

Revised Access Arrangement Information

For Australian Gas Networks' South
Australian Natural Gas Distribution
Network

JANUARY 2016

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Foreword from the CEO

I am pleased to provide this response to the Australian Energy Regulator's (AER's) Draft Decision for our South Australian gas distribution network for the five years from 1 July 2016.

The AER accepted many elements of our initial proposal in its Draft Decision, including many aspects of our operating costs and demand forecasts, our tariff structure, and elements of our capital investment program. We are also pleased that the AER and many stakeholders recognised our positive approach to stakeholder engagement on our plan.

However the AER did reject our proposed mains replacement plan, and our proposed allowed rate of return.

Over 2011-2016 AGN will replace 1,150 kilometres of old gas mains, or 230 kilometres per year on average, to meet customer safety and serviceability standards. The AER's Draft Decision cuts mains replacement for 2016-2021 by 55%, to only 115 kilometres per year on average. We believe that this poses an unacceptable safety risk, in exchange for a small saving on bills of circa \$8 per domestic customer per annum. The AER has requested further evidence on our risk assessment and we have worked with external experts to provide that in this response. Our revised plan assumes we can do the work at a lower cost, saving \$44 million over the five years. We strongly believe that our mains replacement plan reflects our responsibilities as a prudent operator, and we urge stakeholders to support us.



We proposed an allowed rate of return (to finance assets paid for by us up front, but by customers over up to 60 years) of 7.2%. The AER's Draft Decision cut this to 6.0%. We hoped that this difference would be resolved last December by a ruling from the Australian Competition Tribunal. However the Tribunal has delayed its decision until March. In the meantime, to cover all possible outcomes from the Tribunal, our proposed rate of return has risen to 8.2% on average.

Given the importance of these two issues, we have sought to accept as many other aspects of the AER Draft Decision as possible, including where we might not necessarily agree with the AER's approach but where 'in the round' we believe we have a reasonable opportunity to recover our efficient costs.

We maintain that the AER must consider the creditworthiness of our cash flow profile when setting the rate of return for its Decision to be internally consistent and in the long-term interest of customers. Additionally, whilst we consider strengthened incentives to be in the long-term interests of consumers, we have accepted the AER's Draft Decision not to approve these pending an industry-wide consultation. The exception is the capital efficiency incentive, which has already been consulted on and is in place for electricity distributors.

Overall, our revised proposal cuts prices by 5.5% before inflation on 1 July 2016 (down from 11.4% in our initial proposal), followed by price increases of 5.0% per year in line with the growth in our asset base. Using the AER's proposed allowed return, the initial price cut would increase to around 21.3%, similar to the cut in the AER's Draft Decision. This shows that the rate of return is the key variable driving prices. Our revised proposal maintains and improve safety, reliability and customer service over the next five year period, and under any scenario prices to customers will fall on 1 July 2016.

We would like to thank all stakeholders who have participated in this important review process. We look forward to further engagement on this revised proposal over coming months.

Ben Wilson

Ben Wilson
Chief Executive Officer
Australian Gas Networks Limited

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Executive Summary

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Executive Summary

Introduction

On 1 July 2015 Australian Gas Networks Limited (AGN) submitted its Access Arrangement (AA) Proposal for the South Australian natural gas distribution network (the Network) to the Australian Energy Regulator (AER). This Initial AA Proposal set out the price and non-price terms of access to the Network over the five-year period commencing 1 July 2016.

The AER released its Draft Decision in our Initial AA Proposal on 26 November 2015. The key amendments sought by the AER on our proposed plan included to:

- cut the volume of mains replacement by 55%, from the 1,273 kilometres proposed by AGN to 577 kilometres;
- cut other proposed capital works, including in respect of certain augmentation and Information Technology (IT) initiatives, leading to an overall 43% cut to capital expenditure (capex);
- cut operating expenditure (opex) by 3%, including not accepting the step changes proposed by AGN and including a discrete productivity reduction target on the business;
- change the methodology for setting the rate of return, which led to a reduction in the proposed return from 7.23% proposed by AGN to 6.02% applied by the AER (AGN notes this matter is currently before the Australian Competition Tribunal (ACT));
- increase the benchmark average consumption for domestic and commercial customers;
- remove all of the proposed initiatives to strengthen the incentive framework to apply in South Australia, including to provide for greater alignment to the framework currently applying to electricity distributors; and
- not apply an adjustment to regulatory depreciation to provide sufficient cash flow for an efficient business to achieve the benchmark credit rating assumed by the AER in setting the rate of return.

