceptable level of risk. *See Section 10.6.*
  - Continuing to invest in the training of our people to ensure technical excellence with a clear focus on the safety and welfare of our customers and the Western Australian community.
  - Maintaining our local call centre and our 24/7 operational response field crews to allow us to respond to safety incidents raised by the public in a timely manner.
- Maintain **reliable** access to gas by:
  - Investing in security of supply to support critical parts of the network and reduce risk of interruption. *See Section 10.6.1.*

- Providing reinforcement of the network to ensure reliable gas supply is continued as additional customers are connected. *See Section 10.6.2.*
- Investments in technology to enable better performance of the existing network at peak times and to make the existing network more resilient to damages or failures. *See Section 10.6.4.*
- Supporting reliability through ongoing replacement, continuous maintenance, and asset protection to prevent outages and damage to our network. *See Sections 10.6 and 10.7.*

- Provide **affordable** access to gas at a price reflecting our underlying efficient costs resulting in:
  - Investments in IT systems that will allow us to continue to deliver our services efficiently. *See Section 10.7.6.*
  - Keeping average prices over AA5 at a comparable level with prices in AA4 (in real terms), with an average increase over the *total five years* of approximately 8%; less than inflation for the same period. Figure 5.1 outlines the proposed price path for an average residential customer, showing that the average annual price over AA5 is only $16 higher than it was over AA4. The price in real terms at the end of 2025 is *less than it was at the start of the AA4 period in 2015*. *See Section 17.5.*

Figure 5.1: Price path for residential customers - AA4 to AA5



- Support a **competitive retail market** by:
  - Continuing to improve our systems and processes to support larger volumes of consumers switching retailers, including upgrading our existing billing system. *See Section 10.7.6.*
  - Evolving our digital platforms and the omni-channel approach (on-line systems and apps) to make it easier for customers to interact with us before they are connected, while they are connected to the network and when they disconnect. *See Section 10.7.6.*
- Enable the **growth of the Western Australia state economy** by:
  - Connecting nearly 90,000 new residential customers and over 3,000 commercial and industrial customers over 2020-24. *See Chapter 7.*
  - Supplying an efficient gas energy source to all our customer segments through ATCO's dedicated account managers; supporting industry leading connection timeframes for new and existing customers.

- Collaborating with the other utilities to enable the efficient delivery of upgrade works, minimise the disruption to residents and businesses during upgrades and to minimise the cost of the works.

- Build the **foundation for a clean energy future** by:
  - Ensuring our network designs remain efficient, while enabling a future decarbonising of the network through the introduction of renewable gas e.g. biogas and hydrogen.
  - Investing in systems and processes that allow us to monitor higher heating value (**HHV**) and facilitate differential pricing across the network. *See Section 10.6.4.*
  - Investments in gas smart meters to enable consumers to make informed choices that support a clean energy future. *See Section 10.7.3*

Considerations for our stakeholders

4. Do you believe that ATCO has the right priorities for 2020-24?
5. Are there any areas that you believe we have missed? Is there anything in our plan that you believe we shouldn't be doing?
6. Do our plans sufficiently address the findings from our stakeholder engagement?

6. Pipeline services

CHAPTER HIGHLIGHTS

1. We will retain the current reference services into AA5.
2. We will introduce special meter reads as an ancillary reference service in AA5.
3. In certain cases, we will negotiate non-reference services with customers that require services that are different from reference services.

6.1 Introduction

Pipeline services on the GDS are delineated into *reference services* and *non-reference services:*

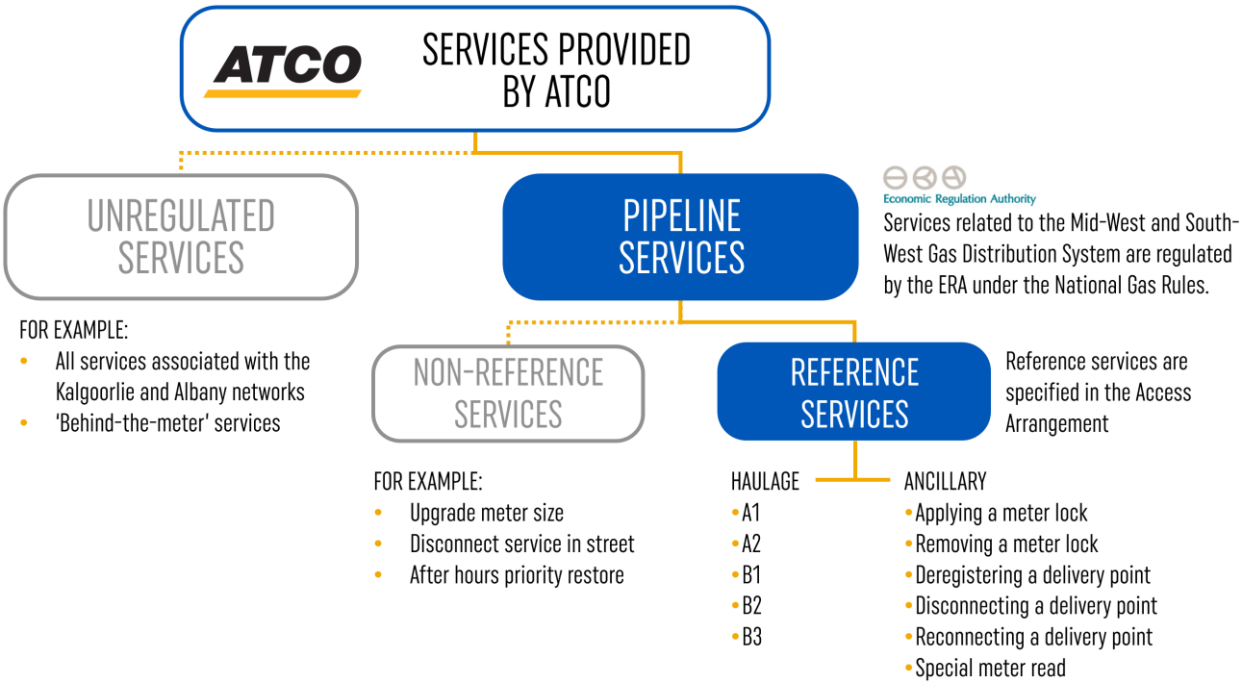
- Reference services describe our services that are likely to be used by a large proportion of our customer base.
- Non-reference services are typically negotiated on a case-by-case basis with customers and are only sought by a small portion of the market.

In AA5, ATCO will continue to offer five pipeline services as reference services. These reference services, labelled A1, A2, B1, B2, and B3, are currently offered under AA4 and are unchanged into AA5. Details on how these services are priced can be found in Chapter 17.

In AA5, ATCO will offer 'special meter reads' as an *ancillary reference service* for the first time to support the increased retail competition in the Western Australia market, in addition to the existing five ancillary reference services. These services are substantially the same as those offered by ATCO during AA4.

Our proposed service classification for AA5 is illustrated in Figure 6.1.

Figure 6.1: Proposed AA5 service classification



6.2 Reference services

Reference services comprise of *haulage* reference services and *ancillary* reference services. The proposed haulage reference services for AA5 are the same as those currently applying in AA4 (see Table 6.1).

Our haulage reference services relate primarily to the transportation of gas from the transmission pipeline to the customer. Haulage services also include the installation and maintenance of a standard meter, meter reading, and associated data collection and reporting.

Table 6.1: AA5 haulage reference services

REFERENCE SERVICE	DESCRIPTION
A1	A1 is a pipeline service under which ATCO delivers gas to a user at a delivery point on the network, where the following preconditions were met at the time the user (then a prospective user), submitted an application for the service: • The prospective user is reasonably expected to take delivery of **35 TJ or more** of gas during each year of the haulage contract; and • The prospective user is reasonably expected to require a contracted peak rate of 10 GJ or more per hour; and • The prospective user requests user-specific delivery facilities.

A2	A2 is a pipeline service under which ATCO delivers gas to a user at a delivery point on the network, where the following preconditions were met at the time the user (then a prospective user), submitted an application for the service:
	• Either (or both):
	  ○ The prospective user is reasonably expected to take delivery of **10 TJ or more of gas, but less than 35 TJ of gas**, during each year of the haulage contract, or is reasonably expected to require a contracted peak rate of less than 10 GJ per hour; and
	  ○ An Above 10 TJ Determination[7] was, or was likely to have been, made under the Retail Market Procedures (WA); and
	• The prospective user requests user specific-delivery facilities.

B1	B1 is a pipeline service under which ATCO delivers gas to a user at a delivery point on the network, where the following preconditions were met at the time the user (then a prospective user), submitted an application for the service: • Either the prospective user is reasonably expected to take delivery of **less than 10 TJ** of gas during each year of the haulage contract, or is reasonably expected to require a contracted peak rate of less than 10 GJ per hour; and • The prospective user requests user-specific delivery facilities or standard delivery facilities that include a standard meter with a badged capacity of 18 cubic meters per hour (m^3/h) or more.
B2	B2 is a pipeline service under which ATCO delivers gas to a user at a delivery point on the **medium pressure/low pressure parts of the network** using standard delivery facilities that include a standard **12 m^3/h meter or a standard meter with a badged capacity of less than 18 m^3/h**.

[7] Section 139(3) of the Retail Market Procedures (WA) requires AEMO to make an Above 10 TJ Determination if, in AEMO's opinion, the gas deliveries to the Delivery Point are likely to exceed 10 TJ in the year immediately following the day of determination. The Retail Market Procedures (WA) are available here: https://www.aemo.com.au/Gas/Retail-markets-and-metering/Market-procedures/Western-Australia

REFERENCE SERVICE	DESCRIPTION
B3	B3 is a pipeline service under which ATCO delivers gas to an end use customer at a delivery point on the **medium pressure/low pressure parts of the network** using standard delivery facilities **up to and including a 10m^3/h meter**. End use customers who receive B3 reference services consume less than 1 TJ of gas per year and are small use customers as defined in the *National Gas Access (WA) (Local Provisions) Regulations 2009.*

The proposed ancillary reference services for AA5 are the same as those currently applying in AA4, with the addition of special meter reads (see Table 6.2).

Table 6.2: AA5 ancillary reference services

REFERENCE SERVICE	DESCRIPTION
Applying a meter lock	A lock is applied to a valve that comprises part of the delivery facility to prevent gas from being received at the relevant delivery point. This service is available for reference service B2 and B3 users, subject to the suitability of the meter control valve.
Removing a meter lock	A lock that was applied to a valve to prevent gas from being received at the relevant delivery point is removed. This service is available for reference service B2 and B3 users.
Deregistering a delivery point	A delivery point is permanently deregistered by removing the delivery facility permanently, removing the delivery point in accordance with the Retail Market Procedures (WA) and removing the delivery point from the delivery point register. This service is available for all reference service users.
Disconnecting a delivery point	A delivery point is physically disconnected and prevents gas from being delivered to the delivery point. This service is available in respect of delivery points at which a user is provided with reference service B2 or B3.
Reconnecting a delivery point	The delivery point is reconnected to allow gas to be delivered to the delivery point. This service is available in respect of delivery points at which a user is provided with reference services B2 or B3.
Special meter read	An out of cycle reading of a standard meter at the relevant delivery point. This service is available in respect of delivery points at which a user is provided with reference service B1, B2 or B3 with a standard meter.

The new reference service, 'special meter read', is discussed further in Section 6.3.

We believe that our proposed reference services will continue to be required by a large proportion of our customer base during AA5, and therefore will continue to be provided from 1 January 2020.

6.3 Special meter read

A 'special meter read' is a reading of a gas meter that occurs outside of the regular cycle. We have re-classified the special meter read service from a non-reference service to a reference service in AA5. This is because it is likely to be sought by a large proportion of the market in AA5.

During AA4, increased retail competition in the residential gas market has driven up the volume of special meter reads, with a tenfold increase from 12,457 in 2013 to over 119,000 in 2017. We expect this volume to continue into AA5 as increasing numbers of consumers change retailers.

However, the 'special meter read *at an appointed time*' service will remain classified as a non-reference service due to its expected low volumes.

6.4 Non-Reference Services

Occasionally, our customers may require additional services that do not form part of our reference services list. These services are referred to as *non-reference services,* and in such cases, ATCO will negotiate a price directly with the customer.

The forecast costs and demand associated with providing non-reference services are not included within the forecasts presented in this document.

Considerations for our Stakeholders

7. Is there any additional information you would like on our proposed pipeline services?
8. Do you agree with the pipeline services we have proposed? Are there any services not listed that we should be offering? Are there any proposed services that you believe we shouldn't be offering?
9. Do you agree with the re-classification of the 'special meter read' service to a reference service?

7. Demand forecast

CHAPTER HIGHLIGHTS

1. The 2020-24 demand forecasts in this chapter are preliminary; they are based on historical consumption and connection information to 2016. The forecasts *do not include 2017 actual data* at this time.
2. The year 2016 was not a typical year for demand due to cooler than average weather. Hence, we have proposed a forecast *range* at this early stage to accommodate the potential for changes in underlying assumptions and analysis once we include 2017 actual data. Further demand modelling will continue, and we will update our forecast prior to the September 2018 submission.
3. During AA5, the number of customers is forecast to grow at an annual rate of 1.9%. Consumption per customer during AA5 is forecast to decline, however overall consumption is forecast to grow at 0.5%.
4. We will continue to normalise the effect of weather on demand using an effective degree day (EDD) method as adopted in AA4. The EDD method incorporates several climatic variables affecting consumption and behaviour of Western Australia gas users, thus achieving increased consumption forecasting accuracy.

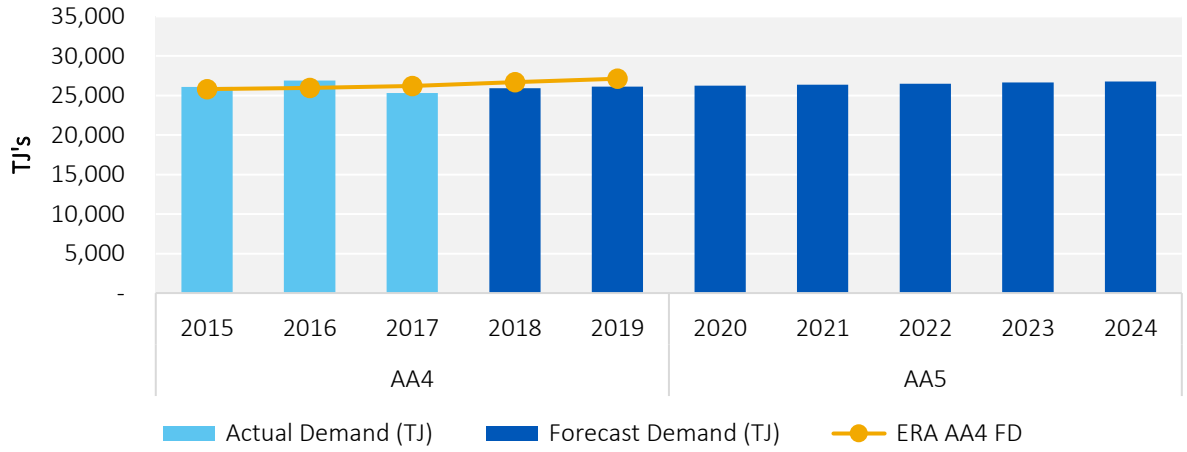
7.1 Introduction

This chapter outlines our preliminary forecast of customer numbers and demand volumes for the AA5 period for reference services. The forecasts inform the forecast capital and operating expenditure and reference tariffs over AA5.

7.2 Historical demand

Total demand is forecast to remain stable, increasing from 25,303 TJ in 2017 to 26,775 TJ by 2024. Figure 7.1 illustrates the annual forecast volume over AA4 and AA5 compared to the ERA AA4 Final Decision.

Figure 7.1: Actual and forecast volumes for all customers



7.3 Forecast method and forecast accuracy

The preliminary gas demand forecast has been developed by using regression models that forecast the number of connections by tariff class (A1 to B3) and determine the expected average consumption *per connection* in each tariff class.

Our forecast is based on *actual data up to and including 2016.* In relation to gas demand forecasting, 2016 was not a typical year for demand; primarily due to lower average winter temperatures and hence higher gas usage for heating. This has influenced our preliminary forecast towards a *higher demand profile*.

Once we have incorporated the 2017 data, we will be able to provide a more informed forecast, in the meantime, we have also proposed a *forecast demand range* for 2020-24 that incorporates potential variations as our analysis continues. Further refinement of our method of demand modelling will continue, and the forecast will be updated prior to the September 2018 submission. The gas demand forecast by tariff class is discussed further in the sections below[8].

7.4 A1 and A2 demand forecast

↓0.8%
DEMAND

A1 and A2 demand has declined from 13,442 TJ in 2014 to 12,153 TJ in 2017 (or -3.3% p.a.). We expect this trend to continue and forecast a marginal decline of -0.8% p.a. over AA5.

Our demand forecast for A1 and A2 customers is shown in Figure 7.2 and Table 7.1.

Figure 7.2: Historical and forecast total A1 and A2 demand

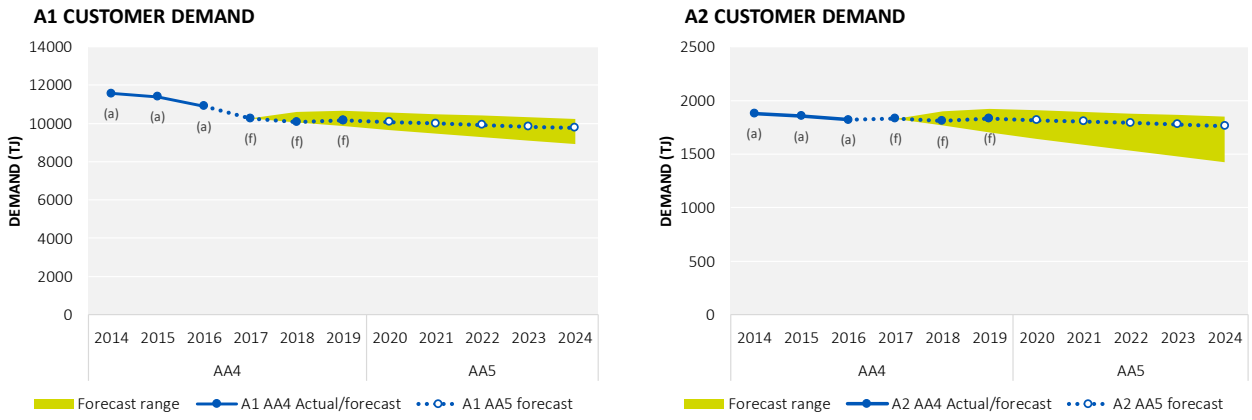


Table 7.1: Forecast connection numbers and demand for industrial customers: 2020-24

TARIFF CLASS	2020	2021	2022	2023	2024	CAGR*
A1 TARIFF						
Average Customer Base	75	75	75	75	75	0.1%
Demand (TJ)	10,077	9,997	9,916	9,836	9,757	-0.8%
A2 TARIFF						
Average Customer Base	108	109	109	110	110	0.4%
Demand (TJ)	1,817	1,804	1,790	1,775	1,760	-0.8%

* Compound Annual Growth Rate

[8] All tables in the following sections of this chapter include prudent discounted customers.

7.5 B1 and B2 demand forecast

↑1.7%
DEMAND

B1 and B2 demand has increased from 2,899 TJ in 2014 to 3,209 TJ in 2017 (or 3.4% p.a.). ATCO expects this trend to continue and forecast an increase of 1.7% p.a. over AA5.

Our demand forecast for B1 and B2 customers is shown in Figure 7.3 and Table 7.2.

Figure 7.3: Historical and forecast total B1 and B2 demand

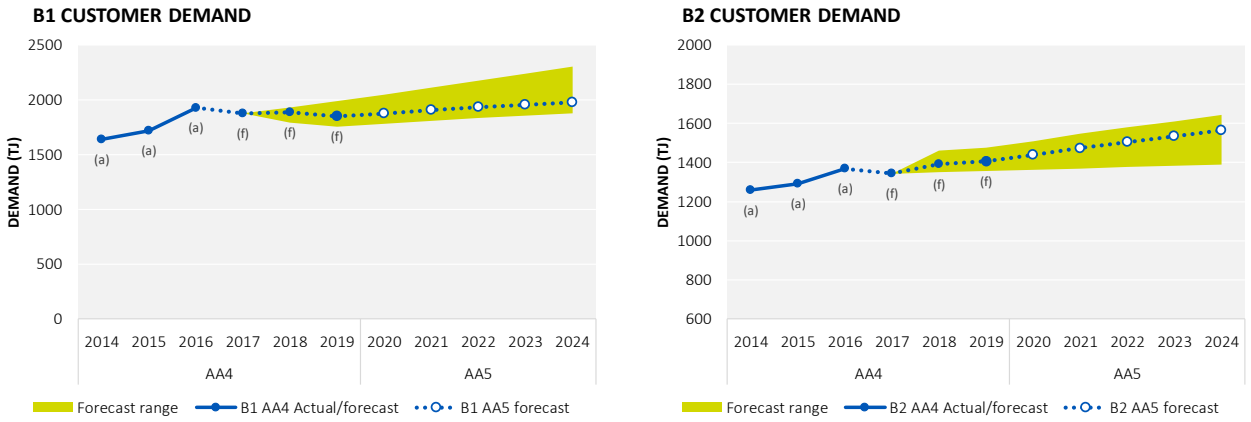


Table 7.2: Forecast connection numbers and demand for commercial customers: 2020-24

TARIFF CLASS	2020	2021	2022	2023	2024	CAGR*
B1 TARIFF						
Average Customer Base	1,596	1,628	1,657	1,682	1,708	1.7%
Demand (TJ)	1,877	1,907	1,934	1,956	1,979	1.3%
B2 TARIFF						
Average Customer Base	12,543	13,066	13,572	14,071	14,588	3.8%
Demand (TJ)	1,438	1,473	1,505	1,534	1,565	2.1%

* Compound Annual Growth Rate

7.6 B3 demand forecast

↑1.5%
DEMAND

B3 demand has increased from 9,580 TJ in 2014 to 9,942 TJ in 2017 (or 1.2% p.a.). We expect this trend to continue and forecast an increase of 1.5% p.a. over AA5. Our preliminary B3 demand forecast is based on the number of customers and the average demand per customer.

Our volume demand forecast for B3 customers is shown in Figure 7.4 and Table 7.3.

Figure 7.4: Historical and forecast total B3 demand

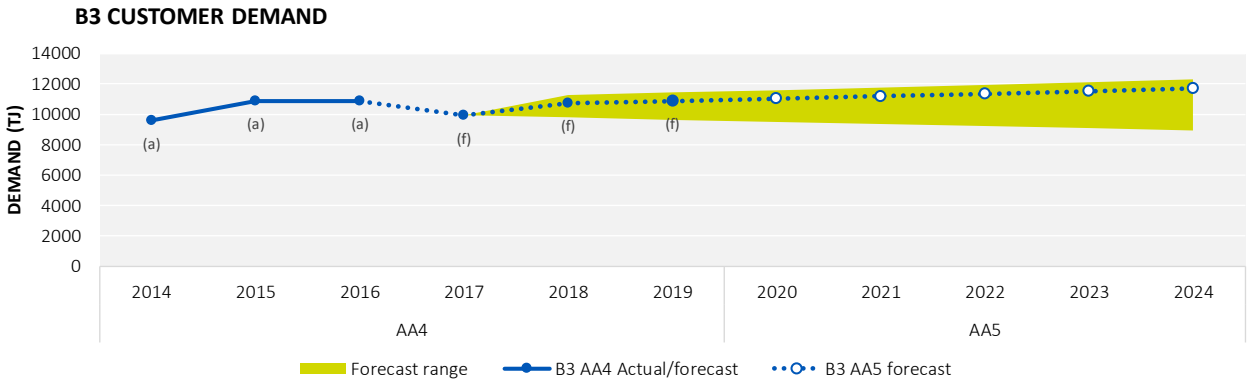


Table 7.3: Forecast connection numbers and demand for residential customers: 2020-24

TARIFF CLASS	2020	2021	2022	2023	2024	CAGR*
B3 TARIFF						
Average Customer Base	755,102	768,464	782,530	797,289	812,817	1.9%
Demand (TJ)	11,029	11,186	11,353	11,528	11,713	1.5%

* Compound Annual Growth Rate

7.7 Overall demand forecast

Our overall demand forecast is shown in Table 7.4.

