Final Plan Attachment 5.9

Australian Gas Networks Draft Plan Stakeholder Workshop Presentations

August 2016

Australian Gas Networks

Victoria and Albury Draft Plan

Workshop 1: Overview, Opex and Capex

23 August 2016

Agenda

- **Overview**
  - About AGN
  - The AGN Vision
  - What we will Deliver
  - Purpose of the Draft Plan
  - Stakeholder engagement
  - Delivering our Final Plan
- **Operating Expenditure**
  - Overview of proposal
  - Forecasting approach
- **Capital Expenditure**
  - Overview of proposal
  - Forecasting approach
- **Next Steps**

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Overview

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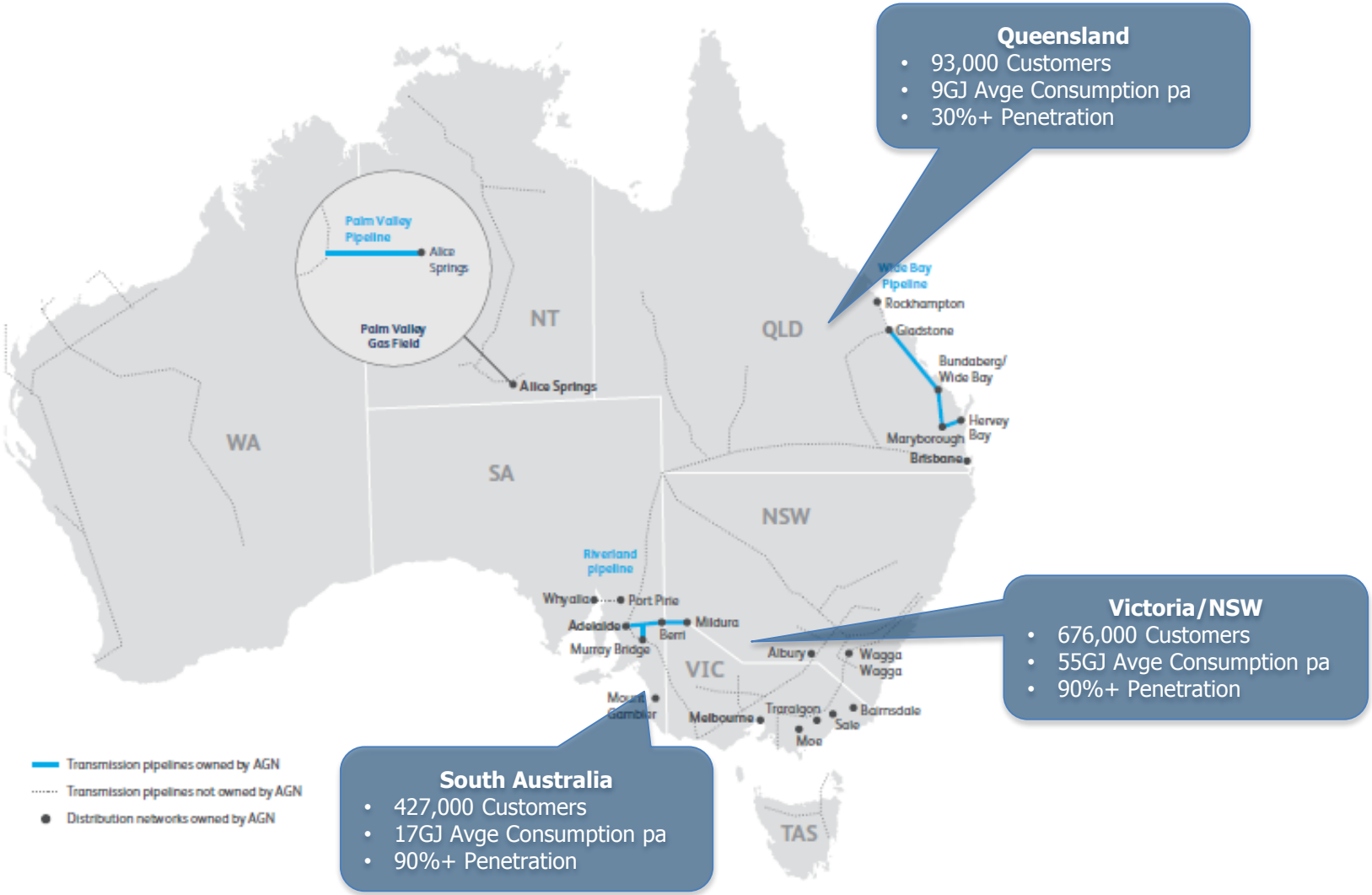
AGN Operates Networks in Most Australian States and Territories



Australian Gas Networks

Our vision

Our vision is to be the leading natural gas distributor in Australia...

Delivering for customers

Public Safety

Reliability

Customer Service

A good employer

Safety

Employee Engagement

Skills Development

Sustainably cost efficient

Working Within Industry Benchmarks

Delivering Profitable Growth

...achieving top quartile performance on our targets

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Overview | What we Delivered in South Australia

- We recently completed the South Australian Access Arrangement (AA) for 2016-2021
- Plans were informed by stakeholder engagement
- 23% upfront price cut (coming off a Weighted Average Cost of Capital of 10.3%)
- Opex and capex almost entirely accepted by the Australian Energy Regulator (AER)
- AGN accepted the AER's Final Decision
- Agreed positions have been applied to this Victorian and Albury Review

"More than 400,000 SA households and businesses are set to benefit from a drop in gas prices."
(***Channel 10 Adelaide***)

"… we think this [decision] is actually good for the state's economy."
(***Mark Henley (Uniting Communities), Channel 7 Adelaide***)

Prices in South Australia are down $144 (domestic) and $750 (small business)

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Overview | What We Have and What We Will Deliver

	Which means…	2013 – 2017 Actuals/Estimates	2018 – 2022 Targets
Delivering for Customers	• **Public Safety** • **Reliability** • **Customer Service**	• Emergency calls: 92% answered in 10 seconds • Customer calls: 80% answered in 30 seconds • Leaks: 95% attended in two hours • Average 18 interruptions to 5+ customers per annum • Around 16,000 new connections per annum • Stakeholder engagement program implemented	• Maintain high performance levels • Improve safety and maintain reliability • Support customer growth (approximately 14,000 new connections per annum) • Plans informed by stakeholder engagement • Improve and strengthen network incentives

A Good Employer	• **Safety**
	• **Employee engagement**
	• **Skills development**
		• Less than two Lost Time Injuries (LTIs) per annum
		• Lost Time Injury Frequency Rate (LTIFR): 1.6 per annum, per million hours
		• 100% compliance regarding employee refresher training and accreditation checks
			• Continuous improvement:
			  • LTIFR less than 1.0 per million hours
			  • Restricted duties rate: less than 15 days
			  • Implementation of employee engagement program
			  • Training and compliance monitoring

Sustainably Cost Efficient	• **Doing work within industry benchmarks** • **Delivering profitable growth**	• 100% mains replacement program delivered (696km) • Delivered network extensions to Merrifield, Koo Wee Rup and Wandong-Heathcote Junction. • Outperformed operating expenditure and capital expenditure	• Complete low pressure mains replacement program (307km) • Lower costs and network tariffs in real terms – 11% upfront price reduction • Continue to deliver leading productivity performance (by lowering expenditure relative to current levels)

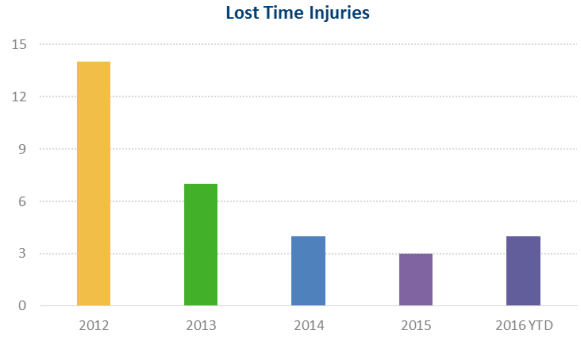
Overview | Victorian and Albury AA Plan

Effective Engagement

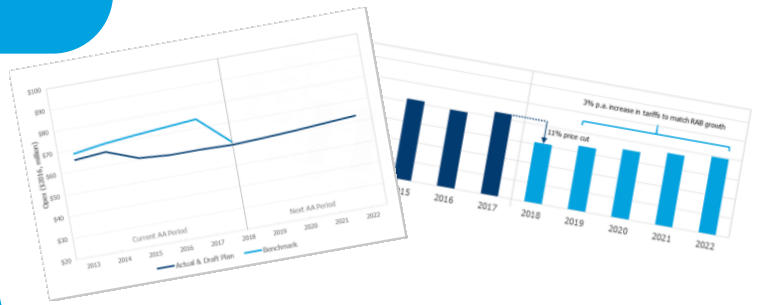
Delivering for Customers

Delivering an initial price cut of 11% to our customers

A Good Employer



Sustainably Cost Efficient



Lower prices, lower costs, continuous service improvement

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Overview | Purpose of the Draft Plan

- We published our Draft Plan for the next (2018 – 2022) AA period on 5 July
- The key purpose of the Draft Plan is to facilitate improved engagement on our business plans
- The Draft Plan outlines:
  - How feedback received so far has been incorporated into our Draft Plan
  - The activities and expenditure we propose to undertake in the next AA period
  - Future prices and revenue we intend to recover
  - Consultation questions for stakeholders
- Feedback will be incorporated in our final Victorian and Albury AA Proposal

AGN's intention is to submit an AA Proposal that is underpinned by effective stakeholder engagement and is capable of being accepted

Overview | Stakeholder Engagement – Approach

Strategy Phase | **Research Phase** | **Implementation Phase**

Nov-15 — Mar-16 — Jun -16 — 2017+

Ongoing communications with key stakeholders

- Developed Scoping Paper
- Established Victoria/Albury Reference Group
- Liaised with key stakeholders
- Developed engagement strategy

- Workshops with customers and retailers
- Outcome of 9 customer insights
- Developed and released Customer Insights Report

- Internal and external engagement on insights
- Incorporation of insights into Draft Plan
- Further workshops with stakeholders on Draft Plan

- Consideration of Draft Plan feedback in development of AA Proposal
- Ongoing engagement

Ongoing Engagement

Engagement Strategy

Stakeholder Research and Customer Insights Report

Draft Plan

Deloitte Report

AA Proposal

Initial Research Phase

- CUSTOMERS RECRUITED ON THE BASIS OF AGE, GENDER, INCOME
- RESIDENTS AND BUSINESSES
- 78 PARTICIPANTS
- 6 WORKSHOPS

Customer Insights Report

Draft Plan

Further Research

- STAKEHOLDERS INVITED DIRECTLY AND INDIRECTLY
- RESIDENTS, BUSINESS, GOVERNMENT, INDUSTRY BODIES, REGULATORS
- 2 DRAFT PLAN WORKSHOPS
- FURTHER STAKEHOLDER WORKSHOPS
- ONE-ON-ONE MEETINGS

Deloitte Report

TBC

ONGOING ENGAGEMENT WITH REFERENCE GROUPS, REGULATORS AND OTHER KEY STAKEHOLDERS

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Overview | Stakeholder Engagement – Engagement on Draft Plan

- The Draft Plan is an important part of our stakeholder engagement program
  - Seeking submissions from stakeholders (flexible on timing, any comment is beneficial)
  - Seeking ongoing engagement with our Reference Groups, the AER, Consumer Challenge Panel and Energy Safe Victoria
- Recent engagement activities:
  - Dedicated engagement on incentive arrangements
  - Presentation of Draft Plan to Reference Groups and AER
- Will conduct further engagement, including workshops with stakeholders

3. Do you have any suggestions as to how AGN could improve on and/or extend its stakeholder engagement program?

Overview | Purpose of Workshop and Next Steps

To proactively receive stakeholder feedback on our plans so this can be considered and reflected in our AA Proposal to the AER.

- Next steps:
  - Series of workshops to discuss Draft Plan and receive stakeholder feedback
  - One-on-one meetings with stakeholders
  - Further stakeholder workshops
  - Consideration and incorporation of feedback received in our AA Proposal

Stakeholder engagement is key to achieving our aim of submitting a plan that delivers for our customers and is capable of being accepted by the AER

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Overview | Role of Deloitte

- Deloitte were engaged mid-last year to assist AGN with the design and delivery of its stakeholder engagement program
- Key role is to capture and report back to AGN and its stakeholders the feedback received from our engagement program
    - Have published alongside this Draft Plan the Deloitte Stakeholder Insights Report from first round of stakeholder workshops
- Deloitte will sit across all aspects of our stakeholder engagement program
    - Facilitates a comprehensive/consolidated reporting on all engagement outcomes
- We will share with all stakeholders the feedback from today's workshop to ensure that it has been accurately captured before it is considered by our management team

Overview | Process Through to Delivery of Final Plan

- Stakeholder workshops to further explain and discuss Draft Plan
- Dedicated engagement with key stakeholders, including, but not limited to, Reference Groups, the AER and Energy Safe Victoria

We are open to stakeholder feedback at any time

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Operating Expenditure

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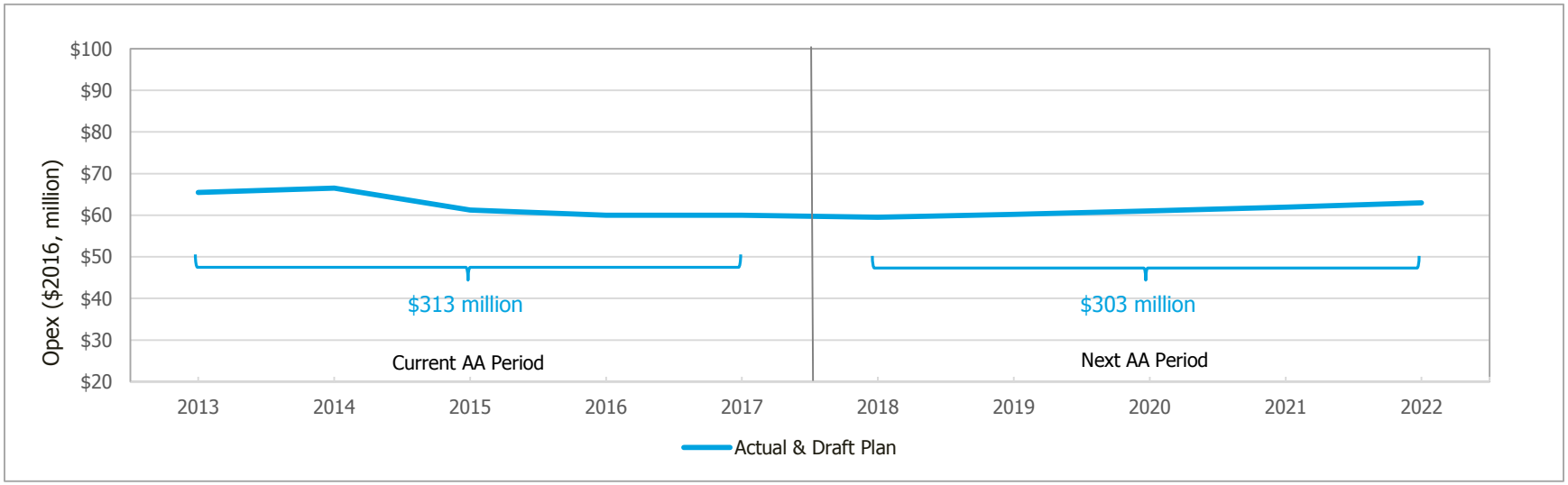
Opex | Draft Plan Opex Forecast



- Have applied "Base Year Roll Forward" approach to forecasting opex
- Forecast opex is 3% (or $10m) below current levels and 13% (or $45m) below current period benchmarks

AGN is proposing to lower opex despite increasing customer numbers and input costs

Opex | AER's Forecasting Approach

Base

AER typically uses the second to last year of the current AA period, as it will be the most recent data available to the AER at the time it makes its Final Decision.

Step

The AER accepts that in some instances, a service provider may face changes to opex not accounted for in base year opex or the 'trend'.

Trend = Input Cost Escalation + Output Growth − Productivity Growth

- **Input Cost Escalation**: Change in input prices accounts for key inputs that do not move in line with CPI
- **Output Growth**: Captures the change in expenditure due to changes in outputs delivered
- **Productivity Growth**: Accounts for labour productivity, economies of scale and the effect of industry wide technical change

AGN has applied the AER's preferred approach wherever possible

Opex | Comparison to AGN's Draft Plan

Base

AER typically uses the second to last year of the current AA period, as it will be the most recent data available to the AER at the time it makes its Final Decision.

Step

The AER accepts that in some instances, a service provider may face changes to opex not accounted for in base year opex or the 'trend'.