Importantly, the AER noted in its Draft Decision that it is seeking further information from AGN before accepting certain proposed initiatives. For example, in regard to mains replacement the AER noted that:

“Much of this reduction is because we did not have sufficient information to find the proposed expenditures to be prudent or efficient. We have identified where further information needs to be provided by AGN in order for us to be satisfied that the proposed expenditures meets the NGR [National Gas Rules].”¹

AGN has reviewed the Draft Decision and in response has submitted this Revised AA Proposal. Our response seeks to provide the additional supporting information sought by the AER. AGN has however sought to accept as many aspects of the Draft Decision as possible, including where we might not necessarily agree with the AER approach. This is on consideration as to whether the Draft Decision provides the business with a reasonable opportunity to recover its efficient costs over the next five years.

This Executive Summary outlines the key aspects of our Revised AA Proposal, the customer impact of this proposal, the key next steps in the AA process and the structure of this response.

¹ AER 2015, “Attachment 6 – Capital Expenditure | Draft decision: Australian Gas Networks Access Arrangement 2016-21”, November 2015, pg. 6-7.

Incentives

AGN is a strong supporter of effective, outcome-based incentive arrangements as a way of improving the price and service outcomes provided to customers.

Consistent with this, AGN in its Initial AA Proposal provided for a more comprehensive set of incentive arrangements to be applied over the next (2016/17 to 2020/21) AA period, including the retention and strengthening of the Efficiency Benefits Sharing Scheme (EBSS) and the introduction of three new incentive schemes: the Capital Expenditure Sharing Scheme (CESS), a Customer Service Incentive Scheme and a Network Innovation Scheme.

The AER did not accept AGN's proposals to strengthen the incentive framework to apply during the next AA period. The AER did however decide to maintain the application of the same EBSS that is currently applied to AGN. The AER considered that further stakeholder consultation is required before introducing the revised incentives arrangements proposed by AGN.

Whilst we maintain that strengthened incentive mechanisms are in the long-term interests of customers, we accept the AER's Draft Decision on all matters except for the CESS. AGN considers that the requisite industry consultation has already occurred on the CESS, which scheme currently applies to electricity distributors. Furthermore, AGN considers that the CESS is an important compliment to the existing EBSS (which incentivises improvements in opex).

The AER has made clear that any CESS scheme should be accompanied by quantifiable service delivery measures, to mitigate the risk that capex underspending leads to undermined network reliability or safety. AGN would like to emphasise that these service delivery measures are already in place for gas. In particular, performance against the targets set and reported on by the Essential Services Commission of South Australia for leak response and repair provide the objective service measures directly analogous to reliability performance in electricity distribution, and would enable the AER to track any undermining of our network performance.

Demand Forecasts

Forecasts of natural gas consumption and customer numbers (collectively referred to as 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 retailers (and hence customers). AGN's Initial AA Proposal outlined a robust set of demand forecasts, developed by industry experts Core Energy Group (Core Energy).

The AER approved AGN's forecasts for residential, commercial and Tariff D connection numbers and Tariff D Maximum Daily Quantity, but did not accept forecast consumption per connection for residential and commercial customers based on its view that the Core Energy approach double counted the impact of lower gas consumption from newer customer connections on the Network.

Whilst AGN does not accept the revised approach will necessarily lead to better demand forecasts, AGN considers the AER Draft Decision provides for a reasonable opportunity to recover efficient costs over the next AA period, and as such, AGN has accepted the AER Draft Decision.

Expenditure

Our Revised AA Proposal provides for \$359 million in opex and \$637 million in capex over the next AA period. This proposed investment is around 35% higher than that provided for in the AER Draft Decision and 4% below our Initial AA Proposal (all values are expressed in current 2014/15 dollar terms unless stated otherwise).

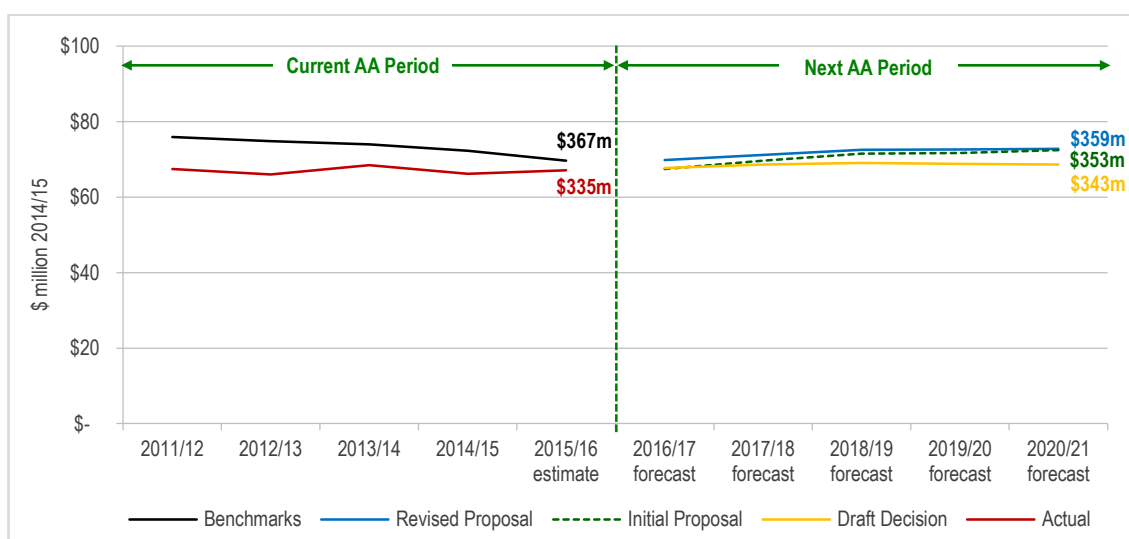
The AER reduced our proposed opex by 3% to \$343 million, which primarily reflected differences in the approach to forecasting opex. The majority of the changes are driven by the change in the approach taken by the AER to forecast opex. As outlined earlier, AGN has sought to accept the AER's Draft Decision wherever feasible. As such, despite the significant changes made by the AER with respect to forecasting opex, AGN has for the most part accepted the AER's approach.