Table 7.4: Overall demand and connection number forecasts: 2020-24

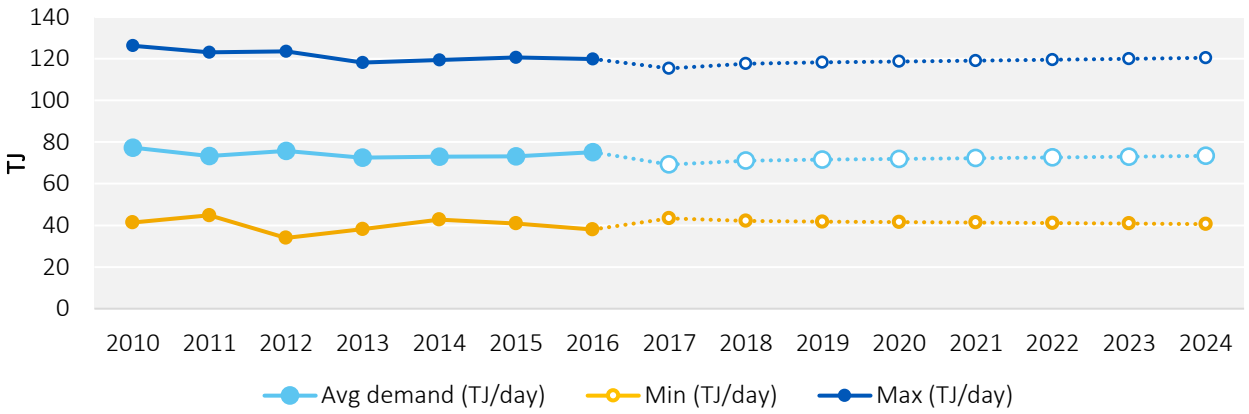
TARIFF CLASS	2020	2021	2022	2023	2024	CAGR*
A1 TARIFF						
Average Customer Base	75	75	75	75	75	0.1%
Demand (TJ)	10,077	9,997	9,916	9,836	9,757	-0.8%
A2 TARIFF						
Average Customer Base	108	109	109	109	110	0.4%
Demand (TJ)	1,817	1,804	1,790	1,775	1,760	-0.8%
B1 TARIFF						
Average Customer Base	1,596	1,628	1,657	1,682	1,708	1.7%
Demand (TJ)	1,877	1,907	1,934	1,956	1,979	1.3%
B2 TARIFF						
Average Customer Base	12,543	13,066	13,572	14,071	14,588	3.8%
Demand (TJ)	1,438	1,473	1,505	1,534	1,565	2.1%
B3 TARIFF						
Average Customer Base	755,102	768,464	782,530	797,289	812,817	1.9%
Demand (TJ)	11,029	11,186	11,353	11,528	11,713	1.5%
TOTAL						
Average Customer Base	**769,425**	**783,342**	**797,943**	**813,226**	**829,297**	**1.9%**
Demand (TJ)	**26,236**	**26,367**	**26,497**	**26,630**	**26,775**	**0.5%**

* Compound Annual Growth Rate

7.8 Pipeline usage

The forecast demand and connection numbers are expected to increase the minimum, average, and maximum network demand over the AA5 period.

Figure 7.5: Actual and forecast average demand per day (2010 to 2024)



7.9 Forecast demand for ancillary services

Our preliminary volume forecast for ancillary services is shown in Table 7.5:

Table 7.5: Forecast demand for ancillary services: 2020-24

ANCILLARY SERVICE	2020	2021	2022	2023	2024	CAGR*
Applying a Meter Lock	9,817	10,005	10,190	10,373	10,564	1.8%
Removing a Meter Lock	9,179	9,355	9,528	9,700	9,877	1.8%
Deregistering a Delivery point	2,200	2,242	2,283	2,325	2,367	1.8%
Disconnecting a Delivery Point	4,188	4,268	4,347	4,425	4,507	1.8%
Reconnecting a Delivery Point	3,271	3,333	3,395	3,456	3,519	1.8%
Special Meter Reads	83,906	75,515	67,964	61,167	62,288	-7.2%

Considerations for our stakeholders

10. Do you believe our forecast of new customer connections is reasonable?
11. Do you believe our forecast of customer demand is reasonable?
12. Do you believe ATCO's method to forecast customer numbers and average consumption per customer is reasonable and likely to produce the best estimate?
13. Are there any demand related factors you believe we have missed for AA5? Considering our rapidly changing energy environment (including the electricity sector), are there any 'left-field' demand factors that may play a greater role for future AA periods?

8. Key performance indicators

CHAPTER HIGHLIGHTS

1. Customers have stated they were satisfied with current reliability and service levels of their gas supply.
2. We will continue to adopt the AA4 KPIs into AA5 but with updated targets to reflect our recent performance.
3. We have incorporated an 'asset health' KPI into AA5 to allow customers to see the changes in asset health over the period.
4. Reflecting our customers' preferences for maintaining current levels of service, we have set the targets for the KPIs based on the simple average of our performance over the past five years.

8.1 Introduction

ATCO has selected eight key performance indicators (**KPI**s) that reflect the performance of the network in delivering haulage services sought by our customers and are important drivers for capex and opex over AA5. These indicators are categorised into three groups; *customer service*, *network integrity*, and *expenditure*. The customer service KPIs and unaccounted for gas (**UAFG**) are reported to the ERA annually as required under our distribution licence.

We have acted on the ERA's AA4 Final Decision and developed an 'asset health' KPI for use as a new indicator for AA5.

8.2 Stakeholder engagement

Customers have told us that they want us to maintain the excellent level of service and reliability that is currently provided. Only a couple of participants in our workshops said that they may consider paying more for increased service or less for decreased service.

We have incorporated this into the KPIs for AA5 by targeting our expenditure program to maintain our average service performance over the past five years into AA5. We are not seeking to increase or decrease our level of service over AA5.

8.3 Method to set AA5 targets

We have set our AA5 KPI targets by:

- **Using current performance**: For the customer service and network integrity KPIs we have set the AA5 KPI by taking the simple average of our service performance over the past five years. We believe the past five years is representative of the performance that customers are seeking into AA5. The five-year average moderates the effect of events outside of our control such as weather.
- **Using expected performance in 2024**: For the new asset health index KPI we have set the AA5 targets to reflect the level of performance expected in 2024. This allows customers to see the changes in asset health over the period.
- **Aligning with AA5 forecast expenditure**: The expenditure KPIs have been calculated consistent with our expenditure forecasts using the forecasts of opex, customer numbers and km of mains over AA5. The UAFG KPI targets have been set based on volume demand forecasts and historical trends.

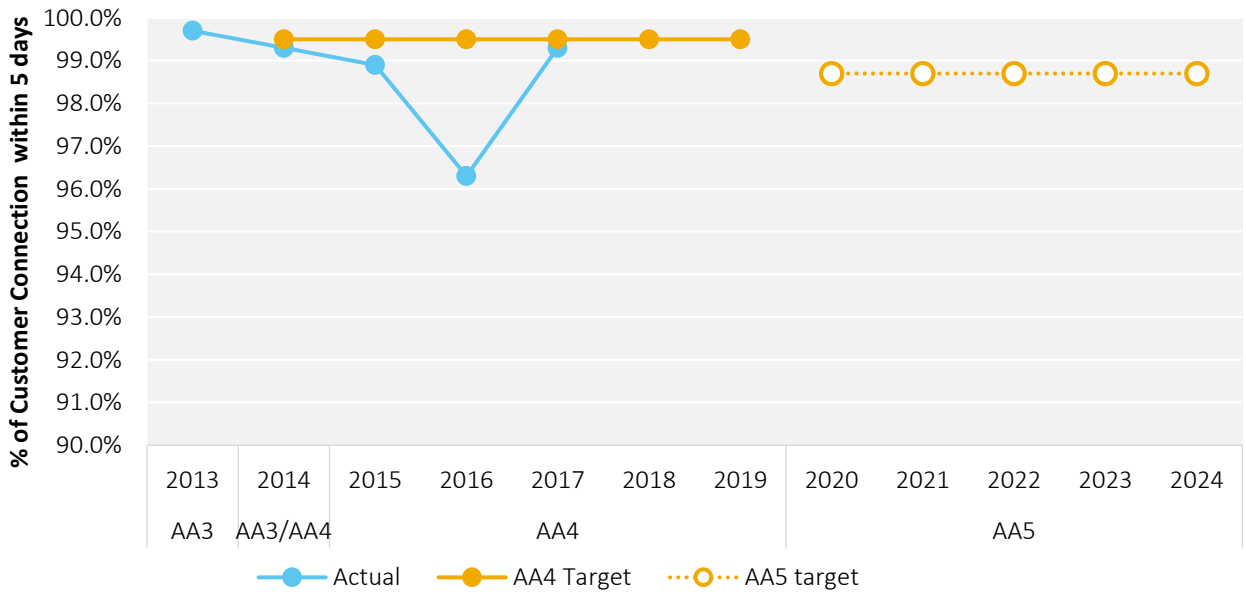
In the following section, we detail the method to set out each KPI.

8.3.1 Customer service KPIs

1. **Domestic customer connections within five business days (%)**:

   Reporting against this KPI will help us to maintain connection times within customers' expected timeframes despite the forecast increase in connections. Figure 8.1 shows our performance against this indicator during AA4 and the target performance over AA5.

Figure 8.1: Domestic customer connections within 5 business days (2013 to 2024)



2. **Attendance to broken mains and services within one hour (%)** and **attendance to loss of gas supply within three hours (%)**:

   To ensure the safety of the public and end users connected to the network, we must respond to broken mains and services and loss of gas supply promptly, and within the prescribed KPI timeframes contained in our Safety Case[9]. We propose to continue to report against these two KPIs, ensuring that a high standard of fault response and safety performance is maintained.

   Figure 8.2 and Figure 8.3 show our performance against these indicators during AA4 and the target performance over AA5.

[9] ATCO Gas Australia, *Gas Distribution System Safety Case*, December 2017

Figure 8.2: Attendance to broken mains and services within one hour (2013 to 2024)

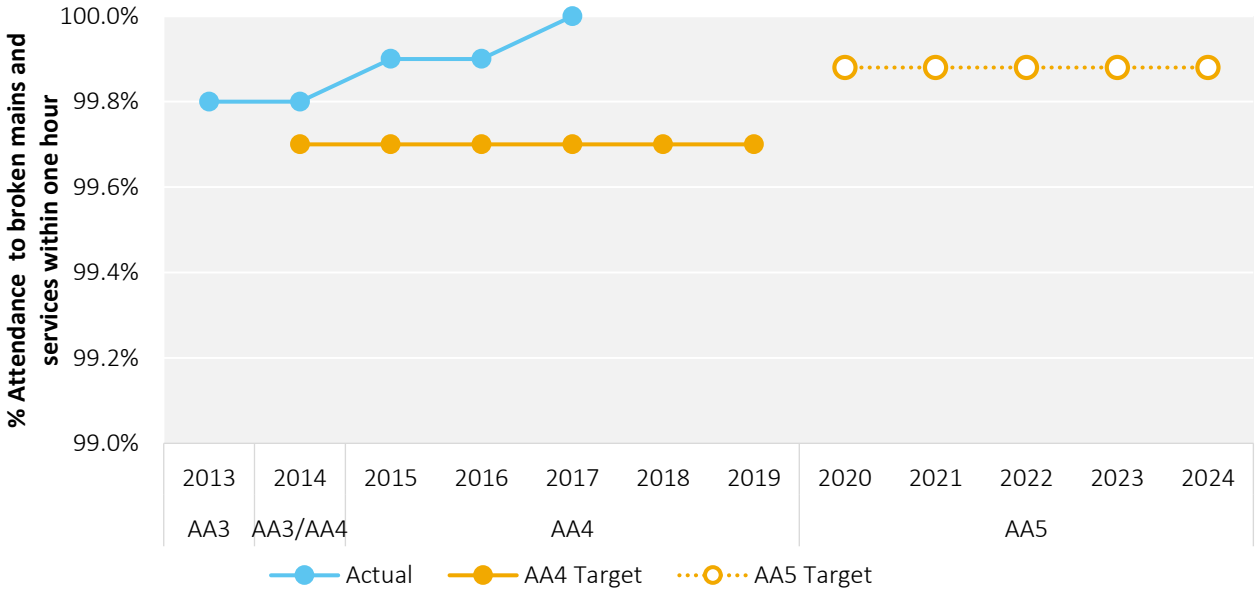
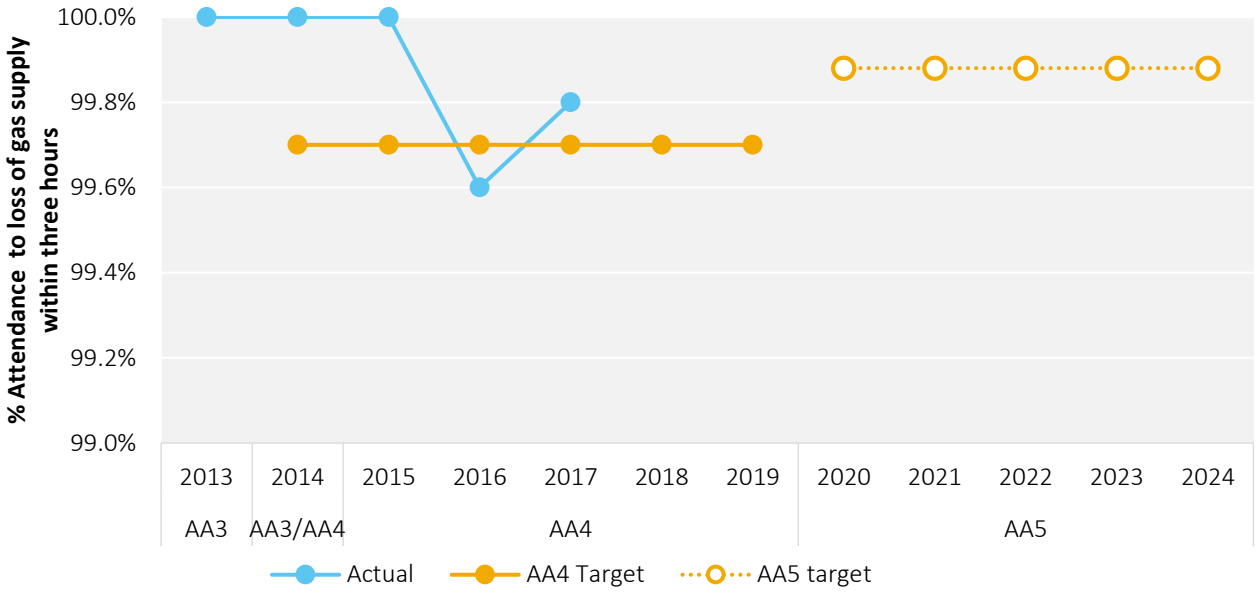


Figure 8.3: Attendance to loss of gas supply within three hours (2013 to 2024)



8.3.2 Network Integrity KPIs

1. **Asset Health Index**:

   As part of the ERA's AA4 final decision, we were required to identify an *asset health KPI* for use in AA5. The purpose of this KPI (the '*Asset Health Index*') is to demonstrate the value of proposed asset expenditure to our customers in terms of improved asset health.

   In developing the Asset Health Index, we considered:

   - what information was measured and reported on in AA4;
   - how the index would complement the existing KPIs; and
   - whether the index was easily understandable.

The index is based on the weighted average of the index scores for unplanned SAIDI, unplanned SAIFI, mains leaks, service leaks, and meter leaks. Each index score is calculated as follows:

$$Index_n = 200 - \left(\frac{Actual_n}{Target_{2024}}\right) \cdot 100$$

We have set the target performance for each parameter to reflect the expected level of performance in 2024 to enable the Asset Health Index to demonstrate the value of the proposed asset expenditure over AA5.

Table 8.1: Asset Health Index Parameters

PARAMETER	DESCRIPTION	WEIGHTING	$TARGET_{2024}$
Unplanned SAIDI	Total duration of sustained interruptions in a year	25%	1.76
Unplanned SAIFI	Total number of sustained interruptions in a year	25%	0.0041
Main leaks	Leaks pa / km	30%	0.0282
Service leaks	Leaks pa / service	15%	0.0101
Meter leaks	Leaks pa / meter	5%	0.0003

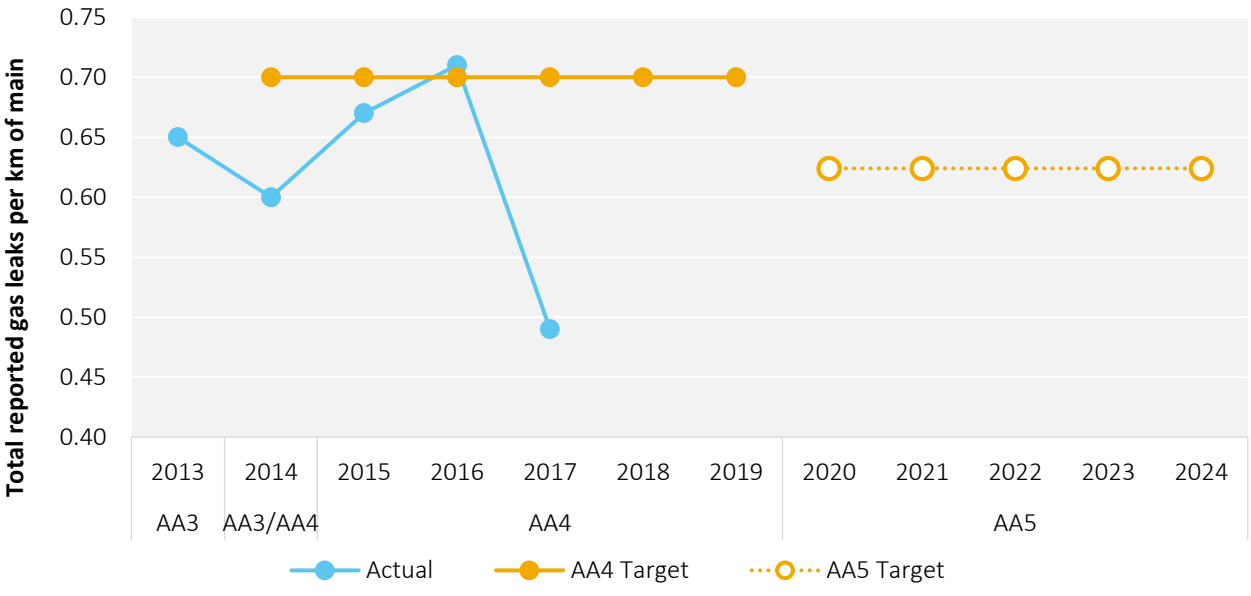
Australian Gas Networks (Victoria and Albury) and AusNet have adopted a similar index for their gas distribution networks.

2. **Total public reported gas leaks per km of main**:

'Public reported gas leaks' is an existing KPI that reflects the performance of the network and our maintenance activities.

Figure 8.4 shows our performance against this indicator during AA4 and our target performance over AA5.

Figure 8.4: Total public reported gas leaks per km of main (2013 to 2024)

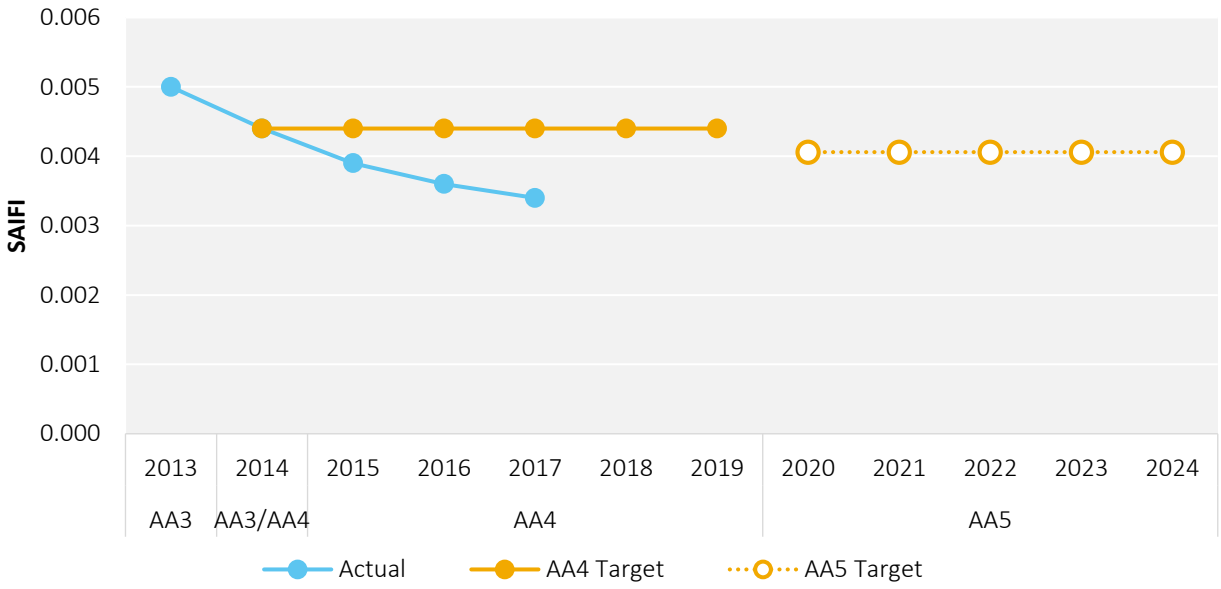


3. **SAIFI (System Average Interruption Frequency Index)**:

SAIFI is an industry accepted measure for reliability; indicating the average number of interruptions that a customer would experience in a year. During the AA5 period, we will continue to invest in the network, including installation of high pressure (**HP**) pipelines, interconnections, and associated pressure reduction infrastructure to maintain reliability for customers.

Figure 8.5 shows our performance against this indicator during AA4 and our target performance over AA5.

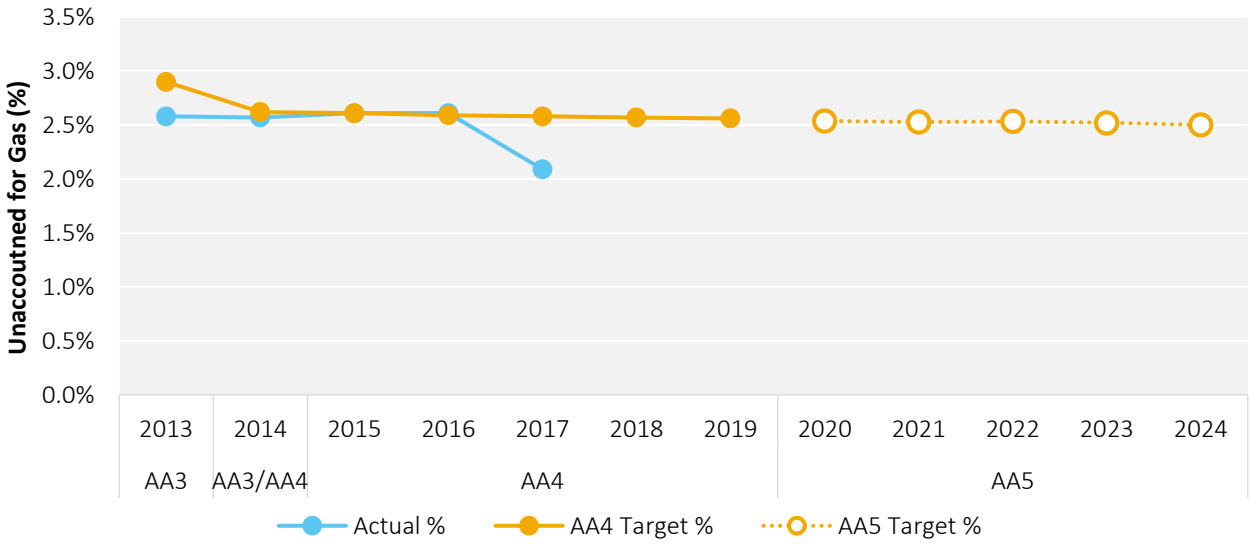
Figure 8.5: System average interruption frequency index (SAIFI) (2013 to 2024)



4. **Unaccounted for gas (UAFG) rolling 12 months (%)**:

UAFG is attributable to both leakage in the network and measurement error. UAFG makes up part of the overall cost of providing services. Reporting against this KPI will help us maintain our commitment to reducing UAFG. Figure 8.6 shows our performance against this indicator during AA4.

