# FINAL DECISION
# Mount Barker Gas Network Extension

## Advance Determination under NGR r. 80

December 2018

AUSTRALIAN ENERGY REGULATOR

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# Shortened Forms

| Shortened | Extended Form |
|---|---|
| AA | Access Arrangement |
| AER | Australian Energy Regulator |
| AGN | Australian Gas Networks |
| capex | capital expenditure |
| CCP | Consumer Challenge Panel |
| ECCSA/MEU | Energy Consumers Coalition of SA / Major Energy Users |
| ELS | Environmental Land Services (Aust) |
| GJ | Gigajoule |
| LPG | Liquefied Petroleum Gas |
| NGFR | National Gas Forecasting Report |
| NGL | National Gas Law |
| NGO | National Gas Objective |
| NGR | National Gas Rules |
| NPV | Net Present Value |
| PV | Photovoltaic |
| SEA Gas | South East Australia Gas Pty Ltd |

# 1 Our final decision

In June 2018 Australian Gas Networks (AGN) made an application to the Australian Energy Regulator (AER) seeking an advance determination under National Gas Rule (NGR) r. 80 for its proposed Mount Barker extension and reticulation of the natural gas distribution network. In October 2018 we made a draft decision approving the extension.[1] We received submissions from a number of stakeholders on AGN's application and on our draft decision.

This final decision, together with our draft decision, sets out the issues we considered, the conclusions we arrived at, and how we reached these conclusions.

For the reasons set out in our draft decision, we remain of the view that the capital expenditure approved in this final decision:

- satisfies the requirements of r. 79(1)(a) of the NGR, and
- satisfies the requirements of r. 79(1)(b) of the NGR. This is because AGN's economic model submitted as part of its original application demonstrates that the expenditure is justifiable on the ground set out in r. 79(2)(a) of the NGR.

For the reasons set out in this final decision, we are also now of the view that the capital expenditure approved in this final decision satisfies r. 79(1)(b) for an additional reason also - namely, that AGN's revised Net Present Value (NPV) model submitted in response to our draft decision demonstrates that the expenditure is also justifiable on the ground set out in r. 79(2)(b).[2]

## 1.1 Decision

Our final decision is to approve proposed capital expenditure of $33.0 million ($2017-18) for the Mount Barker extension as conforming capital expenditure (capex) for 2016-21 under r. 79(1)(a) of the NGR. This decision is the same as our draft decision.

Table 1-1 sets out the future capital expenditure we approve for 2019-20 and 2020-21.

1 AER, *Draft Decision - Mount Barker Gas Network Extension*, October 2018, p. 15.

2 For clarity, we note that r. 79(1)(b) only requires that one of the four tests set out in r. 79(2) be satisfied.

### Table 1-1 AER approved capital expenditure by category 2019-20 and 2020-21 ($million, 2017-18)

| | 2019–20 | 2020–21 | Total |
|---|---|---|---|
| Pipeline | 23.8 | - | 23.8 |
| Offtakes | 2.2 | - | 2.2 |
| Trunk Reticulation (CBD & Glenlea) | - | 4.4 | 4.4 |
| Reticulation | - | 0.6 | 0.6 |
| Meters & Services | - | 0.4 | 0.4 |
| Overhead | 1.4 | 0.3 | 1.6 |
| **Total** | **27.4** | **5.7** | **33.0** |

Source: AER calculations

In our draft decision, we considered that only $33 million ($2017-18) of AGN's proposed $35.4 million expenditure ($2017-18) should be allowed under this advance determination, and that the project contingency of $2.4 million ($2017-18) should be removed.

AGN has accepted our draft decision of $33 million ($2017-18) for the Mount Barker extension in their response to our draft decision.

It should be noted that at the commencement of the next regulatory reset, AGN will only include the actual amount of capital expenditure incurred in the regulatory asset base.

# 2 Background and previous regulatory considerations

## 2.1 Mount Barker

Mount Barker is 36 km southeast of Adelaide. AGN states that it is the largest town in the Adelaide Hills with a population of approximately 14 000 people, and the Mount Barker region is one of the fastest growing areas in South Australia. The Mount Barker region includes Littlehampton, Nairne and Kanmantoo, which have manufacturing, food processing, logistics and mining businesses.