More specifically, AGN has:

- accepted the AER's change in approach to forecasting opex;
- accepted the 2014/15 opex base year, which AGN has now updated to reflect actual information (which results in a \$5 million increase to the Draft Decision);
- updated forecast unaccounted for gas to reflect our revised mains replacement plan (which results in a \$4 million increase to the Draft Decision);
- accepted the AER's rejection of funding for eight of nine step change projects originally proposed, instead agreeing to absorb the related costs whilst still undertaking the work;
- repropoed one step change project (\$2 million increase to the Draft Decision);
- accepted the AER's approach to forecasting input cost escalation and output growth; but
- removed the proposed productivity adjustment on the basis that a sufficiently robust forecast of productivity is not available and, to the extent one is applied, implies the AER should increase our opex forecast (\$6 million increase on the Draft Decision).

AGN has proposed a revised opex forecast of \$359 million over the next AA period, which is 5% higher than the AER's Draft Decision (see Figure 1).

FIGURE 1: CURRENT AND NEXT AA PERIOD OPEX



The AER reduced our proposed capex by 43% to \$393 million, which primarily reflects a significant cut to our mains replacement plan. Importantly, the AER noted that it is seeking further supporting information from AGN before approving an increase in our proposed capex program for the next AA period. AGN notes that the AER has accepted many elements of our proposed capex, including in respect of meter replacements, telemetry, general growth and the unit rates used to forecast non-mains replacement capex.

Mains replacement is a key part of ensuring public safety, and as such, is a key component of our future plans. As a result, our Revised AA Proposal provides for mains replacement volumes of 1,265 kilometres over the next AA period, which is more than double that provided for in the Draft Decision and consistent with our Initial AA Proposal. Our plan materially lowers network risk at an small bill impact of around \$8 per customer per annum over the next AA period, relative to the AER Draft Decision.

As requested by the AER, we have provided further information in respect of our risk assessment governing the scope of mains replacement works, which has been endorsed by experts as been consistent with accepted good industry practice. Our Revised AA Proposal has however reduced, on average, our proposed

unit rates, which has led to a \$44 million decrease in proposed mains replacement capex to around \$326 million.

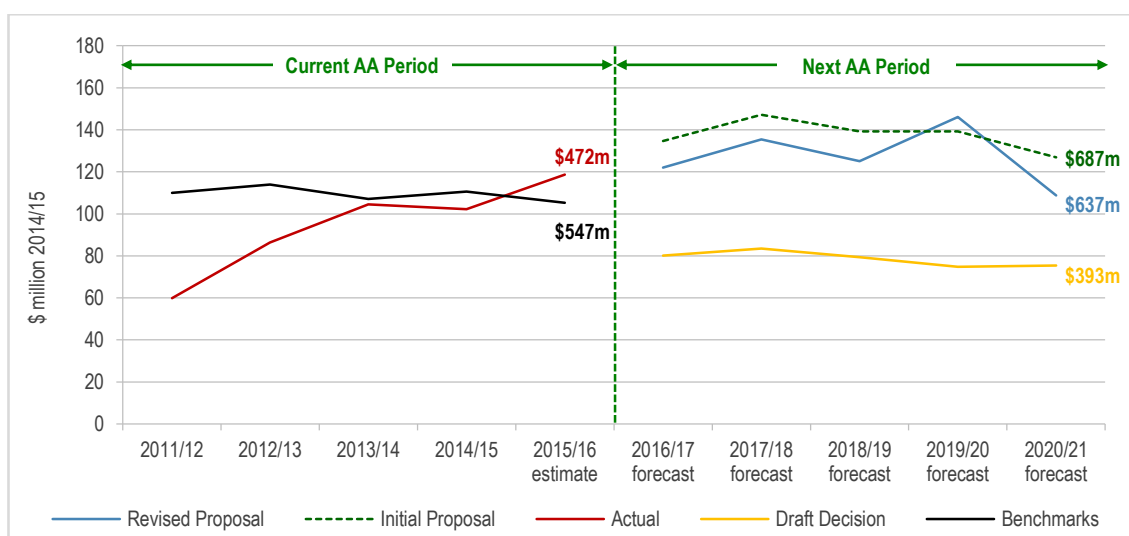
We strongly believe that our mains replacement plan complies with our regulatory obligations, is prudent and efficient and in the long-term interests of stakeholders. Our proposed program is a continuation of work currently underway, draws upon the delivery capability built up over the current (2011/12 to 2015/16) AA period and is required to meet our regulatory obligations, including the conditions of our South Australian Gas Distribution Licence and our obligation under Australian Standard AS/NZS 4645.