Trend = Input Cost Escalation + Output Growth − Productivity Growth

Change in input prices accounts for key inputs that do not move in line with CPI

Captures the change in expenditure due to changes in outputs delivered

Accounts for labour productivity, economies of scale and the effect of industry wide technical change

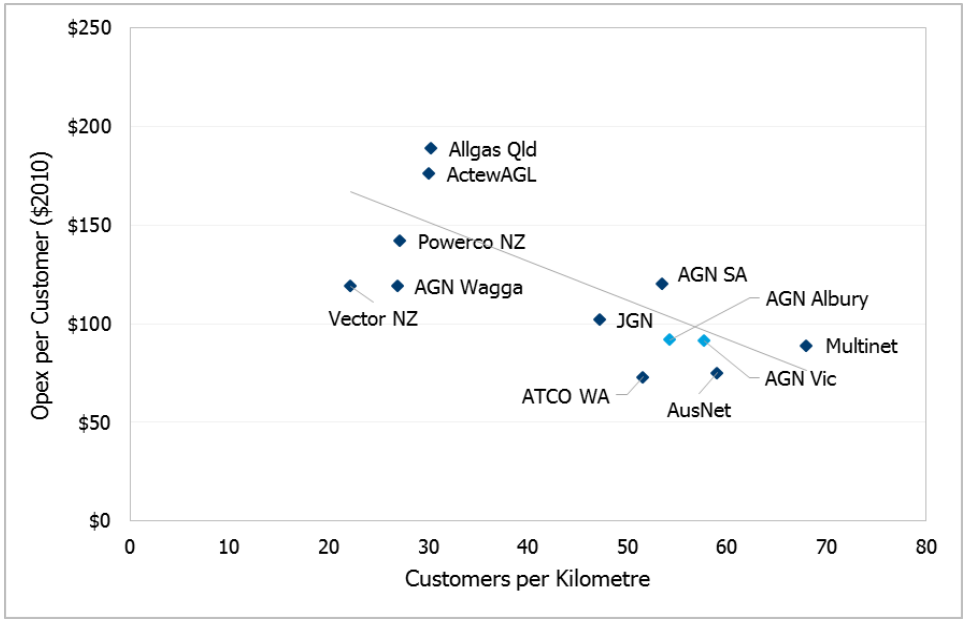
AGN has applied the AER's preferred approach wherever possible

Opex | Base Year

Base | **Step** | **Trend**

✓ Input Cost Escalation
× Productivity Growth
× Output Growth

- Consistent with AER's preferred approach, have used calendar year 2016 as base year
- Estimated base year opex in Draft Plan is $56 million ($2016) for Victoria and Albury
- Opex per customer relative to customer density (customers per km of pipe) shows strong productivity performance compared to industry



Source: Economic Insights 2016

Opex | Non-Base Year Opex

Base | **Step** | Trend

✓ Input Cost Escalation
× Productivity Growth
× Output Growth

- We have identified the following opex costs that we will incur over the next AA period

Cost	Opex Driven by Capex
$0.8	Business Intelligence
$0.6	Refurbish Dandenong-Crib Point Pipeline
$0.4	Interval Meter Data Management
$0.3	Transmission Pipeline Modification
$0.2	Geospatial Information System (GIS)

Cost	Step Changes
$2.0	Gas Assets Public Awareness Campaign
$2.0	Pipeline Integrity Assessment
$1.0	GasNet Custody Transfer Meter Charges
$0.6	Transmission Asset Drawings Update
$0.5	Environment Management Plans

Opex | Non-Base Year Opex

Base | **Step** | Trend

✓ Input Cost Escalation
× Productivity Growth
× Output Growth

- These opex costs have not been incorporated into the Draft Plan
- Intend to offset these costs with ongoing productivity gains over the next AA period
- By absorbing these non-base year opex costs, we are applying an implied productivity adjustment of 0.7% per year, over the next AA period
- Approach is also consistent with the preference of the AER to make limited adjustments to base year opex

AGN intends to absorb $8 million in opex costs over the next AA period

8. Should the non-base year costs (not included in the Draft Plan) be added to our opex forecast or be absorbed by the business?

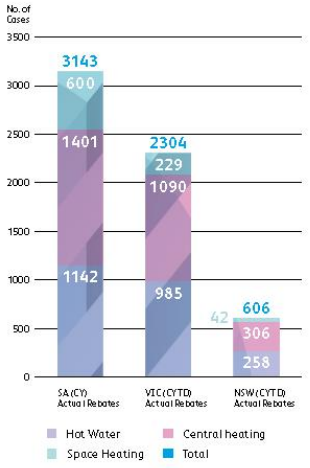
Opex | Marketing Program

Base | **Step** | **Trend**

✓ Input Cost Escalation
× Productivity Growth
× Output Growth

- Only non-base year cost included in Draft Plan relates to a $5 million joint marketing program with the other two Victorian gas distributors in metropolitan Melbourne
- Currently, AGN conducts marketing activities in regional Victoria and South Australia only (no overlap with other businesses)
- Proposing to expand this program to incorporate metropolitan Melbourne, as a joint project with the other gas distributors, to ensure costs are allocated appropriately
- Marketing activities will include:
  - Working with appliance retailers to offer incentives to customers for connecting new gas appliances to our network (through provision of rebates)
  - Mass media (such as advertising campaigns)

Rebates per appliance



2015 Rebate campaign

Consumers installing gas appliances benefit by reducing their carbon footprint. They are also able to access the benefits of natural gas – affordable, efficient and instant – for their homes.

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Opex | Why Do We Need Marketing?

Base | **Step** | Trend

✓ Input Cost Escalation
× Productivity Growth
× Output Growth

- Marketing is required as natural gas is a fuel of choice (i.e. competes with electricity)
  - There are readily available substitutes for residential and business uses of natural gas
  - Competitive pressures faced by AGN expected to increase as a result of increasing renewable electricity and storage
- Marketing program will increase the usage of our network, spreading fixed costs across more customers
- This is also consistent with what we heard from customers who told us they would like AGN to be more visible
- Increasing the number of connections will deliver lower prices to existing customers in the medium to long-term

"Marketing can help AGN drive new customers to the network and retain existing customers, ultimately putting downward pressure on network prices" Jemena Gas Networks August 2016

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Opex | Summary of Marketing Program

Base | **Step** | Trend

✓ Input Cost Escalation
× Productivity Growth
× Output Growth

- Currently deliver the same program in regional Victoria and throughout South Australia (i.e. in areas where we are the only distributor)
  - Jemena Gas Networks deliver similar program in NSW (approved by the AER)
- Proposing to expand this program to incorporate metropolitan Melbourne, as a joint project with the other two Victorian gas distribution businesses
  - Contingent on other two gas distribution businesses committing to this joint program
- Currently developing analysis in order to understand and ensure that any costs incurred in delivering marketing activities will be outweighed by benefits from additional customer connections and demand on our network
- Why do we need an allowance? – Because benefits will be passed to customers after the five year regulatory period

9. Do you support our proposal to expand our marketing program over the next AA period?

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Opex | Approach to Input Cost Escalation

Base | Step | **Trend**

- ✓ Input Cost Escalation
- × Productivity Growth
- × Output Growth

- Applied AER's preferred approach:
  - ✓ Opex resource mix of 62% labour and 38% materials
  - ✓ Forecast growth in real materials costs of zero
  - ✓ Wage Price Index (WPI) used as basis to developing forecast labour cost increases
  - ✓ Electricity, Gas, Water and Waste Services (EGWWS) industry used
  - ✓ Average of BIS Shrapnel and Deloitte Access Economics forecasts applied
- Contribution of input cost escalation is 2% of total opex

Escalation Rate	Weight	2017	2018	2019	2020	2021	2022
Labour	**62%**	0.7%	1.0%	0.9%	1.0%	1.4%	1.5%
Materials	**38%**	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Weighted Input Cost Escalation Rate		**0.4%**	**0.6%**	**0.5%**	**0.6%**	**0.8%**	**0.9%**

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Opex | Approach to Output Growth

Base | Step | **Trend**

✓ Input Cost Escalation
× Productivity Growth
× Output Growth

- Deviated from AER's preferred approach
- AER's preferred approach detailed in Expenditure Forecast Assessment Guideline (developed for electricity distribution businesses)
  - Has been applied in some cases to gas businesses
  - Not applied in our most recent South Australian AA review process
- AER's approach is as follows:
  - Use two output variables; growth rate in customer numbers and throughput
  - 45% weight given to customer numbers, 55% to throughput
  - Growth rates of each variable are combined to produce a total output growth rate, used as an input into the Rate of Change formula (applied to base year opex)

Opex | Approach to Output Growth

Base | Step | **Trend**

✓ Input Cost Escalation
× Productivity Growth
× Output Growth

- AER's approach assumes that changes in these variables have an impact on the level of opex incurred by gas distribution businesses

  ✓ *Customer numbers* – would expect opex to increase as customer numbers increase (e.g. more assets to maintain, more meters to read etc.)

  × *Throughput* – wouldn't expect changes in the volume of gas delivered to customers to impact on the level of opex incurred

- ACIL Allen has found that throughput and opex have an inverse relationship (i.e. a positive growth rate in throughput implies a reduction in opex incurred by a business)

  - ACIL Allen do not support using throughput as an output variable

"… gas throughput has been declining for the majority of the distribution businesses over the period of 2005 to 2013, while opex has continued to increase. This suggests that energy (gas throughput) is no longer a key driver of increasing operating expenses…" ACIL Allen 2015

Opex | Approach to Output Growth

Base | Step | Trend

✓ Input Cost Escalation
× Productivity Growth
× Output Growth

- AGN's approach is as follows:
  - Only one output variable (customer numbers)
  - Apply an "*incremental cost per customer*" value, as detailed in the Victorian Gas Distribution System Code (page 44)
  - Multiply forecast number of net new customer connections by the "*incremental cost per customer*" to calculate additional opex to be incurred by AGN over the next AA period
- This approach is consistent with technical and economic evidence, is simply to understand and consistent with that used most recently for our Victorian and South Australian networks

10a. Do you consider that increases in opex attributable to the growth of our network are appropriately captured through growth in customer numbers (or should growth in throughput also be accounted for)?

10b. Should any output growth factor that is developed for gas distribution be subject to industry-wide consultation before it is introduced?

Opex | Approach to Productivity Growth

Base | Step | **Trend**

✓ Input Cost Escalation
× Productivity Growth
× Output Growth

- The AER's preferred approach is to apply a forecast of productivity growth to opex
- AGN considered this approach and worked with external consultants to develop cost function analysis in order to produce estimates of productivity growth over the next AA period
- Cost function analysis produced a **negative forecast of productivity growth** (i.e. productivity expected to decline over the next AA period)
- This could be due to:
  - Small sample size of gas distribution businesses in Australia
  - High correlation among variables

Opex | Approach to Productivity Growth

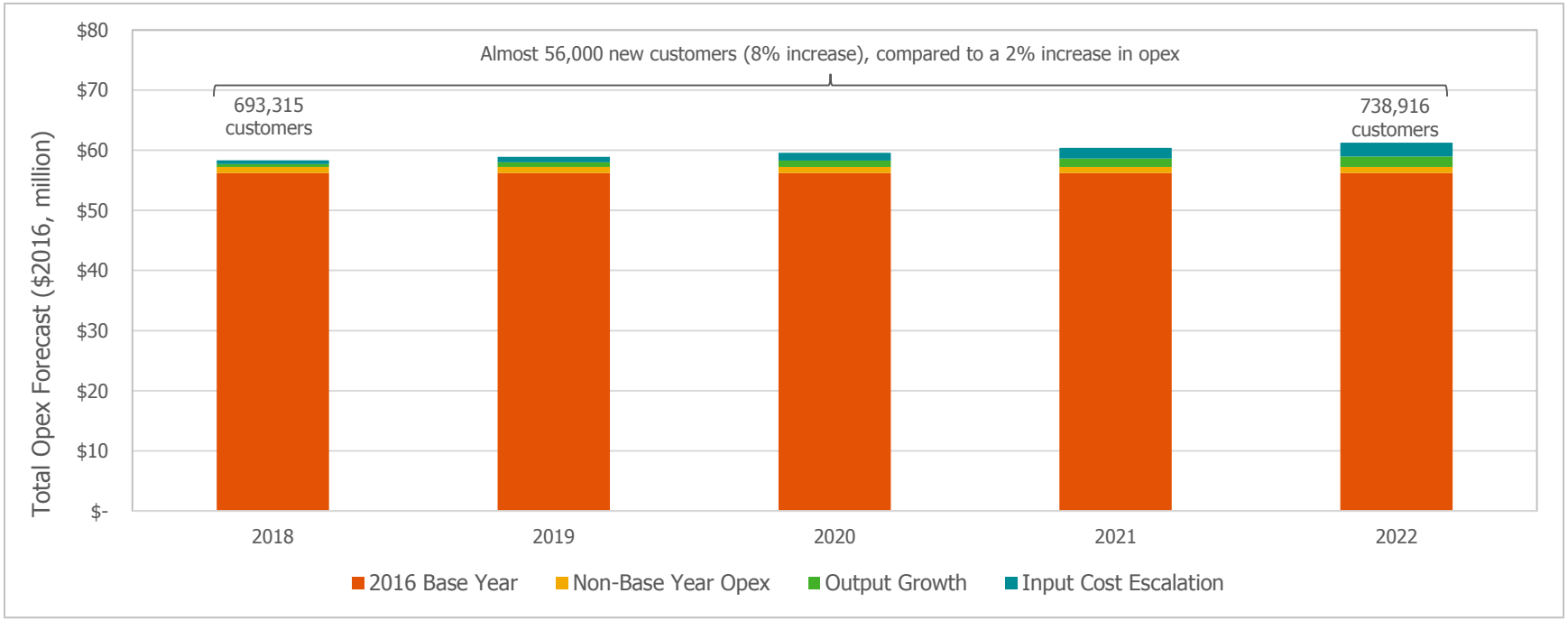
Base | Step | **Trend**

✓ Input Cost Escalation
× Productivity Growth
× Output Growth

- Applying a negative productivity growth forecast to total opex, provides for an increase in total opex over the next AA period
  - As a result, AGN has not applied a productivity growth forecast in the Draft Plan
- We have however considered that any future productivity gains will be able to offset the increased costs associated with opex non-base year projects ($8 million)
  - This equates to an implied productivity adjustment of 0.7% per year

Opex | Build-Up of AGN's Draft Plan Opex

- 2016 base year contributes 94% to total opex over the next AA period



7. Do you consider we have applied an appropriate approach to forecasting opex?

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Capital Expenditure

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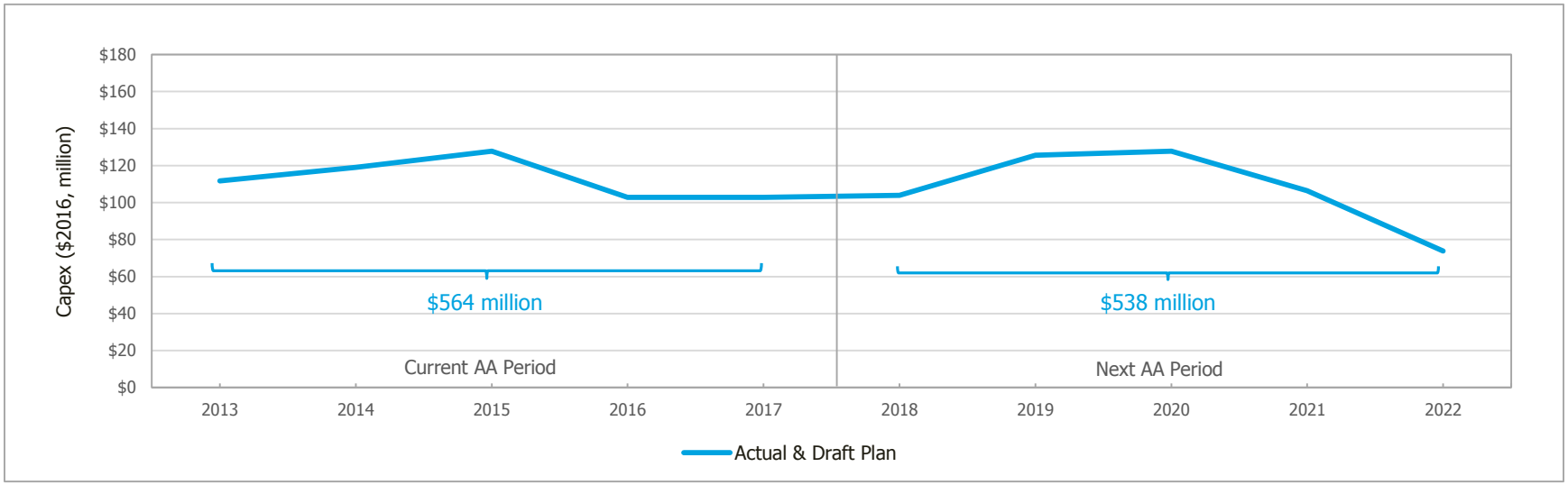
Capex | Draft Plan Capex Forecast

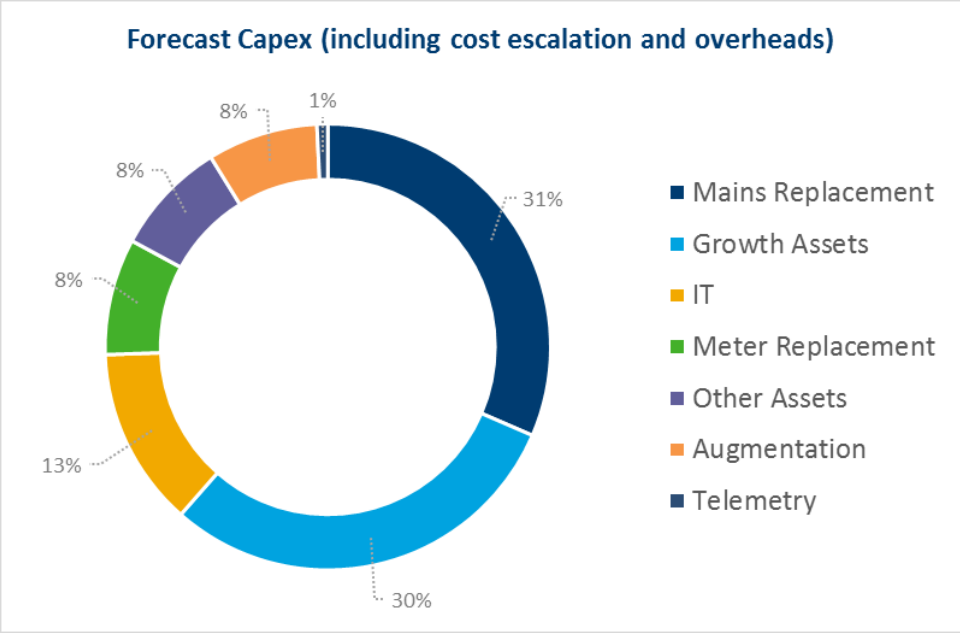


- Proposed capex over the next AA period is $538 million, approximately 5% (or $26m) below current levels and 6% (or $37m) below current period benchmarks
  - Driven by completion of low pressure mains replacement program
- Key augmentation and IT projects delivered in 2019 and 2020 contributing to capex 'hump'

"Stay in business" well-justified capex proposal

Capex | Forecasting Approach and Principles

- Bottom-up forecasting methodology, consisting of capex driver categories
- Forecasting approach used depends on the capex driver category
- Where possible, have utilised the AER's approach taken in our recent South Australian AA review
  - Includes reliance on tendered and/or actual cost information



Capex | Capex Driver Categories

- Focus of this section will be in relation to key capex driver categories:
  - Growth Capex (30% of total capex, unit rate x volume)
  - Information Technology (13% of total capex, discrete projects)
  - Meter Replacement (8% of total capex, unit rate x volume)
  - Augmentation (8% of total capex, discrete projects)
- Following feedback from Reference Group, have not included Mains Replacement (31% of total capex) given direct engagement with Energy Safe Victoria

Would you like to know more about our Mains Replacement proposal?

Is there any other element of our capex proposal that you would like to discuss further at a later date?