In 2010, the South Australian Government rezoned surrounding rural land to residential, making available 1300 hectares of land to be developed. The South Australian Government also released its 30-year plan for Greater Adelaide in 2010, which identified the Mount Barker region as a key part of its Adelaide urban land supply. AGN indicated that multiple medium and large density estates are being developed in the east, south and west of Mount Barker and that independent forecasts indicate that 6800 new homes will be built in the next 20 years.[3]

The Adelaide Hills have a cooler climate than metropolitan Adelaide. AGN believe that this makes it a logical area to extend the natural gas network due to the demand for space heating, as well as cooking and hot water. Mount Barker has similar mean maximum and mean minimum temperatures to Mount Gambier, more rainfall and a significantly greater number of days with a minimum temperature less than 2$^{o}$C. Adelaide and other regional centres in South Australia have milder climates. AGN's consultant Core Energy noted the climate in Mount Barker is cooler on average than the climate in Albury and Melbourne, although there are fewer days less than 2$^{o}$C in Mount Barker than Albury.[4]

AGN's Business Case for the Mount Barker natural gas extension states Mount Barker has a larger average household size and significantly higher household income than Mount Gambier. Combined with weather data it is indicative that households in Mount Barker are more likely to have higher gas consumption than Mount Gambier.

Mount Barker is not currently serviced by natural gas but does have some liquefied petroleum gas (LPG) reticulation. AGN has not included the existing reticulated LPG customers in the Business Case for the Mount Barker Natural Gas Extension. However, Environmental Land Services (Aust) (ELS), a local LPG supplier, has

3 Core Energy Group, *AGN Mount Barker | Report*, December 2017, p. 6 (Note this report is Attachment 4A to AGN Mount Barker Business Case).

4 Core Energy Group, p. 8.

indicated they would seek to work with AGN in the most efficient way to deliver the gas to customers.[5]

Submissions made to the Australian Energy Regulator (AER) as part of the consultation process indicate that AGN's proposal has widespread community and stakeholder support.[6] Further, areas adjacent to the proposed pipeline route have requested that the pipeline be extended to them.[7]

Surveys of businesses have further indicated commercial interest in gas. For commercial customers state averages are used, for both forecast connections and consumption. These figures are considered conservative given the colder climate in Mount Barker and hence potential demand for space heating gas. State averages are also used for forecast industrial usage.

AGN believe that there is justification for extending the natural gas network to Mount Barker.

## 2.2 Previous regulatory considerations

AGN's draft proposal for the 2016-2021 Access Arrangement (AA) included a 'significant extension event' as a cost pass through to supply gas to the area of Mount Barker.[8] In our draft decision we were not satisfied that costs relating to significant extensions could be characterised as a pass through event.[9]

In response, after the draft AA decision, AGN included $23.5million ($2014-15, unescalated) capex to expand its network by 36 kilometres to Mount Barker.[10] In the Final Decision the AER did not accept AGN's revised proposal for this new growth area capex to Mount Barker.

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5 Environmental Land Services (Aust) Pty Ltd, *Submission on proposed gas network extension to Mount Barker*, 7 September 2018, p. 1.

6 Department for Energy and Mining, *Submission on proposed gas network extension to Mount Barker*, 28 September 2018, p. 1; Dan Cregan MP Member for Kavel, *Submission on proposed gas network extension to Mount Barker*, 3 September 2018, p. 1; Regional Development Australia, *Submission on proposed gas network extension to Mount Barker*, 3 September 2018, p. 1; South East Australia Gas Pty Ltd (SEA Gas), *Submission on proposed gas network extension to Mount Barker*, 3 September 2018, p. 1; and Mount Barker District Council, *Submission on proposed gas network extension to Mount Barker*, 31 August 2018, p. 1.

7 Debs Buchman North Ward Councillor, Mount Baker District Council, *Submission on proposed gas network extension to Mount Barker*, 3 September 2018, p. 1; Carol Bailey Councillor, Mount Baker District Council, *Submission on proposed gas network extension to Mount Barker*, 4 September 2018, p. 1.

8 AGN, *Australian Gas Networks - Access arrangement Information*, July 2015, p. 266.

9 AGN, *Draft Decision, 2016 to 2021, Attachment 11 - Reference tariff variation mechanism*, November 2015, p. 11. AER, *AER – Final decision Australian Gas Networks Access Arrangement – Attachment 6 – Capital Expenditure – May 2016*, pp. 35-40.

10 AGN, *Revised Access Arrangement Information for AGN's SA Natural Gas Distribution Network - January 2016 - Attachment 7.1A Business Cases for operating expenditure and capital expenditure*, Business Case - SA25, January 2016, pp. 25-36.

The Final Decision questioned whether the AGN penetration rate of 95 per cent was achievable and felt 65 per cent would be more reasonable. With lower penetration rates, the present value of incremental revenue projections did not exceed the present value of the capital that AGN proposed to invest.[11] Hence we were not satisfied that the Mount Barker Gas Network Extension project was conforming capex under r. 79 of the NGR on the basis that it is was likely that the expected incremental revenue would not exceed the present value of the capex.[12]

11 AER, *AER – Final decision Australian Gas Networks Access Arrangement – Overview – May 2016*, page 39, https://www.aer.gov.au/networks-pipelines/determinations-access-arrangements/australian-gas-networks-sa-access-arrangement-2016-21, 2016.