Figure 8.6: Unaccounted for gas (UAFG) (2013 to 2024)



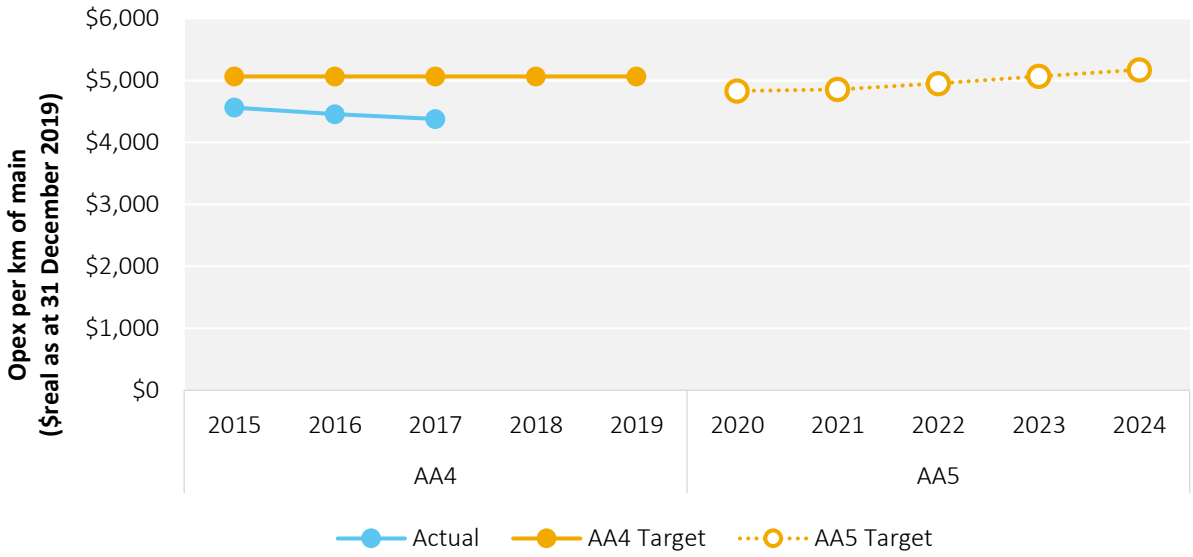
8.3.3 Expenditure KPIs

For our Expenditure KPIs, we have chosen *opex per km of main* and *opex per customer connection*. These KPIs ensure the additional operating costs associated with additional kilometres of network and additional customers are properly incorporated into measures of efficiency.

1. **Opex per km of main**

   Opex per km is an existing KPI that normalises performance and is relatively easy to understand. The opex per km over the AA4 period and our expected performance for AA5 is shown in Figure 8.7.

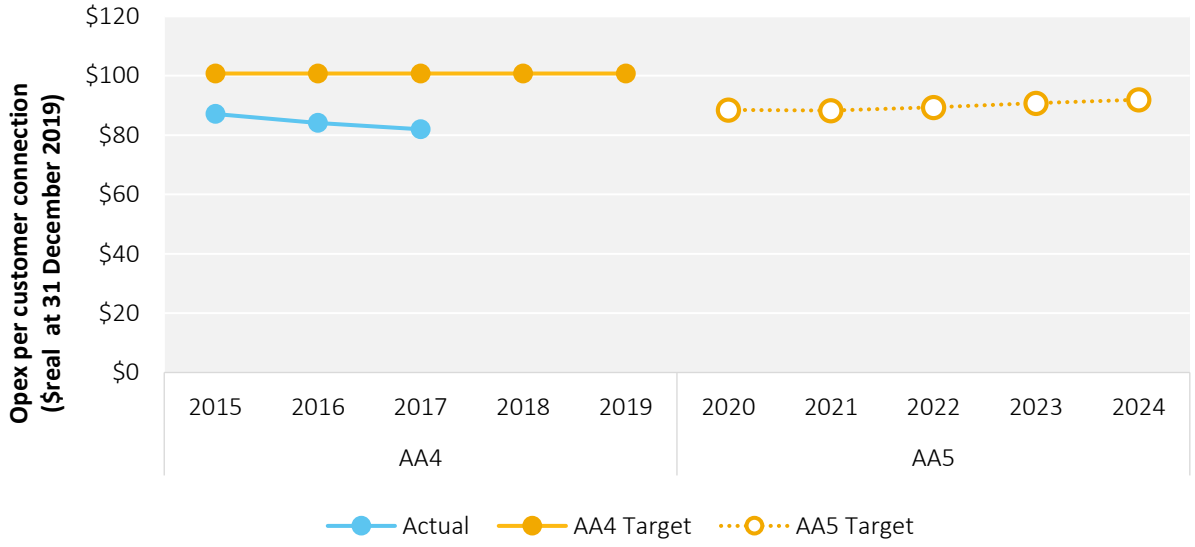
Figure 8.7: Opex per km of main (2015 to 2024)



2. **Opex per customer connection**

   The opex per customer connection is an existing KPI that normalises performance and is relatively easy to understand. The opex per customer connection over the AA4 period and our target performance for AA5 is shown in Figure 8.8.

Figure 8.8: Opex per customer connection (2015 to 2024)



8.4 AA5 Key Performance Indicators

Table 8.2 and Table 8.3 set out and describe the KPIs and AA5 target performance level.

Table 8.2: AA5 Key Performance Indicators

KPI	DESCRIPTION	AA5 TARGET
CUSTOMER SERVICE		
Domestic customer connections within five business days	The percentage of new customer connections to established domestic dwellings on the distribution network provided within five business days (the applicable regulated time limit)	>98.7%
Attendance to broken mains and services within one hour	The percentage of attendance to broken mains and services within one hour of the service request being received.	>99.9%
Attendance to loss of supply within three hours	The percentage of attendance to loss of gas supply within three hours of the service request being received. This indicator is included in our Safety Case[10] and is covered by the Guarantee Service Level scheme.	>99.9%
NETWORK INTEGRITY		
Asset Health Index	An index based on unplanned SAIDI, unplanned SAIFI, mains leaks, service leaks, and meter leaks	100
Total public reported gas leaks per kilometre of main	Total number of confirmed gas leaks reported by the public (excluding third party damage) per kilometre of main per year	<0.62
SAIFI	The number of supply interruptions experienced by the average customer as a result of sustained unplanned interruptions, calculated as (sum of the number of customers interrupted) / (number of customers served)	<0.0041
UAFG Rate	UAFG is the difference between the measurement of the quantity of gas *delivered into* the gas distribution system in each period, and the measurement of the quantity of gas *delivered from* the gas distribution system during that period.	See Table 8.3
EXPENDITURE		
Opex per km of main	The total opex per year divided by the total km of main	See Table 8.3
Opex per customer connection	The total opex per year divided by the total number of customer connections	See Table 8.3

Table 8.3: AA5 KPI target by year

KPI	2020	2021	2022	2023	2024
UAFG Rate	2.54%	2.53%	2.53%	2.52%	2.50%
Opex per km of main ($ 2019)	$4,830	$4,854	$4,950	$5,065	$5,172
Opex per customer connection ($ 2019)	$88	$88	$89	$91	$92

[10] ATCO Gas Australia, *Gas Distribution System Safety Case*, December 2017

Considerations for our Stakeholders

14. Do you believe our KPIs provide an adequate measure of performance?
15. Have we set our targets correctly? Do the targets ensure we are sufficiently maintaining our current performance?
16. Are there any performance measures that you think we have missed?

9. Forecast operating expenditure

CHAPTER HIGHLIGHTS

1. Our opex forecast has been developed using the base-step-trend method.
2. We forecast opex of $362 million during AA5.
3. We benchmark favourably against our peers.
4. We continue to ensure a safe, reliable, and affordable natural gas distribution service.

9.1 Introduction

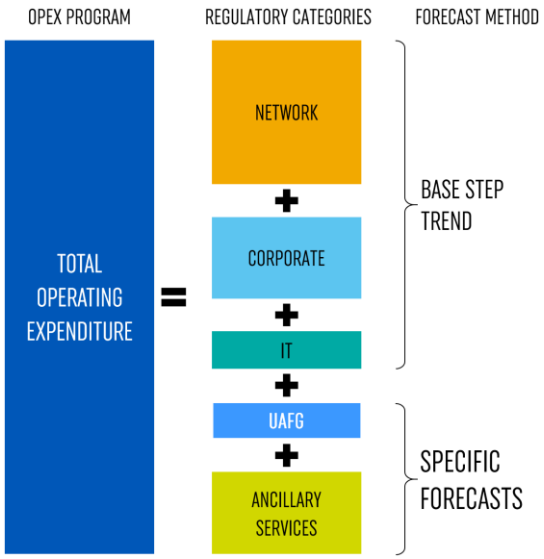
ATCO incurs operating expenditure (opex) to operate and maintain the network for our customers, respond to publicly reported gas leaks and read customer meters.

Our opex categories are outlined in Figure 9.1, and consist of expenditure relating to Network, Corporate, IT, UAFG, and Ancillary Services.

We have applied the base-step-trend (**BST**) approach to forecasting opex for the network, corporate, and IT categories. The BST method is commonly applied by regulators and the details of this method are explained in Section 9.5.

This chapter outlines our opex forecasts, our forecasting approach, and the main drivers of opex over the 2020-24 period.

Figure 9.1: Opex categories



9.2 Regulatory framework

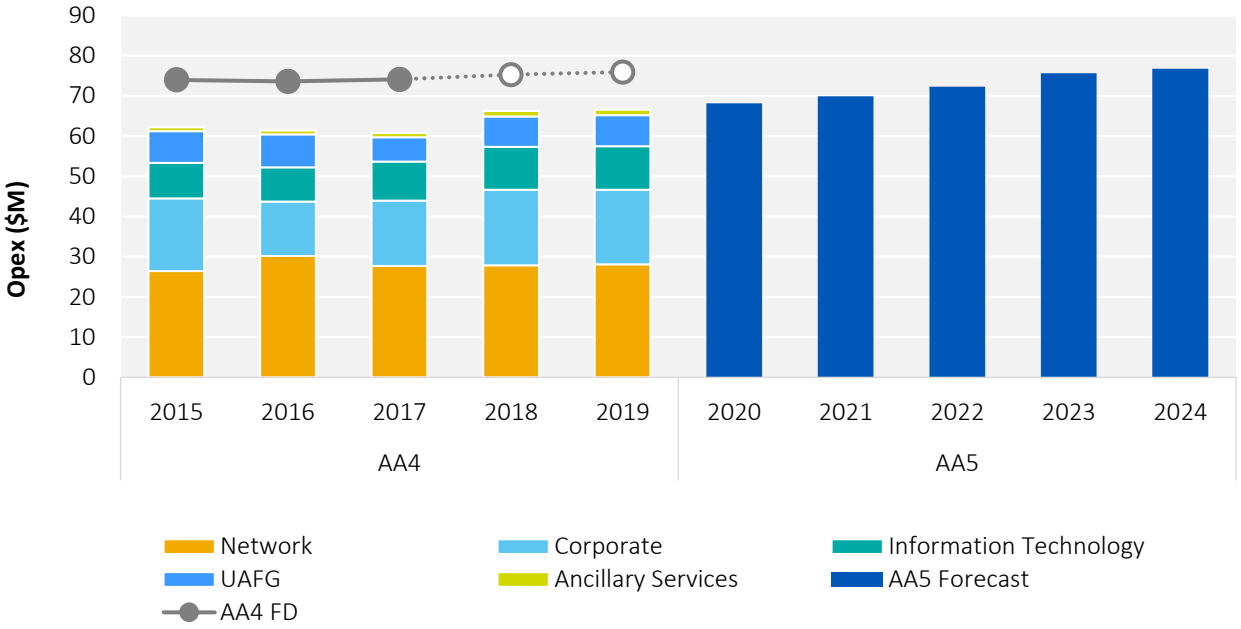
Our opex forecast is required to reflect that required by a prudent distributor, acting efficiently and in accordance with good industry practice to achieve the lowest sustainable cost of providing Reference Services to customers. Any forecast or estimate must be arrived at on a reasonable basis and must represent the best forecast or estimate possible in the circumstances.

9.3 Overview

Using the BST approach, we have used our actual opex from the most recent complete calendar year (2017) as representative of our opex for providing our services over AA5.

Figure 9.2 shows the comparison between historical and forecast opex. The AA5 forecast opex is $6.4 million lower than the ERA AA4 Final Decision (**AA4 FD**). The forecast increase in 2018 and 2019 is due to increased gas retailer activity in Western Australia and an allowance for our costs of developing the AA5 submission.

Figure 9.2: Opex per category – AA4 vs AA5. ($million real as at 31 December 2019)



Our AA5 opex forecast is detailed in Table 9.1:

Table 9.1: AA5 opex summary

OPEX CATEGORY	2020	2021	2022	2023	2024	TOTAL
Network/Corporate/IT	60.5	61.6	63.7	66.2	68.8	**320.9**
UAFG	6.6	6.6	6.6	6.6	6.6	**33.1**
Ancillary	1.6	1.6	1.6	1.6	1.6	**7.9**
TOTAL	**68.7**	**69.8**	**72.0**	**74.5**	**77.0**	**361.9**

9.4 Stakeholder engagement

From our VoC workshops, we found that customers who had interacted with ATCO, generally had positive experiences. Participants believed that we delivered a good service at a fair price. This has also been supported by the feedback and satisfaction scores from Customer Service Benchmarking Australia, and the lower number of complaints received by ATCO from 2016 to 2017 compared to other comparable operators.

Disruptions to the gas supply would have adverse consequences for our customers, therefore we continue to focus on third-party damage prevention strategies, including Dial Before You Dig (DBYD) and working with industry partners. We will:

- continue to proactively engage with customers regarding construction and operational activities;
- educate and create awareness through planned campaigns and targeted marketing activities; and
- improve our customers' understanding of our responsibilities as the natural gas network owner and operator, and our associated commitment to deliver a safe, reliable, and affordable energy choice to Western Australians.

9.5 Forecast method

To forecast opex for AA5, we firstly establish our base opex as part of the BST. We then adjust the base level of expenditure for:

- categories of opex affected by discrete step changes;
- any expenditure not reflective of the recurrent cost base; and
- changes in output and cost input trends over the period.

The BST method of forecasting opex has been commonly accepted as the method to forecast efficient opex. A summary of how we forecast via the BST method is provided in Figure 9.3.

Figure 9.3: BST Method

1 Establish the efficient base year	2 Adjust for step changes in recurrent opex	3 Adjust for non-recurrent opex	4 Trend to account for network growth	5 Escalate for labour costs
We have used the estimated 2019 base year, calculated from our 2017 base year actuals, as a representation for the cost base within the base-step-trend.	We have forecast and adjusted the recurrent base year opex for increases or decreases in costs arising from new or amended obligations and activities over the AA5 period.	We have forecast and adjusted the opex for changes in costs arising from new or amended obligations and activities expected to occur as discrete activities over the AA5 period.	We have forecast the growth drivers of opex and included changes in costs associated with servicing a growing network and customer base over the AA5 period.	We have forecast changes in the cost of labour over the AA5 period and escalated total opex based on widely used assumptions.

Figure 9.4 and Figure 9.5 provide a summary of the AA5 forecast opex using the BST Method.

Figure 9.4: Forecast AA5 opex (using the BST Method plus category specific breakdown)

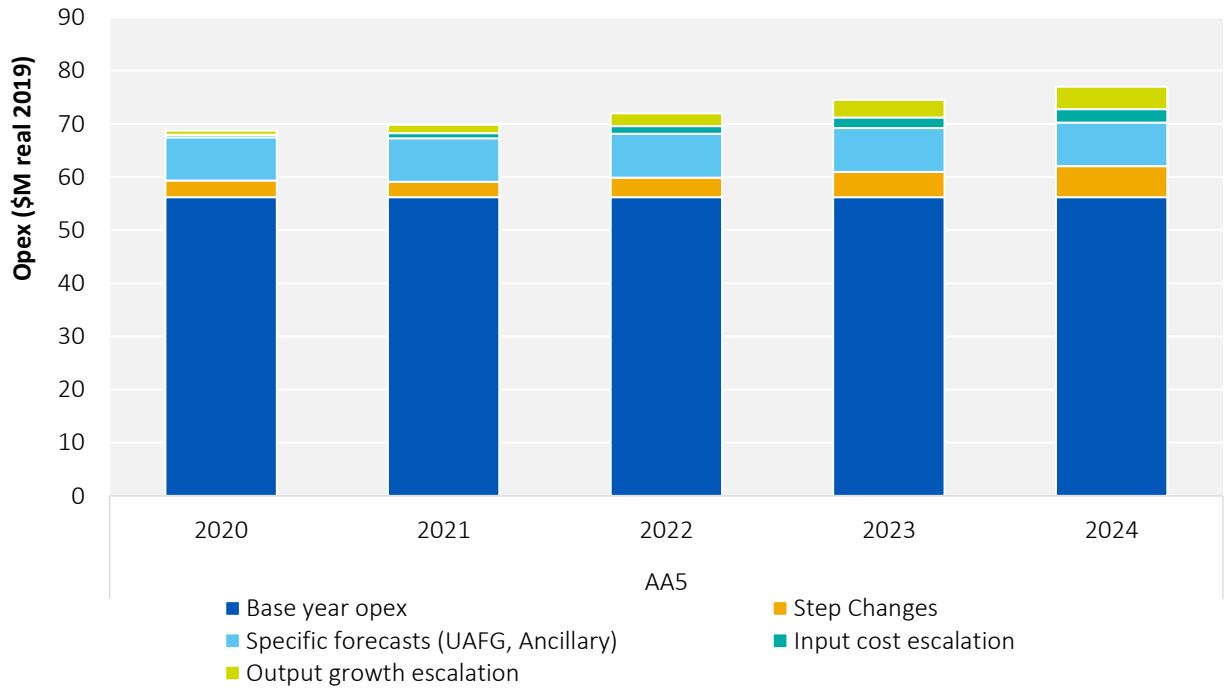
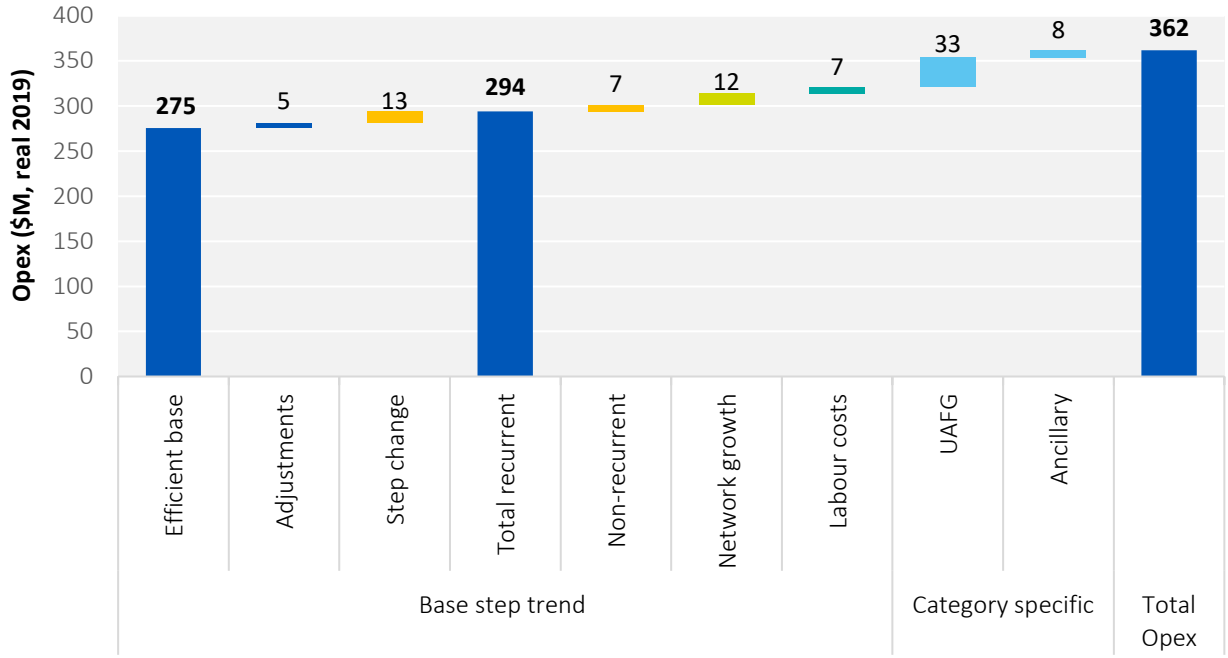


Figure 9.5: Total forecast AA5 opex (using the BST and category specific breakdown)



9.6 Forecast operating expenditure

This section explains each component of our opex forecast.

9.6.1 Establish the efficient base year

We have used our actual opex from the most recent complete calendar year (2017) as representative of our opex costs for AA5. We have established our base opex costs for AA5 by comparing the level of opex outperformance in 2017 compared to our 2017 AA4 forecast and then applying that level of outperformance to the AA4 2019 opex forecast. This ensures that the base opex forecast includes the expected movement in opex over the remainder of the AA4 period. The use of a base level of opex, based on our actual opex, reflects that opex is recurrent in nature.

9.6.2 Adjusting for step changes in recurrent opex

Activities during AA5 that are not reflected in our base year are known as 'step changes'. Step changes include the additional costs of associated safety, compliance, and regulatory activities that are typically driven by a change in obligation. The step changes we have identified for AA5 are detailed in Table 9.2.

Table 9.2: Adjustments for step changes ($million real as at 31 December 2019)

RECURRENT STEP CHANGES	AA5 TOTAL
Additional leak survey and repair	$8.0
Third party damage prevention and pipeline safety	$1.9
Clifton Rd capacity increase	$0.8
New interconnections	$1.3
Automation and gas quality management	$1.1

The justification for each of these step changes is outlined below:

- **Additional leak survey and repair** (including mains in private property)

  ATCO is further expanding the scope of planned leak survey activities. This will include leak surveying at the location of the meter, as the below ground assets are potential leak points due to conditions such as age, installation type and environment. The expansion commenced in 2018 and will further expand in 2019 and into the AA5 period with the inclusion of meter positions in high density community use locations[11], city centre, commercial and residential areas.

  The addition of these locations was identified as part of the formal safety assessment process as required under the Gas Standards[12] . The main Australian Standard[13] for gas distribution prescribes the requirement to complete a formal safety assessment to understand the risk and associated controls to manage leaks. This assessment proposed further action to satisfy our Safety Case[14] and Australian Standard requirements. The formal safety assessment was informed by benchmarking best practice across Australia, historic leak data, and additional leak survey trial information.

- **Third-party damage prevention**

  We have conducted a formal safety assessment in accordance with Australian Standards[15] and we are further expanding the scope of third party damage prevention. The formal safety assessment incorporated upcoming changes to Australian Standards[16] in relation to mitigation of supply loss risks. To meet the new requirements, further resourcing is required to continue our strong message of safety around our assets and ensure continued network reliability as valued by customers. We will continue to invest resources in prevention mechanisms such as DBYD, external locators, and increased network monitoring. With a larger network footprint however, there is an increased risk of third party damage that requires mitigation.