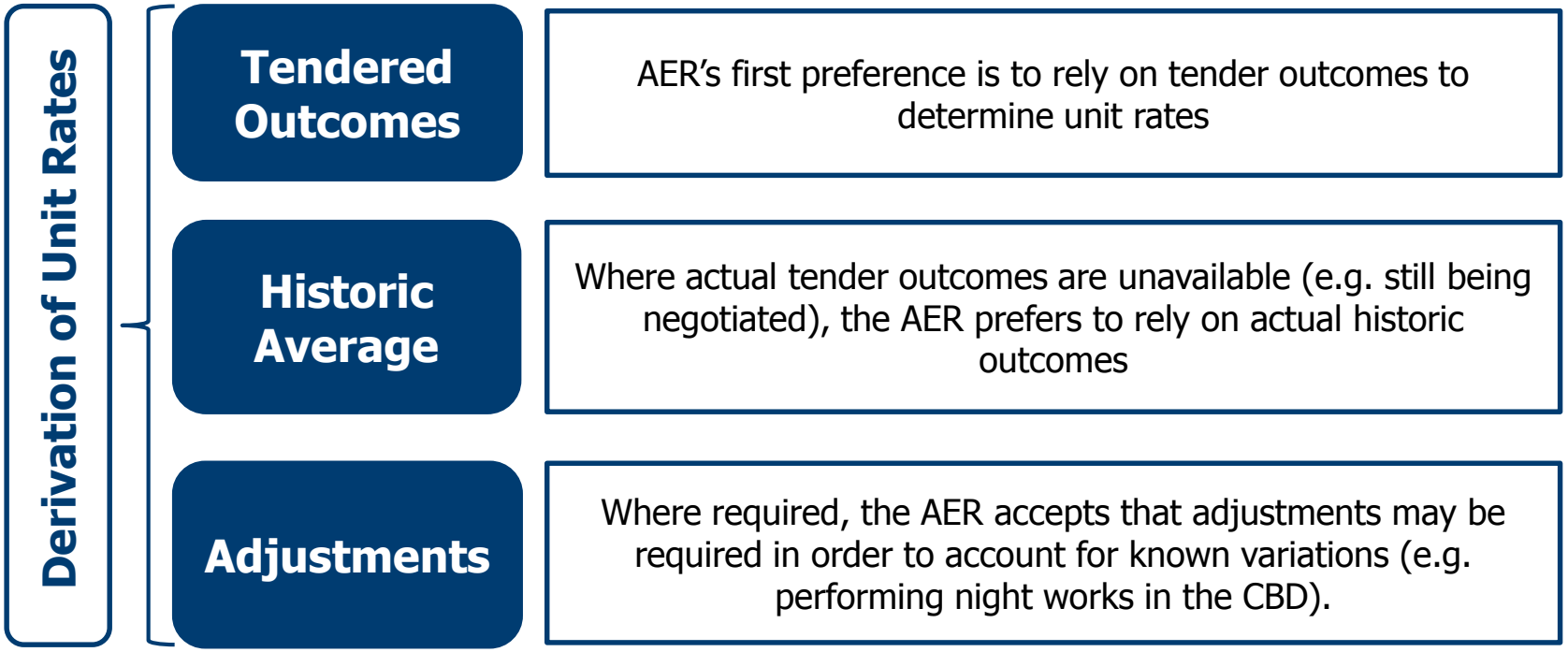
Capex | Forecasting Approach and Principles

- Two key approaches used to develop bottom-up capex forecast
  - Unit Rate x Volume
  - Discrete projects detailed in individual Business Case documents
- Both approaches accepted by the AER in our South Australian AA review

AGN has applied the approach accepted by the AER in our SA AA review wherever possible

Capex | Unit Rates

- Unit rates are a key component of derivation of expenditure



AGN has applied the AER's preferred approach wherever possible

Capex | Forecasting Approach and Principles

Capex Driver Category	Total	Forecasting Approach
Mains Replacement	$151.1m	Unit rate x volume of kilometres to be replaced
Growth	$142.3m	Unit rate x volume of new mains, services and meters
Information Technology	$62.4m	Discrete projects detailed in individual Business Cases
Meter Replacement	$40.1m	Unit rate x volume of meters to be replaced
Other	$39.6m	Discrete projects detailed in individual Business Cases
Augmentation	$38.3m	Discrete projects detailed in individual Business Cases
Telemetry	$3.8m	Discrete projects detailed in individual Business Cases
Input Cost Escalation	$10.8m	AER preferred approach (consistent with approach in opex)
Overheads	$50.1m	AER approach used in SA AA Final Decision
Total	**$538.5m**	

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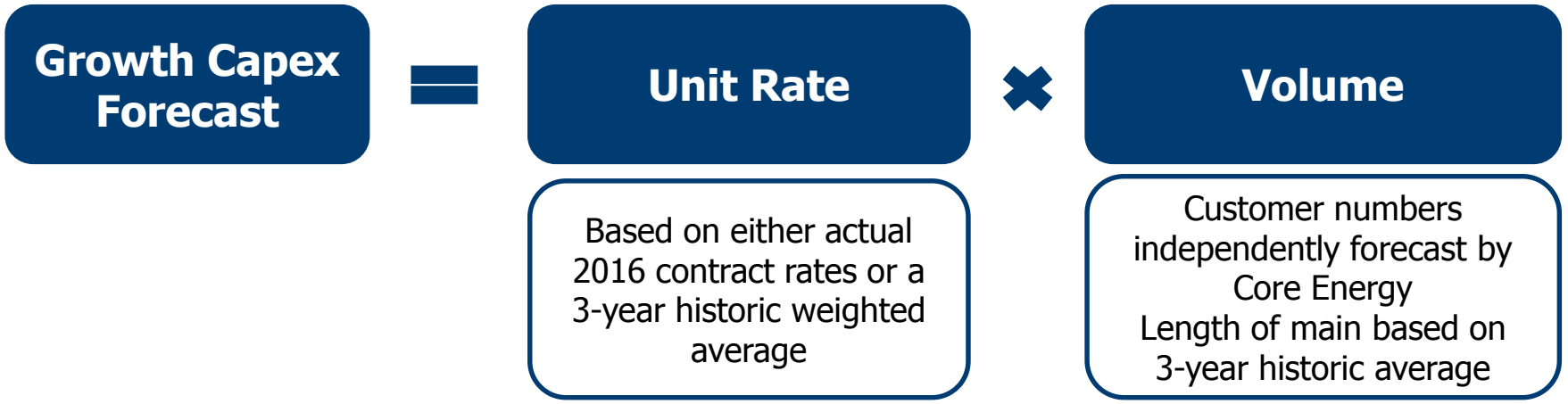
Capex | Growth

Forecasting Approach = Unit Rate x Volume

- $142 million over the next AA period (30% of total capex)
- Related to the costs to connect new customers to the network
- Essentially three elements:
  1. *Mains* – extension of network to the new customer
  2. *Services* – provision of service (inlet) to the new customer
  3. *Meters* – installation and commissioning meter at the new customer site

Customer growth leads to lower prices by spreading the largely fixed costs of operating our network across a larger customer base

Capex | Growth



Capex | Growth

Growth Capex Forecast = **Unit Rate** × **Volume**

Based on either actual 2016 contract rates or a 3-year historic weighted average

Customer numbers independently forecast by Core Energy
Length of main based on 3-year historic average

From 1 Jan 2018 to 31 Dec 2022:

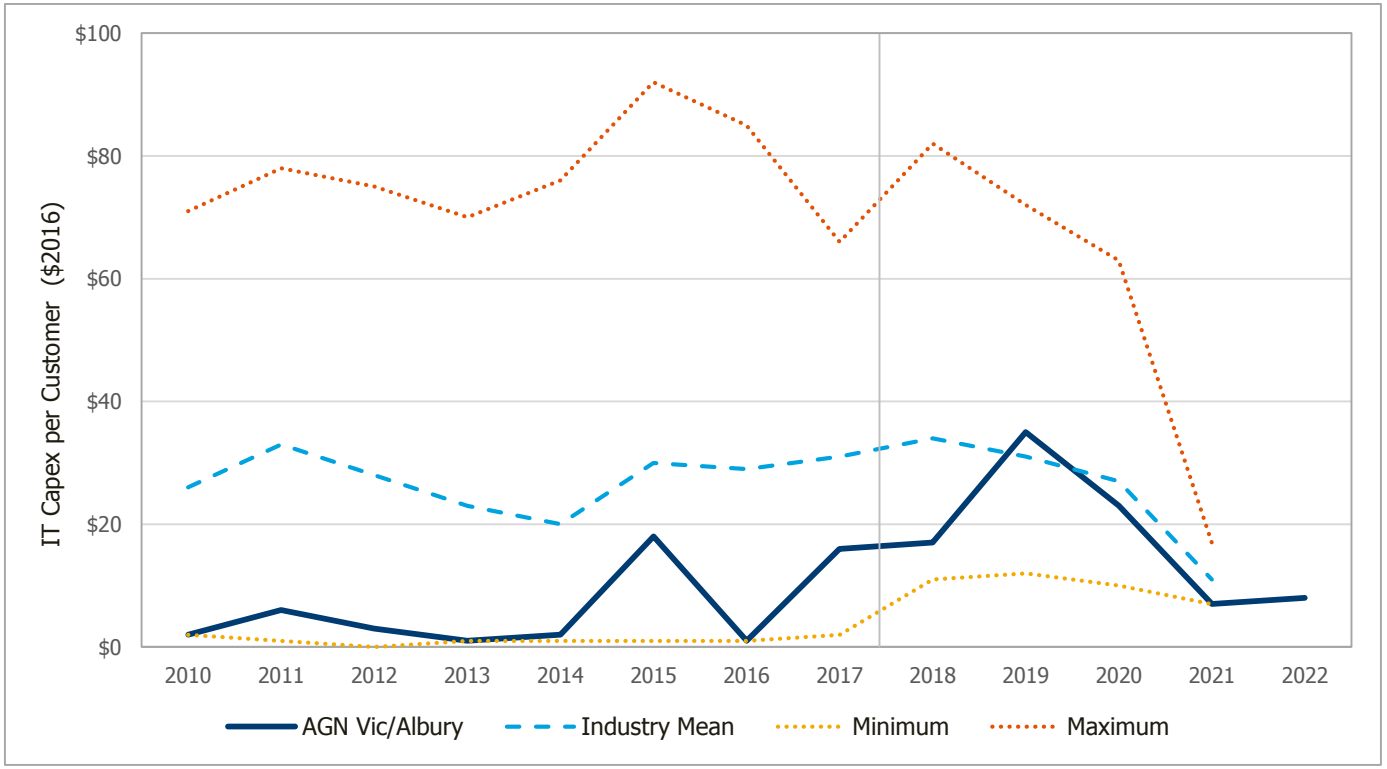
- ~55,000 new residential connections
- ~700 new commercial and industrial connections
- Assumed length of main:
  - ~10 metres for residential
  - 5 metres for industrial and commercial

11. Do you consider we have applied an appropriate approach to forecasting growth capex?

Capex | Information Technology

Forecasting Approach = Discrete Projects captured in Business Cases

- $62 million over the five year AA period (13% of total capex)



Source: KPMG analysis 2016

Capex | Information Technology

- Key drivers for IT expenditure include:
  - Continuing the nationalisation of systems across our business
    - State-based systems are no longer supported (10+ years old)
    - Proposing the same suite of projects as those accepted by the AER in SA (except SCADA)
  - Upgrades to mitigate risks of core operating systems
  - Improvement in customer service and efficiency
  - Compliance
- Costs of IT projects estimated using:
  - Total cost of projects developed using a standard Estimation Tool
  - Allocation of Victoria/Albury portion of project costs based on customer numbers

"Customers would like access to more information from AGN and favour digital channels" Deloitte 2016

Capex | Information Technology

Project	Cost ($m)	Description	Accepted by AER in SA AA Review?
Applications Renewal	22.0	Upgrade existing systems for reliability	Accepted
GIS	16.2	Upgrade and integration with EAM	Accepted
Business Intelligence	11.1	Improved reporting and decision making from disparate data	Accepted
Mobility	10.4	Mobile integration and removal of many paper based processes	Accepted
Infrastructure Renewal	1.3	Upgrade of desktop and telephony infrastructure	Accepted
Digital Capability	1.4	Various customer focused digital capabilities based on customer feedback	Accepted

11. Do you consider we have applied an appropriate approach to forecasting IT capex?

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Capex | Meter Replacement

Forecasting Approach = Unit Rate x Volume

- $40 million over the five year AA period (8% of total capex)
- Scale of program driven by:
  1. Compliance obligations for metering accuracy
  2. Age and profile of meter fleet
     - There is a large volume reaching 15 years
     - Recent high connection volumes increases 3-5 year testing regime
- Cost of program driven by:
  1. Cost of new meters and installations – this is competitively tendered
  2. Mix of new and repaired meters – maximise meter repairs lowers the overall cost

Deloitte 2016

Capex | Meter Replacement

		Unit Rate		Volume
Residential Forecast	=	Based on tendered outcomes (2016 contractor rates).	×	Based on maintaining compliance with AS4944 and number of meters installed reaching 15 years.
I&C Forecast	=	3-year weighted average based on historic actuals.	×	Based on maintaining compliance with AS4944 and number of meters installed reaching 15 years.

Capex | Meter Replacement

		Unit Rate		Volume
Residential Forecast	=	Based on tendered outcomes (2016 contract rates)	×	Based on maintaining compliance with AS4944 and number of meters installed reaching 15 years
I&C Forecast	=	3-year weighted average based on historic actuals	×	Based on maintaining compliance with AS4944 and number of meters installed reaching 15 years

11. Do you consider we have applied an appropriate approach to forecasting meter replacement capex?

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Capex | Augmentation

Forecasting Approach = Discrete Projects captured in Business Cases

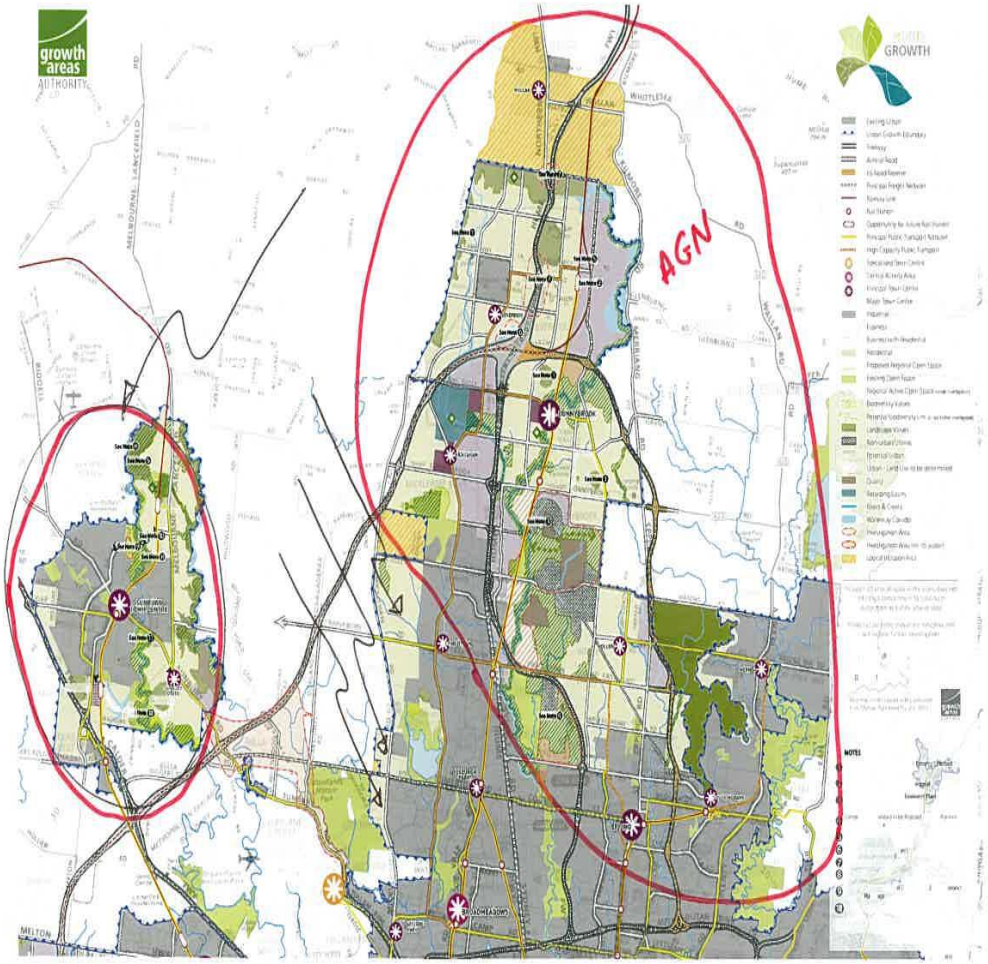
- $38 million over the five year AA period (8% of total capex)
- Focused on maintaining (reinforcing) adequate capacity and pressure to meet customer demand
- Investment covers:
  - Network capability to meet ongoing demand for services (especially in high growth areas)
  - Availability of high pressure gas to support network replacement
  - Maintenance of supply reliability (especially from over-pressurisation)

"Customers view gas as a reliable source of energy and value the current standard of reliability" Deloitte 2016

Australian Gas Networks

Capex | Augmentation – Northern Corridor (Merrifield)

- Merrifield project will deliver 37,000 homes
- Northern growth corridor will ultimately deliver 220,000 homes
- Evaluations now underway for other northern developments for example Donnybrook East