12 NGR, r. 79(1).

# 3 NGR Assessment criteria

## 3.1 NGR requirements for advance determination

NGR r. 80 addresses the AER's power to make an advance determination with regard to future capital expenditure. This rule states that:

1. The AER may, on application by a service provider, make a determination to the effect that, if capital expenditure is made in accordance with proposals made by the service provider and specified in the determination, the expenditure will meet the new capital expenditure criteria.[13]
2. The AER may (but is not required to) engage in public consultation before making a determination under subrule (1).[14]
3. A determination under subrule (1) is binding on the AER but a decision not to make such a determination creates no presumption that future expenditure will not meet the relevant criteria.[15]

## 3.2 NGR requirements for conforming capital expenditure

Capital expenditure is defined in the NGR as costs and expenditure of a capital nature incurred to provide, or in providing, pipeline services.[16] It is based on a forecast or estimate which must be supported by a statement of the basis for the forecast or estimate.[17] Any forecast or estimate submitted must:

- be arrived at on a reasonable basis; and
- represent the best forecast or estimate possible in the circumstances.[18]

Capital expenditure is conforming capital expenditure if it conforms with both of the following criteria set out in r. 79(1) of the NGR:

- the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with good industry practice, to achieve the lowest sustainable cost of providing services (r.79(1)(a)); and
- the expenditure must be justifiable on one of four grounds set out in r. 79(2) of the NGR (r.79(1)(b)).

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13 NGR, r. 80(1).
14 NGR, r. 80(2).
15 NGR, r. 80(3).
16 NGR, r. 69.
17 NGR, r. 74(1).
18 NGR, r. 74(2).

In summary, the four grounds set out in r. 79(2) of the NGR are that the expenditure must:

(a) have an overall economic value that is positive; or

(b) have an expected present value of the incremental revenue to be generated that exceeds the present value of the capex; or

(c) be necessary to maintain and improve the safety of services, or maintain the integrity of services, or comply with a regulatory obligation or requirement, or maintain capacity to meet levels of demand existing at the time the capex is incurred; or

(d) be justifiable partly under the second point above, with the remainder being justifiable under the third dot point above.

Rule 79(3) of the NGR states that, in deciding whether the overall economic value of capital expenditure is positive, consideration is to be given only to economic value directly accruing to the service provider, gas providers, users and end users.

We currently have limited discretion when making decisions under r. 79 of the NGR.[19] We are therefore required to approve the capital expenditure if we are satisfied that it complies with the applicable requirements of the NGR and NGL and is consistent with the criteria set out in the NGR and NGL.[20]

## 3.3 AGN's current application

AGN argue that its proposed capital expenditure is conforming capital expenditure, and justifiable under r. 79 on the following grounds:

- the project cost is efficient (r. 79(1)(a)),
- the overall economic value of the expenditure is positive (r. 79(2)(a)), and
- the present value of the incremental revenue from the project exceeds the present value of the capital costs incurred in delivering the extension to Mount Barker (r. 79(2)(b)).[21]

AGN's application provided a business case and more detailed supporting information in the areas of concerns raised by us when the project was initially proposed in AGN's 2016-21 AA. The areas where additional information was provided include:

- analysis, based only on new residential developments, substantiating the use of a 95 per cent penetration rate with comparisons to new developments of comparable size to Mount Barker

19 NGR, r. 79(6).
20 NGR, r. 40(2).
21 AGN, *Mount Barker Natural Gas Extension: Business Case,* June 2018, p. 2.

- conservative commercial and industrial connection forecasts including a customer survey
- independent reports from Core Energy on forecast gas customers and gas demand, and Frontier Economics examining the costs and benefits of the Mount Baker extension.

In their response to our draft decision AGN have provided updated modelling. AGN's changes to its June 2018 business case are analysed in Section 4.

We also received 2 additional submissions in response to our draft decision. Those submissions are summarised in Appendix A.

# 4 Key Issues

## 4.1 Our draft decision

Our draft decision was to approve proposed capital expenditure of $33.0 million ($2017-18) for the Mount Barker extension as conforming capital expenditure.

Our analysis examined the assumptions AGN made, and we also undertook sensitivity analysis of both the economic and present value models. The economic model was resilient to reductions in residential gas demand and payback period. We found that for the present value model a 10-15 per cent reduction in either the penetration rate, average residential gas usage, residential dwelling numbers or a combination of the three would result in a negative NPV outcome, as would a slightly shorter NPV period.

We noted that AGN's assumptions were conservative. For example:

- only greenfields residential developments are included;
- the assessment period is 30 years, but only captures 20 years of customer growth in new developments; and
- conservative assumptions regarding commercial and industrial customers.