  The proposed expenditure relates to mitigating our security of supply risks; including additional pipeline patrols, increasing numbers, and training of external high-pressure locators, and further collaboration with our industry partners including DBYD.

- **Clifton Road capacity increase**

  ATCO requires additional inlet capacity to supply the growing customer base within Bunbury, Busselton, and the surrounding regions. There is an ongoing opex requirement to ensure the transmission offtake at Clifton Road in Bunbury can meet the capacity to supply the additional demand. Further information can be found in Section 10.6.3.

- **New interconnections**

  ATCO will increase the security of supply within our network by adding offtake facilities (gate stations) to the Parmelia Gas Pipeline. This will ensure the adequate supply of gas to the metropolitan network in the event of an emergency supply shortage from the Dampier to Bunbury Natural Gas Pipeline (as described further in Section 10.6.3).

---

11 High density community use locations include areas where buildings of four or more storeys are prevalent, major shopping centres, schools, hospitals, aged care facilities, and major sporting and cultural facilities. Public infrastructure (e.g. roads and railways, trafficable tunnels) in direct proximity of the high density community use area is also deemed to be part of the high density community use area.

12 As per Gas Standards (Gas Supply and System Safety) Regulations (GSSR) 2000 (Part 4 — Distribution system safety)

13 AS/NZS 4645.1 Gas distribution networks- Network management

14 ATCO Gas Australia, *Gas Distribution System Safety Case*, December 2017

15 AS/NZS 4645.1:2008 Gas distribution networks- Network management & AS/NZS 2885.1:2007 Pipelines- Gas and liquid petroleum-Design and construction

16 Our current Gas Standards (Gas Supply and System Safety) Regulations (GSSR) 2000 prescribe the Australian Standards above. Standards Australia has released updates of these: AS/NZS 4645.1:2018 Gas distribution networks- Network management & AS/NZS 2885.1:2012 Pipelines- Gas and liquid petroleum-Design and construction

The proposed new gate stations require ongoing regular maintenance to ensure the facilities are operating according to their design specification. We will support the ongoing operation and maintenance of the new gate stations within Rockingham (2019), South Metro (2021) and North Metro (2022).

- **Automation and gas quality management**

  ATCO proposes to further optimise the network through automation of capacity management and enhanced management of gas quality (as outlined in Section 10.6.4). The additional assets installed as part of this program require both capex and opex to ensure they are maintained and operated to their intended design specifications.

  We propose to develop our automation of assets through enhanced supervisory control and data acquisition (**SCADA**); a control system architecture that improves our ability to:

  - monitor, gather, process, and control real-time network data from local or remote locations;
  - improve gas quality management systems, thus increasing network safety and reducing UAFG; and
  - record valuable network data for analysis, including optimising reinforcement of the network.

  The expenditure ensures the coverage of operational and information technology costs (one-off and ongoing), licencing, and ongoing support from third party vendors.

9.6.3 Adjusting for non-recurrent expenditure

There are several non-recurrent costs that will occur during AA5. These are not reflected in our base year.

Table 9.3: Adjustments for non-recurrent step changes ($million real as at 31 December 2019)

NON-RECURRENT EXPENDITURE	YEAR	AA5 TOTAL
Hazardous areas review & remediation	2020, 2021 & 2022	$0.6
Pipeline inline inspections	2020, 2022 & 2024	$2.1
Mains reclassification in private properties	2020, 2021 & 2022	$1.6
Access Arrangement Six regulatory preparation	2023 & 2024	$3.1

The justification for each of the non-recurrent costs is detailed below:

- **Hazardous areas review and remediation**

  An external *Gas Distribution System Safety Case* audit[17] was conducted in 2017 as part of our requirements of maintaining our safety and operating plan in conjunction with the Australian Standard[18]. The audit proposed the following in relation to our telemetry and electronic equipment located within the vicinity of our gas containing assets:

  1. *Develop and maintain a register for all 'Ex' rated electrical equipment used in hazardous areas at pressure reduction stations, which should contain as a minimum information such as 'hazardous zone', 'protection type', 'temperature class', 'gas group' and details of 'Ex' certification.*

[17] Environmental Risk Solutions, *ATCO Gas Australia Gas Distribution System Safety Case audit*, revision 1, 9 January 2017

[18] AS/NZS 4645.1:2008 Gas distribution networks- Network management

2. *Investigate and document the requirement to undertake regular Electrical Equipment in Hazardous Area (EEHA) inspections for all 'Ex' rated electrical equipment in order to maintain their integrity for use in hazardous areas, in accordance with the requirements of 'AS/NZS 2381.1:2005 Electrical equipment for explosive gas atmospheres - Selection, installation and maintenance – General requirements'. As part of this action, ensure and document that a competent EEHA electrical inspector is used for such inspections.*

The audit also stated: *Certification of hazardous area rated electrical equipment is mandatory, and inspections of such equipment are required to be undertaken regularly. This is to maintain their integrity, and more importantly, to ensure that an ignition source is not inadvertently present in the event of exposure to flammable gas. Inspections are required for all rated electrical equipment in accordance with the requirements of the Australian Standards*[19].

We commenced work in 2018 to ensure higher priority non-compliant equipment was rectified within the required timelines. This project will be completed in 2022, with the expenditure including re-design costs, consultancy fees, and remediation of existing facilities.

- **Pipeline inline inspections**

  High-pressure steel pipelines require internal inline inspections as prescribed in the Australian Standards[20] undertaken in line with the Gas Standards[21]. Our formal safety assessment highlighted internal inspections as an important risk control, forming part of our pipeline integrity management plans.

  This activity includes modifications to pipelines to enable internal inspection via a pipeline inspection gauge (**pig**). Pipeline inspection through intelligent '*pigging*' enables detection of internal or external anomalies or pipe wall material loss. It is standard industry practice that major gas pipelines are inspected at a determined frequency (typically every 10 years).

  The pigging of major pipelines continues in AA5 after successful project completions in AA4, however no pipeline inspections were completed in the 2017 base year and are therefore included as a non-recurrent step change. We will be undertaking pipeline inline inspections in 2020, 2022 and 2024. This non-recurrent expenditure is linked directly to the capital expenditure related to the pipeline inspections as detailed in Section 10.7.1.

- **Mains reclassification**

  The new gas distribution Australian Standard[22] defines a main (gas pipe) as '*a pipe installed to convey gas to individual services or other distribution facilities*'. The standard definition for services has been updated based on volume. As a result, we have re-defined the criteria for mains and services and identified approximately 6,000 locations where mains require updating to be available within the gas network information system.

  We carried out a formal safety assessment to ensure the maintenance of these assets was covered within our current safety and operating plan as required by Australian Standards. The formal safety assessment requires us to reassess existing assets to improve our asset management responsibility of these assets. In addition, we will comply with DBYD requirements and our own internal controls, including updating our databases to include mains that enter large complexes and have multiple service offtakes.

---

19 AS/NZS 2381.1:2005 Electrical equipment for explosive gas atmospheres- Selection, installation and maintenance – General requirements.

20 AS/NZS 2885.3:2001 Pipelines- Gas and liquid petroleum- Operation and maintenance Section 3.4 Threat Mitigation & AS/NZS 2885.3:2012 Pipelines- Gas and liquid petroleum- Operation and maintenance Section Section 6.4.2 Corrosion Mitigation Strategy

21 As per Gas Standards (Gas Supply and System Safety) Regulations (GSSR) 2000 (Part 4 — Distribution system safety)

22 Gas distribution networks Part 1: Network management

This project has commenced in AA4 on a prioritised basis and is scheduled for completion in 2022. ATCO will continue the project in 2018 and 2019 to ensure we comply with the new Standard definitions within an appropriate timeframe.

- **Access Arrangement Six (AA6) preparation**

  ATCO has had an access arrangement in place since 2000 and has previously agreed three revisions to the access arrangements with the ERA. The next access arrangement, AA5, covers the period 1 January 2020 to 31 December 2024. A subsequent access arrangement revision is required for the period commencing 1 January 2025.

  AA6 regulatory preparation in 2023 and 2024 will require additional AA5 expenditure to ensure compliance with the NGR.

9.6.4 Trend to account for forecast growth

We incur additional expenditure as the number of customers connected to our network increases and as the size of our network increases. Our base year opex is therefore escalated by forecast growth in customer numbers and the physical size of our distribution network (measured in km of mains).

Our approach is consistent with the method approved by the AER in recent gas distributor submissions; adopting a weighted average of 1.5% per annum growth between customers and network length using a weighting of 45% and 55% respectively[23,24]. Our growth forecasts result in a total increase of $12.3 million in opex over AA5.

9.6.5 Trend to account for forecast price growth

Forecast price growth typically accounts for price increases in labour and non-labour (e.g. materials). Our forecast price growth results in an additional $7.4 million of opex in AA5.

Our approach to escalating input costs is based on:

- An opex resource mix of 62% labour and 38% non-labour costs based on benchmark weights developed by the Pacific Economics Group[25].
- Labour cost escalation over AA5 is based on the forecast annual rate of growth in the wage price index for Western Australia electricity, gas, water, and waste water services. Our September submission will include a forecast determined by an independent expert.
- No real cost escalation for non-labour costs. We have forecast that materials do not incur any additional price rises over and above inflation.

9.6.6 Productivity growth

We have not applied a productivity adjustment on the basis that our benchmark performance is already considered efficient compared to our peers (*see Section 1.1*).

---

23 Economic Insights, Gas Distribution Businesses Opex Cost Function, Report prepared for Multinet Gas, 22 August 2016

24 AER- Draft decision- Multinet Gas access arrangement 2018-22- Attachment 7- Operating expenditure, 6 July 2016

25 Pacific Economics Group, TFP Research for Victoria's Power Distribution Industry, December 2004. http://www.esc.vic.gov.au/wp-content/uploads/archives/9175/3267_PEG_TFP_Report.pdf

9.7 Unaccounted for gas (UAFG)

Our UAFG forecast contributes $33.1 million to AA5 opex.

UAFG is the difference between the measurement of the quantity of gas *delivered **into*** the gas distribution system in a given period, and the measurement of the quantity of gas *delivered **from*** the gas distribution system during that period. We incur costs as a result of purchasing gas to replace calculated UAFG and these costs are then recovered from customers through tariffs.

UAFG makes up a large proportion of opex in each access arrangement, therefore, it is in the long-term interests of customers that we reduce the UAFG rate to as low as reasonably practicable. Our UAFG rates are currently lower than the three Victorian gas distribution networks[26].

We have separately forecast the costs of UAFG as the product of:

- Forecast gas throughput for a year.
- Forecast price for purchasing gas for a year.
- Forecast UAFG rate (as a percentage of total throughput) for a year.

9.8 Ancillary reference services

Our ancillary reference service contributes $7.9 million to AA5 opex.

Ancillary service volumes have been forecasted based on historical growth and current retailer demands. Ancillary service costs have been forecasted based on current costs of providing these services.

Considerations for our Stakeholders

17. Do you believe our opex forecasts are reasonable? Do you believe the base-step-trend method of forecasting opex is appropriate?
18. Do you support the proposed step changes to our base opex in relation to improved safety and compliance?

[26] Zincara, Review of Unaccounted for Gas Benchmarks – Calculation Prepared for Essential Services Commission, December 2017. https://www.esc.vic.gov.au/wp-content/uploads/2017/12/review-of-unaccounted-for-gas-benchmarks-calculation-prepared-for-essential-services-commission-by-zincara-pty-ltd-20171218.pdf

10. Forecast capital expenditure

CHAPTER HIGHLIGHTS

1. We are proposing to invest $524 million of capital over AA5 that is $44 million (9%) above expenditure incurred during the five and a half years of AA4.
2. Major programs (mains replacement, network expansion, security of supply, network monitoring and meter replacement) represent over 50% of our total capex.
3. Support for our major capex programs was overwhelmingly positive in the VoC, with an average support rate of 95% from our residential and SME customers.
4. Our capex forecasts use a 'bottom-up' forecasting approach for each capex driver category (sustaining the network, growing the network, IT, and structures and equipment).

10.1 Introduction

Capital expenditure (capex) is incurred to connect new customers to the network and to support the ongoing safe and reliable natural gas supply to our customers. This chapter outlines our forecast capex over AA5 and the method used to forecast capex.

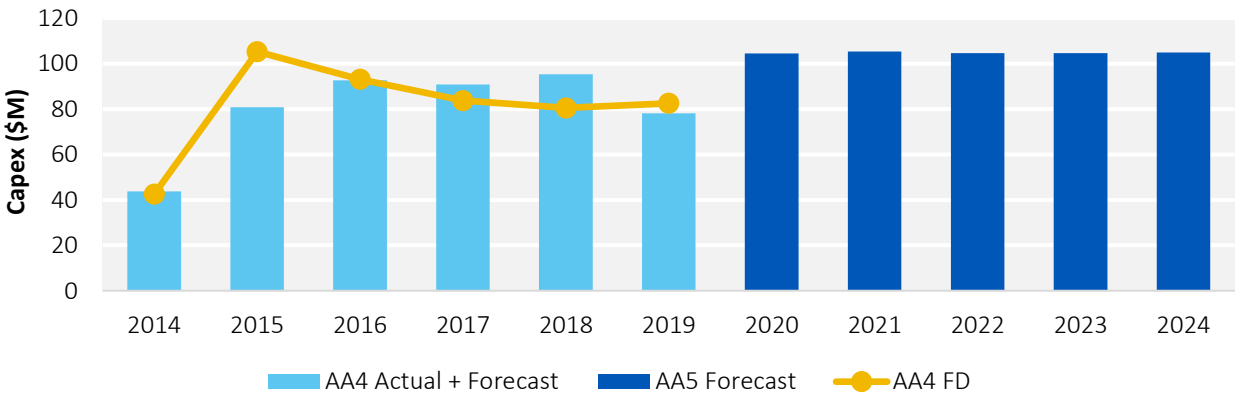
10.2 Regulatory framework

The NGR require ATCO to provide a forecast of '*conforming capital expenditure*' for AA5. Conforming capex is expenditure that would be incurred by a prudent service provider acting efficiently and in accordance with good industry practice to achieve the lowest sustainable cost of providing services to its customers. Conforming capex must also be justifiable using other criteria detailed in the NGR, including meeting customer demand, safety performance, and network reliability. It is expected that all projects detailed in this chapter will meet the conforming capex test set out in the National Gas Rule 79.

10.3 Overview

During the AA5 period, ATCO proposes to invest $524 million of capital that is $44 million (9%) above expenditure projected to be incurred during the five and a half years of AA4. Figure 10.1 compares our actual and forecast capex across AA4 and AA5.

Figure 10.1: AA4 vs AA5 capex ($ million real at 31 December 2019)



Our capex is driven by:

- **Sustaining the network (*'network sustaining'*):** This involves maintaining and improving the safety and integrity of services, complying with regulatory obligations, and ensuring we can meet *current* levels of demand for services from our customers.
- **Growing the network (*'network growth'*:** This involves complying with regulatory obligations and ensuring we can meet *forecast growth* in demand for service through expansion of the network.
- **Information technology (IT):** This involves IT systems at an operational and corporate level that enable us to provide services to customers, and more strategic initiatives such as the digital transformation of our business.
- **Structures and equipment:** This involves expenditure to maintain and replace fleet vehicles (e.g. heavy and light vehicles), plant (e.g. trailers, excavators, compressors) and property (e.g. facilities, depots).

Table 10.1 provides a summary of our forecast capex over AA5, with a breakdown of expenditure on major programs and other capex programs.

Table 10.1: Forecast AA5 capex by capex driver ($ million real at 31 December 2019)

CATEGORY	2020	2021	2022	2023	2024	TOTAL
MAJOR PROGRAMS						
Network sustaining	47.3	47.8	40.6	50.3	48.5	234.6
Network growth	2.6	7.8	15.0	5.3	2.0	32.7
IT	-	-	-	-	-	-
Structures & equipment	-	-	-	-	-	-
SUB-TOTAL	**49.9**	**55.7**	**55.6**	**55.6**	**50.5**	**267.2**
OTHER PROGRAMS						
Network sustaining	11.7	10.0	7.1	7.7	11.8	48.3
Network growth	28.7	30.4	31.8	33.6	35.4	159.8
IT	7.6	6.7	6.7	4.0	3.3	28.3
Structures & equipment	6.6	2.5	3.5	3.8	3.8	20.2
SUB-TOTAL	**54.6**	**49.7**	**49.1**	**49.0**	**54.3**	**256.7**
TOTAL	**104.5**	**105.3**	**104.7**	**104.6**	**104.8**	**523.9**

Further detail on this expenditure is provided in Sections 10.6 and 10.7.

10.4 Stakeholder engagement

Our forecast capex for AA5 considers the findings from our VoC program. As outlined in Chapter 4, we obtained customer feedback on four of our major capex programs. Support was overwhelmingly positive, with an average 95% support rate from our residential and SME customers, recognising the respective contribution to the distribution cost increase:

- Mains Replacement: 100% support rate
- Network Expansion: 91% support rate
- Network Monitoring: 91% support rate
- Meter Replacement: 96% support rate

10.5 Development of the capex program

Our capex forecasts use a 'bottom-up' forecasting approach for each capex driver category. Forecast capex is consistent with our overarching Asset Management Plan (**AMP**) and Asset Lifecycle Strategies, outlining our planning, approval, and governance processes for forecasting capex.

10.5.1 Cost Forecasting

Our cost forecasting approach uses the following processes and principles:

- a unit rate multiplied by volume; or
- discrete projects detailed in business cases; or
- the most recent actual information available (that reflects revealed efficient expenditure); or
- the most recent tender/contract information available, reflecting the expected market costs over AA5.

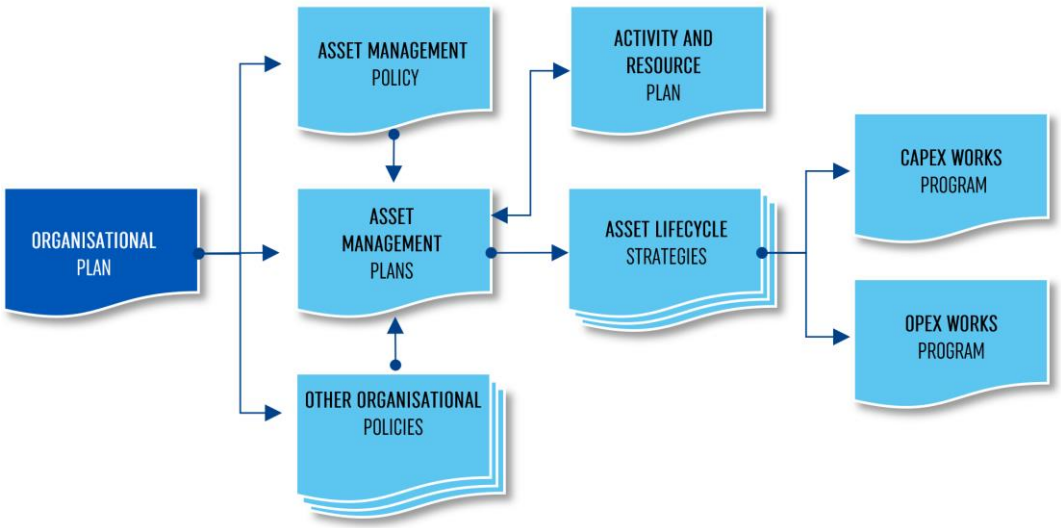
We have incorporated labour cost escalation into our capex forecasts. The labour cost escalators we have adopted are identical to the labour cost escalators detailed in Section 9.6.5 above.

These forecast methods ensure that actual and forecast capex satisfies the NGR, including that capex is prudent, efficient, and consistent with good industry practice to achieve the lowest sustainable cost for our customers.

10.5.2 Asset management systems

Our capex proposal for AA5 has been developed in line with our asset management systems. These systems govern the scope, timing, and approach to undertaking investment and upgrades to our assets. These include critical business information systems and asset replacement and augmentation programs that maintain network safety, meet our regulatory obligations, and maintain our service performance. Figure 10.2 illustrates our asset management system document hierarchy.

Figure 10.2: Asset management system document hierarchy



ATCO integrates risk management into day-to-day decision making. We have adopted the International Standard for Risk Management ISO 31000:2009 as a benchmark to establish, implement, and maintain our risk management framework. A 'top-down' and 'bottom-up' view is taken towards the implementation of the risk management framework and involves assessing risks from different stakeholder perspectives and risk types.

As part of our Safety Case[27] and AMP, we have conducted formal safety assessments for all asset classes to inform the development of Asset Lifecycle Strategies. Through this process, we have identified the following actions to reduce network risk to as low as reasonably practicable (**ALARP**):

- Upgrade HP pipelines to facilitate in-line inspection to ensure pipeline integrity.
- Initiate PVC[28] mains replacement program to reduce intermediate risk rated mains to ALARP.
- Install HP pipelines, interconnections, or other suitable infrastructure (as deemed optimal via options analysis) to provide security of supply to customers.

Ongoing projects addressing network risk will continue into the AA5 period. These include replacement of mechanical fittings and unprotected metallic mains, and meter compliance rectification works within the Perth CBD.

10.5.3 Governance framework

Our investment governance framework is aligned to the long-term planning of our business including the annual approval of the yearly business plan. In support of the yearly business plan, business cases, and capital expenditure appropriation requests are produced to detail the justification of our investments.

The Investment Governance Committee (**IGC**) reviews these business cases and expenditure requests, and if acceptable, signed authority is given for release of the expenditure. The IGC also tracks and monitors the annual business plan and regulatory period expenditure to enable an appropriate level and allocation of investment across projects, programs and functions relating to business operations.

In addition to this expenditure approval and monitoring, the IGC also approves and assesses compliance and performance of strategies, policies, business plans (including the AMP), and submitted improvement opportunities. The IGC assesses the adequacy and effectiveness of internal controls as they relate to capital works, operational expenditure, and investment decisions.

10.6 **Forecast capex:** Major Programs

This section provides further detail on our Major Programs for AA5.

Table 10.2: AA5 Major Program capex ($million real as at 31 December 2019)

MAJOR PROGRAM	2020	2021	2022	2023	2024	TOTAL
Mains Replacement	24.0	24.8	26.4	28.8	23.5	127.6
Network Expansion	2.6	7.8	15.0	5.3	2.0	32.7
Security of Supply	14.5	14.4	6.2	13.3	16.6	65.0
Network Monitoring	1.8	1.8	1.8	1.8	1.8	9.2
Meter Replacement	6.9	6.9	6.2	6.3	6.5	32.9
TOTAL	**49.9**	**55.7**	**55.6**	**55.6**	**50.5**	**267.2**

[27] ATCO Gas Australia, *Gas Distribution System Safety Case*, December 2017

[28] Unplasticised polyvinyl chloride. All references to PVC mains on the ATCO network refer to *unplasticised PVC.*

10.6.1 Mains Replacement Program ($127.6M)

BACKGROUND:

Keeping the gas flowing safely and affordably to our customers remains our priority. A critical part of this role is our Mains Replacement Program. Deteriorating mains pose a risk to customers and the public due to the potential for gas leaks to track into buildings, leading to a potential ignition event.

This program replaces PVC and unprotected metallic mains (that have been identified as an unacceptable risk) with polyethylene (PE) mains. The program is essential to ensure that the risk associated with these ageing assets is reduced to ALARP.

Our network consists of 9,600kms (approximately 70%) of PVC mains, introduced to the network in the early 1960s. In 1993, Polyethylene (**PE**) mains and services were introduced and in 2003 became the material of choice consistent with prudent operators nationally and internationally. Our PVC network has higher leakage rates than PE, predominantly occurring from fittings such as tapping bands, service tees, mechanical fittings, and mechanical couplings. Leak rates increase as the material ages and deteriorates due to PVC becoming brittle over time leading to fracture.

INVESTMENT DRIVERS:

Capex for mains replacement is driven by asset condition and its associated risk rating.