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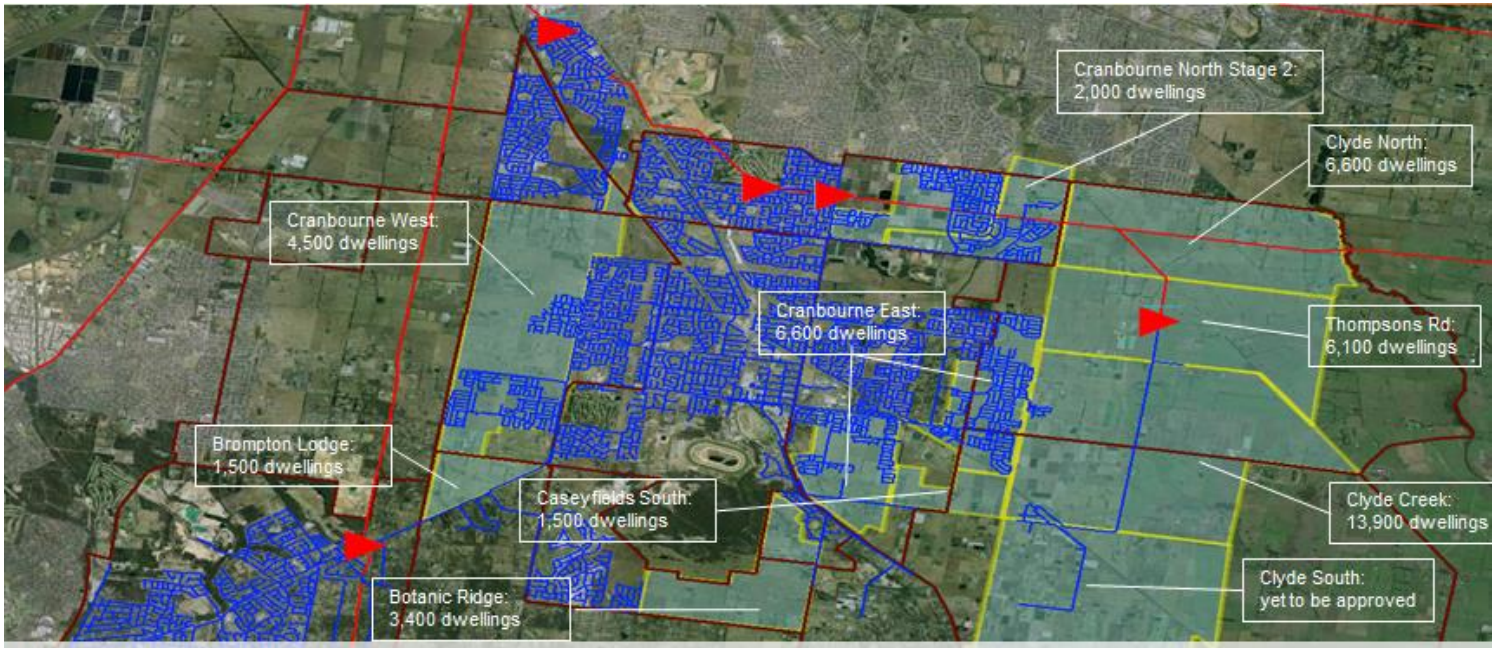
Capex | Augmentation – Southern Corridor (Cranbourne and Clyde)



UGB / Development approvals for:

- 6,000 homes in the west of Cranbourne
- 2,000 homes in the north of Cranbourne
- 3,400 homes in Botanic Ridge
- 30,000 homes in the Cranbourne East and Clyde / Clyde North corridor
- Additional developments in PSP Clyde South yet to be approved (but of a similar size to Clyde Creek)

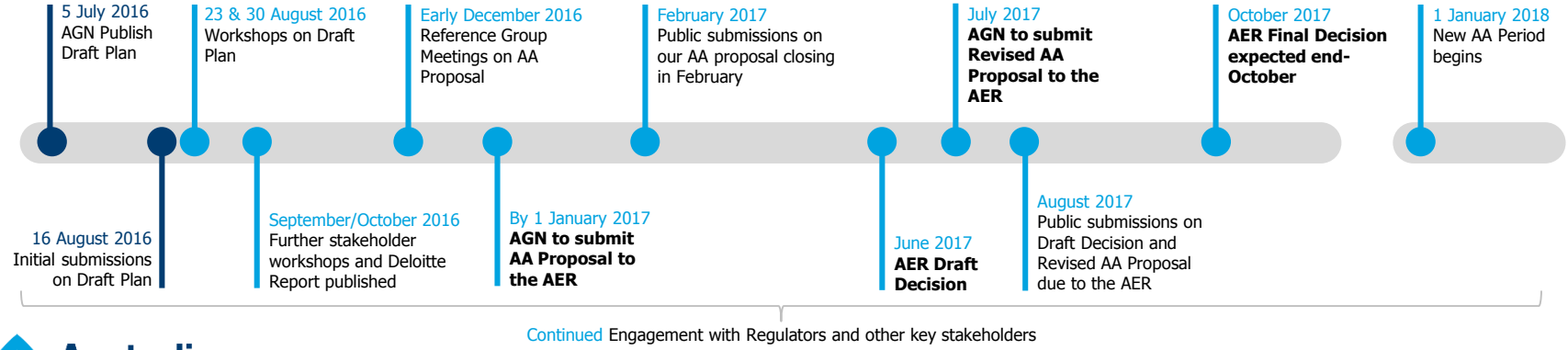
11. Do you consider we have applied an appropriate approach to forecasting augmentation capex?

Next Steps

Australian Gas Networks

Victorian and Albury AA | Next Steps

- Will consider and reflect feedback from today's workshop in our Plan
  - Will provide feedback to participants to ensure it is accurate
  - Feel free to contact us to discuss any aspect of this workshop further
  - Can also provide written submissions on the Draft Plan (haveyoursay@agnl.com.au) we are flexible on timing, any comment is beneficial
- Additional workshop to be held 30 August (return on capital, demand forecasts and network revenue and pricing)
- Would you like more information on any other aspect of our Draft Plan?
- Further stakeholder workshops and ongoing meeting program



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Supporting Slides

Australian Gas Networks

Overview | Stakeholder Engagement – Customer Insights

- Customer feedback received so far has been distilled into nine key customer insights

OVERARCHING INSIGHTS | CUSTOMER EXPERIENCE | NETWORK SAFETY & RELIABILITY | TARIFF STRUCTURES | ENVIRONMENTAL COMMITMENT

01 Customers are not aware of Australian Gas Networks

02 Customers do not understand the structure of the gas industry

03 Customers traditionally considered gas a cost-effective alternative to electricity but are concerned with recent price increases

04 Customers would like AGN to be more visible, believing it would improve their experience as customers

05 Customers would like to access to more information from AGN and favour digital channels

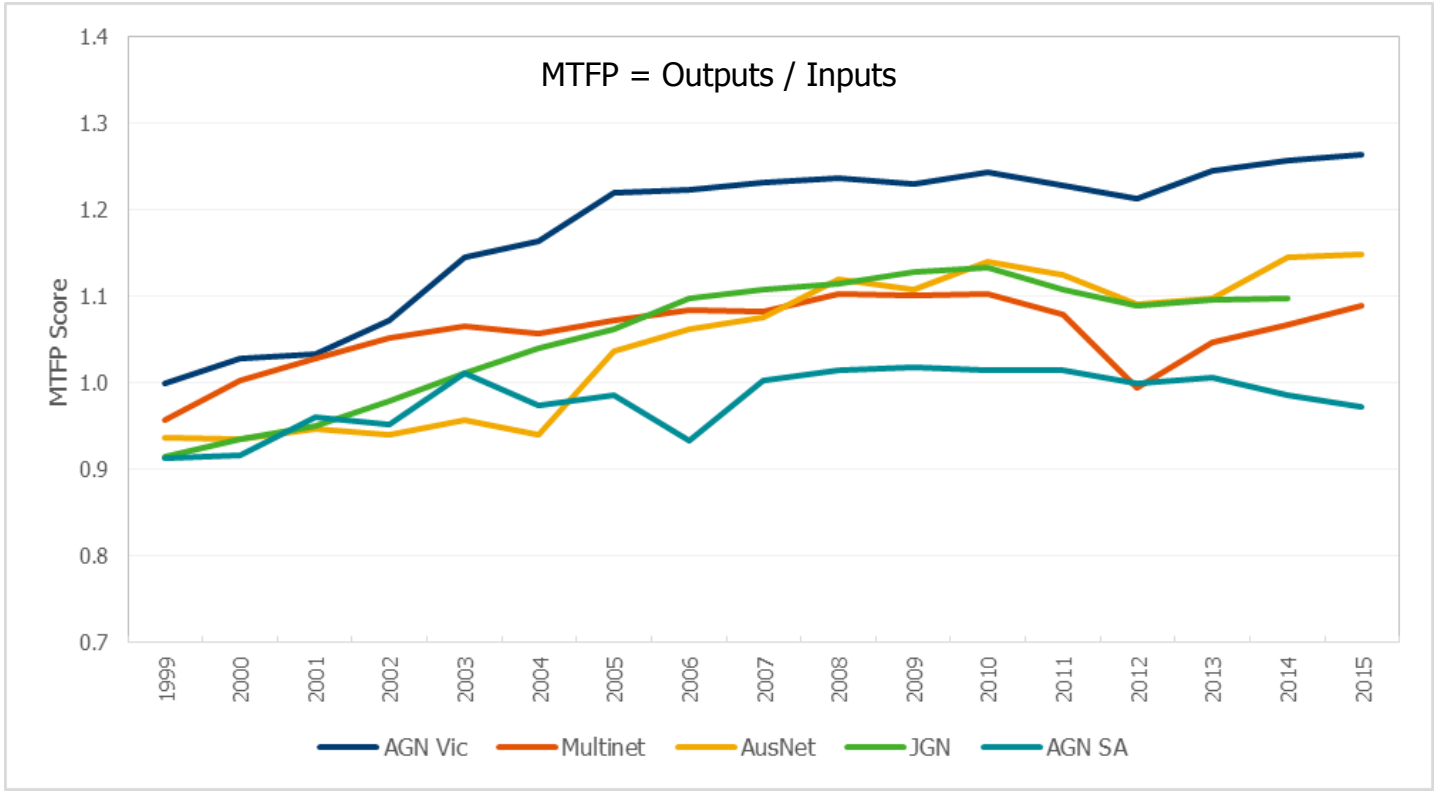
06 Customers view gas as a reliable source of energy and value the current standard of reliability

07 Customers are supportive of initiatives that maintain the reliability and improve the safety of the network

08 Customers value the control gained by having their gas bill dependent on usage levels

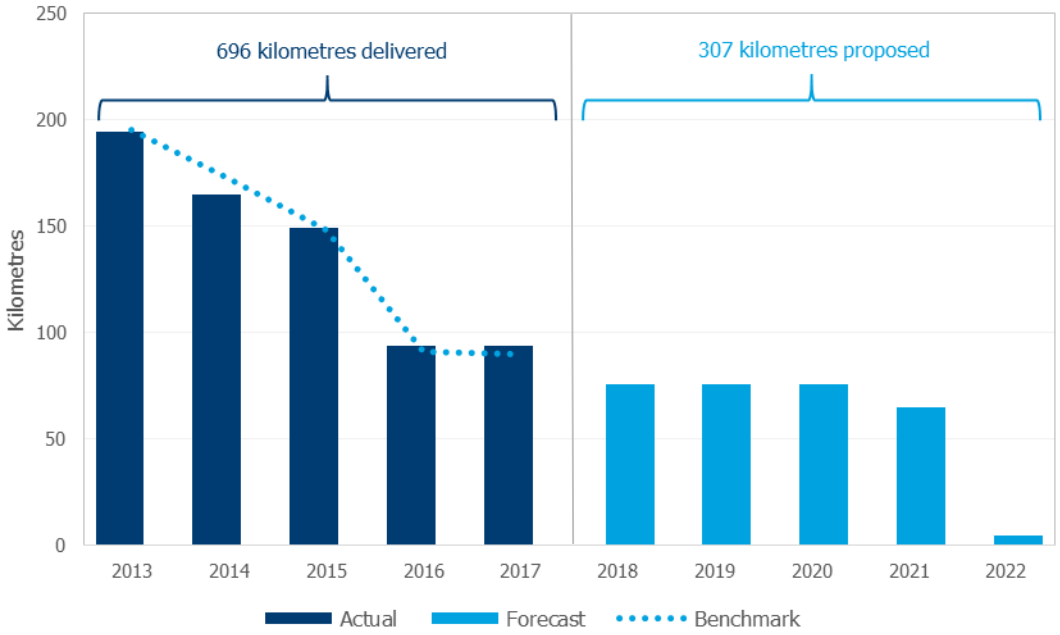
09 Customers would like AGN to play a leadership role in minimising environmental impact

Opex | AGN is an Efficient Performer



Source: Economic Insights 2016

Capex | Mains Replacement



Decrease of $96m over the next period, compared to costs incurred in current period

- Current performance:
  - On track to deliver benchmark volume of low pressure mains replacement program
- Next period proposal:
  - Complete low pressure replacement program
  - Moving into Melbourne CBD
  - 3km HDPE sampling program
  - Engagement with ESV
  - Depreciation of old mains in RAB by 2022

Safety considerations are driving our mains replacement program

Australian Gas Networks

Victoria and Albury Draft Plan

Workshop 2: Return on Capital, Inflation, Regulated Asset Base, Financeability, Demand, Network Revenue and Pricing

30 August 2016

Agenda

- **Overview**
  - Recap of Workshop 1
  - About AGN
  - Purpose of the Draft Plan and Role of Deloitte
  - Building Block Model
- **Return on Capital and Inflation**
  - Determining the Rate of Return
  - Forecasts of Inflation
- **Financeability**
  - Cashflow requirements
- **Demand**
  - Residential, Commercial and Industrial Demand Forecasts
- **Network Revenue and Pricing**
  - Aligning Tariffs
- **Next Steps**

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Overview

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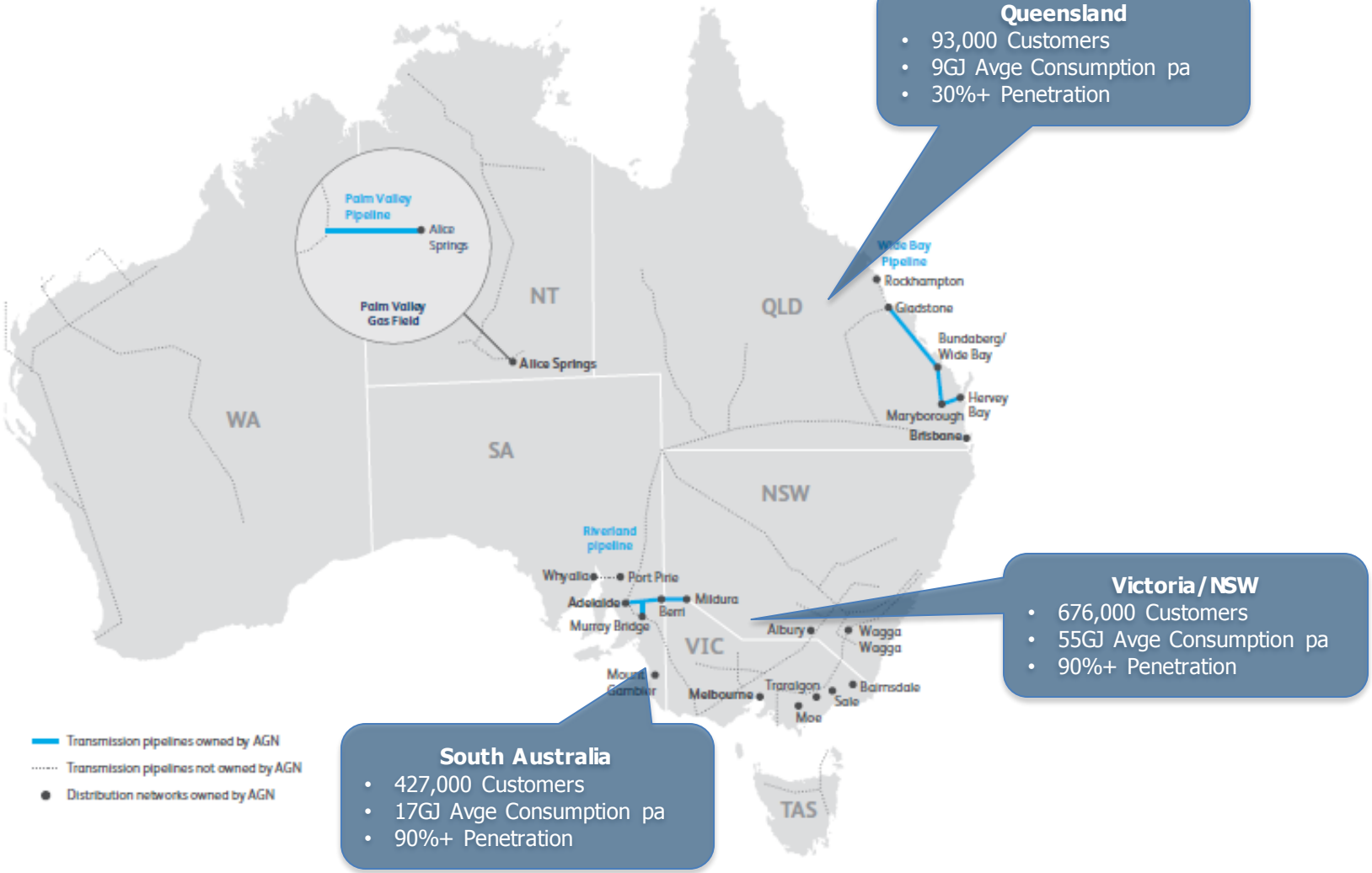
Overview | Recap of Workshop 1

- Workshop 1 (held on 23 August) provided an overview of the Draft Plan and our expenditure proposal
  - 13 external stakeholders attended, as well as key AGN and APA management
  - Meeting record to be circulated to all participants
- Stakeholders were generally supportive of forecasting approach to operating expenditure (opex), including our approach to adjusting base year expenditure
  - Support for progressing with our proposed joint marketing program, approach to accounting for customer growth and productivity
- Stakeholders were also comfortable with approach to forecasting capital expenditure (capex), including with the continuation of certain initiatives consistent with recent Australian Energy Regulator (AER) decision for South Australia (SA)

AGN Operates Networks in Most Australian States and Territories



Australian Gas Networks

Our vision

Our vision is to be the leading natural gas distributor in Australia...