Other key drivers of our revised capex proposal include:

- *Information Technology (IT)* – AGN has resubmitted the proposed Mobility and Business Intelligence initiatives on the basis that such programs are consistent with accepted good industry practice, have a positive economic value, maintain and improve the safety of services, maintain the integrity of services and comply with regulatory obligations. The associated capex investment of \$18 million follows a sustained period of under investment in IT from AGN.
- *Growth Assets* – Network growth is in the long-term interests of all customers as it enables the largely fixed costs of operating the Network to be spread over a larger customer base, resulting in lower distribution charges. Consistent with this, AGN's Revised AA Proposal provides for the extension of the Network to Two Wells and Mount Barker, with the latter receiving in-principle support from the South Australian Government.

AGN has proposed a revised capex forecast of \$637 million over the next AA period, which is 62% higher than the AER's Draft Decision (see Figure 2).

FIGURE 2: CURRENT AND NEXT AA PERIOD CAPEX



AGN is confident that the expenditure proposed for the next AA period is prudent, efficient and consistent with accepted good industry practice to achieve the lowest sustainable cost of providing natural gas services to consumers.

Financing Costs

In the Draft Decision, the AER rejected AGN's proposed rate of return for the next AA period of 7.23% (nominal, post-tax) in favour of a rate of return of 6.02%.

AGN was hoping for clarity from the Australian Competition Tribunal in respect of several appeals lodged in respect of the appropriate rate of return. Unfortunately, on 17 December 2015 the Tribunal advised that it would not be in a position to release its decision on this matter prior to 6 January 2016, which decision is

now expected to be released by 15 March 2016. The rate of return materially impacts the prices paid by consumers, and as such, materially impacts our revised AA proposal.

AGN in this response has proposed an average rate of return of 8.19%, comprising a return on equity of 9.76% (compared to 7.30% in the Draft Decision) and a return on debt of 7.14% (compared to 5.16% in the Draft Decision). AGN will provide further information in the event that greater clarity on the rate of return is provided by the Tribunal prior to the release of the AER Final Decision in the end of April (noting that the Tribunal can extend its period further should this be considered appropriate).

AGN maintains that the AER should ensure that its Final Decision provides sufficient cash flow for the benchmark efficient business to maintain the BBB+/Baa1 credit rating assumed by the AER in setting the cost of debt.

Distribution Prices

Despite our growing investment and proposal to maintain and improve safety, service and reliability levels, AGN is proposing that the total revenue to be recovered from the Network over the next AA period decreases by 3% (to \$1,123 million) relative to the benchmark revenue that was set for the current AA period. This revised revenue is 7% higher than our Initial AA Proposal and 31% higher than the AER's Draft Decision, which is primarily driven by the different assumptions on rate of return.

Revenue is recovered from the distribution prices (or tariffs) charged to retailers for transporting gas on the Network. To this extent, AGN is proposing to reduce distribution tariffs by 5.5% from current levels, in real (excluding inflation) terms on 1 July 2016, followed by tariff increases of 5.0% in real terms in each remaining year of the next AA period in line with the growth in our asset base.

As noted above, AGN's revenue is heavily impacted by the assumed rate of return. As a result distribution prices are also driven by the rate of return. By way of example, using the AER's Draft Decision rate of return of 6.02%, and holding all other elements of AGN's Revised AA Proposal constant, the initial price cut would increase to around 21%, close to the level of the AER's Draft Decision.

Next Steps

AGN intends to continue to engage with stakeholders throughout the remaining AA process. The key remaining dates for the review of our Revised AA Proposal are as follows:

- *6 January 2016* – AGN submits this Revised AA Proposal to the AER;
- *4 February 2016* – Stakeholder submissions on AGN's Revised AA Proposal and the AER's Draft Decision close;
- *April 2016* – AER to release its Final Decision; and
- *1 July 2016* – New AA period begins.

Structure of this Revised AA Proposal

AGN's Revised AA Proposal includes:

- all of the documents provided to the AER in the July 2015 submission, which is referred to as our Initial AA Proposal (for the purposes of brevity and clarity, these documents are not attached to this Revised AA Proposal, as they have already been provided to the AER); and
- additional documents provided as part of this Revised AA Proposal, all of which are attachments to our Initial AA Proposal.