To predict the condition and risk, we use a software application known as the Mains Replacement Prioritisation tool. This software considers asset specification (such as age), historical leak data (including from fittings and exposure criteria to estimate pipe condition), remaining useful life, and risk from each pipeline to the public. The risk outcomes from the Mains Replacement Prioritisation tool reflect the risk to public safety (probability of individual fatality per km per year) from each pipeline segment, and have been correlated to the ATCO Risk Management Matrix, in accordance with our Safety Case[29].

PLANNED ACTIVITY:

Table 10.3 outlines the total length of mains to be replaced over AA5.

Table 10.3: Mains length to be replaced in AA5 (km)

TYPE	2020	2021	2022	2023	2024	TOTAL
PVC Mains Replacement[30]	40	53	72	77	63	**305**
Unprotected Metallic Mains Replacement	18	11	-	-	-	**29**
TOTAL	**58**	**64**	**72**	**77**	**63**	**334**

The output of our Mains Replacement Prioritisation tool has identified that 1,890km of the PVC mains have an 'Intermediate' risk, correlating to a probability of fatality per km per year between 10^{-4} and 10^{-6}. Within this risk bracket, 171 km sits within the 'Upper Intermediate' region (risk of fatality per km per year between 10^{-5} and 10^{-4}) and will be prioritised for replacement during AA5 due to its potential to move towards, or into, the 'High' risk category.

An additional 106 km has been selected for replacement during AA5, as these pipelines have a predicted leak rate higher than the average leak rate of the intermediate zone. These pipeline segments typically interconnect segments of pipelines planned for replacement and share a similarly poor condition and

[29] ATCO Gas Australia, *Gas Distribution System Safety Case*, December 2017

[30] This is subject to change due to continuous refining of the Mains Replacement Prioritisation model.

predicted leak rate. An additional 10% of mains length is predicted to be replaced to achieve program efficiencies, bringing the total proposed PVC mains replacement program for AA5 to 305 km.

This replacement strategy aims to reduce the Intermediate PVC risk to ALARP over the AA5 period. We are conducting an ongoing sampling program (opex) to gather additional condition data to inform our future PVC replacement decisions. This will prioritise expenditure to achieve the highest risk reduction.

Unprotected metallic mains have a higher leak rate compared to PVC and PE mains. The unprotected metallic mains replacement program was initiated in AA4 and is due for completion in 2021.

FORECAST EXPENDITURE:

A total of $127.6M of network sustaining capex has been estimated for the Mains Replacement Program for the AA5 period, summarised in Table 10.4. The project estimates are calculated using defined contractual rates; considering bundled efficiency, delivery methods, mobilisation, disruption, and third-party combined works opportunities.

Table 10.4: Mains Replacement Program in AA5 ($million real at 31 December 2019)

MAJOR PROJECT	2020	2021	2022	2023	2024	TOTAL
NETWORK SUSTAINING CAPEX						
PVC Mains Replacement	14.9	19.7	26.4	28.8	23.5	113.4
Unprotected Metallic Mains Replacement	9.1	5.0	-	-	-	14.2
TOTAL	**24.0**	**24.8**	**26.4**	**28.8**	**23.5**	**127.6**

10.6.2 Network Expansion ($32.7M)

BACKGROUND:

The distribution network must maintain adequate capacity to safely deliver gas to customers. Minimum network pressures are required for service regulators to function and safely allow supply of gas to appliances. In areas of the network experiencing high growth and increasing new customer connections, the ability for the network to maintain capacity may become diminished.

INVESTMENT DRIVERS:

Analysis of forecast new connections, coupled with hydraulic modelling of the gas network, has identified several expansion projects that will be required to maintain capacity during AA5. These include capacity upgrades to regulating facilities and mains extensions to maintain gas supply to existing and new customers.

Capacity driven projects are typically planned for the *year prior* to any predicted problems with network capacity. This allows us to stay ahead of potential supply issues for customers. Investment in SCADA, (*see Section 10.6.4*), will continually improve and optimise timing for network expansion projects.

In addition, we use an industry standard software package known as '*SynerGi*' to model network capacity and optimise network utilisation as it grows. This software identifies when network expansion projects are required to maintain security of supply to existing customers and ensure capacity to connect new customers.

PLANNED ACTIVITY:

The major network expansion projects identified for implementation during the AA5 period include:

- Six regulator sets as part of our reinforcement projects, with each project planned for the year prior to the network reaching system minimum pressure as identified through modelling.

- Mains extensions to address poor pressure problems.

FORECAST EXPENDITURE:

We forecast $32.7M of capex for our network expansion program over AA5, summarised in Table 10.5.

Table 10.5: Network Expansion Program in AA5 ($ million real at 31 December 2019)

CATEGORY	2020	2021	2022	2023	2024	TOTAL
NETWORK GROWTH						
Growth development projects	2.3	2.3	2.3	2.3	2.3	11.4
Mains extensions	0.4	5.9	12.9	3.1	0.1	22.4
Capacity upgrade	0.3	0.4	0.3	0.3	0.3	1.6
New regulating facilities	0.3	-	0.2	0.3	-	0.8
SUB-TOTAL	**3.3**	**8.6**	**15.8**	**6.0**	**2.8**	**36.5**
Less Capital Contribution	-0.8	-0.8	-0.8	-0.8	-0.8	-3.8
TOTAL	**2.6**	**7.8**	**15.0**	**5.3**	**2.0**	**32.7**

10.6.3 Security of Supply ($65M)

BACKGROUND:

Natural gas is initially delivered through the transmission network, then through the network to our customers. HP steel pipelines (Class 150, 300 and 600) provide the main supply conduits between the transmission and the distribution networks. Any damage to these pipelines, (e.g. through third-party damage) may have adverse consequences for our network if the pipelines require isolation.

A Supply Risk Assessment in 2017 identified that 11% of these pipelines are considered 'High' risk[31]. The Supply Risk Assessment implemented semi-quantitative analysis and network modelling to estimate the frequency and consequence of third party damage requiring isolation.

INVESTMENT DRIVER:

Where unacceptable 'High' risks are identified, we must act to reduce the identified risks to an acceptable level in accordance with our Risk Management Framework and our Safety Case[32]. This will ensure the supply of gas to customers is reliable, and prolonged interruptions of supply are minimised.

FORECAST ACTIVITY:

Initial feasibility studies have reviewed multiple options for reducing risks to an acceptable level, including reinforcement pipelines and assets, virtual pipelines, physical pipeline protection, increased operational activities, and segmentation of the network through installation of actuated valves with SCADA control. The preferred options were taken forward for further detailed analysis.

Four security of supply projects have been identified for AA5. Reinforcement pipelines and auxiliary pressure reduction assets were identified as the optimal solution to address supply risk for three out of four projects. The remaining project requires network reconfiguration to eliminate the supply risk.

[31] Based on quantitative isolation frequency estimation coupled with 'customer weeks lost' consequence modelling. Consequence categories against "customer weeks lost" were mapped to the ATCO Risk Management Matrix against category criteria provided in the draft AS/NZS 4645.1:2018, anticipated to come into effect prior to, or during AA5

[32] ATCO Gas Australia, *Gas Distribution System Safety Case*, December 2017

FORECAST EXPENDITURE:

A total of $65.0M of network sustaining capex is forecast for security of supply projects, summarised in Table 10.6. Capex has been forecast based on historical reinforcement costs.

Table 10.6: Security of Supply Program in AA5 ($ million real at 31 December 2019)

MAJOR PROJECT	2020	2021	2022	2023	2024	TOTAL
NETWORK SUSTAINING CAPEX						
Security of Supply Projects	14.5	14.4	6.2	13.3	16.6	65.0
TOTAL	**14.5**	**14.4**	**6.2**	**13.3**	**16.6**	**65.0**

10.6.4 Network Monitoring and Control ($9.2M)

BACKGROUND:

We are proposing to incorporate the use of supervisory control and data acquisition (SCADA) equipment and software on the network, allowing us to:

- monitor, gather, process, and control real-time network data from local or remote locations;
- improve gas quality management systems thus increasing network safety and reducing UAFG; and
- record valuable network data for analysis including optimising reinforcement of the network.

The introduction of a SCADA system to the network will bring several benefits, including: improving efficiency by enabling remote control of valves for improved control of the network; improved data acquisition and processing leading to better decisions; and communicating and reacting to system problems thereby mitigating network interruptions.

SCADA solutions have been identified for various network initiatives, including;

- **Improved data acquisition**: A new interconnection with transmission pipelines requires a revised Higher Heating Value (HHV)[33] Management solution due to the introduction of multiple gas sources with varying HHV into the same network. To comply with the Gas Standards[34], the HHV delivered to different customers within the same 'Gas Zone' must not differ by greater than 1 MJ/m^3 on any gas day. We have an obligation to monitor gas quality and act accordingly if regulatory requirements are not being met. Installation of devices such as gas chromatographs, HHV trackers or mass spectrometers is proposed at certain locations to accurately monitor gas quality and inform us of any required actions to improve gas inflow management.
- **Improving efficiencies**: The introduction of SCADA to remotely isolate valves will result in a cost-effective method to alter network flows and deliver consistent gas quality while maintaining network capacity. Further network enhancement is anticipated at multiple locations including South-Metro, North-Metro, and Rockingham networks (as per the Parmelia Gas Pipeline (PGP) Interconnection projects in Section 10.7.5). Remote controlled valves allow enhanced network pressure management and greater understanding of gas flows, improving the gas modelling outcomes and reducing measurement error.

[33] HHV is a measurement of the *quality of the gas.* It is a measurement of the energy liberated by burning gas and must be within acceptable ranges set for designated gas zones on the network.

[34] *Gas Standards (Gas Supply and System Safety) Regulations 2000 – Part 3A - Entry and commingling of gas of different qualities*

- **Mitigating network interruptions**: Remote operated valves will deliver further high-level control over the network during network emergencies. 'Security of supply' options analysis will identify when SCADA can temporarily lower the high supply risks in the short-term by reconfiguring the gas network flows in an emergency.
- **Optimising investment decisions**: By controlling distribution pressures in stranded networks (single feed), this can extend the life of existing assets before network reinforcements are required. Increasing delivery pressures at times of peak usage without exceeding network design limits is industry best practice.

INVESTMENT DRIVERS:

Capex is driven by the number of monitoring and control devices required to maintain target levels of network safety and reliability.

PLANNED ACTIVITY:

The scope of proposed data acquisition projects to be implemented during AA5 will be dependent on the outcomes of the PGP Interconnection projects. It is anticipated that three locations (South, North-Metro, and Rockingham) will be required for HHV monitoring.

FORECAST EXPENDITURE:

A total of $9.2M of network sustaining capex has been estimated for network monitoring and control projects, summarised in Table 10.7.

Table 10.7: Network Monitoring and Control Program in AA5 ($ million real at 31 December 2019)

MAJOR PROJECT	2020	2021	2022	2023	2024	TOTAL
NETWORK SUSTAINING CAPEX						
SCADA	1.4	1.4	1.4	1.4	1.4	6.8
Gas Zone Monitoring (Data Acquisition)	0.5	0.5	0.5	0.5	0.5	2.3
TOTAL	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**9.2**

10.6.5 Meter Replacement Program ($32.9M)

BACKGROUND:

Meters are installed on the network for billing or network monitoring purposes (e.g. capacity modelling, UAFG calculations). While there are various types and sizes of meters on the network, each meter falls into one of three lifecycle strategies: domestic meters, commercial meters, and network monitoring meters.

INVESTMENT DRIVERS:

Capex is driven by the lifecycle stage of the particular meter. Domestic and commercial meters have an end- of-life stipulated by regulatory requirements with the Gas Standards[35] to ensure accuracy retention.

- For **domestic meters**, we replace meters at their prescribed end of life. Our technical regulator *Building and Energy* (formally Energy*Safety*) approved an alternative requirement to the regulation with the extension of newer 'M6EW meters' in-service life to 25 years and replacing the expired domestic meter with a new meter.
- For **commercial meters**, an opex meter refurbishment program is maintained, to change out meters at their prescribed end of service life. Where a meter can no longer be refurbished (based on the manufacturer's recommendation), the meter is replaced under a capex project.

[35] As per Gas Standards (Gas Supply and System Safety) Regulations (GSSR) 2000 (Part 3 – Metering: Section 16)

- For **network monitoring meters**, we replace meters reactively (when a failure is identified) as they are not considered safety critical equipment, nor is their replacement prescribed within regulations.

PLANNED ACTIVITY:

Based on installation dates, it is estimated that approximately 25,000 domestic meters and 10 commercial meters will be replaced annually during AA5. For network monitoring meters, historical trending estimates that 2 meters will require replacement on average per year.

Forecast capex has been based on 2018 defined contractual unit rates. Replacement volumes are based on install date for domestic meters, and historical trends for commercial meters.

FORECAST EXPENDITURE:

A total of $32.9M of network sustaining capex has been estimated for our meter replacement program, summarised in Table 10.8.

Table 10.8: Meter Replacement Program in AA5 ($ million real at 31 December 2019)

MAJOR PROJECT	2020	2021	2022	2023	2024	TOTAL
NETWORK SUSTAINING CAPEX						
Domestic meters	6.8	6.7	6.0	6.2	6.4	32.1
Commercial meters	0.1	0.1	0.1	0.1	0.1	0.4
Network monitoring meters	0.1	0.1	0.1	0.1	0.1	0.4
TOTAL	**6.9**	**6.9**	**6.2**	**6.3**	**6.5**	**32.9**

10.7 **Forecast capex:** Other programs (by asset class)

This section provides details on our other programs for AA5 that are further detailed within each Asset Lifecycle Strategy, as categorised below.

Table 10.9: Other programs summary capex AA5 ($ million real at 31 December 2019)

PROJECTS	2020	2021	2022	2023	2024	TOTAL
Pipelines, mains, and services	32.0	32.1	33.6	35.4	40.4	**173.6**
Cathodic protection	0.3	0.3	0.3	0.3	0.3	**1.3**
Metering facilities	4.0	4.0	4.0	4.5	4.5	**21.0**
Telemetry	0.6	0.4	0.4	0.4	0.4	**2.2**
Pressure regulation facilities	3.6	3.6	0.6	0.6	1.7	**10.1**
IT	7.6	6.7	6.7	4.0	3.3	**28.3**
Structures and equipment – fleet	5.2	1.1	2.1	2.1	2.1	**12.7**
Structures and equipment – facilities, plant, and equipment	1.4	1.4	1.4	1.7	1.7	**7.5**
TOTAL	**54.6**	**49.7**	**49.1**	**49.0**	**54.3**	**256.7**

10.7.1 Pipelines, Mains and Services ($173.6M)

Table 10.10 provides a summary of our forecast capex over AA5 for Pipelines, Mains and Services with a breakdown of expenditure between Network Sustaining and Network Growth capex.

Table 10.10: Pipelines, Mains and Services in AA5 ($ million real at 31 December 2019)

MAJOR PROJECT	2020	2021	2022	2023	2024	TOTAL
Network Sustaining	3.9	2.5	2.5	2.5	5.7	17.1
Network Growth	28.0	29.7	31.2	32.9	34.7	156.5
TOTAL	**32.0**	**32.1**	**33.6**	**35.4**	**40.4**	**173.6**

Main projects that contribute to this capex category include:

- **In-line inspection of HP pipelines (Network Sustaining)**: Inline inspections have been completed as part of AA4 and continue in AA5, with seven pipelines identified to undergo internal inspection. Six of these seven pipelines will require network sustaining capex for modifications to enable internal inspection. These modifications will enable the pipeline inspection gauge (**pig**) to be safely introduced and removed from the pipeline without obstruction. Each project requires considerable planning, resources, and lead time to ensure safety and synchronous operation of the network and personnel.
- **HP warning signs (Network Sustaining):** HP warning signs are a control to reduce the likelihood of a third-party impact on our high-pressure assets. HP warning signs are installed on the network against sign spacing requirements for different location classes in accordance with the Australian Standard[36]. Approximately 7,500 HP warning signs will be installed on the network by the end of AA4. HP warning signs are visually inspected as part of pipeline patrol (weekly or monthly) and may be deemed 'end of life' due to physical damage (e.g. weather, vehicular impact, or vandalism), or structural degradation (e.g. corrosion). To maintain compliance to the Australian Standard[36], HP warning signs must be replaced when they reach their end of life. Based on operational experience, it is estimated that approximately 130 signs per year will require replacement due to physical damage or structural degradation.
- **Replacement of bolted compression couplings (Network Sustaining):** Bolted compression couplings are susceptible to leakage if deflection of the fittings occurs due to ground movements or from surrounding earthworks in the utility "corridor". These types of fittings are considered a high risk, and as a result are no longer used on the network. Bolted compression couplings are replaced when identified during operational activities. $7.0M is forecast over AA5 for replacement of bolted compression couplings.
- **Replacement of exposed steel bridge crossings (Network Sustaining):** Steel pipe on bridge crossings is susceptible to corrosion and leakage over time, as identified through five-yearly physical inspections on exposed mains. Cost-benefit-analysis is conducted to determine repair vs. replacement strategies for each site that requires remediation. It is recommended to replace identified steel bridge crossings with directionally drilled PE pipework (underneath the waterway).
- **Services (Network Sustaining):** Ageing risers connected to PVC services are susceptible to leakage. Currently, 1,600 leaks on mechanical couplings are identified via 'smell of gas' calls from the public or during routine maintenance. In total, 4,600 mechanical couplings are forecast to be replaced to eliminate these leaks. The expected increase is due to increased leak survey activity in AA5 (refer Section 9.6.2).

[36] AS/NZS 2885.1:2007 Pipelines- Gas and liquid petroleum-Design and construction

- **New Gas Connections (Network Growth):** 93,000 new customer connections with the associated new services (730km of main extensions and new domestic meters) have been included in our forecast.

10.7.2 Cathodic Protection ($1.3M)

Table 10.11 provides a summary of our forecast capex over AA5 for cathodic protection. Cathodic protection is installed to protect steel pipes from material fatigue and corrosion; which can lead to leaks or pipe blockages. All HP steel pipelines with a maximum allowable operating pressure greater than 1050 kPa require protection from corrosion.

Table 10.11: Cathodic Protection in AA5 ($ million real at 31 December 2019)

MAJOR PROJECT	2020	2021	2022	2023	2024	TOTAL
Network Sustaining	0.3	0.3	0.3	0.3	0.3	1.3
Network Growth	-	-	-	-	-	-
TOTAL	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**1.3**

Projects that contribute to this capex category include:

- replacement of depleted anodes;
- upgrade of cathodic protection enclosures to minimise third party damage;
- installation of 'step touch' mitigation systems;
- resistance probes to identify active corrosion and insulation joints; and
- surge diverters to prevent damage in the event of an electrical surge.

The investment driver is to provide adequate protection and conditional data on the HP steel assets and ensure public and personnel safety.

10.7.3 Metering Facilities ($21.0M)

Table 10.12 provides a summary of our forecast capex over AA5 for metering facilities.

Table 10.12: Metering Facilities in AA5 ($ million real at 31 December 2019)

MAJOR PROJECT	2020	2021	2022	2023	2024	TOTAL
Network Sustaining	3.3	3.3	3.3	3.8	3.8	17.6
Network Growth	0.7	0.7	0.7	0.7	0.7	3.4
TOTAL	**4.0**	**4.0**	**4.0**	**4.5**	**4.5**	**21.0**

Main projects that contribute to this capex category include:

- **Replacement of commercial and industrial metering facilities (Network Sustaining):** Commercial and industrial metering facilities, that contain pressure regulating and isolation equipment in addition to the meter, will experience degradation in condition over time, until such time they are no longer able to meet operational requirements. Metering facilities are inspected at intervals not exceeding 18 months. Where the condition is deemed poor, additional engineering assessment is undertaken to ascertain whether a metering facility requires replacement, or whether alternative refurbishment or repair options are available. Based on historical trends, it is predicted that four metering facilities will require replacement per year over AA5. The network sustaining capex is estimated at $1.2M over the AA5 period, based on bespoke design costing, current contractor supplier costs, and current in-house rates.

- **Smart meters (Network Sustaining):** The proposed project is to install new smart meter devices in select locations as part of our routine meter replacement program. Smart meters can be read wirelessly from the street, allowing accurate meter reads for customers where physical access to the property or gas meter is restricted. Restricted access typically results in an *estimated* meter read (based on historic customer data) and the need for frequent billing adjustments. In addition, smart meters enable the customer to monitor their own gas usage. This project is estimated at $3.8M.
- **Customer initiated connections (Network Growth):** 3,000 new commercial meter installations have been included in our AA5 forecast. The number of installations used within the forecast is based on third party demand forecast.

10.7.4 Telemetry ($2.2M)

Table 10.13 provides a summary of our forecast capex over AA5 for telemetry. All these projects are categorised as Network Sustaining capex.

Table 10.13: Telemetry in AA5 ($ million real at 31 December 2019)

MAJOR PROJECT	2020	2021	2022	2023	2024	TOTAL
Network Sustaining	0.6	0.4	0.4	0.4	0.4	2.2
Network Growth	-	-	-	-	-	-
TOTAL	**0.6**	**0.4**	**0.4**	**0.4**	**0.4**	**2.2**

The main projects that contribute to this capex category include end-of-life replacement of telemetry equipment and installation of pressure monitoring devices (PMDs).

Telemetry equipment is replaced once it has reached the end of its service life (based on the industry standards for complex electronic circuitry or manufacturer's recommendations). We aim to maintain or improve integrity of telemetry through replacement with new modern devices compatible with current technology.

New PMDs are installed to provide data to support better decisions on future reinforcement projects. As the network expands, network modelling identifies new locations where PMDs may be required (e.g. where the pressure is dropping close to the system minimum pressure during peak demand).

10.7.5 Pressure Regulation Facilities ($10.1M)

Table 10.14 provides a summary of our forecast capex over AA5 for pressure regulation facilities. All these projects are categorised as Network Sustaining capex.

Table 10.14: Pressure Regulation Facilities in AA5 ($ million real at 31 December 2019)

MAJOR PROJECT	2020	2021	2022	2023	2024	TOTAL
Network Sustaining	3.6	3.6	0.6	0.6	1.7	10.1
Network Growth	-	-	-	-	-	-
TOTAL	**3.6**	**3.6**	**0.6**	**0.6**	**1.7**	**10.1**

Main projects that contribute to this capex category include:

- **Parmelia Gas Pipeline (PGP) interconnection (Network Sustaining):** The network is currently supplied by 14 Dampier to Bunbury Natural Gas Pipeline (**DBNGP**) gate stations and two PGP gate stations. A 'loss of supply' event from the DBNGP could result in a catastrophic supply consequence to customers. Additional connections into the PGP pipeline will allow access to the Mondarra storage facility to mitigate the loss of gas supply in the event of isolation of the DBNGP transmission. One additional gate station will be required in 2020. The network sustaining capex estimated for the AA5 period is $5.98M for the connection of the PGP at Caversham, based on detailed project estimates for the PGP interconnection in Rockingham.
- **Replacement of regulator sets, pits, and lids (Network Sustaining):** Regulator sets (including pits and lids) experience degradation in condition over time. When they are no longer able to meet operational requirements, they are replaced. $3.3M worth of works has been estimated over the AA5 period.
- **Palisade fencing upgrades (Network Sustaining):** Above ground pressure reduction stations (**PRS**) facilities are protected from unauthorised entry via wire mesh fencing. Unauthorised access by members of the public has occurred at some PRS sites, resulting in vandalism and theft. Intentional actions by unauthorised personnel could result in damage to assets and isolation of supply from a PRS affecting the downstream supply to customers. The nine sites selected are accessible to the public and are therefore selected to undergo security upgrades to palisade fencing. The network sustaining capex estimated for the AA5 period is $641k, based on actual unit rates provided for existing fencing upgrade projects.
- **Vehicle protection (Network Sustaining):** Above ground facilities on the network can be damaged by vehicular impact with the potential to result in supply loss and loss of containment. Bollards are installed to protect above ground facilities from impact where it is identified that a facility is not adequately protected. The sites are identified by field personnel during routine maintenance and assessed against risk-based criteria taking into consideration alignment and distance to traffic and the traffic speed. $183k has been estimated over the AA5 period for vehicle protection.