## 4.2 AGN's post draft decision submission

After the AER's draft decision AGN has prepared a revised base case. The additional analysis has resulted in AGN revising both its present value and economic models. The revised modelling takes into account additional customer connection costs and demand which was not included in the initial modelling (other assumptions are discussed in section 4.5).

## 4.3 Post draft present value model

AGN's incremental revenue test compares the incremental revenue less operational costs to the capital cost of this project on a cashflow basis. In our draft decision, we did not accept the outcome of this model demonstrated that the capital expenditure was justifiable on a ground set out in r. 79(2) based on our sensitivity analysis.[22]

AGN's revised model includes additional residential and industrial customers and their associated reticulation and connection costs. The period of forecast residential growth is extended from 20 years to 30 years.

This has resulted in the revised model having a positive NPV outcome of $27.7 million over 30 years compared to $5 million in their initial submission. In addition, AGN has also carried out sensitivity analysis to demonstrate the robustness of their NPV for

[22] AER, October 2018, p. 12.

inaccuracies or uncertainty to both penetration rate and consumption of up to negative 25 per cent on each.[23]

While we welcome AGN's approach in adopting sensitivity analysis to test the robustness of their assumptions, we have made two modifications to their analysis:

- given the potential for overlap of residential customers growth with existing projects, we have removed the forecast growth of apartment developments in the Mount Barker town centre (see section 4.6.1); and
- we have not applied a forecast of residential growth that extends beyond 20 years due to the uncertainties and inaccuracies involved in any forecasts beyond that point. This is consistent with our previous decisions and advice from Zincara on standard industry practice for evaluating large network expansions.[24] A 30 year assessment period on 20 years of residential growth gives fair consideration to the revenues of customers connecting towards the end of the 20 year period. This reflects that later customers are unlikely to disconnect within the first 10-15 years and ensures replacement costs of short lived assets, such as meters, are factored in for customers who connect in the early years of the assessment.

Changing AGN's model to align with the modifications identified above results in a positive NPV outcome of $23.8 million over 30 years. We have also undertaken our own sensitivity analysis, as shown in Table 4-1, using these new assumptions.

### Table 4-1 Revised NPV Sensitivity ($million)

| | | Penetration Rate | | | | | |
|---|---|---|---|---|---|---|---|
| | | **0%** | **-5%** | **-10%** | **-15%** | **-20%** | **-25%** |
| **Consumption** | **0%** | 23.8 | 20.1 | 16.4 | 12.7 | 9.0 | 5.2 |
| | **-5%** | 22.0 | 18.4 | 14.8 | 11.1 | 7.5 | 3.9 |
| | **-10%** | 20.2 | 16.7 | 13.1 | 9.6 | 6.0 | 2.5 |
| | **-15%** | 18.4 | 14.9 | 11.5 | 8.0 | 4.5 | 1.1 |
| | **-20%** | 16.6 | 13.2 | 9.8 | 6.4 | 3.1 | -0.3 |
| | **-25%** | 14.8 | 11.5 | 8.2 | 4.9 | 1.6 | -1.7 |

Source: AER calculations

23 AGN, *Mount Barker Natural Gas Extension: Response to AER Draft Decision,* November 2018, p. 12.

24 AER, *Final Decision Australian Gas Networks Access Arrangement 2016 to 2021, Attachment 6 - Capital expenditure*, May 2016, pp. 6-38 - 6-39.

The results show that the present value model is resilient both to reductions in residential penetration rate, and to reductions in average gas consumption. This results in NPVs that are positive in most cases.

Given this analysis we now consider that AGN's proposed capital expenditure for the Mount Barker extension is justifiable on the grounds set out in r. 79(2)(b) - namely, the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure.

## 4.4 Economic model

AGN engaged Frontier Economics to undertake an analysis to assess if this project is justified under r. 79(2)(a) on the basis that the overall economic value of the expenditure is positive. In our draft decision, we accepted that AGN's proposed capital expenditure for the Mount Barker extension is justifiable on the grounds set out in r. 79(2)(a) - namely, that the overall economic value of the expenditure is positive.

Like the present value model, AGN has also revised this model with their latest additions and assumptions. This has resulted in a revised model with a positive NPV outcome of $62 million over 30 years compared to $30 million in their initial submission.

We have not relied on or modified AGN's model, and have not revised our sensitivity analysis, for the purpose of making our final decision. For the reasons set out in our draft decision, we are satisfied that the previous economic value model, with more conservative assumptions, demonstrates that the expenditure is justifiable on the grounds set out in r. 79(2)(a).

## 4.5 Examination of revised assumptions

### 4.5.1 Residential development growth

AGN's consultant, Core Energy, used independent forecasts for residential dwellings growth. In our draft decision, we accepted these forecasts.