More specifically, the structure of this Revised AA Proposal consists of:

- revised preliminaries to the Initial Access Arrangement Information (this document), which includes a revised Foreword from the CEO, List of Attachments, Acronyms and Executive Summary;
 - the List of Attachments reflects AGN's original submission with the addition of new Attachments developed as part of this Revised AA Proposal (these new documents are highlighted in red text for ease of identification);
- attachments to the Initial AA Proposal:
 - responses to the AER Draft Decision are set out in attachments to the Initial AA Proposal and prefaced with the words 'Response to Draft Decision' in the title;
 - all information contained in these attachments supersedes information previously provided in the Initial AA Proposal to the extent that there is any conflict; and
- a Revised AA (including the Terms and Conditions).

List of Attachments

- 1.1 Regulatory Information Notice Templates (spreadsheet, confidential)
- 1.2 Regulatory Information Notice Index
- 1.3 Australian Gas Networks Chief Executive Officer Statutory Declaration (confidential)
- 1.4 South Australian Roll-Forward Model (spreadsheet)
- 1.4A **Response to Draft Decision: South Australian Roll-Forward Model (spreadsheet)**
- 1.5 South Australian Post-Tax Revenue Model (spreadsheet)
- 1.5A **Response to Draft Decision: South Australian Post-Tax Revenue Model (spreadsheet)**
- 1.6 HoustonKemp – Australian Gas Networks – AER Gas Price Review
- 1.6A **Response to Draft Decision: HoustonKemp – Australian Gas Networks – AER Gas Price Review²**
- 1.7 Australian Gas Networks Access Arrangement Information Submission Document Map
- 1.7A **Response to Draft Decision: Australian Gas Networks Access Arrangement Information Submission Document Map**
- 1.8 Confidentiality Claims
- 1.8A **Response to Draft Decision: Confidentiality Claims**
- 2.1 Mr Ian Little Affidavit (confidential)
- 2.2 Mr Peter Cain Affidavit (confidential)
- 2.3 Mr John Ferguson Affidavit (confidential)
- 2.4 K Lowe Consulting – Benchmark Study of Contractor Profit Margins (2005-2014)
- 3.1 Log of Documents on Australian Gas Networks' Stakeholder Engagement Website
- 3.2 Australian Gas Networks' Stakeholder Engagement Scoping Paper
- 3.3 Log of Engagement Activities with External Stakeholders
- 3.4 External Engagement Meeting Summaries
- 3.5 Australian Gas Networks Stakeholder Engagement Strategy
- 3.6 Australian Gas Networks South Australian Stakeholder Engagement Strategy
- 3.7 Australian Gas Networks Stakeholder Workshop Presentation
- 3.8 Australian Gas Networks Fact Sheets
- 3.9 Deloitte – Australian Gas Networks Stakeholder Insights Report
- 3.10 Documents Pertaining to the Essential Services Commission of South Australia's Review of Australian Gas Networks' Jurisdictional Service Standards
- 3.11 Australian Gas Networks Insights and Implementation Report
- 4.1 Economic Insights – The Productivity Performance of Australian Gas Networks' South Australian Gas Distribution System
- 4.2 Economic Insights – Benchmarking Australian Gas Networks' South Australian Business Operating and Capital Costs Using Partial Performance Indicators
- 5.1 Incenta Economic Consulting – Using the Profile of Prices During an Access Arrangement Period and Return of Capital to Improve Financial Metrics
- 6.1 **Response to Draft Decision: Pipeline Services**

² Note: This Report considers the AER's Draft Decision as well as AGN's Response and as such will be submitted separately post 6 January 2016.