10.7.6 Information Technology (IT) ($28.3M)

BACKGROUND:

Information technology (IT) has become an integral part of our business, from large systems that monitor network reliability, to digital channels for our customers, to the smaller systems that enable employee communications such as email.

Our IT capex forecast balances our operational requirements, by upgrading and expanding existing IT systems, with our more strategic requirement to explore new opportunities for digital transformation of our business. During AA5, our IT department will continue to deliver value for money by efficiently balancing capex and operational costs.

INVESTMENT DRIVERS:

IT capex is driven by the following:

- operational priorities based on our objectives for efficiency in alignment with business KPIs, customer feedback from the VoC program, and to achieve safe, reliable, and affordable natural gas services;
- specific mandated compliance timelines defined by the legislative and regulatory bodies; and
- the timing of vendor announcements of discontinuation of support for old technology; and the anticipated schedule of vendor releases for major upgrades and the complexity of the projects.

PLANNED ACTIVITY:

We are planning the following IT capex projects for the AA5 period:

- **Energised and responsible customer engagement**

  This program enhances existing and introduces additional online services to enable efficient interactions with customers. This approach aligns with our VoC findings, by making it easier for all our customer segments to interact with us; providing multiple communication channels to enable different mediums for customers choice was important feedback.

  The program provides enhanced features to our Commercial Customer Portal, enabling secure access to relevant customer and project information anywhere, anytime. This program will also extend the Commercial Customer Portal to other customer segments and provide residential customers with self-serve capabilities.

- **Network digitisation and intelligence**

  This program implements IT/OT integration[37] technology; enabling the capture and integration of network condition data with our asset management processes. IT/OT integration enables more sophisticated analysis and management of our network, thereby improving network reliability. This program will also extend our metering and measurement capabilities to manage the increased data available from smart meters.

- **Asset management and service delivery excellence**

  This program extends our technology solutions to improve both asset management (building on our Springboard Program in AA4) and greater automation in our operational processes. Specifically:

  - In AA5, we will extend the network asset management capability to fleet assets. Maintenance of our fleet is vital to enabling our work crews to provide services to our customers and to respond to incidents on our network.
  - We will also streamline the customer request processes through automated workflows, and the automation of procurement and contract management processes. With the growth of the competitive retail market in Western Australia, larger volumes of customers switching retailers is driving the need to automate our manual processes minimise the risk of interruption of service.

- **Enterprise and employee enablement**

  The success of our business is based on the ability of our employees to deliver services in an efficient, timely and safe manner that meets customer expectations. The Enterprise and Employee Enablement program will achieve this through extending our existing communication channels and workforce tools to improve information sharing and employee collaboration. The program includes:

  - Optimising how our team works and collaborates through enhancements in our secured internal and external communication channels.
  - Enhancing our performance management reporting and dashboard systems to support operational decision making.
  - Building on our existing document management foundation to provide a Knowledge Management System for employees to manage, share, and create relevant knowledge assets.

[37] IT/OT integration aims to reduce the typical separation of Information Technology (IT) and Operational Technology (OT) as areas with different authority and responsibility, by integrating processes and information flows.

- **Application renewal**

  This program ensures our business is not operating on unsupported or out-of-date software applications and associated hardware. Failures or security breaches in any of these systems can result in prolonged outages, adversely affecting our customers.

  Based on software vendor lifecycle plans, upgrades to the Customer Care & Billing, Geographic Information System, Document Management, and Integration systems are required during the AA5 period.

FORECAST EXPENDITURE:

Table 10.15 outlines our proposed capex for IT in AA5.

Table 10.15: IT capex AA5 ($ million real at 31 December 2019)

CATEGORY	2020	2021	2022	2023	2024	TOTAL
IT capex	7.6	6.7	6.7	4.0	3.3	**28.3**

10.7.7 Structures and Equipment – Fleet ($12.7M)

BACKGROUND:

The fleet asset class comprises all motor vehicles, plant, and equipment assets that are licensed by the Western Australian Department of Transport. The asset class includes:

- Motorcycles
- Passenger vehicles
- Light Commercial vehicles (e.g. utilities vehicles and vans)
- Heavy vehicles
- The larger plant and equipment such trailers, mobile message boards, excavators, and compressors

ATCO has a mobile workforce and locates its personnel and fleet close to operational demand centres to serve its customers more efficiently. The fleet underpins our operations and plays a vital role in enabling the work crews to undertake network maintenance activities, respond to network incidents in a timely manner, and provide a broad range of services to customers.

INVESTMENT DRIVERS:

Our fleet size and composition are driven by the forecasted network activities as set out in the AMP. Our forecast is developed for a 10-year horizon and includes the type and number of fleet assets required along with the fleet replacement forecast based on the criteria below.

PLANNED ACTIVITY:

We identify fleet asset replacement by considering the asset's age, kilometres travelled and/or engine hours metered. We regularly review this utilisation data to refine the schedule of fleet asset replacement.

Our replacement criteria are aligned with the Optimum Replacement Timing as recommended by the Institute of Public Works Engineering Australia in its Plant & Vehicle Management Manual and adjusted to consider our fleet specification and use.

FORECAST EXPENDITURE:

Table 10.16 outlines our proposed capex for fleet in AA5.

Table 10.16: Fleet capex AA5 ($ million real at 31 December 2019)

CATEGORY	2020	2021	2022	2023	2024	TOTAL
Fleet	5.2	1.1	2.1	2.1	2.1	**12.7**

10.7.8 Structures and Equipment – Facilities and plant and equipment ($7.5m)

BACKGROUND:

This asset class comprises all building, plant, and equipment (P&E) assets either owned or leased by ATCO. Our Head Operations Centre is located at Jandakot, with three depots in the Perth metropolitan area and three depots in the regional area (excluding Albany and Kalgoorlie).

Facilities underpin our operations and play a vital role in enabling the work crews to undertake network maintenance activities, respond to network incidents in a timely manner, and provide reference services to customers.

The asset class also includes smaller plant and equipment assets such as tools vital to the day to day operations.

INVESTMENT DRIVERS:

The size and location of our facilities are driven by the forecasted network activities as set out in the AMP relative to the growing footprint of our network.

PLANNED ACTIVITY:

No new facilities are planned in AA5. Several minor facility improvement initiatives have been identified for the seven facilities located in the Perth metropolitan and regional area, and these initiatives are spread across the five years.

FORECAST EXPENDITURE:

Table 10.17 outlines our proposed capex for Facilities and plant and equipment in AA5.

Table 10.17: Facility capex AA5 ($ million real at 31 December 2019)

CATEGORY	2020	2021	2022	2023	2024	TOTAL
Facility improvement	0.1	0.1	0.1	0.4	0.4	**1.1**
Plant and equipment	1.3	1.3	1.3	1.3	1.3	**6.4**
TOTAL	**1.3**	**1.4**	**1.4**	**1.7**	**1.7**	**7.5**

10.8 Overhead costs

Overhead costs are applied to forecast capex to recover business costs that are *not included* in the direct capex forecasts. These overhead costs include the indirect costs associated with operations and maintenance, network engineering and asset management, property and fleet, customer and corporate services, and IT.

Our forecasts include an allowance for overhead costs, which will be further refined prior to our September submission, reflecting our updated forecasts.

Considerations for our stakeholders

19. Do you believe our capex forecasts are fair and reasonable? Do you believe the 'bottom-up' method of forecasting is an appropriate method?
20. Do you support the findings from our Voice of Customer program on capex program priorities?
21. Are there any areas of focus for our capex program that you disagree with?
22. What should we take into account in developing our overhead forecasts?

11. Capital base

CHAPTER HIGHLIGHTS

1. The capital base has been rolled forward using forecast depreciation and actual capex.
2. Our opening capital base has increased from $1,101 million at 30 June 2014 to $1,329 million as at 1 January 2020.
3. Our projected capital base at the end of AA5 is $1,562 million.

11.1 Introduction

The forecast value of our capital base at 1 January 2020 is $1,328.9 million. The value of our capital base is a primary input into our total revenue calculation; it forms the basis of our *return on assets*, and *depreciation* building blocks.

As part of the access arrangement process, we are required to adjust our capital base in relation to capex, depreciation and inflation using actual information from AA4, and forecast information from AA5. This chapter discusses how we have made those adjustments for the AA4 and AA5 periods, and sets out:

- How the capital base from AA4 has been rolled forward to the opening capital base at 1 January 2020, and by how much.
- How the projected capital base for AA5 has been calculated and its projected value.

The chapter will focus on the method used to calculate the capital base; including the treatment of inflation, disposals, capital contributions, and depreciation. Capex is detailed in Chapter 10 and will only be mentioned in this chapter to the extent it affects the value of the capital base.

11.2 Regulatory framework

The main governing rules in the NGR for calculating our capital base are:

- **Rule 77**: Opening capital base calculation. Rule 77 determines the approach for the calculation of the opening capital base at 1 January 2020 (start of the AA5 period). Calculation of the opening capital base is set out in section 11.3.
- **Rule 78**: Projected capital base calculation. Rule 78 determines the approach for the projected capital base calculation; the projected capital base being the capital base over the AA5 period. Calculation of the projected capital base is set out in section 11.4

Other Rules to be considered in relation to the capital base are:

- Rule 82: Capital contributions to new capital expenditure
- Rule 84: Speculative capital expenditure account
- Rule 85: Capital redundancy
- Rule 86: Re-use of redundant assets
- Rule 88: Depreciation schedule
- Rule 89: Depreciation criteria
- Rule 90: Calculation of depreciation charges

Information pertinent to these rules is covered in Section 11.5.

11.3 Opening capital base

The opening capital base is calculated using the roll forward method, as set out in Rule 77 of the NGR.

Figure 11.1: Opening capital base calculation

The opening capital base for AA5 (1 January 2020) is calculated to be $1,328.9 million as shown in Table 11.1.

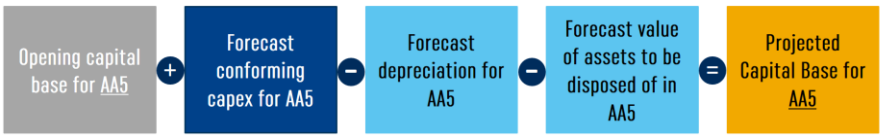
Table 11.1: Opening capital base for AA5 ($ million real as at 31 December 2019)

	JULY TO DEC. 2014	2015	2016	2017	2018	2019
Opening Capital Base	1,101.0	1,126.7	1,167.6	1,215.9	1,259.5	1,304.5
Capex (net)	43.8	80.7	92.6	90.8	95.0	77.5
Depreciation	-18.0	-39.8	-44.1	-47.2	-50.0	-53.1
Asset Disposals	-0.1	0.0	-0.2	0.0	0.0	0.0
Closing Capital Base	**1,126.7**	**1,167.6**	**1,215.9**	**1,259.5**	**1,304.5**	**1,328.9**

11.4 Projected capital base

The projected capital base is calculated using the roll forward method, as set out in Rule 78 of the NGR.

Figure 11.2: Projected capital base calculation



The forecast capital base over AA5 is provided in Table 11.2, considering forecast (straight-line) depreciation and capex. This shows a projected capital base of $1562.4 million as at 31 December 2024.

Table 11.2: Projected capital base ($ millions real as at 31 December 2019)

	2020	2021	2022	2023	2024
Opening Capital Base	1,328.9	1,385.1	1,432.2	1,477.4	1,520.8
Capex (net)	104.5	105.3	104.7	104.6	104.8
Depreciation	-48.3	-58.2	-59.5	-61.2	-63.3
Asset Disposals	-	-	-	-	-
Closing Capital Base	**1,385.1**	**1,432.2**	**1,477.4**	**1,520.8**	**1,562.4**

11.5 Supporting Information and assumptions

11.5.1 Capital contributions (Rule 82)

Capital contributions received have been netted off against conforming capex so that only the net amount is included in the capital base and the tax asset base.

We recover the tax costs that we incur when we receive a capital contribution from the customer paying the capital contribution. The amount of the capital contribution netted off against conforming capex does not include this additional tax cost recovery. We determine the tax cost to be the net present value effect of the timing difference between the capital contribution being assessed as *taxable income* and the related depreciation being assessed as a *tax expense*.

11.5.2 Depreciation (Rules 88, 89 and 90)

The depreciation schedule (*Rules 88 and 89*) for establishing the opening asset base, is based on the asset classes and the forecast depreciation in the ERA's final decision tariff model for the AA4 period. All assets are depreciated using the straight-line method consistent with the ERA's AA4 final decision tariff model.

For the projected capital base, following an ATCO review of asset classes, a new asset class for 'Telemetry' has been created with an economic life of 10 years. This new asset class was created due to increased need in our business for remote monitoring of our assets (*see Section 10.7.4)*.

The economic lives for asset categories are shown in Table 11.3. The asset life of 'equity raising costs' for AA5 has been amended to align with the average life of assets at 31 December 2019, rather than 30 June 2014.

Table 11.3: Economic lives of asset categories (years)

ASSET CATEGORIES	ECONOMIC LIVES	
	AA4	AA5
CURRENT AND NEW ASSET CATEGORIES		
HP Mains - Steel	80.0	80.0
HP Mains - PE	60.0	60.0
Medium / Low Pressure Mains	60.0	60.0
Regulators	40.0	40.0
Secondary Gate Stations	40.0	40.0
Buildings	40.0	40.0
Meter and Services Pipes	25.0	25.0
Equipment and Vehicles	10.0	10.0
Information Technology	5.0	5.0
Land	-	-
Equity Raising Cost	65.8	53.1
Telemetry	N/A	10
HISTORIC ASSET CATEGORIES – NO LONGER USED FOR NEW CAPEX		
Medium Pressure Mains	60.0	60.0
Low Pressure Mains	60.0	60.0
Full Retail Contestability (historic IT costs)	5.0	5.0

The asset lives for assets included in the initial capital base at 1 January 2000 remain unchanged and are as stated in the ERA's AA4 final decision tariff model.

Rule 90 requires that an access arrangement must contain a provision stating if depreciation used in calculating the opening capital base is based on actual or forecast depreciation. The opening capital base in AA5 has been calculated using the forecast depreciation in the ERA's AA4 final decision tariff model. Forecast depreciation will also be used to calculate the opening capital base in AA6.

11.5.3 Rules 84, 85, 86

No events have occurred in AA4 or are forecast to occur during AA5 that would require adjustment under Rules 84, 85, or 86.

11.5.4 Inflation

ATCO has applied an inflation adjustment to the opening capital base, consistent with the current cost accounting method. The inflation percentages applied to the opening capital base in each period are shown in Table 11.4.

Table 11.4: Inflation on opening capital base

JUL-DEC. 2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
0.66%	1.69%	1.48%	1.91%	1.71%	1.71%	1.71%	1.71%	1.71%	1.71%	1.71%

Assumptions:

- Inflation from **July 2014 to December 2017** is actual inflation; the weighted average of eight capital cities as published by the Australian Bureau of Statistics.
- Inflation for **2018 to 2024** is ATCO's forecast based on the yield differential between 5-year indexed and non-indexed Commonwealth Government bonds. This is often referred to as the 'Bond breakeven without adjustment' method. It is important that this market-based approach is used to forecast inflation over the AA5 period because it is based on the same data that is used to estimate the nominal risk-free rate used to calculate the nominal cost of debt and equity. Therefore, the inflation estimate used in capital base calculations is consistent with inflation assumptions used in weighted average cost of capital calculations.

11.5.5 Capex

ATCO's application of the roll forward method adopts an end-of-year timing assumption for capex, consistent with inflation and net present value cashflow assumptions. Capex is included in the asset base on an '*as incurred*' basis rather than a *commissioned* basis, because the expenditure must be funded as it is incurred. In terms of the revenue building blocks, capex starts to depreciate from 1 January in the year following the year of acquisition.

11.5.6 Disposals

ATCO has deducted actual asset disposals from the capital base on the following basis:

- To the end of 2017, disposals were valued at the lower of written down value or sale proceeds.
- After 2017, disposals were valued based on sale proceeds.

The reason for the change is due to disposals becoming more substantial from 2017; primarily due to the disposal of vehicle assets. We have therefore reviewed our policy and examined the practices of other regulated businesses regarding asset disposals. Following that review, we determined that disposals should be valued at sale proceeds and the proceeds offset against capex in the year of disposal.

While no disposals have been forecast for AA5, if there *are* asset disposals during AA5 these will be deducted from the opening capital base at the start of AA6.

11.5.7 Unregulated and non-reference assets

Assets used for the provision of unregulated services, i.e. those not related to the covered pipeline, have been excluded from the asset base. In addition, the cost of assets allocated to the provision of non-reference services have also been excluded from the asset base so that the costs related to those assets are excluded from the costs of providing reference services.

Considerations for our stakeholders

23. Do you consider our calculations of the Opening and Projected Capital base to be fair and reasonable?
24. Do you agree with the separation of the new Telemetry asset class from other IT expenditure?

12. Rate of return

CHAPTER HIGHLIGHTS

1. Our preliminary estimate of the rate of return is 5.96% (vanilla nominal after-tax), which is based on the method adopted by the ERA for the DBNGP decision, updated to reflect market data to the end of November 2017.
2. We expect the ERA to issue a binding rate of return guideline prior to September 2018, and we expect this guideline will be used to inform our re-estimated rate of return in the submission.

12.1 Introduction

We expect to adopt the ERA's updated rate of return guideline to determine the rate of return for AA5 when it is released. The guideline is expected to be binding on both ATCO and the ERA. It is anticipated that the necessary legislative changes to implement the binding rate of return guideline will be implemented by December 2018.

At this time, the ERA expects to publish the draft guideline in the first half of 2018 and a final guideline in the second half of 2018.

As the revised guideline is not currently available, we have prepared our estimate of the rate of return based on the method used to determine the rate of return for the Dampier to Bunbury Natural Gas Pipeline access arrangement in June 2016. We have updated the estimate of the rate of return to incorporate updated market data to the end of November 2017.

ATCO understands that these parameters are subject to change, and we reserve the right to update these parameters in the AA5 submission due in September 2018.

12.2 Proposed rate of return

Table 12.1 details the parameters adopted to estimate the rate of return to determine the building block revenue requirement. However, we consider this a preliminary estimate, and reserve the right to update and/or revise our estimate pending the outcome of the ERA's rate of return guideline review.

The proposed rate of return is based on the return on debt estimate for 2020. We have adopted the 2020 rate of return in our modelling of the building block revenue requirement over AA5 and to set the resulting price path. However, an update to the rate of return will be incorporated into each of the Annual Tariff Variations over the AA5 period.

Table 12.1: Rate of return estimate

WACC COMPONENT	AA4	DBNGP (JUNE 2016)	2020 PROPOSED RATE OF RETURN (30 NOV 2017)
Nominal risk-free rate	*1.96%*	*1.80%*	2.26%
Risk-free rate	*0.06%*	*0.38%*	0.54%
Inflation rate	*1.90%*	*1.43%*	1.71%

WACC COMPONENT	AA4	DBNGP (JUNE 2016)	2020 PROPOSED RATE OF RETURN (30 NOV 2017)
Debt proportion	*60%*	*60%*	60%
Debt Risk Premium (10-year average)	*2.605%*	*2.716%*	2.267%
5-year interest rate swap (effective yield)	*2.430%*	*2.100%*	2.463%
5-year interest rate swap spread	*0.47%*	*0.30%*	0.20%
Debt issuing cost (0.125%) + hedging (0.114%)	*0.24%*	*0.24%*	0.24%
Return on debt	***5.275%***	***5.07%***	**4.97%**
Market Risk Premium	*7.50%*	*7.40%*	7.40%
Equity beta	*0.7*	*0.7*	0.7
Corporate tax rate	*30%*	*30%*	30%
Franking credit	*0.25*	*0.40*	0.40
Nominal after tax return on equity	***7.21%***	***6.98%***	**7.44%**
Nominal after tax WACC[38]	***6.05%***	***5.83%***	**5.96%**
Real after tax WACC	*4.07%*	*4.33%*	4.18%

Considerations for our Stakeholders

25. Do you consider that 5.96% as our proposed rate of return is reasonable?

[38] Weighted Average Cost of Capital

13. Gamma and cost of tax

CHAPTER HIGHLIGHTS

1. We estimate that our cost of tax over AA5 is $11.9 million.
2. The cost of tax is part of ATCO doing business.
3. We have adopted the ERA approach from the DBNGP decision to determine the value of franking credits (gamma).

13.1 Introduction

ATCO calculates the estimated cost of corporate income tax as part of determining its building block revenue requirement for AA5. We have calculated an estimate of our corporate income tax expense by considering forecast revenue, opex, interest on debt and tax depreciation.

Table 13.1 presents the statutory income tax rate and the value of imputation that have informed our application of Rule 87A to calculate the cost of tax.

Table 13.1: AA5 proposed gamma and cost of tax

PARAMETER	PROPOSED VALUE
Corporate Tax Rate	30%
Franking Credit (gamma)	0.40

This chapter explains our approach to estimating the cost of tax, including how we applied the rate of return guideline to derive the value for gamma.

13.2 Gamma

Gamma (γ) is commonly calculated as the product of a distribution rate and the market value of distributed imputation credits:

$$\gamma = F \times \theta$$

Where:

- F represents the distribution rate, i.e. the proportion of credits created that are distributed to investors through franked dividends; and
- θ (theta) represents the value of distributed imputation credits.

As the revised guideline is not currently available, we have prepared our estimate of gamma based on the method used for the Dampier to Bunbury Natural Gas Pipeline access arrangement in June 2016. We have used an estimate of 0.40 for gamma, however, we understand that these parameters are subject to change, and we reserve the right to update these parameters in the AA5 submission due in September 2018.

13.3 Tax lives

We have applied tax asset lives to the tax asset base that are consistent with guidance provided by the Australian Tax Office, as shown in Table 13.2.

We have added a new asset category to the tax asset base in AA5 for Telemetry, given our increasing investment in telemetry and monitoring systems, including SCADA. The tax life adopted is 10 years consistent with the guidance from the Commissioner for Taxation in taxation ruling TR 2017/2 for the Gas Supply industry.

Table 13.2: Tax lives (years)

ASSET CATEGORIES	AA4	AA5
CURRENT AND NEW ASSET CATEGORIES		
HP Mains - Steel	20.0	20.0
HP Mains - PE	20.0	20.0
Medium / Low Pressure Mains	20.0	20.0
Regulators	40.0	40.0
Secondary Gate Stations	40.0	40.0
Buildings	40.0	40.0
Meter and Services Pipes	25.0	25.0
Equipment and Vehicles	10.0	10.0
Information Technology	4.0	4.0
Land	-	-
Equity Raising Cost	5.0	5.0
Telemetry	N/A	10
HISTORIC ASSET CATEGORIES (NO LONGER USED FOR NEW EXPENDITURE)		
Medium Pressure Mains	20.0	20.0
Low Pressure Mains	20.0	20.0

13.4 Establishing the opening AA5 tax asset base

The tax asset base (TAB) is a primary input into the calculation of the cost of tax. We have calculated the opening value of the TAB using the roll-forward method to roll forward the value of the TAB from the opening value at the start of AA4. Similar to rolling forward the RAB, the forecast AA5 TAB calculation considers:

- **Opening value at 1 July 2014:** The opening value of the TAB at the commencement of AA4 will be starting point for the roll forward of the TAB.
- **Capex**: Actual capex (net of capital contributions) incurred over AA4 and the forecast capex (net of capital contributions) over AA5 will be rolled into the TAB.
- **Depreciation**: Depreciation based on the actual capex over AA4 and the forecast capex to be incurred over AA5 will be deducted from the TAB.

Table 13.3 details the roll-forward of the tax asset base over AA4.