Delivering for customers

Public Safety

Reliability

Customer Service

A good employer

Safety

Employee Engagement

Skills Development

Sustainably cost efficient

Working Within Industry Benchmarks

Delivering Profitable Growth

...achieving top quartile performance on our targets

Australian Gas Networks

Overview | What we Delivered in South Australia

- We recently completed the SA Access Arrangement (AA) for 2016-2021
- Plans were informed by stakeholder engagement
- 23% upfront price cut (coming off a Weighted Average Cost of Capital of 10.3%)
- Opex and capex almost entirely accepted by the AER
- AGN accepted the AER's Final Decision
- Agreed positions have been applied to this Victorian and Albury Review

"More than 400,000 SA households and businesses are set to benefit from a drop in gas prices."
(***Channel 10 Adelaide***)

"… we think this [decision] is actually good for the state's economy."
(***Mark Henley (Uniting Communities), Channel 7 Adelaide***)

Prices in South Australia are down $144 (domestic) and $750 (small business)

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Overview | What We Have and What We Will Deliver

	Which means…	2013 – 2017 Actuals/Estimates	2018 – 2022 Targets
Delivering for Customers	• **Public Safety** • **Reliability** • **Customer Service**	• Emergency calls: 92% answered in 10 seconds • Customer calls: 80% answered in 30 seconds • Leaks: 95% attended in two hours • Average 18 interruptions to 5+ customers per annum • Around 16,000 new connections per annum • Stakeholder engagement program implemented	• Maintain high performance levels • Improve safety and maintain reliability • Support customer growth (approximately 14,000 new connections per annum) • Plans informed by stakeholder engagement • Improve and strengthen network incentives

A Good Employer	• **Safety**
	• **Employee engagement**
	• **Skills development**
		• Less than two Lost Time Injuries (LTIs) per annum
		• Lost Time Injury Frequency Rate (LTIFR): 1.6 per annum, per million hours
		• 100% compliance regarding employee refresher training and accreditation checks
			• Continuous improvement:
			  • LTIFR less than 1.0 per million hours
			  • Restricted duties rate: less than 15 days
			  • Implementation of employee engagement program
			  • Training and compliance monitoring

Sustainably Cost Efficient	• **Doing work within industry benchmarks** • **Delivering profitable growth**	• 100% mains replacement program delivered (696km) • Delivered network extensions to Merrifield, Koo Wee Rup and Wandong-Heathcote Junction. • Outperformed operating expenditure and capital expenditure	• Complete low pressure mains replacement program (307km) • Lower costs and network tariffs in real terms – 11% upfront price reduction • Continue to deliver leading productivity performance (by lowering expenditure relative to current levels)

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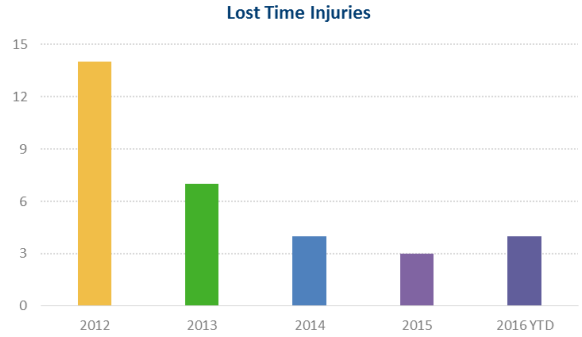
Overview | Victorian and Albury AA Plan

Effective Engagement

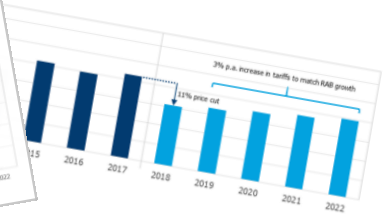
Delivering for Customers

Delivering an initial price cut of 11% to our customers

A Good Employer



Sustainably Cost Efficient



Lower prices, lower costs, continuous service improvement

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Overview | Purpose of the Draft Plan

- We published our Draft Plan for the next (2018 – 2022) AA period on 5 July
- The key purpose of the Draft Plan is to facilitate improved engagement on our business plans
- The Draft Plan outlines:
  - How feedback received so far has been incorporated into our Draft Plan
  - The activities and expenditure we propose to undertake in the next AA period
  - Future prices and revenue we intend to recover
  - Consultation questions for stakeholders
- Feedback will be incorporated in our final Victorian and Albury AA Proposal

AGN's intention is to submit an AA Proposal that is underpinned by effective stakeholder engagement and is capable of being accepted

Overview | Stakeholder Engagement – Approach

Strategy Phase | **Research Phase** | **Implementation Phase**

Nov-15 — Mar-16 — Jun -16 — 2017+

Ongoing communications with key stakeholders

- Developed Scoping Paper
- Established Victoria/Albury Reference Group
- Liaised with key stakeholders
- Developed engagement strategy

- Workshops with customers and retailers
- Outcome of 9 customer insights
- Developed and released Customer Insights Report

- Internal and external engagement on insights
- Incorporation of insights into Draft Plan
- Further workshops with stakeholders on Draft Plan

- Consideration of Draft Plan feedback in development of AA Proposal
- Ongoing engagement

Ongoing Engagement

Engagement Strategy | Stakeholder Research and Customer Insights Report | **Draft Plan** | **Deloitte Report** | AA Proposal

Initial Research Phase

- CUSTOMERS RECRUITED ON THE BASIS OF AGE, GENDER, INCOME
- RESIDENTS AND BUSINESSES
- 78 PARTICIPANTS
- 6 WORKSHOPS

Customer Insights Report

Draft Plan

Further Research

- STAKEHOLDERS INVITED DIRECTLY AND INDIRECTLY
- RESIDENTS, BUSINESS, GOVERNMENT, INDUSTRY BODIES, REGULATORS
- 2 DRAFT PLAN WORKSHOPS
- FURTHER STAKEHOLDER WORKSHOPS
- ONE-ON-ONE MEETINGS

Deloitte Report

TBC

ONGOING ENGAGEMENT WITH REFERENCE GROUPS, REGULATORS AND OTHER KEY STAKEHOLDERS

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Overview | Stakeholder Engagement – Engagement on Draft Plan

- The Draft Plan is an important part of our stakeholder engagement program
  - Seeking submissions from stakeholders (flexible on timing, any comment is beneficial)
  - Seeking ongoing engagement with our Reference Groups, the AER, Consumer Challenge Panel and Energy Safe Victoria
- Recent engagement activities:
  - Dedicated engagement on incentive arrangements
  - Presentation of Draft Plan to Reference Groups and AER
- Will conduct further engagement, including workshops with stakeholders

3. Do you have any suggestions as to how AGN could improve on and/or extend its stakeholder engagement program?

Overview | Purpose of Workshop and Next Steps

To proactively receive stakeholder feedback on our plans so this can be considered and reflected in our AA Proposal to the AER.

- Next steps:
  - Series of workshops to discuss Draft Plan and receive stakeholder feedback
  - One-on-one meetings with stakeholders
  - Further stakeholder workshops
  - Consideration and incorporation of feedback received in our AA Proposal

Stakeholder engagement is key to achieving our aim of submitting a plan that delivers for our customers and is capable of being accepted by the AER

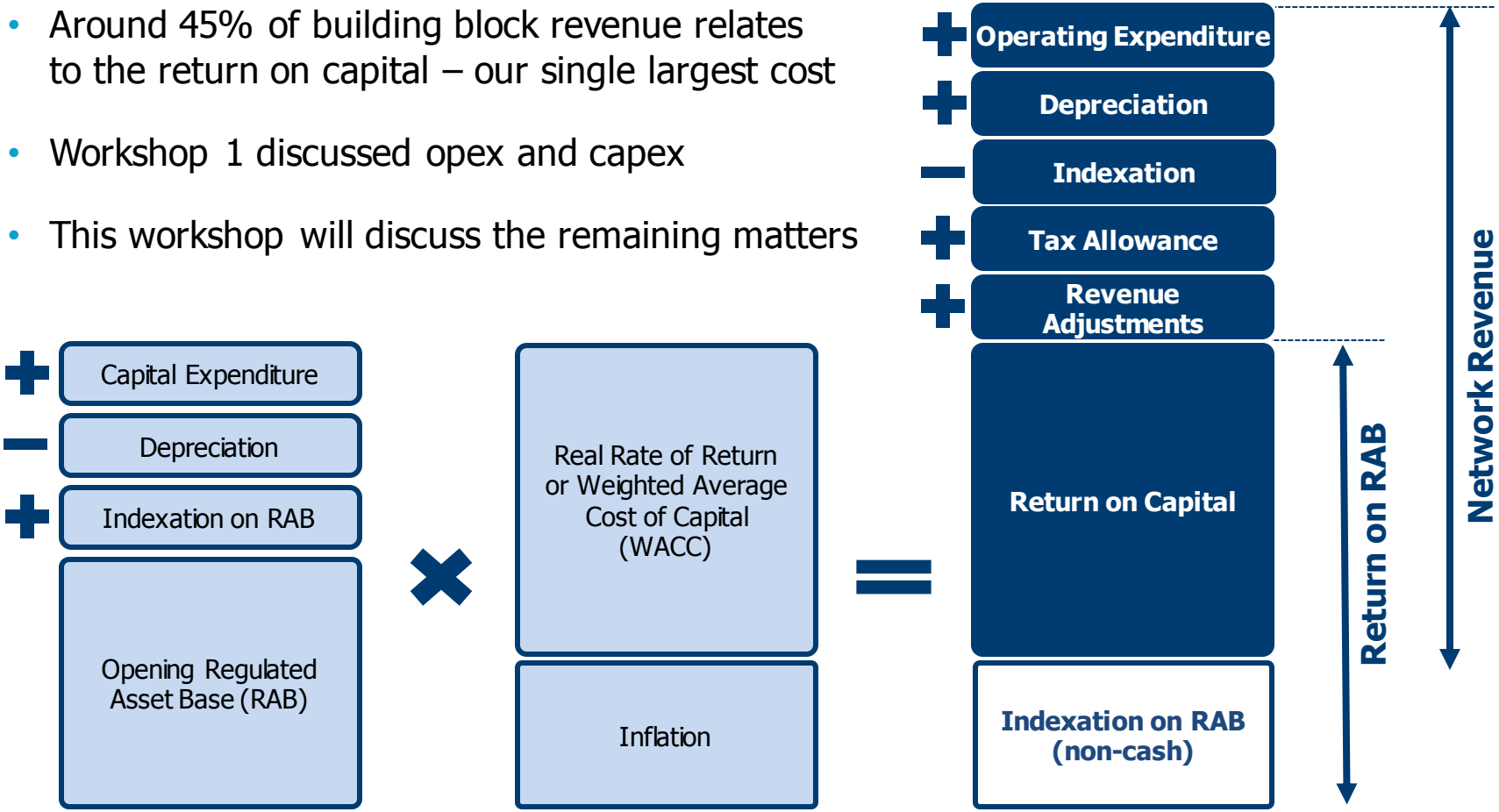
Australian Gas Networks

Overview | Role of Deloitte

- Deloitte were engaged mid-last year to assist AGN with the design and delivery of its stakeholder engagement program
- Key role is to capture and report back to AGN and its stakeholders the feedback received from our engagement program
  - Have published alongside this Draft Plan the Deloitte Stakeholder Insights Report from first round of stakeholder workshops
- Deloitte will sit across all aspects of our stakeholder engagement program
  - Facilitates a comprehensive/consolidated reporting on all engagement outcomes
- We will share with all stakeholders the feedback from today's workshop to ensure that it has been accurately captured before it is considered by our management team

Overview | Building Block Model

- Building blocks sum the efficient cost of providing services to customers
- Around 45% of building block revenue relates to the return on capital – our single largest cost
- Workshop 1 discussed opex and capex
- This workshop will discuss the remaining matters



Overview | Process Through to Delivery of Final Plan

- Stakeholder workshops to further explain and discuss Draft Plan
- Dedicated engagement with key stakeholders, including, but not limited to, Reference Groups, the AER and Energy Safe Victoria

We are open to stakeholder feedback at any time

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Rate of Return and Inflation

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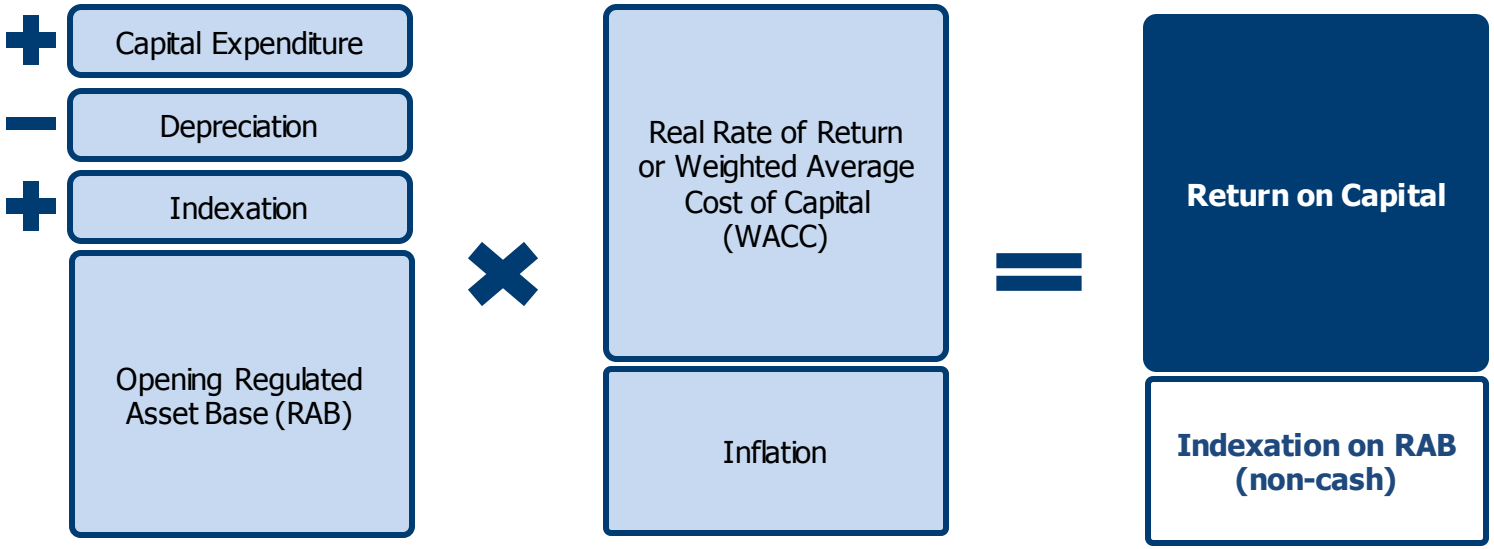
Rate of Return & Inflation | Return on Capital

- Return on capital reflects the cost to AGN of funding the approximate $1.5 billion RAB
  - It is the single largest cost incurred by AGN
- Comprises two components
  - Cost of debt (weighted at 60%) and Cost of equity (weighted at 40%)
- Forecast inflation deducted from cash return



Rate of Return & Inflation | Return on Capital

- We have adopted the AER's guideline approach to determine the costs of debt and equity
  - Cost of debt of 5.0% and cost of equity of 6.9%
- Yields a rate of return of
  - 5.0% x 0.6 + 6.9% x 0.4 = 5.8%
  - Less inflation of 2.39% provides a cash return of 3.4%
  - Compares to 4.9% cash return for the current period
- Recent market evidence suggests rates have fallen further to new historic lows
  - Also market forecasts of inflation are below 2% for the next two years
- We have also applied the AER guideline approach to determining the tax allowance by application of a gamma 0.4
- We will continue to apply the AER guideline approach to the determination of these parameters up until there is information suggesting this is no longer appropriate
  - For example, to reflect the outcome of the current appeal activity

Rate of Return & Inflation | Cost of Debt

- The AER estimates the allowed return on debt using a 10-year trailing average portfolio approach implemented with a 10-year transition period
- The trailing average approach estimates the average return that would have been required by debt investors in a benchmark efficient entity if it raised debt equally over a 10-year historical period prior to the commencement of the regulatory period
  - There is industry agreement with the 10-year trailing average approach
- The AER then transitions from the previous "on-the-day" approach to the 10-year trailing average approach over a 10 year period
  - The 10-year transition is the key point of industry contention and has been subject to appeal

Australian Gas Networks

Rate of Return & Inflation | Cost of Debt

- Key features of the trailing average:
  - Assumes that the benchmark efficient entity would have a staggered debt portfolio where 10% of its debt is refinanced each year
  - The average term of the debt is assumed to be 10 years
  - A credit rating of BBB+ is applied
  - The data source for deriving the return on debt for each year is a weighted average (50% each) of Bloomberg and the Reserve Bank of Australia (RBA) published yields on broad BBB debt (extrapolated to 10 years to match the term)

Rate of Return & Inflation | Cost of Debt

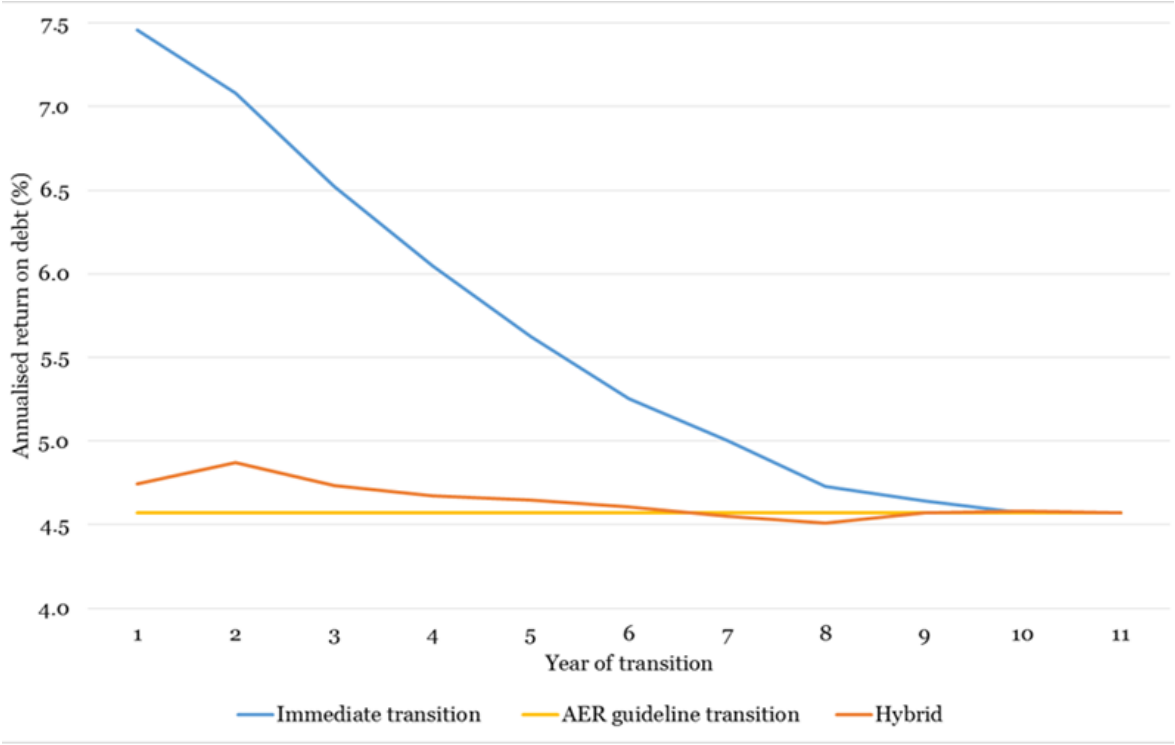
- The AER progressively moves from the previous "on the day" approach to the trailing average approach over a 10-year period
- The transition applies to the whole of the cost of debt estimate (base rate and the debt risk premium or credit spread)
- Key features of the transition:
  - In year 1, the return on debt is based entirely on the year 1 prevailing or spot rate (the yields observed over the year 1 averaging period)
  - In year 2, 90% of the return on debt is based on the year 1 estimate above, 10% is based on the return on debt observed during the year 2 averaging period
  - In year 3, 80% is based on the year 1 return on debt, 10% on the year 2 return and 10% is based on the return observed during the year 3 averaging period
  - And so on until in year 10, the return on debt is calculated as a 10 year historical trailing average over years 1 to 10