- 7.1 Business Cases for Operational Expenditure and Capital Expenditure
- 7.1A Response to Draft Decision: Business Cases for Operating Expenditure and Capital Expenditure
- 7.2 Marsh & McLennan Companies – Australian Gas Networks Arrangement Review Project – Insurance Forecasts – South Australia Access Review (confidential)
- 7.3 Unaccounted for Gas Forecast
- 7.4 Breakdown of Incremental Cost per Customer (spreadsheet)
- 7.5 BIS Shrapnel – Real Cost Escalation Forecasts to 2021 – South Australia
- 7.6 Professor Borland – Recommendations for Methodology for Forecasting WPI
- 7.7 Operating Expenditure Forecast Model (spreadsheet)
- 7.7A Response to Draft Decision: Operating Expenditure Forecast Model (spreadsheet)
- 7.8 Response to Draft Decision: Operating Expenditure
- 7.9 Response to Draft Decision: Asset Integrity Australasia – Unaccounted for Gas Forecast (confidential)
- 7.10 Response to Draft Decision: Deloitte – Advice Regarding Opex versus Capex Classification
- 7.11 Response to Draft Decision: Professor Jeff Borland – Labour Cost Escalation: Choosing Between AWOTE and LPI
- 7.12 Response to Draft Decision: Professor Jeff Borland – Labour Cost Escalation
- 7.13 Response to Draft Decision: Huegin – Opex Productivity in the Gas Distribution Industry
- 7.14 Response to Draft Decision: ACIL Allen Consulting – Opex Partial Productivity Forecasts
- 8.1 Asset Management Plan
- 8.2 Mains Replacement Plan
- 8.3 Capacity Management Plan
- 8.4 Information Technology Plan
- 8.5 Network Materials and Services Contracting Regime (confidential)
- 8.6 Unit Rates – South Australia (confidential)
- 8.7 Gas Measurement Management Plan
- 8.8 Capital Expenditure Forecast Model (spreadsheet)
- 8.8A Response to Draft Decision: Capital Expenditure Forecast Model (spreadsheet)
- 8.9 Response to Draft Decision: Capital Expenditure
- 8.10 Response to Draft Decision: Mains Replacement
- 8.11 Response to Draft Decision: Jacobs – Mains Replacement Program Review
- 8.12 Response to Draft Decision: KPMG – SA Australian Gas Networks Limited: Information Technology Cost Benchmarking
- 8.13 Response to Draft Decision: AGN's Safety, Reliability, Maintenance and Technical Management Plan
- 8.14 Response to Draft Decision: AGN's Risk Prioritisation Model (spreadsheet) (confidential)
- 8.15 Response to Draft Decision: AGN's Cost Impact Analysis (spreadsheet) (confidential)
- 8.16 Response to Draft Decision: Affidavit – John Ferguson
- 8.17 Response to Draft Decision: HSE/Ofgem 10 Year Review of the Iron Mains Replacement Program
- 8.18 Response to Draft Decision: Various Emails Relating to Assumptions Underpinning the Revised Unit Rates (confidential)
- 9.1 CEG – Measuring Expected Inflation for the PTRM
- 9.2 Response to Draft Decision: Regulatory Asset Base
- 9.3 Response to Draft Decision: Inflation

- 9.4 Response to Draft Decision: CEG – Measuring Expected Inflation for the PTRM
- 9.5 Response to Draft Decision: Financeability
- 9.6 Response to Draft Decision: NAB Client Solutions and Advisory – Credit Profile Implications of Alternative Rates of Return
- 9.7 Response to Draft Decision: Incenta Economic Consulting – Assessing Financeability for a Benchmark Regulated Business: Comment on the Draft
- 10.1 Rate of Return
- 10.2 Averaging Period (confidential)
- 10.2A Response to Draft Decision: Averaging Period (confidential)
- 10.3 SFG Consulting – The Required Return on Equity for Regulated Gas and Electricity Network Businesses
- 10.4 SFG Consulting – The Required Return on Equity for the Benchmark Efficient Entity
- 10.5 SFG Consulting – The Foundation Model Approach of the Australian Energy Regulator to Estimating the Cost of Equity
- 10.6 SFG Consulting – Using the Fama-French Model to Estimate the Required Return on Equity
- 10.7 SFG Consulting – Share Prices, the Dividend Discount Model and the Cost of Equity for the Market and a Benchmark Energy Network
- 10.7A SFG Consulting – Equity Beta, Report for Jemena Gas Networks, ActewAGL and Networks NSW
- 10.8 SFG Consulting – Beta and the Black Capital Asset Pricing Model
- 10.9 NERA Economic Consulting – Historical Estimates of the Market Risk Premium
- 10.10 NERA Economic Consulting – Review of the Literature in Support of the SL CAPM, the Black CAPM and the Fama French Three Factor Model
- 10.11 Incenta Economic Consulting – Further Update on the Required Return on Equity from Independent Expert Reports
- 10.12 NERA Economic Consulting – Empirical Performance of Sharpe-Lintner and Black CAPMs
- 10.13 Frontier Economics – Review of the AER’s Conceptual Analysis for Equity Beta
- 10.14 Frontier Economics – An Updated Estimate of the Required Return on Equity, Report Prepared for AGN
- 10.15 Letter from Grant Samuel & Associates Pty Limited (Grant Samuel) to the Directors of Transgrid; 12 January 2015
- 10.16 Frontier Economics – Key Issues in Estimating the Return on Equity for the Benchmark Efficient Entity
- 10.17 NERA Economic Consulting – The Cost of Equity: Response to the AER’s Final Decision for the NSW and ACT Electricity Distributors and for Jemena Gas Networks
- 10.18 NERA Economic Consulting – Further Assessment of the Historical MRP: Response to the AER’s Final Decision for the NSW and ACT Electricity Distributors
- 10.19 Witness statement of Dr Robert Malko
- 10.20 Witness statement of Ronald L Knecht
- 10.21 Incenta Economic Consulting – Debt Raising Transaction Costs – Updated Report – Jemena
- 10.22 CEG – The Hybrid Method for the Transition to the Trailing Average Rate of Return on Debt, Assessment and Calculations for AGN
- 10.23 CEG – Efficient Use of Interest Rate Swaps to Manage Interest Rate Risk
- 10.24 CEG – The New Issue Premium
- 10.25 Secondary Supporting Material Index
- 10.26 Response to Draft Decision: Rate of Return
- 10.27 Response to Draft Decision: CEG – Curve Testing and Selecting Averaging Periods
- 10.28 Response to Draft Decision: CEG – Critique of the AER’s Approach to Transition
- 10.29 Response to Draft Decision: CEG – Criteria for Assessing Fair Value Curves
- 10.30 Response to Draft Decision: CEG – Critique of AER Analysis of New Issue Premium