Table 13.3: Roll forward of tax asset base over AA4 ($million nominal)

	2014	2015	2016	2017	2018	2019
Opening value	467.2	484.3	510.9	546.0	580.1	619.5
Plus, capex (net)	40.2	75.5	87.9	87.8	93.4	77.5
Less, tax depreciation	-23.0	-48.8	-52.6	-53.6	-54.0	-57.5
Less, asset disposals	-0.1	-	-0.2	-	-	-
Closing value	**484.3**	**510.9**	**546.0**	**580.1**	**619.5**	**639.6**

13.5 AA5 tax asset base

Table 13.4 details the rolling forward of the TAB over the AA5 period and the resultant tax depreciation values adopted in the calculation of our estimate of corporate income tax. We have continued to apply tax asset lives that are consistent with the Australian Taxation Office guidance.

Table 13.4: Roll forward of tax asset base over AA5 ($million nominal)

	2020	2021	2022	2023	2024
Opening value	639.6	684.7	727.5	768.5	807.6
Plus, capex (net)	106.2	109.0	110.1	111.9	114.1
Less, tax depreciation	-61.1	-66.2	-69.1	-72.9	-77.2
Less, asset disposals	-	-	-	-	-
Closing value	**684.7**	**727.5**	**768.5**	**807.6**	**844.5**

13.6 Estimate of corporate income tax

We have calculated our estimate of corporate income tax using the same method we applied in AA4. Our approach is to first estimate taxable income as follows:

Smoothed tariff revenue

plus Revenue from prudent discounts.

plus Ancillary reference service revenue.

minus Approved forecast opex.

minus Depreciation of the tax asset base, excluding capital contributions. Tax depreciation is applied on a straight-line basis.

minus Debt servicing costs, calculated by multiplying the debt portion of the opening regulatory asset base by the debt to equity ratio (assumed at 60%) and the nominal hybrid trailing average cost of debt (based on the trailing average estimate of the debt risk margin, annually updated, plus the 'on the day' nominal risk-free rate).

equals Estimated taxable income.

We then apply the statutory tax rate and the value of imputation credits to the estimated taxable income to determine our estimate of corporate income tax.

Table 13.5: Estimate of corporate income tax ($million nominal)

	2020	2021	2022	2023	2024
Estimated taxable income	19.8	15.6	13.5	10.3	6.9
Tax payable	5.9	4.7	4.0	3.1	2.1
Less value of imputation credits	-2.4	-1.9	-1.6	-1.2	-0.8
Estimate of corporate income tax	3.6	2.8	2.4	1.9	1.2

Considerations for our Stakeholders

26. Do you consider our calculations for gamma and the cost of tax to be reasonable?
27. Do you have any comments on the methods we have used in our calculations? Do you believe they are reasonable?

14. Working capital

CHAPTER HIGHLIGHTS

1. Working capital has been calculated in accordance with the method in the ERA's AA4 final decision tariff model
2. Parameters used in the calculation have been updated from the ERA's AA4 final decision tariff model to reflect current working capital requirements

14.1 Introduction

Working capital refers to a stock of funds that ATCO must maintain to pay costs as they fall due, and inventory held to meet service requirements within mandated or reasonable service delivery times. The cost of this stock of working capital (being the required return on the capital investment) is incurred during the everyday business operation and the provision of reference services.

The requirement to maintain a stock of funds arises from the misalignment (on average) between incurring the costs of providing services, and recovering the revenues associated with the provision of those services. In addition, a stock of materials is held to allow efficient and timely provision of services. The cost of working capital reflects the return on the capital funds required to be maintained. These costs represent the efficient costs of a business that receives revenue at a different time to when it incurs costs.

14.2 Forecast working capital

ATCO has estimated the cost of capital using the '*working capital cycle model*' as previously accepted by the ERA. This cost is calculated as the difference between the implicit cost incurred by providing credit to users of the service, and the implicit benefit of receiving credit from suppliers. The working capital cycle is comprised of three core components: *inventory, creditors, and receivables.*

Although the method used is the same as AA4, the parameters applied to each component of working capital have been reviewed and amended where necessary.

- **Inventory:** We have maintained the assumption that an efficient level of inventory is 0.89% of the annual capex. Based on data available for 2017, inventory as a percentage of capex was 1.04%. We do not consider this difference material enough to justify amending the inventory parameter from the previously approved value.
- **Creditors:** We have adjusted our creditor's assumptions for AA5. Accounts payable creditor days have been re-evaluated taking account of the payment terms relating to labour costs, general creditors, and payment for UAFG. The weighted average creditor days is 19. The calculation of creditor days is shown in Table 14.1
- **Receivables:** Receivables days have been re-evaluated taking account of the days of unbilled haulage that were excluded in the calculation of receivables days for the AA4 period. Unbilled haulage reflects the incurred costs to provide reference services, for which revenue has not yet been received. The inclusion of this amount in working capital is consistent with the ERA's AA3 Western Power decision. The calculation of total receivables days is shown in Table 14.2.

Table 14.1: Calculation of creditor days

CREDITOR ELEMENT	WEIGHTING	DAYS
Labour	32%	1.7
Non-labour	64%	27
UAFG	4%	44
Total creditor days		**19**

Table 14.2: Calculation of receivables days

RECEIVABLES ELEMENT	DAYS
Average unbilled revenue days	40
Average days from meter read to invoice - based on billing twice a month	7
Days to issue invoice	1
Days from invoice to payment - payment terms are 10 business days	14
Total receivables days	**62**

Table 14.3 shows the working capital parameters.

Table 14.3: Working capital parameters

PARAMETER	AA4	AA5	BASIS OF CALCULATION
Inventory as a % of capex	0.89%	0.89%	Determined from the average level of inventory as a percentage of the forecast capex program. This measure does not include work in progress or completed assets not yet added to the RAB.
Creditors	15 days	19 days	Determined from the standard terms of payment to suppliers, labour, and suppliers of unaccounted for gas. The amount relates to total expenditure including capex
Receivables	18 days	62 days	Determined from the payment terms of our contracts with retailers.

Table 14.4 sets out the working capital value for AA5 based on the above assumptions.

The opening 2020 working capital value is the closing working capital value in the AA4 final decision tariff model as varied in annual tariff variations.

A return on opening working capital is included in "Total revenue" for each year of the access arrangement period as shown in Table 14.4.

Table 14.4: Return on working capital ($ million real as at 31 December 2019)

RETURN ON WORKING CAPITAL	2020	2021	2022	2023	2024
Opening working capital ($millions)	1.5	23.8	24.2	24.6	25.0
WACC (% nominal)	5.96%	5.96%	5.96%	5.96%	5.96%
Return on working capital ($millions)	0.1	1.4	1.4	1.5	1.5

Considerations for our Stakeholders

28. Do you consider our calculations for working capital to be reasonable?
29. Do you have any comments on the methods we have used in our calculations? Do you believe they are fair and reasonable?

15. Incentive mechanisms

CHAPTER HIGHLIGHTS

1. We are proposing a mechanism to incentivise innovation for AA5.
2. We do not have any incentive mechanisms in our current access arrangement.

15.1 Introduction

Over AA5, we expect the Western Australian energy market to continue to undergo rapid change, with renewable energy revolutionising the way networks operate. We believe our gas network has an important role to play in supporting the decarbonisation of the energy sector as well as offering a solution that balances environmental issues, cost, and security.

During this time of rapid technological change, innovation in our business is a major focus. The integration of new technologies into our network provide opportunities to improve our services and allow better responsiveness to customer choice.

To incentivise investment in innovative technologies, we are proposing a network innovation scheme for AA5. ATCO does not currently have any incentive mechanisms in AA4.

15.2 Regulatory framework

Rule 98 details the requirements for incentive schemes.

15.3 Proposed Network Innovation Scheme

15.3.1 Overview

ATCO operates in an increasingly diverse, contestable, and competitive energy services market. The competitiveness of this market means that, at a minimum, we need to focus on efficient service delivery, and facilitating upstream and downstream competition. Since we are already operating efficiently, the business would benefit from stronger incentives to take risks and innovate.

The NGR already allow for an access arrangement to include one or more incentive mechanisms to encourage efficiency in the provision of services. These schemes are available in addition to those that are embedded in the regulatory framework, including the price cap tariff variation mechanism.

However, the available mechanisms do not provide adequate incentive for ATCO to invest in innovative technologies because the returns provided under the current framework do not provide headroom for research and development risk. In addition, the incentives for a regulated energy business to invest in innovation are different to that of an unregulated business. Under conventional expenditure tests, regulated businesses are generally incentivised to focus on short-term projects aimed at containing costs and deriving operational efficiencies within an access arrangement period, rather than innovation that could deliver benefits over multiple access arrangement periods.

... the available mechanisms do not provide adequate incentive for ATCO to invest in innovative technologies because the returns provided under the current framework do not provide headroom for research and development risk.

The lack of incentive to invest in innovation is a limitation of the current regulatory framework and means that either necessary innovations are not pursued, or only lower cost innovations are introduced. With the speed and intensity of our shifting energy environment, this is not in the long-term interests of consumers.

The objective of the proposed Network Innovation Scheme is to overcome the disincentive for innovation that is created through the standard application of incentive-based regulation.

We consider that the need to encourage innovation is particularly important given the changes in the energy sector and the emergence of new technologies. Customers are increasingly looking to take more control of their energy consumption decisions, including how that energy is supplied.

ATCO's engagement with customers through the VoC program revealed that customers are looking to gas distribution businesses to research and develop innovative energy solutions. Network innovation is consistent with the above customer insights.

15.3.2 Design features and principles

ATCO proposes the Network Innovation Scheme includes the following features:

- each year, the scheme will allow ATCO to apply to the ERA for an up-front, indicative approval for planned expenditure under this mechanism;
- ATCO will only recover, through tariffs, amounts that have been spent on approved projects;
- a cap will be incorporated to limit how much ATCO will be able to invest in innovation under the scheme; and
- ATCO must submit annual reports on its activities, expenditures, and programs undertaken under the scheme.

The scheme will require us to identify eligible projects against criteria that may include the following:

- be a project or program for researching, developing, or implementing a piece of new equipment, a new arrangement or application of existing network infrastructure, a new practice directly relating to the operation or safety of the network or improvement in customer service, a new commercial arrangement, or a reduction to the carbon intensity of the gas distributed by the network; and
- be innovative, in that the project or program:
  - is based on new or original concepts;
  - involves technology or techniques that differ from those previously implemented or used in the Western Australian energy market; or
  - is focused on customers in a market segment that significantly differs from those previously targeted by implementation of the relevant technology; and
  - has the potential, if proved viable, to reduce long term network costs.

The Network Innovation Scheme will adjust revenue annually based on eligible projects. The AER has adopted a similar design for an innovation allowance for electricity distribution networks.[39]

15.3.3 How a network innovation scheme encourages efficiency

Our proposed Network Innovation Scheme is intended to overcome the disincentive for innovation that is created through the standard application of incentive-based regulation, and reflects the requirements of Rule 98 of the NGR.

[39] AER, Demand Management Innovation Allowance Mechanism, December 2017. https://www.aer.gov.au/system/files/AER%20-%20Demand%20management%20allowance%20mechanism%20-%2014%20December%202017.pdf

The proposed Network Innovation Scheme is consistent with the National Gas Objective and the Revenue and Pricing Principles. The proposed Scheme should, over time, lead to lower costs and improved services by encouraging the business to undertake long-term research and development activities that might not otherwise occur.

The Scheme removes the barriers to innovation so that:

- more cost-effective investments can be identified and made that ultimately deliver price benefits to customers, and
- innovative solutions to improving the safety, reliability and security of supply can be tested and implemented where benefits are identified.

Considerations for our Stakeholders

30. Do you believe an increase in innovation activity is important to address the future challenges of our energy environment?
31. Do you believe the current regulatory framework has sufficient incentives for innovation? If not, how should the framework be modified?
32. Do you believe the regulatory framework is the most suitable mechanism to increase innovation? If not, what other mechanisms do you consider to be most suitable?
33. Do you have any comments on our proposed network innovation scheme? Do you believe the associated design features and principles are sufficient to encourage greater innovation?

16. Total revenue

CHAPTER HIGHLIGHTS

1. We applied the building block method on a post-tax basis to determine the total revenue in AA5
2. The building block revenue requirement for AA5 is calculated to be $1,020 million, which compares with $922 million over the five and a half years of AA4.

16.1 Introduction

ATCO has applied the building block method on a post-tax basis to determine the total revenue required in AA5 for the provision of reference services. The building block method is commonly used in regulatory determinations and is required by Rule 76.

'Total revenue' consists of 'building blocks' that are summed to determine total revenue in each year of AA5. These building blocks include the return on capital, depreciation, opex, and other components such as taxes and incentive mechanisms. This total revenue is recovered through the tariff revenue received for the provision of reference services on a net present value equivalent basis.

Table 16.1 provides cross-references to the sections of this document that discuss and justify our proposal for each of the building blocks.

Table 16.1: Cross references to building block information in this document

REVENUE BUILDING BLOCK	SECTION OF THIS DOCUMENT
Return on the projected capital base	Section 11.4 and Chapter 12
Return of the projected capital base	Section 11.5.2
Return on working capital	Chapter 12 and Chapter 14
Estimated cost of corporate income tax	Chapter 13
Forecast opex	Chapter 9

This chapter sets out the total revenue for the AA5 period.

16.2 Regulatory framework

The NGR prescribe the approach for calculating the total revenue for our access arrangement. The main governing rules associated with our total revenue calculations are:

- **Rule 76**: Total revenue. Rule 76 sets out the building block components that make up total revenue.

Other Rules to be considered in relation to the total revenue are:

- Rule 87A: Cost of corporate income tax
- Rule 92: Revenue equalisation

16.3 Building block total revenue

The forecast total building block revenue for the provision of reference service over AA5 is $1020 million comprised of the building blocks shown annually in Table 16.2.

Table 16.2: Total revenue ($million nominal)

BUILDING BLOCK	2020	2021	2022	2023	2024	TOTAL
Forecast opex	69.9	72.2	75.7	79.7	83.8	**381.2**
Return of the projected capital base	49.1	60.2	62.7	65.5	68.8	**306.3**
Less inflationary gain in return on assets	-22.7	-24.1	-25.3	-26.6	-27.8	**-126.6**
Return on the projected capital base	79.2	83.9	88.3	92.6	97.0	**440.9**
Return on working capital	0.1	1.5	1.5	1.6	1.6	**6.3**
Tax payable	5.9	4.7	4.0	3.1	2.1	**19.8**
Less value of imputation credits	-2.4	-1.9	-1.6	-1.2	-0.8	**-7.9**
TOTAL REVENUE (UNSMOOTHED)	**179.0**	**196.5**	**205.2**	**214.6**	**224.6**	**1,020.0**

The total revenue requirement is collected on an NPV equivalent basis through the reference tariffs, per the requirements of Rule 92. Our approach to revenue equalisation through the reference tariffs is described in Chapters 17 and 18.

Considerations for our Stakeholders

34. Do you consider our calculations for revenue to be reasonable?
35. Do you have any comments on the methods we have used in our calculations? Do you believe they are fair and reasonable?

PART C:

Derivation of Reference Tariffs

17. Reference tariffs

CHAPTER HIGHLIGHTS

1. Our existing tariff classes will be retained for the AA5 period.
2. Our existing tariff structures (consisting of a fixed charge and a usage charge component) will be retained for the AA5 period.
3. An initial increase in tariffs is proposed for 1 January 2020, followed by a flat price path in real terms over AA5. Our customers support this stability in tariffs over AA5.
4. On average the increase over AA5 compared to the 2015-19 period is between 8.1% and 8.3%, which is less than forecast inflation over the 2015-19 period of 8.8%.

17.1 Introduction

This chapter sets out:

- The regulatory framework for tariff setting.
- The objectives used by ATCO, and the reasons for those objectives, when setting tariff structures.
- The process used by ATCO when setting tariff classes, tariff structures, and tariffs.
- The final tariff structure and tariffs proposed by ATCO.

Our primary consideration when setting tariff structures and tariffs, was to ensure that market price signals as economically efficient as possible, legislative compliance, and that we reflect the desire of customers and retailers for *stability*.

17.2 Tariff objectives

Tariffs must meet the regulatory requirements stated below. It is also important that the tariffs meet customer requirements for stability.

17.2.1 Regulatory framework

The NGL includes objectives and principles that influence our approach to setting reference tariffs. The associated NGR set out a process to establish tariff classes and the tariffs for those tariff classes. We must also take account of *National Gas Access (WA) (Local Provisions) Regulations 2009* regarding setting a uniform tariff for customers using up to one terajoule of gas and the effect on those customers as well as retailers.

Meeting the objectives and compliance with the principles, processes and requirements of the legislation is a necessary consideration when setting tariffs. The tests in the NGR include testing the expected tariff revenue, given the tariffs set, against the requirements that:

- for each tariff class the expected tariff revenue is between the avoidable cost and stand-alone cost of providing the reference service to that tariff class;
- in net present value terms, the total cost of service equals the expected tariff revenue; and
- the need to take account of long run marginal cost when setting tariffs.

In addition, the *National Gas Access (WA) (Local Provisions) Regulations 2009* requires that:

- the impact on small use customers and retailers must be taken into account; and
- uniform tariffs must be applied to small use customers for the same service irrespective of their location.

17.2.2 Customer requirements

A primary customer requirement from our engagement program is *stability;* that is, a stable overall distribution charge for a given level of service. To meet this requirement of our customers, ATCO has set tariffs in a way that seeks to minimise:

- tariff variability *within* the access arrangement period.
- tariff variability *between* access arrangement periods.

We have also considered the need for tariffs to:

- reflect efficient costs to provide the service; and
- provide signals to promote efficient utilisation of, and investment in the network.

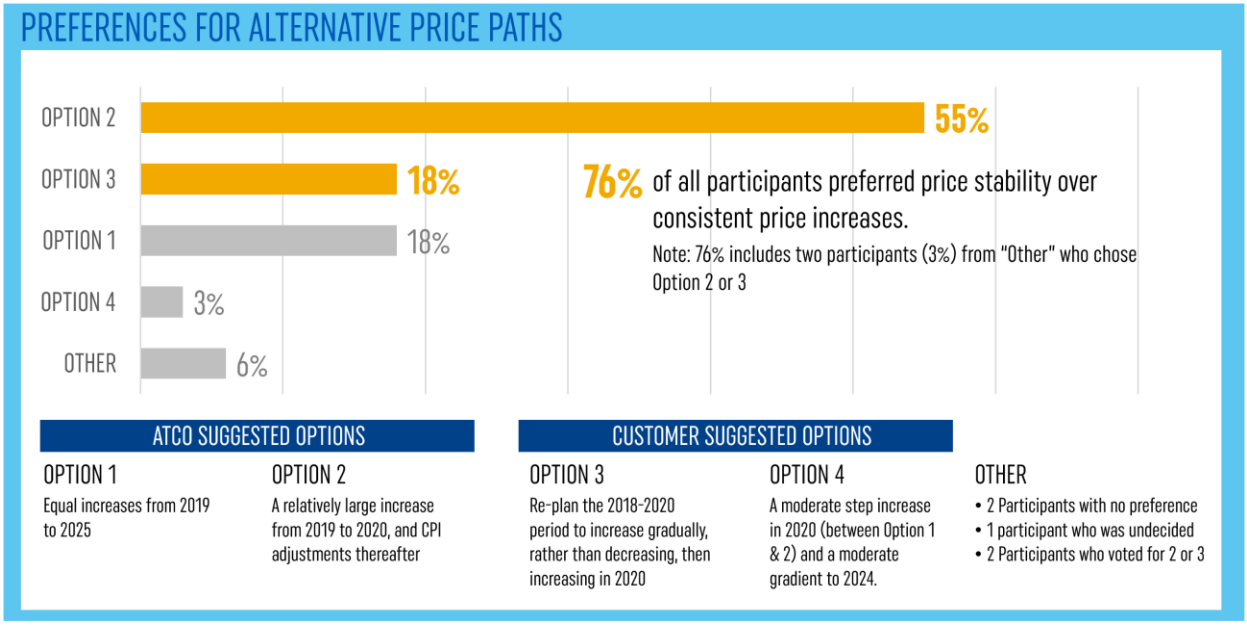
17.3 Stakeholder engagement

Our pricing for AA5 was an important topic of discussion in our VoC program. We presented our customers with the potential price increases for the distribution component of their bill for the next period. We explained that the increases were based on proposed capital works programs for the AA5 period. Both residential and SME workshop participants considered the price increase for AA5 as modest given the projects being considered.

We then sought customers' views on *how* the price increase should be introduced over the next period. Through a worksheet activity, customers were asked for their preferences on the size of an upfront increase, and subsequent percentage increases in the remaining years of the period.

Most customers (76% overall, with 86% for residential, 74% for SME and 25% for C&I customers) chose a *stable price path* as their preference for paying for the increase in costs (Option 2 in Figure 17.1). Customers accepted the larger increase in the initial year as they viewed the step change as modest.

Figure 17.1: Customer preferences for various price path options



17.4 Tariff setting process

17.4.1 Setting tariff classes

Our tariff classes are defined by the type of delivery facilities that are provided to certain customer groups. By grouping customers according to the delivery facilities, required tariffs can be constructed to reflect the costs related to serving that tariff class and provide suitable price signals.

The reference tariff classes in AA5 will be the same as in AA4, as there are no material changes in the:

- types of haulage services required by customers in each tariff class; or
- types of customers requiring reference services.

Maintaining the same tariff classes also contributes to the stability required by customers. Further detail on our tariff classes is provided in Table 6.1.

17.4.2 Tariff structures: *haulage services*

ATCO will maintain the AA4 tariff structures for the AA5 period. The reasons for this approach are:

- Customers value stability; maintaining the existing tariff structures keeps customers' prices relatively consistent.
- Cost-effectiveness; maintaining the existing tariff structures avoids potential costly changes to systems (including retailer systems) and processes that may be required should tariff structures change.

The current tariff structures include both a fixed charge, and a usage charge component. This tariff structure design provides efficient price signals to customers regarding their usage of the network.

- Usage charges reflect costs placed on the network by *additional usage*. Usage charges decline as usage increases to encourage greater network utilisation. We will continue to have a two-band usage tariff structure that is well known to customers and supported by regulatory precedent in gas distribution networks.
- The fixed charge is set to recover the cost of service *not recovered via the usage charges*. The use of fixed charges to recover this 'residual revenue' minimises the distortion to price signals.

The A1 tariff structure (typically industrial customers) also includes demand charges. These demand charges reflect the direct effects that these customers can have on network requirements. The A1 tariffs are based on the '*maximum usage of that customer at any point in time*', measured as gigajoules per hour (GJ/h) (referred to as capacity-based prices). Demand-based prices encourage a smoother usage profile, rather than a 'peaky' profile. Smoother usage profiles lead to lower network costs and higher network utilisation, as network capacity does not have to meet short-term volatility in usage.

Table 17.1 shows the proposed tariff structures for each tariff class (noting that we have adopted a single tariff class for each reference service).

Table 17.1: Tariff structure

REFERENCE SERVICE (TARIFF CLASS)	SERVICE ELEMENT	CHARGING PARAMETER
A1	Fixed charge for using the distribution system	Standing Charge ($/year)
	Fixed charge for the capacity of network utilised (reflecting maximum hourly quantity (**MHQ**))	Demand Charge ($/MHQ GJ/km)
	Variable charge based on throughput	Usage Charge ($/GJ/km)
	Charge to reflect the specific costs associated with customer for service pipe, regulators, metering, and telemetry	User specific Charge ($)
A2	Fixed charge for using the distribution system	Standing Charge ($/year)
	Variable charge based on throughput	Usage Charge ($/GJ)
	Charge to reflect the specific costs associated with customer for service pipe, regulators, metering, and telemetry	User specific Charge ($)
B1	Fixed charge for using the distribution system	Standing Charge ($/year)
	Variable charge based on throughput	Usage Charge ($/GJ) with two blocks
	Charge to reflect the specific costs associated with customer for service pipe, regulators, metering, and telemetry	User specific Charge ($)
B2	Fixed charge for using the distribution system	Standing Charge ($/year)
	Variable charge based on throughput	Usage Charge ($/GJ) with two blocks
B3	Fixed charge for using the distribution system	Standing Charge ($/year)
	Variable charge based on throughput	Usage Charge ($/GJ) with three blocks

17.4.3 Tariff Structure: *Ancillary services*

In addition to haulage services, there are ancillary services that are charged at the same rate to all customers within the relevant tariff classes, or at a rate to reflect the specific costs of the individual service provided.