Rate of Return & Inflation | Other Approach to the Cost of Debt

- **No Transition** – Immediate implementation of trailing average
  - Moves to estimate the return on debt by reference to a 10-year historical trailing average with no transition phase (i.e. at the start of the regulatory period)
  - Updated each year such that the estimate is a rolling 10-year average
- **Hybrid Transition** – No transition on the debt risk premium (DRP)
  - Breaks down the return on debt calculation to the base rate and the DRP
  - Applies a transition to the base rate component on the basis regulated entities have previously hedged the base rate to regulatory allowances and the hedges need to be unwound
  - Otherwise calculates the DRP component by reference to the 10-year historical average DRP
  - Recognises that DRP component of debt cannot be hedged
  - Replicable and reflects the actual steps a service provider would need to take to move from a hedging strategy to a 10-year trailing average portfolio

Rate of Return & Inflation | Other Cost of Debt Approaches

- The below shows a comparison of the different approaches to transitioning to the trailing average cost of debt
  - This demonstrates the difference between approaches converges over time



Rate of Return & Inflation | Cost of Equity

- Cost of equity reflects the required return expected by equity (as opposed to debt) investors
- AER guideline cost of equity is determined from the following
  - Risk free rate + equity beta x market risk premium = cost of equity
  - 2.45% + 0.7 x 6.5% = 6.9%
- Risk free rate is proxied by 10 year Commonwealth Government Securities (CGS)
  - Fallen since draft plan release to approximately 1.9%
  - Implies current rate of return of 5.5% relative to 5.8% applied in draft plan
- Our view is the ACT largely accepted the AER's approach to setting the cost of equity
  - We will continue to engage with the AER

Rate of Return & Inflation | Return on Capital Summary

- We have applied the AER's guideline approach to establishing the cost of debt, cost of equity and gamma for the draft plan
  - Consistent with our SA decision
- However, we note the significant appeal activity occurring
- We consider rate of return to be an industry issue
  - The same methodology therefore should be applied to each business when determining the respective rates of return
- We will continue to apply the AER guideline approach to the determination of these parameters up until there is information suggesting this is no longer appropriate

18. Do you have any comments on our approach to setting the financing and tax costs in this Draft Plan?

Australian Gas Networks

Rate of Return & Inflation | Inflation

- Forecast inflation is a critical element in determining our total revenue (and hence prices)
  - Used to index the RAB over the next AA period (replaced with actual Consumer Price Index (CPI) when it is known)
- The indexation applied to the RAB is also deducted from the allowed revenue to take account of the fact that the return on capital is calculated by applying a nominal rate of return to a nominal RAB
- The key issue therefore arises where forecast of inflation is different to actual inflation
- Where the forecast of inflation reasonably proxies actual inflation, then the negative adjustment to forecast revenues has the same (or very similar) value as the positive adjustments made to actual prices under the CPI-X price adjustment
  - The value of inflation is therefore 'a wash'
- However in cash terms we have to pay the nominal debt costs, which does exceed the real rate of return

Rate of Return & Inflation | Inflation

- If forecast inflation is over-estimated, then the negative adjustment to forecast revenues is greater than the addition for actual inflation through the CPI-X price adjustment (and vice versa if inflation is under-estimated)
  - The business will not be provided with a reasonable opportunity to recover its efficient costs through its prices over the AA period
- Importantly, there is no mechanism to revisit the amount of forecast inflation that is removed from revenues
  - Unlike the RAB where actual inflation is used to adjust the RAB in the next period
- This has been a particular issue across our networks over recent years, where actual inflation has been well below the forecast of inflation used to set revenue/prices
  - The most recent actual inflation used to adjust our Victorian prices for 2016 was 1.5%, which is well below the forecast of 2.5%
  - Inflation has averaged of around 2.0% over the past 5 years, relative to AER estimates of closer to 2.5%

Rate of Return & Inflation | Inflation

- The two most recent approaches to forecast inflation are the:
  - **AER approach** – which develops a 10-year forecast of inflation based on a combination of the RBA's short term forecast of inflation (for the first two years of the 10-year term) and the mid-point of the RBA's longer term target range of inflation (for the last eight years)
  - **Market-based approach** – which develops a 10-year forecast of inflation based on the difference between yields on nominal and inflation indexed Commonwealth Government bonds with a 10-year term
- We prefer the market-based approach because it uses the same market information used to determine the nominal rate of return
  - Using the same sources reduces the potential for variances between forecasts
- The AER however has concerns over whether the market-based approach can be relied upon to develop reliable forecasts, primarily due to concerns over the liquidity of the inflation indexed Commonwealth Government bond market
  - The market based approach was used by regulators up until 2008, after which time the Commonwealth Government bond market was relatively illiquid

Rate of Return & Inflation | Inflation

- We are concerned that the AER approach will materially overstate actual inflation over the next AA period
  - AER approach forecast of inflation is 2.39%
  - Our preferred market based approach is 1.6%
  - Current actual inflation is 1.0%
  - AER has also referred to inflation swaps which are at 2.2%
- We note that the approach to inflation is currently subject to legal review and there is considerable uncertainty as to the correct approach to use
- Draft Plan applied the AER approach for forecast inflation 2.39%
  - We will update forecast inflation based on outcomes of current review processes
  - Actual inflation continues to fall well below the AER's forecast of CPI

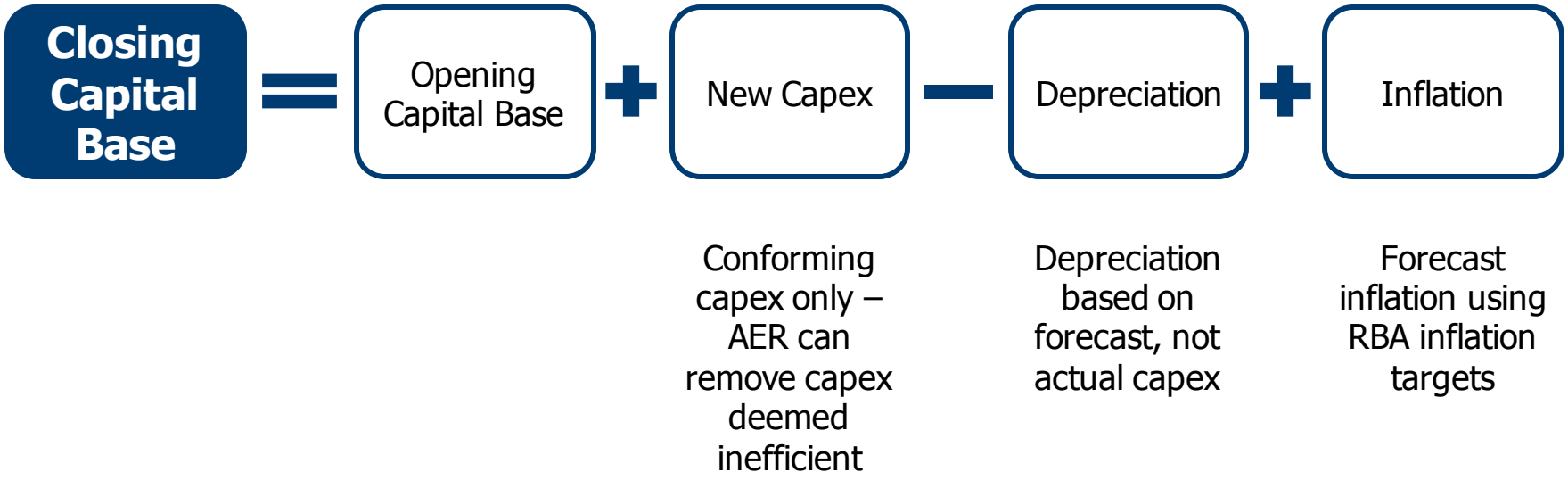
16. Do you consider that the AER's approach will produce better forecasts of inflation relative to the market-based approach? Are there any other approaches to forecasting inflation that should be used/considered?

Regulated Asset Base (RAB)

Australian Gas Networks

Regulated Asset Base | Adjusting the RAB

- The RAB reflects the value of past investments not recovered by investors
  - Current RAB value is just over $1.5 billion
- The value of the RAB is adjusted to account for new capex, depreciation of existing assets and inflation in accordance with the Rules



Regulated Asset Base | Adjusting the RAB

- We have continued to apply the straight line approach and asset lives approved by the AER for the current AA period

Asset Category	Standard Useful Life (years)
Mains and Services	60
Meters	15
Buildings	50
SCADA	15
Computer Equipment	5
Other Assets	15

- We have used the 'year by year' tracking approach to set depreciation in respect of forecast capex for the current AA period

- The 'year-by-year' tracking approach more closely reflects the life of the asset and was also used by the AER in its recent decisions for the Victorian electricity distributors

Regulated Asset Base | Adjusting the RAB

- Objective is to depreciate assets over their technical life
- AER has regard for the need to align economic and technical (or operational) lives
- For example, the AER has adjusted depreciation where the technical life of an asset no longer matches the economic life of the asset in respect of:
  - The same low pressure mains replaced by the other Victorian gas distributors
  - Various assets that were determined by the Victorian Bushfire Royal Commission as requiring replacement in respect of the Victorian electricity distributors
- Our mains replacement program will see all low pressure mains replaced by the end of the next AA period
- The depreciation schedule takes account of this physical replacement so there is also no asset value attributable to the low pressure mains in the RAB by the end of the next AA period
  - This process aligns the economic and technical (or operational) lives of these assets

17. Do you have any comments regarding our approach to adjust our capital base over the current and next AA periods?

Financeability

Australian Gas Networks

Financeability | Assessment of Cash Flows

Moody's	S&P	Description	Example
Aaa	AAA	Prime	Australia (neg)
Aa1	AA+	High grade	
Aa2	AA		
Aa3	AA-		
A1	A+	Upper medium grade	
A2	A		
A3	A-		
Baa1	BBB+	Lower medium grade	AGN
Baa2	BBB		
Baa3	BBB-		Qantas (stable)
Ba1	BB+	Non-investment grade speculative "junk"	
Ba2	BB		Brazil (neg)
Ba3	BB-		
B1	B+	Highly speculative	
B2	B		
B3	B-		
Caa1	CCC+	Substantial risks	
Caa2	CCC		
Caa3	CCC-		
C	CC	Extremely speculative	
	C	Default imminent	
C	RD, SD or C	In default	Arrium

- When setting the price path we ensure that changes in prices are aligned to changes in underlying costs
- This is necessary to achieve the credit metrics required to achieve the benchmark credit rating
- We assess the delivered cash flows to ensure they are sufficient to meet a BBB+/Baa1 credit rating (we refer to this as a financeability assessment/test)
  - The AER assumes a BBB+/Baa1 credit rating when it sets the return on debt
- We consider a financeability assessment is consistent with good regulatory practice
- The AER does not undertake this type of analysis for a range of reasons, including because it considers this is not required by the Rules
- A consideration of financeability is however common practice in overseas jurisdictions
  - Office of Gas and Electricity Markets in the UK

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Financeability | Assessment of Cash Flows

- We have the assessed the credit metrics of the draft plan against the two key measures considered by the credit ratings agencies
  - Funds from Operations (FFO) to debt – which measures the availability of cash flow to repay the balance of outstanding debt
  - FFO to interest – which measures the availability of cash flow to pay interest

	2018	2019	2020	2021	2022	Average	Target
FFO to Debt	6.9%	7.0%	7.3%	8.8%	9.8%	**8.0%**	**>9.0%**
FFO to Interest Cover	2.4	2.4	2.5	2.7	2.9	**2.6**	**>2.5**

- The Draft Plan credit metrics are marginal, but are met in the final year

29. Do you support our objectives of maintaining stable credit metrics and aligning revenue with underlying costs in setting our proposed price path?

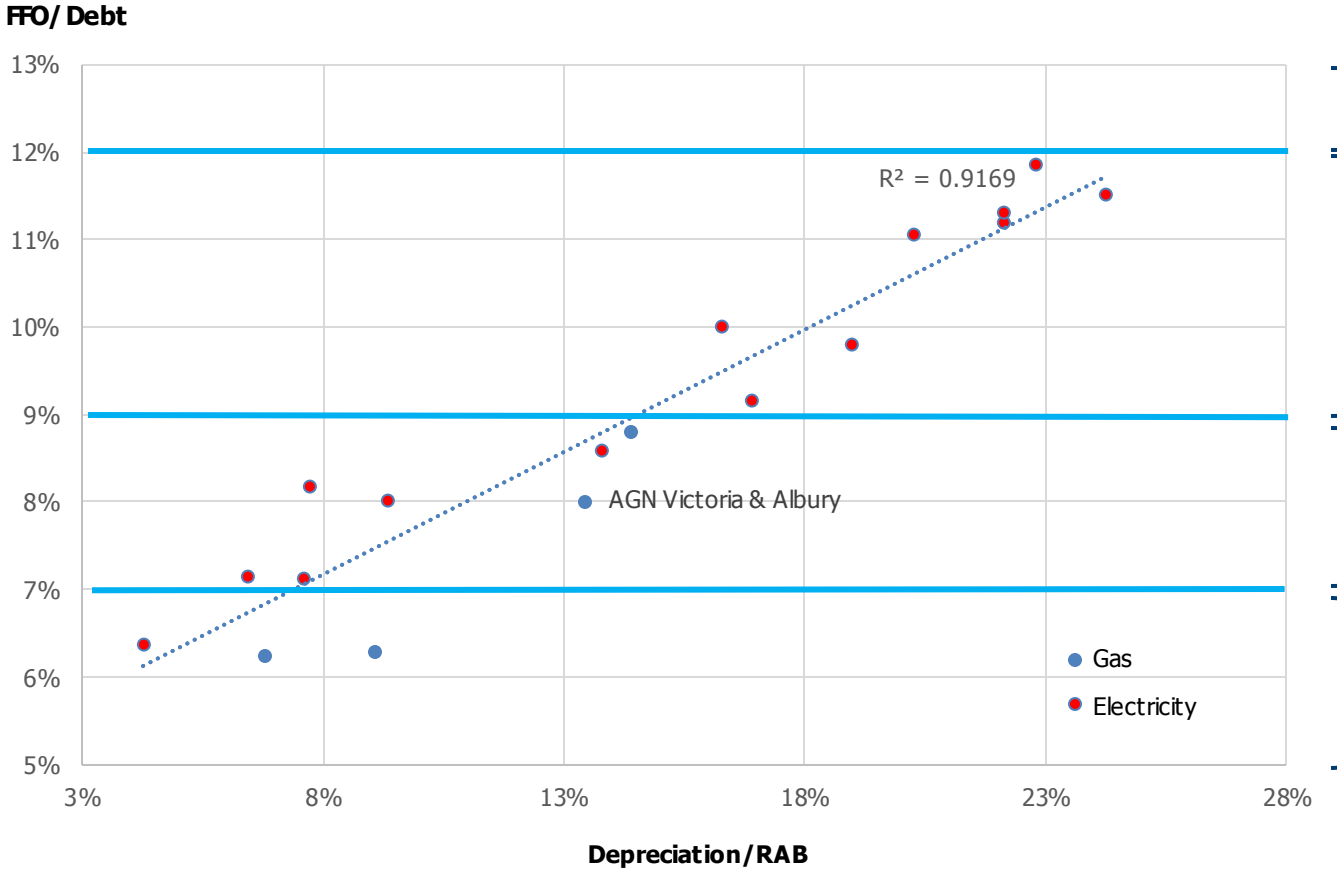
Would you prefer an alternate price path, and if so, on what basis?

Financeability | Implementation

- Given marginal cash flows, any material change to our proposal might require a financeability adjustment
- This adjustment can happen in a number of ways, including:
  - Reduce the inflation adjustment that is applied to our capital base such that more of the return is provided through cash (CPI-Z)
  - Change the classification of certain capex to opex which increases cash flow as opex is recovered in the year that it is incurred while capex is recovered over the longer term
- Such adjustments only change the timing of cash flow and does not increase the total amount of cash received by the business
  - Customers are no better or worse off as a result of the change in the medium to longer term

Financeability | Gas and Electricity Regulated Businesses

FFO/Debt and 5-year Depreciation/RAB of Recent AER Decisions



Credit Rating

A-/A3

BBB+/Baa1

BBB/Baa2

BBB-/Baa3

We Consider Adjustment Required in Only a Few Cases

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Financeability | Implementation

- AER did not accept the need for a financeability assessment for our SA network
  - Test not required by the Rules
  - Credit rating agencies look at more than these two measures

30. Do you consider that explicit consideration should be given as to whether our pricing proposal provides sufficient cash flow to maintain the credit rating assumed by the AER in setting the cost of debt?

If so, how do you think this assessment should be done – for example, by considering the credit metrics against levels assumed by ratings agencies?

If an adjustment to prices is required, how should this be undertaken – for example, through changes in capitalisation or depreciation?