In response to our draft decision, AGN has added additional residential developments due to proposed rezoning changes by the Mount Barker District Council to include medium to high density housing within the town centre.[25]

While we acknowledge that rezoning tends to have a positive impact on residential growth, there is no clear evidence to suggest that these residential numbers are excluded from the original forecast. Unless the original residential dwelling forecast is updated in its entirety, we believe there is high possibility of overlap by simply adding these residential numbers. As such, we have excluded these additional residential numbers for the purpose of making this final decision.

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25 AGN, *Mount Barker Natural Gas Extension: Response to AER Draft Decision,* November 2018, pp. 10-11.

In addition, AGN has also extended its analysis to include the nearby towns of Nairne and Littlehampton as well as the existing Mount Baker area based on stakeholder submissions.[26] For Nairne and Littlehampton, the residential growth assumption is consistent with independent forecasts. While the penetration rate of 71 per cent is used for established areas (based on Mount Gambier) and 95 per cent for new homes in new subdivisions.

We have accepted the inclusion of existing areas in the analysis, and AGN's assumptions on residential growth in these areas.

### 4.5.2 Commercial and Industrial development

In our draft decision we accepted AGN's assumption on commercial and industrial development numbers but noted that they are conservative.[27]

AGN has identified a further three industrial customers who had previously sought to locate to Monarto South but had not due to the lack of availability of gas. AGN's forecast is now revised to include three additional industrial customers. AGN believe this inclusion is conservative given that the rezoned Monarto South Industrial Precinct of 300 hectare will likely attract more gas connections but elected not to add any more due to the inherit inaccuracy when forecasting large gas loads.[28]

Based on stakeholder submissions and the information provided, we have accepted the inclusion of additional industrial developments in the revised forecast.

AGN has also included commercial developments for Nairne and Littlehampton assuming the same ratio of commercial customer growth per residential growth as has been used to calculate commercial developments in Mount Barker. We have accepted this inclusion.

### 4.5.3 Other assumptions

The assumptions regarding penetration rate and average gas usage remain unchanged. These assumptions and issues are elaborated on below.

## 4.6 Matters raised in submissions

While AGN's proposal has widespread community support, some matters for further analysis were raised by our consultant Zincara, CCP8, and other stakeholders. These matters have been addressed by AGN in its pre and post draft submissions. Our views are set out below on the following questions:

- Is the penetration rate too high?

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26 AGN, *Mount Barker Natural Gas Extension: Response to AER Draft Decision,* November 2018, pp. 9-10.

27 South East Australia Gas Pty Ltd (SEA Gas), *Submission on proposed gas network extension to Mount Barker*, 3 September 2018, p. 1.

28 AGN, *Mount Barker Natural Gas Extension: Response to AER Draft Decision,* November 2018, pp. 11-12.

- Is the forecast average usage of gas too high?
- What is the future of gas?
- What is the impact of the extension on tariffs?
- What are the implications of mandatory gas connections in new developments?
- What are the energy mix assumptions underlying the economic model?
- Has the number of gas customers been counted correctly in deriving the penetration rate?

Each is a relevant input to our assessment of whether the capital expenditure is conforming capital expenditure under r. 79 of the NGR.

## 4.7 Is the penetration rate too high?

AGN has assumed a penetration rate of 95 per cent for residential gas connections in Mount Barker while the average across South Australia is 74 per cent.

Zincara and CCP8 have questioned AGN's selection of suburbs and only taking those with growth in gas customers which fall within the top 10 percent of all suburbs. They question whether this has biased the penetration rate upwards. In addition, the use of inconsistent gas penetration rate and gas consumption per customer for the same suburb is questioned.[29] [30]

In response, AGN points to detailed information on penetration rates and analysis of new developments to substantiate a penetration rate of 95 per cent in its initial submission.[31] AGN maintains that using suburbs with new land release of a similar scale to Mount Barker is an appropriate test and expects Mount Barker to have a growth in gas customers in the top 10 per cent of suburbs.

As existing suburbs are comprised of a mix of existing and new dwellings, AGN has also conducted a street by street analysis for just Mount Gambier which shows that new development streets have an average penetration rate above 90 per cent.[32] As such, AGN maintained its position that using 95 per cent for new areas is appropriate and used 71 per cent for existing areas.

We accept that a 95 percent penetration rate is high and may not be sustainable into the future given the pace of development of energy alternatives, and their decreasing costs. Rather than propose an alternative penetration rate, we have undertaken our own sensitivity analysis alongside that conducted by AGN in order to test the

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29 CCP8, *Consumer Challenge Panel - AGN application regarding Mount Barker, Response to the AER's Draft Decision,* 23 November 2018, p. 3.