Table 17.2 shows the proposed tariff structures for ancillary services.

Table 17.2: Ancillary services tariffs

ANCILLARY SERVICE	CHARGING PARAMETER
Apply meter lock	Published tariff per activity
Remove meter lock	Published tariff per activity
Deregistering a delivery point	Published tariff per activity plus the reasonable cost to ATCO to deregister the delivery point
Disconnect service	Published tariff per activity

ANCILLARY SERVICE	CHARGING PARAMETER
Reconnect service	Published tariff per activity
Special meter read	Published tariff per activity

17.4.4 Setting reference tariffs

Reference tariffs have been set taking account of the objectives set out in Section 17.2. The tariff setting process can be summarised as follows:

- Allocate costs to reference services so that tariffs can be set to recover those costs.
- Estimate the long-run *marginal cost* of providing the reference services so that tariffs can be set to promote efficient utilisation of the network.
- Set tariff components so the usage charge accounts for the long-run marginal cost and that the costs of providing the reference service are recovered.
- Confirm that for each tariff class, the revenue expected to be recovered by the tariff charges lies between an upper bound of the stand-alone cost of providing the reference service and a lower bound of the avoidable cost of providing the reference service.

17.5 AA5 tariffs

We have adopted an AA5 price path that increases tariffs on 1 January 2020 with no further real tariff increase in AA5; this is because our customers value stability. As a result, we have given primary weight to smoothing tariffs within AA5, while keeping the final year divergence of smoothed revenue and unsmoothed revenues as low as possible.

In setting this price path, we have sought to ensure that there is the correct balance between the longer-term interests of consumers and short-term price changes. This has been achieved by having regard to the following principles:

- Unsmoothed and smoothed revenue should be equalised in net present value terms.
- Proposed tariffs should reflect their underlying efficient costs.
- Proposed tariffs should minimise tariff variability between 2019 and 2020 and between each year of AA5.
- It is important to minimise the likelihood of tariff variability at the start of AA6.

The price path provides customers with pricing stability over the longer term and allows our prices to provide more effective signals to promote the economically efficient investment in and operation and use of the network by customers and ATCO.

A contributor to the initial increase in tariffs is the declining tariffs in AA4, where at the end of AA4, the tariff revenue is substantially below the cost of service. Adjusting tariff revenue to the approximate cost of service ensures that efficient price signals are sent to customers, and efficient use of and investment in the gas network is made.

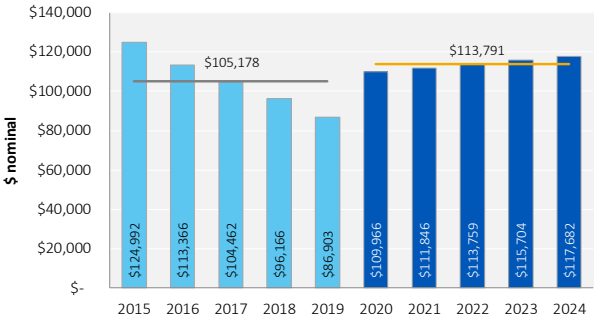
The advantages of this one-off step change in tariffs, rather than a progressive increase in tariffs, are:

- As we were told by customers during our VoC program, it assists customers to plan ahead as there will be less future variation in gas bills.
- Price signals are corrected immediately rather than continuing a pattern of tariffs reflecting either an over or understatement of the costs to provide the service.

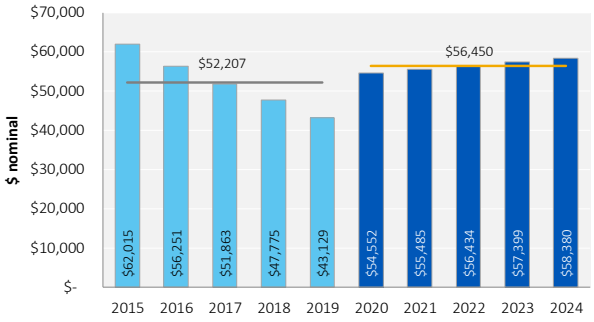
Figure 17.2 illustrates the average bill outcomes for each reference tariff class arising from our 2020-24 Draft Plan. On average the increase over AA5 compared to the 2015 to 2019 period is between 8.1% and 8.3%, which is less than forecast inflation of 8.8% over the same period.

Figure 17.2: Average customer bill outcomes summary

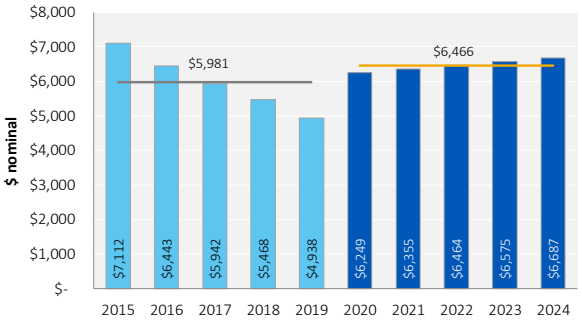
A1 Tariff: Average bill impact, AA4 - AA5: **8.2%**



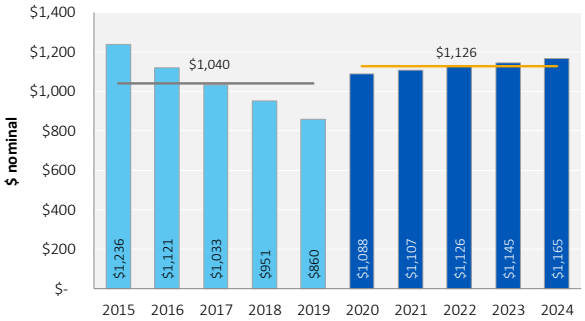
A2 Tariff: Average bill impact, AA4 - AA5: **8.1%**



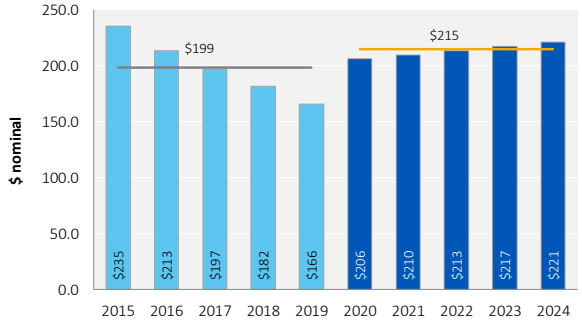
B1 Tariff: Average bill impact, AA4 - AA5: **8.1%**

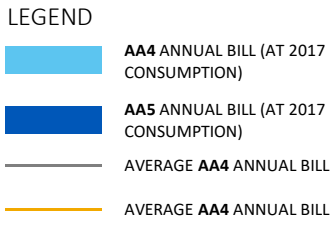


B2 Tariff: Average bill impact, AA4 - AA5: **8.3%**



B3 Tariff: Average bill impact, AA4 - AA5**: 8.1%**





Considerations for our stakeholders

36. Do you support our Voice of Customer findings that an initial price step-up, followed by longer-term price stability is preferred over consistent increases over AA5?

37. What are the possible effects of the proposed reference tariffs, the method of determining the tariffs and the reference tariff variation mechanisms on retailers and customers?

18. Tariff variation mechanism

CHAPTER HIGHLIGHTS

1. We propose a weighted average price cap tariff variation mechanism. The mechanism allows for:
   a) annual adjustment for CPI (weighted average across eight capital cites); and
   b) X factor based on the approved price path and amendments to the final decision tariff model. This will incorporate cost pass through items and annual updates to the debt risk premium.
2. Cost pass through items are unchanged from AA4.
3. The method of updating the debt risk premium is unchanged from AA4.

18.1 Introduction

The purpose of the tariff variation mechanism is to set out the detailed mechanism that causes our prices to be changed each year over the AA5 period. Our annual price changes are subject to the approval of the ERA.

This chapter sets out:

- The regulatory framework regarding the tariff variation mechanism.
- The rationale for the selected tariff variation mechanism.

An important consideration in selecting a tariff variation mechanism was the desire of our stakeholders and customers for stability, as evidenced in our Voice of Customer program. It was also important to keep the tariff variation process as simple and transparent as possible, to ensure market participants can understand and forecast future tariff changes.

18.2 Regulatory framework

The regulatory framework for constructing a tariff variation mechanism is not prescriptive but provides guidance on what a tariff variation mechanism may contain and what form a tariff variation by formula '*may*' take. For example:

- Tariffs may be varied in accordance with a formula set out in the access arrangement and to take account of defined cost pass through events (generally cost changes not able to be reasonably forecast as they are beyond the service provider's control).
- A tariff variation by formula may vary tariffs to set a revenue cap or a price cap on tariffs.

The NGR provides some guidance on matters to be considered when selecting a suitable tariff variation mechanism. Factors to be considered include:

- The need for efficient tariff structures
- Administrative cost
- The desirability of consistent tariff variation mechanisms for reference services within and across jurisdictions

18.3 Rationale for proposed reference tariff variation mechanism

18.3.1 Tariff variation by formula

We propose to implement a tariff variation mechanism that places a constraint on the overall average movement in haulage reference service prices from one year to the next (referred to as a *weighted average price cap*, or *tariff basket*).

The 'tariff basket' is a common mechanism noted for its administrative simplicity and positive incentive effects, and is supported by Regulators in all Australian jurisdictions.

This form of tariff variation was used during the AA4 period for the A1, A2 and B1 tariff classes, and for all tariff classes in previous access arrangement periods. Therefore, it is a familiar method of tariff variation for our customers and the ERA. The 'tariff basket' is a common mechanism known for its administrative simplicity and positive incentive effects and is supported by regulators in all Australian jurisdictions.

The tariff variation allows average prices to increase by the annual change in CPI, plus or minus the X-factor varied for debt risk premium updates and cost pass through items. The X-factor will be updated annually as part of the tariff variation process, by amending the approved AA5 tariff model for the debt risk premium for the tariff variation year, as well as any cost pass through items (described in section 18.3.2). The approved tariff model is then re-run to calculate the updated X-factor for the tariff variation year.

Using a price cap provides incentive for the business to increase customer connections and usage, as this generates additional revenue. In future access arrangement periods, customers benefit from costs being spread over a larger number of customers and volume.

In comparison, a revenue cap does not provide any incentive to grow the network for the benefit of customers; revenue remains constant regardless of the growth of the network. Therefore, a price cap form of control is preferable to provide the incentive to grow the network in the long-term interests of consumers.

Ancillary reference services described at Table 6.2 will be varied annually by the movement in CPI in the same manner as during AA4.

18.3.2 Cost pass through

The tariff variation mechanism allows the cost of 'cost pass through' events to be recovered. Cost pass through events are defined events that;

- incur costs that cannot be, and have not been, reasonably forecast;
- are beyond the control of ATCO; and
- relate to the provision of reference services.

The recovery of costs related to cost pass through events is made by varying the X-factor as described in the previous section. It is proposed that the cost pass through items defined in AA4 are maintained for AA5, except for capex related to 'Intermediate' security of supply, which was a specific item related to AA4.

In summary the cost pass through events are:

- HHV and gate point costs related to new gas inflows to the network.
- Any costs relating to a change in law or tax change.
- Any costs associated with a tax, fee, law, or emissions trading scheme related to greenhouse gas emissions.

Considerations for our Stakeholders

38. Do you support the weighted average price cap applying over AA5?

39. Do you agree with the cost pass through events?

PART D:

Other

19. Fixed principles

CHAPTER HIGHLIGHTS

1. Two of our fixed principles expire during the AA5 period.
2. We are still considering our position in relation to the fixed principles to include in AA5.

19.1 Introduction

The purpose of fixed principles is to provide certainty that specific principles will not be subject to review in the following access arrangement (or for a period agreed). This gives certainty and reassures both customers and ATCO, that a particular principle will go unchanged for a pre-determined period.

Currently we are still considering our position in relation to the fixed principles to include in AA5 but is likely to extend the fixed principles that support the operation of the cost pass through mechanism into AA5. We are inviting feedback from stakeholders to inform changes ahead of our September 2018 submission to the ERA.

19.2 Regulatory framework

Rule 99 of the NGR provides that an access arrangement may include principles that are fixed for a declared period. Fixed principles may be agreed on for two or more access arrangement periods.

19.3 Existing fixed principles

The following are the set of fixed principles in the access arrangement

- **Due to expire 1 January 2021**

1. the inclusion of:
    a) Physical Gate Point Costs that constitute Conforming Capital Expenditure in the Opening Capital Base for the ATCO GDS for the Next Access Arrangement Period; and
    b) Physical Gate Point Costs that constitute Conforming Operating Expenditure in Total Revenue for the Next Access Arrangement Period in respect of the ATCO GDS

    in respect of which Reference Tariffs have been varied as a Cost Pass Through Event

- **Due to expire 31 December 2024**

1. the inclusion of
    a) additional conforming expenditure associated with a Cost Pass-Through Event for the period 1 November 2018 to 31 December 2019. The expenditure must meet the requirements of clause 2 of Annexure B of this current access arrangement

- **Due to expire 25 August 2025**

1. the straight-line method of depreciation for each group of assets referred to in part 9

1. the inclusion of:
   a) HHV Costs that are Conforming Capital Expenditure in the Opening Capital Base for the ATCO GDS at the Revision Commencement Date; and
   b) in Total Revenue HHV Costs that are Operating Expenditure for the Next Access Arrangement Period in respect of the ATCO GDS

   in respect of which Reference Tariffs have been varied as a Cost Pass Through Event.

Considerations for our Stakeholders

40. Do you support ATCO extending the fixed principles that support the operation of the cost pass through mechanism to beyond 31 December 2024?
41. Are there any fixed principles in ATCO's access arrangement that should be removed?
42. What other new fixed principles or changes should be made to the existing fixed principles to support AA5?

20. Template service agreement

CHAPTER HIGHLIGHTS

1. We are still considering our position regarding changes to the template service agreement for AA5.

20.1 Introduction

The purpose of the template service agreement is to specify the terms and conditions for providing reference services (other than the reference tariffs, which are detailed in a schedule to the access arrangement). The template service agreement is typically adopted by retailers seeking access to the ATCO GDS and is a major part of our relationship as it governs the conditions (or terms) of access to our networks.

At this time, we are still considering our position in relation to the changes required to the template service agreement and we are inviting feedback from stakeholders to inform changes ahead of our September 2018 submission to the ERA.

20.2 Regulatory framework

Rule 48(1)(d)(ii) of the NGR provides that a full access arrangement must specify for each reference service, the other terms and conditions when the reference service will be provided. Consistent with this rule, the other terms and conditions for providing reference services are specified in the template service agreement.

20.3 Changes to the template service agreement

While we have not yet formed a view on the changes necessary to the template service agreement, it is expected that the following will influence the types of changes that may be proposed:

- **New and modified legislation** – for example changes to the Competition and Consumer Act 2010 and Australian Consumer Law.
- **Institutional changes** – the new role of AEMO in the Western Australia retail gas market.
- **New entrants to the market** – Our practical experience of engagement on the terms of the template service agreement with new and existing retail market participants and stakeholders.
- **New reference service** – the introduction of special meter read as a reference service.

Considerations for our Stakeholders

43. What other factors should ATCO consider to identify proposed changes to the template service haulage contract?
44. What practical issues and/or difficulties have been experienced with the engagement with new and existing market participants and stakeholders and the operation of the template service agreement during the current access arrangement period?
45. Are there any specific changes that should be made to the template service agreement to support AA5 objectives?

21. Policies and non-tariff components

CHAPTER HIGHLIGHTS

1. We are still considering our position regarding changes to the non-tariff components for AA5.

21.1 Introduction

The purpose of this chapter is to detail matters that are not directly related to the reference tariffs, but must form part of our access arrangement in the September 2018 submission to the ERA. These include:

- The application procedure
- Capacity trading requirements
- Extension and expansion requirements
- Changing receipt and delivery points
- Review Submission and Revision Commencement Dates

Currently, we are still considering its position regarding changes to the non-tariff components and is inviting feedback from stakeholders to inform changes ahead of its September 2018 submission to the ERA.

21.2 Regulatory framework

Rule 48 of the NGR provides that a full access arrangement must specify many of the matters addressed in this chapter, including parts (1)(f), (1)(g), (1)(h) and (1)(i).

Rule 112 of the NGR provides the framework for our application procedure.

21.3 Application procedure

The application procedure set out in the access arrangement details the process that will be followed when a prospective user wishing to obtain access to a Pipeline Service submits an application to ATCO. The application procedure is specified in our access arrangement and provides additional clarity on our application of NGR 112.

At this time we have not identified any changes to the application procedure for AA5. Changes to the application procedure may be identified by us as we prepare our user guide for the Albany and Kalgoorlie non-scheme pipeline networks in the first half of 2018. A user guide for non-scheme pipelines is a new requirement under the National Gas Law (WA) and Part 23 of the National Gas Rules that came into force late in 2017.

21.4 Capacity trading requirements

The capacity trading requirements provide for the transfer of capacity to a third party. The capacity trading requirements are specified in our access arrangement and the template service agreement.

At this time, we have not identified any changes to the capacity trading requirements for AA5.

21.5 Extension and expansion requirements

The purpose of the extension and expansion requirements is to specify whether the access arrangement will apply to incremental services to be provided as a result of a particular extension to, or expansion of the capacity of, the pipeline and deal with the effect of the extension or expansion on tariffs. These requirements are specified in the access arrangement.

Our current extension and expansion requirements provide for:

- ATCO to apply to the ERA if a HP pipeline extension is to be treated under the access arrangement.
- All pipeline extensions designed to operate at 1,920kPa or less to be treated under the access arrangement.
- All expansions to the GDS be treated under the access arrangement.

At this time, we have not identified any changes to the extension and expansion requirements for AA5.

21.6 Changing receipt and delivery points

The changing receipt and delivery point provisions provide for a user to change a receipt or delivery point subject to certain conditions. These provisions are specified in our access arrangement and the template service agreement.

At this time, we have not identified any changes to the changing receipt and delivery points provisions for AA5.

21.7 Review Submission and Revision Commencement Dates

We propose that the duration of AA5 will be five years. This compares to a five-and-a-half-year period for AA4 that was adopted to align regulatory years with calendar years.

The review submission date for AA6 will be 1 September 2023. This is consistent with the timing of revisions provided for under our current access arrangement. Our experience is that this review submission date allows sufficient time for the consideration of the proposed revisions.

The revision commencement date for AA6 will be 1 January 2025.

Considerations for our Stakeholders

46. What other factors should ATCO consider, to identify necessary or desired changes to the non-tariff components detailed above?
47. What practical issues and/or difficulties have been experienced with the non-tariff components (detailed above) during the current access arrangement period?
48. Are there any specific changes that should be made to the non-tariff components (detailed above) to support AA5?

APPENDIX A

A1. Considerations for our Stakeholders

Chapter 4: **Customer and stakeholder engagement**

1. Did our customer and stakeholder engagement program test the right topics? Are we engaging with the right groups of customers and stakeholders?
2. Does the release of this 2020-24 Draft Plan assist in the engagement process?
3. How could we improve our future engagement programs?

Chapter 5: **What we will deliver**

4. Do you believe that ATCO has the right priorities for 2020-24?
5. Are there any areas that you believe we have missed? Is there anything in our plan that you believe we shouldn't be doing?
6. Do our plans sufficiently address the findings from our stakeholder engagement?

Chapter 6: **Pipeline services**

7. Is there any additional information you would like on our proposed pipeline services?
8. Do you agree with the pipeline services we have proposed? Are there any services not listed that we should be offering? Are there any proposed services that you believe we shouldn't be offering?
9. Do you agree with the re-classification of the 'special meter read' service to a reference service?

Chapter 7: **Demand forecast**

10. Do you believe our forecast of new customer connections is reasonable?
11. Do you believe our forecast of customer demand is reasonable?
12. Do you believe ATCO's method to forecast customer numbers and average consumption per customer is reasonable and likely to produce the best estimate?
13. Are there any demand related factors you believe we have missed for AA5? Considering our rapidly changing energy environment (including the electricity sector), are there any 'left-field' demand factors that may play a greater role for future AA periods?

Chapter 8: **Key performance indicators**

14. Do you believe our KPIs provide an adequate measure of performance?
15. Have we set our targets correctly? Do the targets ensure we are sufficiently maintaining our current performance?
16. Are there any performance measures that you think we have missed?

Chapter 9: **Forecast operating expenditure**

17. Do you believe our opex forecasts are reasonable? Do you believe the base-step-trend method of forecasting opex is appropriate?
18. Do you support the proposed step changes to our base opex in relation to improved safety and compliance?

Chapter 10: **Forecast capital expenditure**

19. Do you believe our capex forecasts are fair and reasonable? Do you believe the 'bottom-up' method of forecasting is an appropriate method?
20. Do you support the findings from our Voice of Customer program on capex program priorities?
21. Are there any areas of focus for our capex program that you disagree with?
22. What should we take into account in developing our overhead forecasts?

Chapter 11: **Capital base**

23. Do you consider our calculations of the Opening and Projected Capital base to be fair and reasonable?
24. Do you agree with the separation of the new Telemetry asset class from other IT expenditure?

Chapter 12: **Rate of return**

25. Do you consider that 5.96% as our proposed rate of return is reasonable?

Chapter 13: **Gamma and cost of tax**

26. Do you consider our calculations for gamma and the cost of tax to be reasonable?
27. Do you have any comments on the methods we have used in our calculations? Do you believe they are reasonable?

Chapter 14: **Working capital**

28. Do you consider our calculations for working capital to be reasonable?
29. Do you have any comments on the methods we have used in our calculations? Do you believe they are fair and reasonable?

Chapter 15: **Incentive mechanisms**

30. Do you believe an increase in innovation activity is important to address the future challenges of our energy environment?
31. Do you believe the current regulatory framework has sufficient incentives for innovation? If not, how should the framework be modified?
32. Do you believe the regulatory framework is the most suitable mechanism to increase innovation? If not, what other mechanisms do you consider to be most suitable?
33. Do you have any comments on our proposed network innovation scheme? Do you believe the associated design features and principles are sufficient to encourage greater innovation?

Chapter 16: **Total revenue**

34. Do you consider our calculations for revenue to be realistic?
35. Do you have any comments on the methods we have used in our calculations? Do you believe they are fair and reasonable?

Chapter 17: **Reference tariffs**

36. Do you support our Voice of Customer findings that an initial price step-up, followed by longer-term price stability is preferred over consistent increases over AA5?
37. What are the possible effects of the proposed reference tariffs, the method of determining the tariffs and the reference tariff variation mechanisms on retailers and customers?

Chapter 18: **Tariff variation mechanism**

38. Do you support the weighted average price cap applying over AA5?
39. Do you agree with the cost pass through events?

Chapter 19: **Fixed principles**

40. Do you support ATCO extending the fixed principles that support the operation of the cost pass through mechanism to beyond 31 December 2024?
41. Are there any fixed principles in ATCO's access arrangement that should be removed?
42. What other new fixed principles or changes should be made to the existing fixed principles to support AA5?

Chapter 20: **Template service agreement**

43. What other factors should ATCO consider to identify proposed changes to the template service haulage contract?
44. What practical issues and/or difficulties have been experienced with the engagement with new and existing market participants and stakeholders and the operation of the template service agreement during the current access arrangement period?
45. Are there any specific changes that should be made to the template service agreement to support AA5 objectives?

Chapter 21: **Policies and non-tariff components**

46. What other factors should ATCO consider, to identify necessary or desired changes to the non-tariff components detailed above?
47. What practical issues and/or difficulties have been experienced with the non-tariff components (detailed above) during the current access arrangement period?
48. Are there any specific changes that should be made to the non-tariff components (detailed above) to support AA5 objectives?