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Demand

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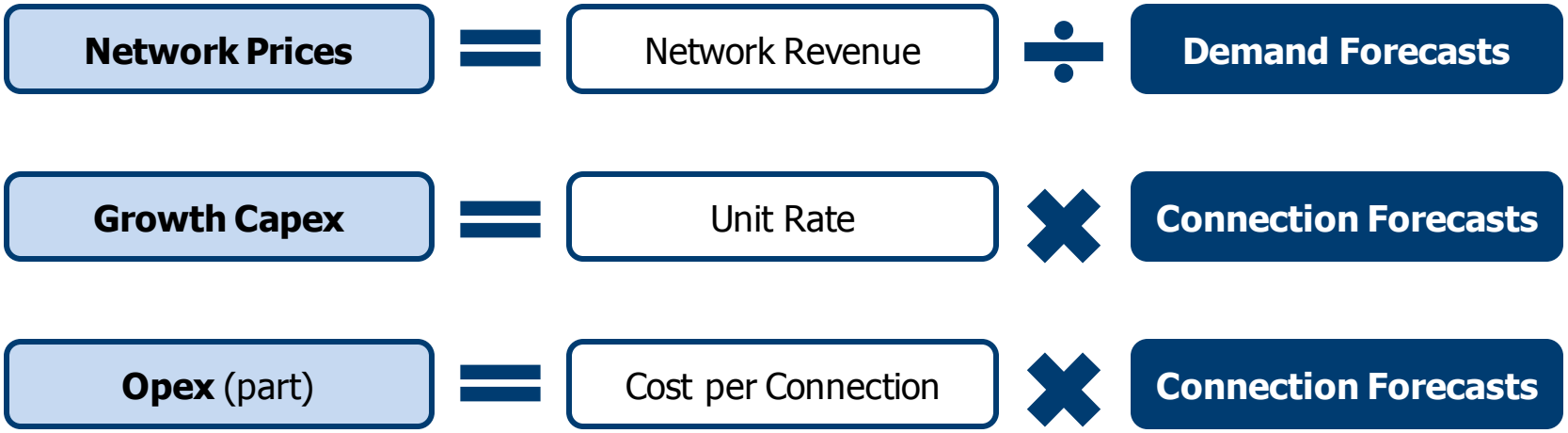
Demand | What are Demand Forecasts

- Forecasts of natural gas consumption and customer numbers (or connections) are collectively referred to as Demand Forecasts
- Demand forecasts are a key input into determining expenditure related to new connections, and under a price cap form of regulation, the prices charged to customers



Demand forecasts are a key input into multiple parts of our Plan

Demand | Forecasting Approach – General

- Separate forecasts were developed for each of our three customer classes
  - This allows the forecasts to better reflect the different drivers of each class and allows us to more effectively use the forecast to drive our Plan

Residential Customers
Those who use gas for residential purposes (i.e. hot water, cooktop and space heating)

Commercial Customers
Business customers who use less than 10 TJ of gas each year (annual bill of circa $200,000 or less)

Industrial Customers
Our largest business customers

- Independent expert Core Energy Group were engaged to develop forecasts
- Core Energy's methodology is:
  - The same as that recently used by the AER for our SA network
  - Consistent with key forecasting principles applied by AEMO

Demand | Residential & Commercial – Forecasting Approach

Residential and Commercial Demand = **Consumption per Connection** × **Number of Connections**

Determine the Normalised Historic Trend by removing the impact of weather and changes in energy prices

Apply the Historic Trend to the last actual (normalised volume) to forecast consumption going forward

Adjust the Historic Trend for any new drivers that are not included in history, such as movement in energy prices (gas and electricity) and known policy changes

For Residential based on the expected growth in new dwellings and historic penetration rate of gas into these homes

For Commercial historic trend

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Demand | Residential & Commercial – Key Assumption: Price & Elasticity

- Average annual real gas price increases over the period are:
  - Residential 2.2% and Commercial 3.0%
  - Reflects projected increases to wholesale gas costs
- Projected retail gas and electricity prices impact on gas demand through application of a measure of own-price elasticity and cross-price elasticity
  - **Own-price elasticity** – which captures how changes in retail gas prices impacts average consumption
  - **Cross-price elasticity** – which captures how changes in retail electricity prices impacts average consumption
- Elasticity values are consistent with that accepted by the AER
  - A lagged long term own-price elasticity of -0.3 for residential customers and -0.35 for commercial customers

Do you agree with this assumption/approach?

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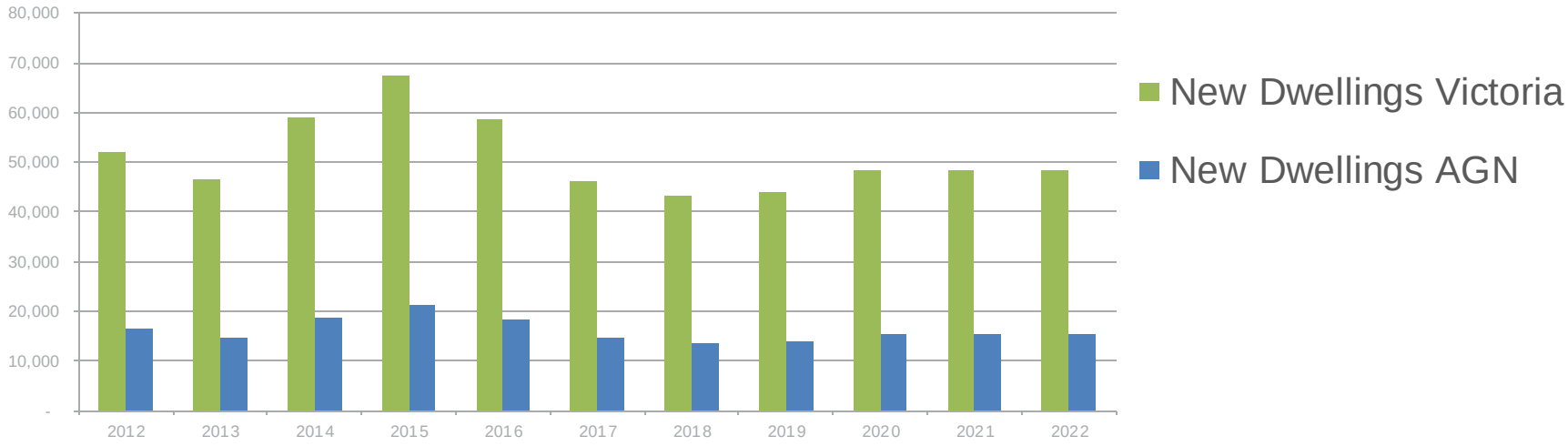
Demand | Residential & Commercial – Key Assumption: Dwellings

- The number of new residential connections is directly related to the forecast number of new dwellings in Victoria and Albury
- We have relied on independent forecasts of new dwellings from the Housing Industry Association (HIA) as a basis for projecting new gas connections



Do you agree with this assumption/approach?

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Demand | Residential & Commercial – Key Assumption: Policy

- We have made no assumption in respect of future policy effects on forecast demand or connections
  - Policy impacts reflected in historic trend and therefore carried forward

Do you agree with this assumption/approach?

20. … Are you aware of any potential future energy policy changes that will effect gas demand?

21. The Victorian government recently announced a target of zero carbon dioxide emissions by the year 2050. Do you think this announcement will impact gas demand over the next AA period, and if so, how should this be factored into our demand forecasts?

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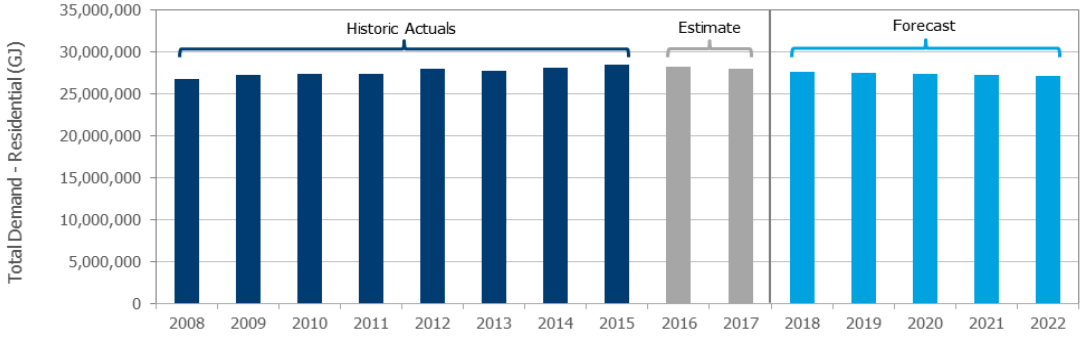
Demand | Residential & Commercial – Residential Forecasts

- Residential demand is forecast to be relatively flat over the next AA period as customer growth is offset by declining consumption per connection
  - Net customer growth is forecast to be 1.7% per year relative to the recent historic rate of 2.2%, driven by a slowing of new dwelling construction (HIA estimate)
  - Consumption per connection is forecast to decline at 2.4% per year relative to historic rate of 1.5% per year, driven by customer response to increasing wholesale gas prices

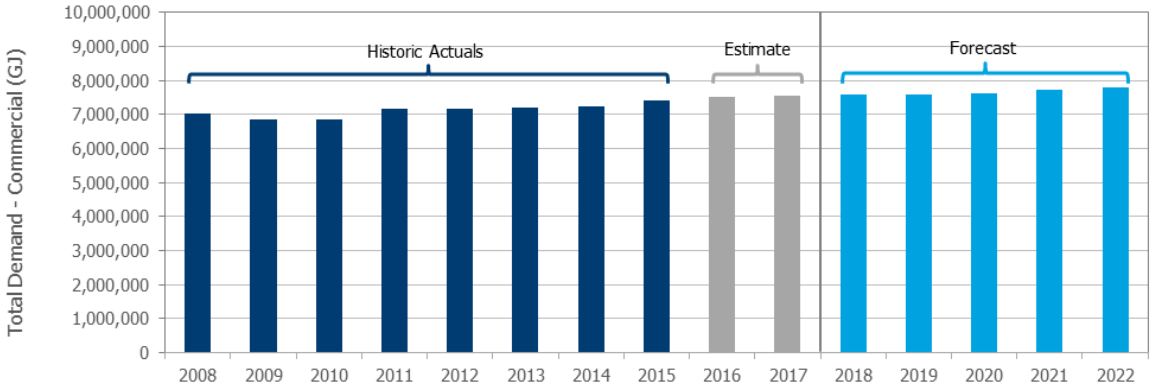


19. Do you consider our approach to forecasting demand to be reasonable?

20. Are there other factors we should consider?

Demand | Residential & Commercial – Commercial Forecasts

- Commercial demand is forecast to increase by 0.6% per year over the next AA period
  - Net customer growth which is forecast to be 0.5% per year, consistent with history
  - Consumption per connection growth which is forecast to be 0.2% per year, consistent with history



19. Do you consider our approach to forecasting demand to be reasonable?

20. Are there other factors we should consider?

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Demand | Industrial – Forecasting Approach

Industrial Demand = **Current Connections (circa 300)**

± **Known Changes**
identify known changes such as connections, disconnections, expansions/contractions and apply to starting consumption

For customers with no known changes:

× **Impact of Economic Activity**
assess for statistical relationship with economic growth and, where there is correlation apply an adjustment based on forecast economic growth

For customers with no known changes or relationship with economic activity:

× **Apply Historic Trend**
apply the X-year historic trend for that customer for the forecast period

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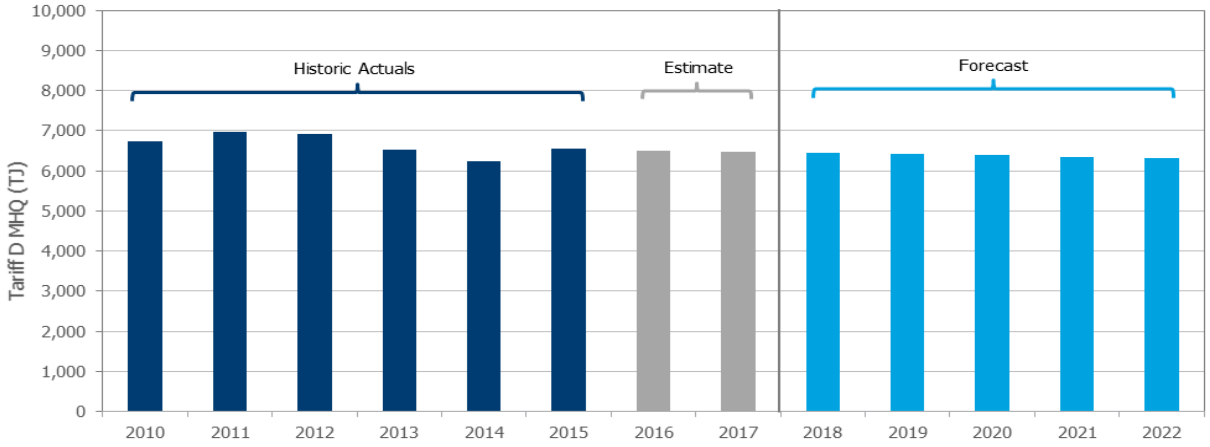
Demand | Industrial – Forecasts

- Industrial demand is forecast to decline by 0.5% per year over the next AA period, consistent with history
  - This reflects challenging economic conditions for industrial customers



	2018	2019	2020	2021	2022
GJ MHQ	6,446	6,415	6,383	6,352	6,322

19. Do you consider our approach to forecasting demand to be reasonable?

20. Are there other factors we should consider?

Network Revenue and Pricing

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Network Revenue & Pricing | Building Block and Price Revenue

- The costs described earlier (e.g. expenditure and financing costs) are referred to as 'building blocks' and combine to form the **'building block revenue'**
- We recover this building block revenue through the prices (or tariffs) that we charge retailers for the provision of reference services to form the **'Price revenue'**
- The tariffs are set such that the total revenue we recover through prices is the same as the building block total revenue

- The process of price setting delivers the annual real (i.e. before inflation) price changes (or X factors) that will be applied during the Access Arrangement period
  - This is known as the **'price path'**

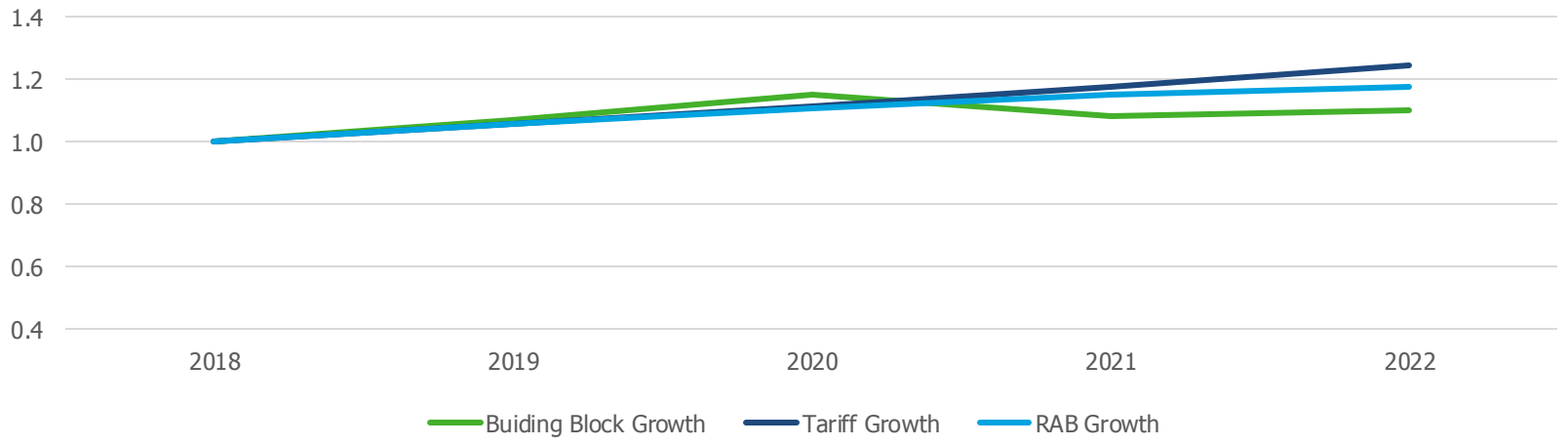
Draft Plan price path is 11% cut followed by 3% increases thereafter

Network Revenue & Pricing | Building Block and Price Revenue

- The allowed building block and expected tariff revenue is set out in below

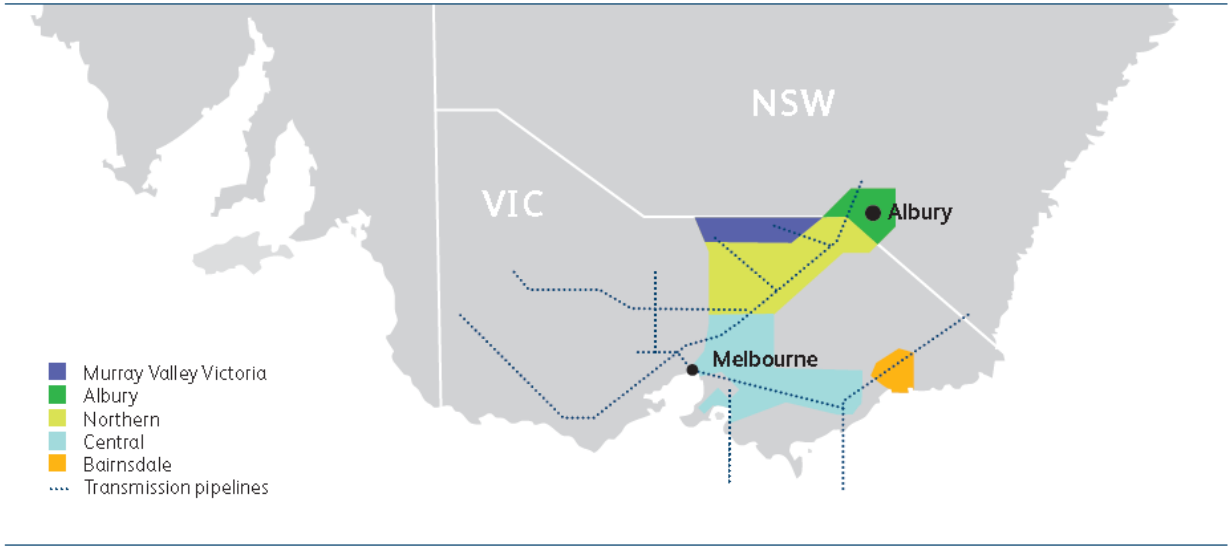
$ Nominal	2018	2019	2020	2021	2022
Building Block Revenue	209	224	242	229	231
Price Revenue	203	214	227	240	254
Real Price Path	11.0%	-3.1%	-3.1%	-3.1%	-3.1%

- The figure below demonstrates how tariff revenue tracks growth in the RAB



Network Revenue & Pricing | Price Alignment

- There are four different pricing zones in Victoria (Central, Northern, Murray Valley and Bairnsdale) and one additional pricing zone in Albury
  - Each zone comprises Residential, Commercial and Industrial prices
- The AER has directed that Albury must be maintained as a separate pricing zone
- Bairnsdale is a relatively recent extension to our network



Network Revenue & Pricing | Price Alignment

- AGN is proposing to align pricing across the three largest and most mature zones of Central, Northern and Murray Valley
  - Our Retailer Reference Group asked that we consider alignment of tariffs
  - Bairnsdale not included as relatively new and approved based on current tariff
- The average cost of providing reference services reduces as customer density rises
- Northern zone tariffs are currently lower than the Central zone tariffs despite being less dense – legacy of privatisation nearly 20 years ago

	Central	Northern	Murray Valley	Bairnsdale	Albury
Total km	8,252	1630	199	156	396
Total Customer Numbers	532,106	74,958	7,696	3,765	21,619
Customers per km	64	46	39	24	54
Residential customers per km	62	44	37	23	52
Commercial customers per km	2	2	2	1	2

Network Revenue & Pricing | Price Alignment

- The effect of alignment, including our proposed overall price cut of 11%, is that our network charge will fall in all zones with the exception of a minor price rise in the Northern zone
- Agree with the retailers that aligned structure is simpler, and as such, transaction costs will be reduced

Average Customer Impact of Proposed Single Tariff		2017 Average Annual Charge ($)	2018 Average Annual Charge ($)	Variance ($)	Variance (%)
Residential	Central	338	304	(34)	(10.0%)
	Northern	303	304	1	0.3%
	Murray Valley	314	304	(10)	(3.2%)
Commercial	Central	1,329	1,195	(133)	(10.0%)
	Northern	1,178	1,195	18	1.5%
	Murray Valley	1,330	1,195	(135)	(10.1%)

32. Do you agree with our proposed pricing structures, including our decision to align prices across the three Victorian zones of Central, Northern and Murray Valley?