- 10.31 Response to Draft Decision: Frontier Economics – An Updated Estimate of the Required Return on Equity
- 10.32 Response to Draft Decision: HoustonKemp – The Cost of Equity: Response to the AER’s Draft Decisions for the Victorian Electricity Distributors, ActewAGL Distribution and Australian Gas Networks
- 10.33 Response to Draft Decision: Frontier Economics – The Relationship Between Government Bond Yields and the Market Risk Premium
- 10.34 Response to Draft Decision: Frontier Economics – The Required Return on Equity Under a Foundation Model Approach
- 10.35 Response to Draft Decision: Frontier Economics – Estimating the Equity Beta for the Benchmark Efficient Entity
- 11.1 PricewaterhouseCoopers – Post Tax Revenue Model Methodology – Review of Initial Taxation Asset Base
- 11.2 Value of Imputation Credits
- 11.3 SFG Consulting – An Appropriate Regulatory Estimate of Gamma
- 11.4 SFG Consulting – Estimating Gamma for Regulatory Purposes
- 11.5 Frontier Economics – An Appropriate Regulatory Estimate of Gamma
- 11.6 Centre for International Finance and Regulation Working Paper
- 11.7 NERA – Estimating Distribution and Redemption Rates from Taxation Statistics
- 11.8 SFG Consulting – Updated Dividend Drop-off Estimate of Theta, a report for the Energy Networks Association
- 11.9 NERA – Estimating Distribution and Redemption Rates: Response to the AER’s Final Decision for the NSW and ACT Electricity Distributors and for Jemena Gas Networks
- 11.10 Response to Draft Decision: Cost of Tax
- 11.11 Response to Draft Decision: Frontier Economics – The Appropriate use of Tax Statistics when Estimating Gamma
- 12.1 Response to Draft Decision: Incentive Arrangements
- 13.1 Prudent Discount Summary (spreadsheet, confidential)
- 13.2 Response to Draft Decision: Total Revenue
- 14.1 Core Energy Group – Gas Demand Forecasts
- 14.2 Core Energy Group – Demand Forecast Model (spreadsheet, confidential)
- 14.3 Core Energy Group – Weather Normalisation Model (spreadsheet, confidential)
- 14.4 BIS Shrapnel – South Australian Dwelling Start Forecasting Methodology
- 14.5 Response to Draft Decision: Demand Forecasts
- 15.1 Cost Allocation Model (spreadsheet, confidential)
- 15.2 Response to Draft Decision: Reference Tariffs
- 16.1 Response to Draft Decision: Reference Tariff Variation Mechanism
- 17.1 Marked-up Terms and Conditions
- 17.1A Response to Draft Decision: Marked-up Terms and Conditions
- 17.2 Engagement with the Australian Gas Networks Retailer Reference Group on Terms and Conditions
- 17.3 Response to Draft Decision: Non-Tariff Components

Abbreviations

| Abbreviation | Description |
|--------------|---|
| AA | Access Arrangement |
| AAI | Access Arrangement Information |
| ABS | Australian Bureau of Statistics |
| ACT | Australian Competition Tribunal |
| AEMA | Australian Energy Market Agreement |
| AEMC | Australian Energy Market Commission |
| AEMO | Australian Energy Market Operator |
| AER | Australian Energy Regulator |
| AGN | Australian Gas Networks Limited |
| AGN Qld | Australian Gas Networks Limited Queensland |
| AGN SA | Australian Gas Networks Limited South Australia |
| AGN Vic | Australian Gas Networks Limited Victoria |
| AIC | Average Incremental Cost |
| ALARP | As Low As Reasonably Practicable |
| AMP | Asset Management Plan |
| AMR | Automated Meter Reading |
| APA | APA Asset Management |
| ARORO | Allowed Rate of Return Objective |
| ARS | Ancillary Reference Services |
| ASX | Australian Securities Exchange |
| ATO | Australian Tax Office |
| AWOTE | Average Weekly Ordinary Time Earnings |
| BIS | BIS Shrapnel |
| CAC | Consumer Advisory Committee |
| CAM | Cost Allocation Model |
| CAPM | Capital Asset Pricing Model |
| Capex | Capital Expenditure |
| CCP | Consumer Challenge Panel |
| CEO | Chief Executive Officer |
| CESS | Capital Expenditure Sharing Scheme |
| CGS | Commonwealth Government Securities |
| CI | Cast Iron |
| CMP | Capacity Management Plan |
| Core Energy | Core Energy Group |
| CPI | Consumer Price Index |
| CRC | Cooperative Research Centres |