30 Zincara, *Mount Barker Project - Australian Gas Networks - AGN,* 2 October 2018, p. 16.

31 AGN, *Mount Barker Natural Gas Extension: Business Case Attachment 6B*, June 2018, pp. 1-2.

32 AGN, *Mount Barker Natural Gas Extension: Response to AER Draft Decision,* November 2018, p. 15.

robustness of the modelling assumptions. The results of our modelling are presented in Table 4-1 above.

## 4.8 Is the forecast average usage of gas too high?

In its initial submission, AGN adopted the average consumption per customer of Mount Gambier (27.3 gigajoule (GJ) per annum) for Mount Barker for the period 2021 to 2035, and a one per cent reduction in energy consumption from 2036 onwards to reflect appliance efficiency.

AGN chose Mount Gambier because its climate is closest to that of Mount Baker, while remaining in South Australia.[33]

Zincara notes AGN's forecast usage assumption is considerably higher than the South Australian state average of 15.5 GJ/annum, which is also trending downwards. This downward trend in consumption is also present in Mount Gambier (average consumption has declined from 30.2 GJ/annum to 25.3 GJ/annum over 2012 to 2016). We are concerned that a five year average from a downward trend might not be an appropriate static figure to use for forecasting.

In its response, AGN provided the 2017 consumption data for Mount Gambier which shows an increase in average consumption compared to 2016 despite 2017 being a warmer year. AGN argued that this indicates there is no clear evidence of a likely reduction in existing demand levels moving forward.[34]

We acknowledged that higher consumption in 2017 indicates volatility in gas consumption trends, but it does not eliminate the likely possibility of an overall decline in gas consumption in the long term given similar observations across other suburbs in South Australia. However, we accept AGN's proposition that the use of Mount Gambier forecast consumption as the base is conservative given the higher average household sizes and median income of Mount Barker.

We accept that there is uncertainty in regard to future household consumption of gas in Mount Barker. Rather than propose alternative forecasts of gas usage, we have undertaken our own sensitivity analysis alongside that conducted by AGN in order to test the robustness of the modelling assumptions. The results of our modelling arepresented in Table 4-1 above.

CCP8 and Zincara also question the basis of applying a one per cent drop in gas consumption due to appliance efficiency from 2036 onwards.[35] [36]

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33 AGN, *Mount Barker Natural Gas Extension: Business Case*, June 2018, p. 20. It is a lower usage assumption than Melbourne, which as a similar climate and demographics to Mount Barker.

34 AGN, *Mount Barker Natural Gas Extension: Response to AER Draft Decision,* November 2018, p. 15.

35 CCP8, 23 November 2018, p. 9.

36 Zincara, 2 October 2018, p. 17.

AGN has pointed to the Core Energy report provided in their initial submission which source the efficiency reduction figure from AEMO's 2016 National Gas Forecasting Report (NGFR) estimate with the lifecycle of appliances assumed to be 15 years on average.[37]

Based on the evidence provided, we believe that AGN's assumption for efficiency reduction is reasonable for new developments in Mount Barker.

## 4.9 What is the future of gas?

Submissions have expressed concerns regarding the future viability of gas infrastructure investments. [38] [39] They note future uses of gas are uncertain due to the changing economics of residential gas from new technologies and gas price volatility from the international market.

AGN's post draft report submission provides commentary regarding the future uncertainty of gas in the context of the current project justification. AGN notes that it is actively pursuing alternative uses of its gas network infrastructure in the absence of natural gas, and also pointed out that the economics of gas versus electricity is a complex issue. In addition, AGN has also noted that solar voltaic (sic) systems and heat pumps may not be sufficient in colder and cloudier locations like Mount Barker.[40]

We accept that there is currently no conclusion on the impact of electricity on gas usage that would allow AGN to provide a more accurate base case for this project. We also agree that Mount Barker is likely to be less susceptible to these changes given its climactic traits which include less hours of sunlight during winter months when the demand of hot water and space heating are the greatest. For the purpose of this final decision, we have maintained our position of no further growth after 20 years, and of relying on our sensitivity analysis to provide assurance that AGN's case is robust.

## 4.10 What is the impact of the extension on tariffs?

In our draft decision, we noted that CCP8 and the Energy Consumers Coalition of SA and Major Energy Users expressed concern that existing users and business should not be disadvantaged as a result of this investment.

CCP8 noted that if tariffs used in the modelling are too low it is likely that prices will increase in the future. CCP8 have pointed out that this will have an impact on the

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37 Core Energy Group, *AGN Mount Barker | Report (also Attachment 4A to AGN Mount Barker Business Case),* December 2017, p. 9.

38 Alternative Technology Association, *Submission to AER for Australian Gas Networks - Future capital expenditure determination - Mount Barker gas network extension,* 3 September 2018, p. 1.