Network Revenue & Pricing | Fixed versus Variable Charges

- Our tariffs to our residential and commercial customers comprise
  - Fixed component – reflected as a $ per day charge
  - Declining block variable component – reflected as $ per GJ delivered
- The variable component forms 75% and 94% of the average customer distribution charge for residential and commercial customers respectively
- In our customer workshops, three-quarters (74%) of participants supported a high to very high degree of variability in their gas bill in-line with their gas usage
  - A high variable component meant customers saw a stronger relationship between their gas consumption and their invoice

31. Do you consider that there is an appropriate split between our fixed and variable charges?

Next Steps

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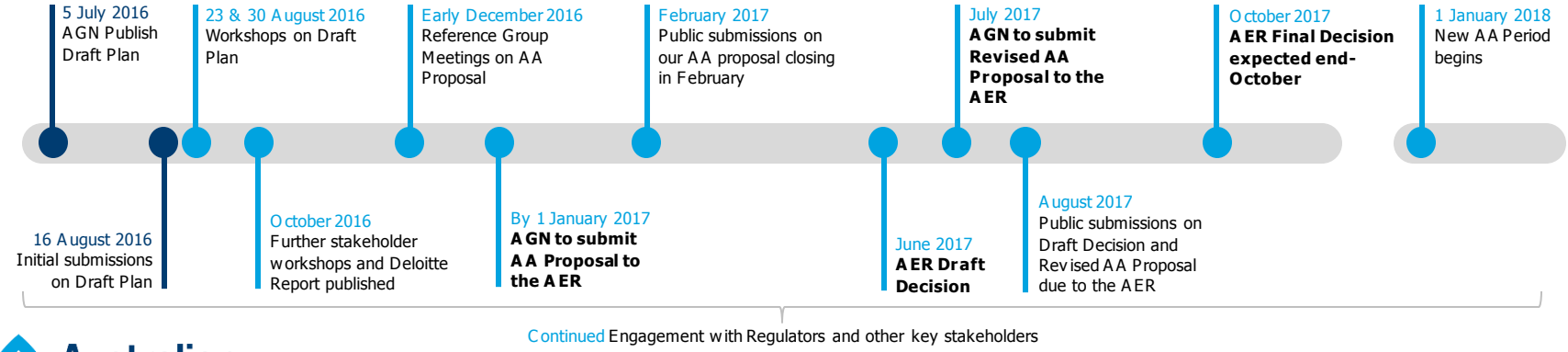
Victorian and Albury AA | Next Steps

- Will consider and reflect feedback from today's workshop in our Plan
  - Will provide feedback to participants to ensure it is accurate
  - Feel free to contact us to discuss any aspect of this workshop further
  - Can also provide written submissions on the Draft Plan (haveyoursay@agnl.com.au) we are flexible on timing, any comment is beneficial
- Additional workshop to be held 30 August (return on capital, demand forecasts and network revenue and pricing)
- Would you like more information on any other aspect of our Draft Plan?
- Further stakeholder workshops and ongoing meeting program



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Supporting Slides

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Overview | Stakeholder Engagement – Customer Insights

- Customer feedback received so far has been distilled into nine key customer insights

OVERARCHING INSIGHTS | CUSTOMER EXPERIENCE | NETWORK SAFETY & RELIABILITY | TARIFF STRUCTURES | ENVIRONMENTAL COMMITMENT

01 Customers are not aware of Australian Gas Networks

02 Customers do not understand the structure of the gas industry

03 Customers traditionally considered gas a cost-effective alternative to electricity but are concerned with recent price increases

04 Customers would like AGN to be more visible, believing it would improve their experience as customers

05 Customers would like to access to more information from AGN and favour digital channels

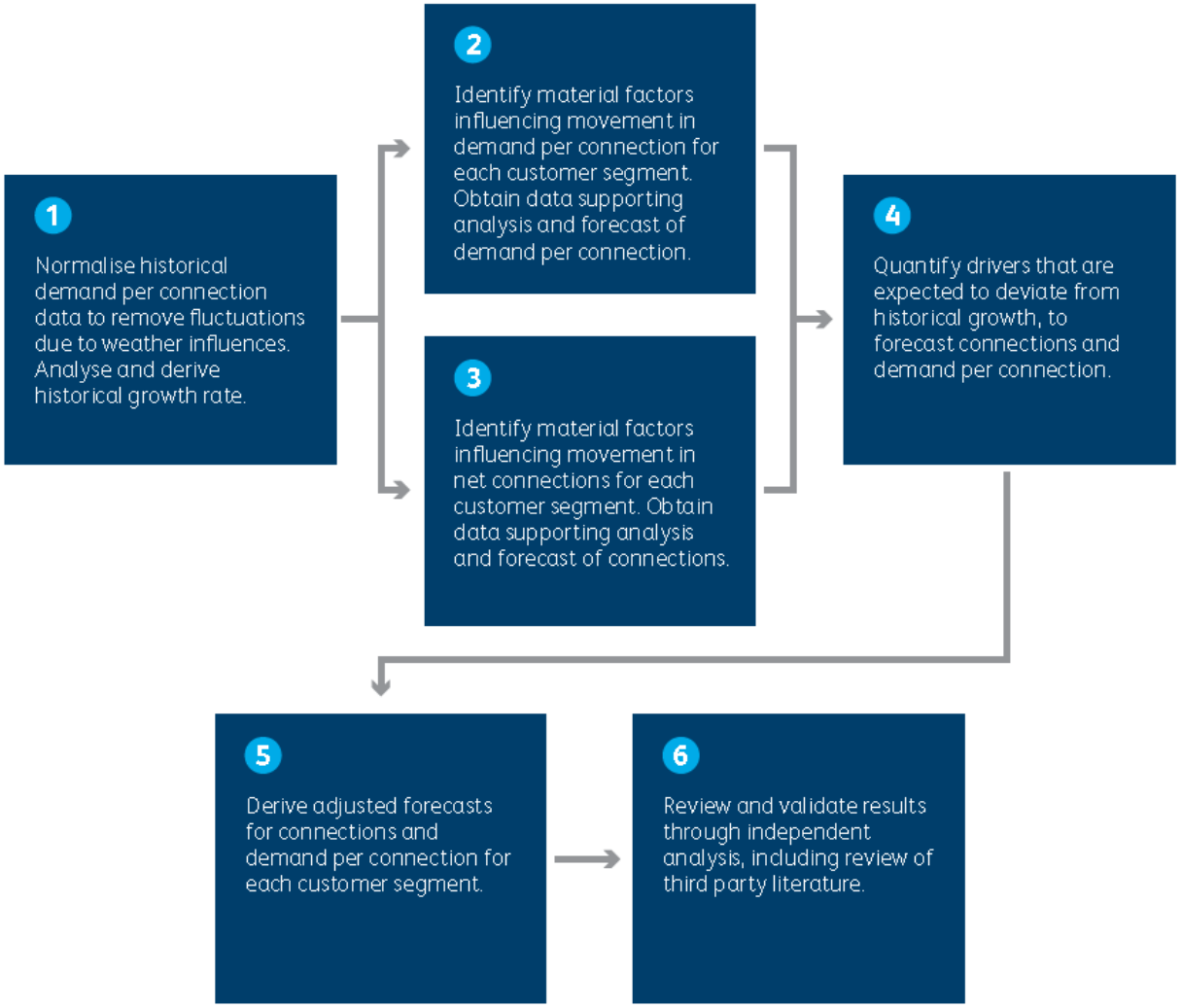
06 Customers view gas as a reliable source of energy and value the current standard of reliability

07 Customers are supportive of initiatives that maintain the reliability and improve the safety of the network

08 Customers value the control gained by having their gas bill dependent on usage levels

09 Customers would like AGN to play a leadership role in minimising environmental impact

Demand | Forecasting Approach – Residential & Commercial



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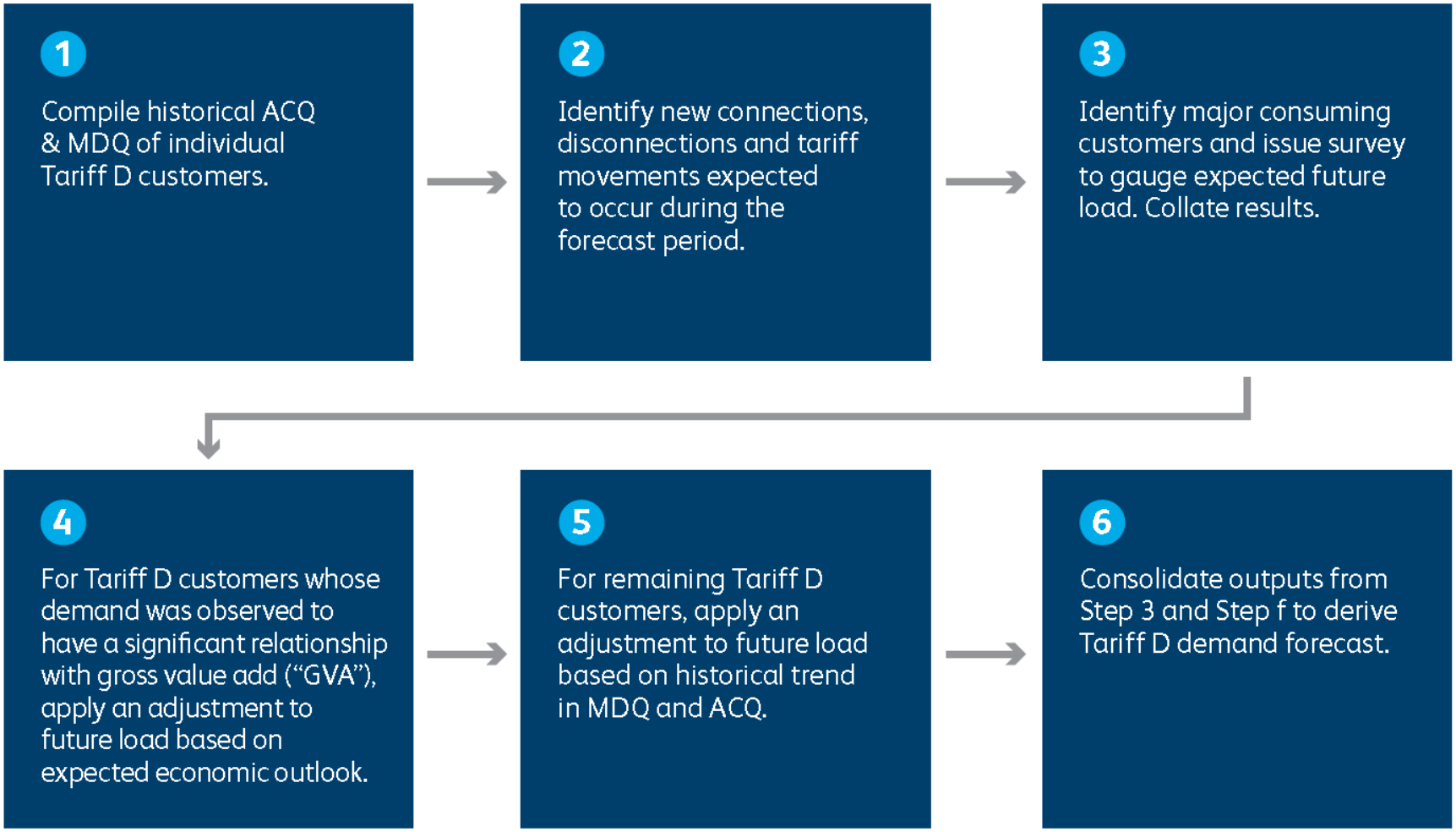
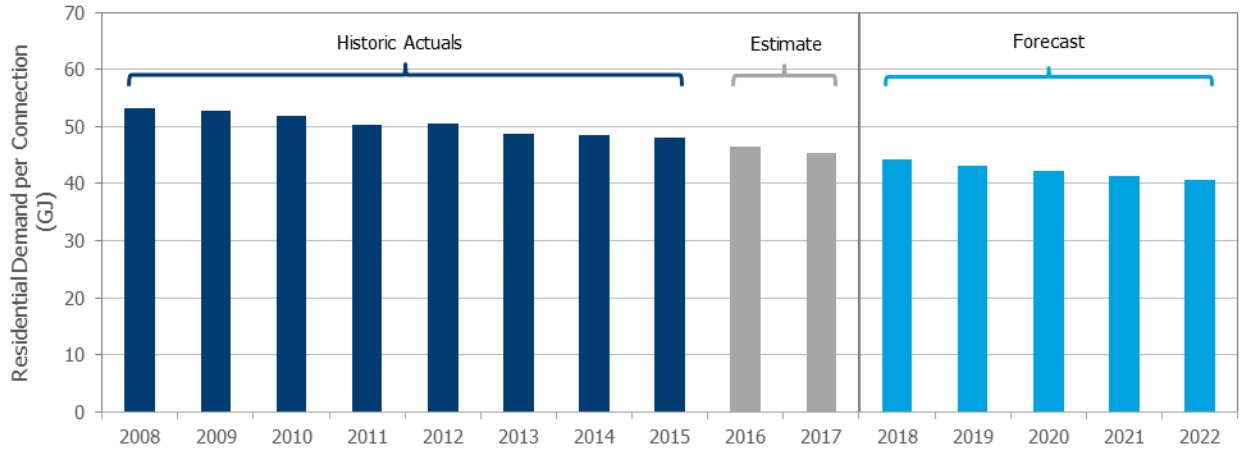
Demand | Forecasting Approach – Residential & Commercial

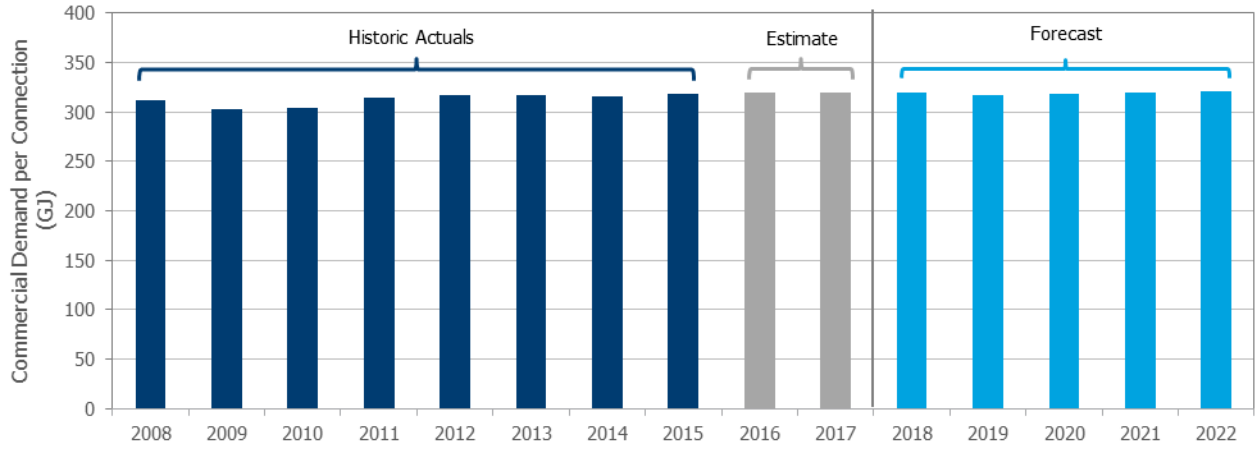


Demand | Residential & Commercial – Residential Forecasts



	2018	2019	2020	2021	2022
Net Customer Numbers	649,657	659,567	670,785	681,957	693,082
Consumption per Connection (GJ)	43.9	42.9	42.1	41.2	40.4
Demand (TJ)	28,525	28,304	28,212	28,092	28,029

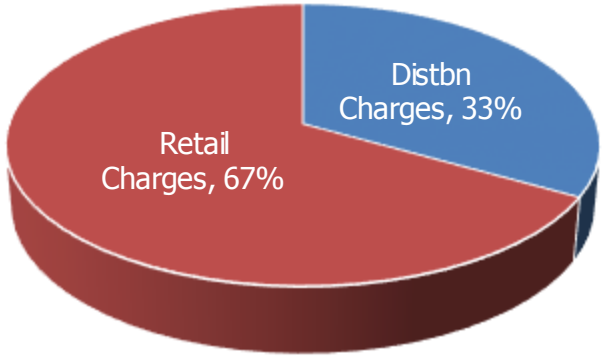
Demand | Residential & Commercial – Commercial Forecasts



	2018	2019	2020	2021	2022
Net Customer Numbers	24,724	24,874	25,024	25,174	25,324
Consumption per Connection (GJ)	317.4	315.6	315.8	317.4	318.7
Demand (TJ)	7,849	7,850	7,904	7,990	8,071

Network Revenue & Pricing | Invoice Breakdown

- Average Residential Customer



- Average Commercial Customer