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|----------------------------|---|
| CSIRO | The Commonwealth Scientific and Industrial Research Organisation |
| current AA period | The current (2011/12 to 2015/16) Access Arrangement Period |
| DAE | Deloitte Access Economics |
| DCF | Discounted Cash Flow |
| DCVG | Direct Current Voltage Gradient |
| DD | Draft Decision |
| DGM | Dividend Growth Model |
| DP | Delivery Point |
| DRP | Debt Risk Premium |
| EAM | Enterprise Asset Management |
| EBSS | Efficiency Benefit Sharing Scheme |
| EDD | Effective Degree Day |
| EGWWS | Electricity, Gas, Water and Waste Services |
| ERAA | The Energy Retailers Association of Australia |
| ESCOSA | The Essential Services Commission of South Australia |
| ETC | Estimate of Corporate Income Tax |
| ETI | Estimate of Taxable Income |
| EWOSA | Energy and Water Ombudsman of South Australia |
| FEED | Front End Engineering and Design |
| FFM | Fama French Three Factor Model |
| FFO | Funds from Operations |
| GDB | Gas Distribution Business |
| GJ | Gigajoule |
| GIS | Geospatial Information Systems |
| GSL | Guaranteed Service Level |
| GSP | Gross State Product |
| HDPE | High Density Polyethylene |
| HRS | Haulage Reference Services |
| HSS | Heat Shrink Sleeves |
| I & C | Industrial and Commercial |
| Initial AA Proposal | AGN's Access Arrangement Proposal, submitted to the AER 1 July 2015 |
| IRM | Innovation Roll-out Mechanism |
| IT | Information Technology |
| JGN | Jemena Gas Networks |
| KPI | Key Performance Indicator |
| LMP | Leakage Management Plan |
| LNG | Liquefied Natural Gas |
| LPI | Labour Price Index |
| LRMC | Long Run Marginal Cost |

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| LTIFR | Lost-time Injury Frequency Rate |
| MAPS | Moomba to Adelaide Pipeline System |
| MDQ | Maximum Daily Quantity |
| MRP | Mains Replacement Plan |
| MTFP | Multilateral Total Factor Productivity |
| NECF | National Energy Customer Framework |
| NER | National Electricity Rules |
| next AA period | The next (2016/17 to 2020/21) Access Arrangement Period |
| NGL | National Gas Law |
| NGO | National Gas Objective |
| NGR | National Gas Rules |
| NIA | Network Innovation Allowance |
| NIC | Network Innovation Competition |
| NIS | Network Innovation Scheme |
| NMF | Network Management Fee |
| NPV | Net Present Value |
| NSP | Network Service Provider |
| OMA | Operating and Management Agreement |
| Opex | Operating Expenditure |
| ORG | Office of the Regulator General of Victoria |
| OTR | The South Australian Office of the Technical Regulator |
| PE | Polyethylene |
| PMC | Periodic Meter Change |
| PPI | Partial Productivity Indicator |
| PTRM | Post-tax Revenue Model |
| PV | Present Value |
| PwC | PricewaterhouseCoopers |
| RAB | Regulatory Asset Base |
| RAH | Royal Adelaide Hospital |
| Revised AA Proposal | AGN's Revised Access Arrangement Proposal, submitted to the AER 6 January 2016 |
| RIIO | Revenue = Incentives + Innovation + Outputs |
| RIN | Regulatory Information Notice |
| RPP | Revenue and Pricing Principles |
| S&P | Standard & Poor's |
| SA | South Australia |
| SAIDI | System Average Interruption Duration Index |
| SAPN | SA Power Networks |
| SCADA | Supervisory Control and Data Acquisition |
| SEA Gas | South East Australia Gas Pipeline |

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|--------------------|---|
| SL CAPM | Sharpe-Lintner Capital Asset Pricing Model |
| TAB | Tax Asset Base |
| Tariff C | Commercial Customers |
| Tariff D | Demand Customers |
| Tariff R | Residential Customers |
| TJ | Terajoule |
| TFP | Total Factor Productivity |
| The Network | The South Australian natural gas distribution network |
| The Vision | Australian Gas Networks Limited's Vision Statement |
| TP | Transmission Pressure |
| UAFG | Unaccounted for Gas |
| UK | United Kingdom |
| UPS | Unprotected Steel |
| WA | Western Australia |
| WACC | Weighted Average Cost of Capital |
| WAPC | Weighted Average Price Cap |
| WPI | Wage Price Index |
| ZCM | Zero Consuming Meter |