39 CCP8, *Consumer Challenge Panel - AGN application regarding Mount Barker,* 8 October 2018, p. 5 and CCP8, *Consumer Challenge Panel - AGN application regarding Mount Barker, Response to the AER's Draft Decision,* 23 November 2018, p. 8.

40 AGN, *Mount Barker Natural Gas Extension: Response to AER Draft Decision,* November 2018, p. 14.

penetration rate and average consumption assumptions that underpins both models due to the price elasticity of gas.[41]

In our draft decision we urged AGN to consider and provide more commentary on this issue including their current and future tariff strategies.

In response, AGN confirmed that the recovery of costs for this project will be cost-reflective on the basis that AGN must ensure its tariffs meet the requirements of r. 94. This rule ensures tariffs are efficient and constrained within reasonable bounds that reflect the value of the service.

With respect to tariff sensitivity, AGN have modelled the impact of a 10 per cent increase to tariffs using a price elasticity of -0.3 as per our draft decision in the 2016-21 AA. Under this scenario, AGN note that natural gas remains cheaper than competing fuels. While it delivers a reduction in demand of 3 per cent, it is offset by additional revenue through higher tariffs which increase the NPV of the present value model. AGN also note that an existing tariff has to be used for the present value model to comply with r. 79(4)(a).

Based on the additional information provided we are satisfied that AGN have, as far as practical, addressed concerns on cost recovery.

## 4.11 What are the implications of mandatory gas connections in new developments?

Since the release of our draft decision, allegations have been brought to our attention that developers in Mount Barker are mandating the use of gas in new estates, and that this is anti-competitive. We understand the parties making these allegations have asked the ACCC to investigate the issue.[42] [43] Legislation has also been proposed in the SA Parliament giving consumers the right to choose an energy source.[44] [45]

The relationship between developers of new residential estates and infrastructure providers is beyond the scope of the AER's assessment of AGN's r.80 application. However, we do note that, based on the evidence before us, it appears that residential energy consumers in South Australia have demonstrated a preference for gas.

- AGN's assumed penetration rate of 95 per cent for new developments is based on analysis of gas penetration rates for comparable residential developments across

41 CCP8, *Consumer Challenge Panel - AGN application regarding Mount Barker,* 8 October 2018.

42 Ian Grosser, *Submission to AER re draft decision on proposed Mount Barker gas network extension,* 23 November 2018.

43 The Greens, https://greens.org.au/sa/news/media-release/greens-report-mandatory-gas-connection-practices-competition-watchdog, 2 November 2018.

44 Mark Parnell, *https://sagreens.markparnell.org.au/mandatory_gas*, 25 October 2018.

45 Mark Parnell, *www.markparnell.org.au/speech.php?speech=1619*, 24 October 2018.

South Australia - not Mount Baker - although we note that we have not investigated the building covenants in these developments[46]

- the SA Government has mandated that low greenhouse gas emission (low emission) water heaters be installed, such as high-efficiency gas, solar or electric heat pump water heaters. AGN has provided evidence that the take up of alternatives to gas is low (just over 4 percent).[47] AGN suggest a number of reasons for the low take up of alternatives to gas, including that: they are significantly more expensive to purchase and maintain, and do not operate well in cooler or cloudier climates. Both conditions are features of the Mount Barker climate.

## 4.12 What are the energy mix assumptions underlying the economic model?

For its economic case in support of its r. 80 application, AGN set out its rationale for the energy mix assumptions but also modelled alternative energy options.[48]

AGN provided evidence that:

- small scale solar thermal or heat pump hot water installations recorded by the Clean Energy Regulator show they are not popular across South Australia
- AGN believe this low take up is because they are expensive to purchase and maintain, and do not suite the cooler climate and cloudier conditions in Mount Barker[49]
- based on the evidence AGN argue that a reasonable assumption for the energy mix for average residential customers is LPG for cooking and hot water, and electricity for space heating. The economic benefit calculated by AGN for this energy mix was $30 million. The AER sensitivity analysis reported in our draft decision was based on these assumptions. The outcome was that the economic model was resilient to both reductions in residential gas demand and payback period resulting in positive economic values in most cases
- AGN also calculate and report an all-electric base case, which produces an economic benefit of between $7-17 million based on technology options for hot water.[50]

## 4.13 Has the number of gas customers been counted correctly in deriving the penetration rate?

46 AGN, *Mount Barker Natural Gas Extension: Business Case Attachment 6A Penetration Data*, June 2018, p. 1.1.
47 AGN, *Mount Barker Natural Gas Extension: Business Case Attachment 11B*, June 2018, p. 1.
48 AGN, *Mount Barker Natural Gas Extension: Business Case Attachment 11B*, June 2018, p. 3.
49 AGN, *Mount Barker Natural Gas Extension: Business Case Attachment 11B*, June 2018, p. 1.
50 AGN, *Mount Barker Natural Gas Extension: Business Case Attachment 11B*, June 2018, p. 3.

AGN state that both electricity and gas connects are a count of “active” connections and do not include disconnections or customers with locks on meters.[51] We consider this approach of counting customers appropriate for deriving penetration rate.

[51] AGN, *Mount Barker Natural Gas Extension: Response to AER Draft Decision,* November 2018, p. 20.

# 5 Final decision

Our final decision under r.80 of the NGR, is that capital expenditure by AGN of $33.0 million ($2017-18) for the Mount Barker extension will meet the new capital expenditure criteria set out in r. 79 of the NGR.

# Appendix 1 - Extracts from post draft decision submissions

## CCP8[52]

- The AER should make its final decision based solely on the NGL / NGR.
- CCP8 concerns raised on the AGN proposal regarding gas consumption forecasts and penetration rate, and the issues raised by Zincara, all remain outstanding. They are not repeated here. They can be referenced in full in our previous submission and in Zincara's report.
- The AER found that AGN's model did not robustly demonstrate that the incremental revenue less operation costs would exceed the capital cost of this project on an NPV cash flow basis (r. 79(2)(b)). If the costs exceed the incremental revenue, then existing gas customers in the network will have to pick up the shortfall and will be disadvantaged as a result. This was raised as a concern in the ECCSA MEU joint submission, and is also a concern to CCP8.
- It may be that the tariffs proposed by AGN are unrealistically low. This could explain why the AGN model is not robustly showing positive NPV (r. 79(2)(b)), yet the Frontier Economics model is robustly showing overall economic value (r. 79(2)(a)):
    - All other things being equal, the higher the (retail) natural gas tariff, the fewer customers will be likely to switch to natural gas, and the lower the cost savings that the customers that do switch will enjoy. This will lessen the overall economic value of the expenditure (r. 79(2)(a)).
    - All other things being equal, the higher the (network) natural gas tariff, the higher the incremental revenue from the project per unit of energy consumed. However, price elasticity of demand tells us that higher prices will decrease demand. Without doing the detailed calculations, it is not obvious whether a higher natural gas tariff will increase or decrease the NPV of the project (revenues minus costs) (r. 79(2)(b)).
- Besides issues that we have raised in our previous submission and above, we note that the base case in the Frontier Economics modelling as stated by AGN is that "the energy mix of the average residential customer under the base case is LPG for cooking and hot water, and electricity for space heating".
- Given the high cost of LPG, it is not obvious that the average residential customer would connect to LPG. We could not find anything in the available documentation telling us:
    - What is the take-up of LPG in new developments in the Mount Barker area where LPG is already available?

52 CCP8, 23 November 2018.

- What is the assumption in the base case regarding take-up of LPG, and on what evidence is that assumption based? Was the base case set knowing actual LPG take-up to date, and how was that taken into account?

- The AER's Draft Decision has not fully considered the effects of different tariff levels on either set of modelling (in regard to r. 79(2)(a) and r. 79(2)(b)).
- It is our view that sensitivity analysis of both of those models should:

  (a) Start from more realistic base values for penetration rate, forecast average use of gas, and growth rates for residential development than those assumed by AGN;

  (b) Consider different NPV periods; and

  (c) Consider tariffs in tandem with gas usage forecasts, to ensure that the models are fairly based on outcomes that might be expected, rather than on tariffs that are on the low side combined with gas usage forecasts that are on the high side.
- Positive outcomes from such sensitivity analysis should be a pre-requisite to AER acceptance in its Final Decision that capital expenditure by AGN for the Mount Barker extension will meet the new capital expenditure criteria set out in r. 79 of the NGR.

## Ian Grosser[53]

- AGN's business case is flawed because it relies on anticompetitive mandatory gas connections and misleading information about the cost and emissions benefits of gas
- AGN make unsubstantiated claims of $900 savings per year and 52% reduction in carbon emissions in dual fuel homes. A recent report by the Alternative Technology Association "Household Fuel Choice in the National Energy Market" found that all electric homes, especially those with modest solar PV arrays, were significantly cheaper and had lower emissions than dual fuel homes.
- Mandatory gas connections lock consumers out of the benefits of rapidly improving technologies in renewable energy and the efficiency of electric appliances.
- Anti-competitive mandatory gas connection also excludes progressive low energy builders from participating in an estate with that requirement.
- AGN's figures, based on mandatory connections, can't be relied on as they are subject to possible future intervention, including by the ACCC, to restore fair competition and trading and subject to legislative challenge.

53 Ian Grosser, 23 November 2018.