FINAL DECISION
ActewAGL Distribution Access Arrangement 2016 to 2021

Attachment 6 – Capital expenditure

May 2016

AUSTRALIAN ENERGY REGULATOR

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001

Tel: (03) 9290 1444
Fax: (03) 9290 1457

Email: AERInquiry@aer.gov.au

Note

This attachment forms part of the AER's final decision on the access arrangement for ActewAGL Distribution for 2016–21. It should be read with all other parts of the final decision.

The final decision includes the following documents:

Overview

Attachment 1 - Services covered by the access arrangement

Attachment 2 - Capital base

Attachment 3 - Rate of return

Attachment 4 - Value of imputation credits

Attachment 5 - Regulatory depreciation

Attachment 6 - Capital expenditure

Attachment 7 - Operating expenditure

Attachment 8 - Corporate income tax

Attachment 9 - Efficiency carryover mechanism

Attachment 10 - Reference tariff setting

Attachment 11 - Reference tariff variation mechanism

Attachment 12 - Non-tariff components

Attachment 13 - Demand

Contents

Note 6-2

Contents 6-3

Shortened forms 6-4

6 Capital expenditure 6-6

6.1 Final decision 6-6

6.2 ActewAGL's revised proposal 6-9

6.3 AER's assessment approach 6-11

6.3.1 NGR requirements for conforming capital expenditure 6-11

6.3.2 Assessment of conforming capital expenditure in the previous period 6-12

6.3.3 Assessing forecast capex for the 2016–21 access arrangement period 6-14

6.3.4 Interrelationships 6-18

6.4 Reasons for final decision 6-18

6.4.1 Conforming capital expenditure for 2009–15 6-18

6.4.2 Conforming capital expenditure for the 2016–21 access arrangement period 6-19

Shortened forms

Shortened form	Extended form
AA	Access Arrangement
AAI	Access Arrangement Information
AER	Australian Energy Regulator
ASA	Asset Services Agreement
ATO	Australian Tax Office
capex	capital expenditure
CAPM	capital asset pricing model
CCP	Consumer Challenge Panel
CMF	construction management fee
CPI	consumer price index
DAMS	Distribution Asset Management Services
DRP	debt risk premium
EBSS	Efficiency Benefit Sharing Scheme
ECM	Efficiency Carryover Mechanism
EIL	Energy Industry Levy
ERP	equity risk premium
Expenditure Guideline	Expenditure Forecast Assessment Guideline
gamma	value of imputation credits
GSL	Guaranteed Service Level
GTA	Gas Transport Services Agreement
ICRC	Independent Competition and Regulatory Commission
MRP	market risk premium
NECF	National Energy Customer Framework
NERL	National Energy Retail Law
NERR	National Energy Retail Rules
NGL	National Gas Law
NGO	National Gas Objective
NGR	National Gas Rules
NPV	net present value
opex	operating expenditure

Shortened form	Extended form
PFP	partial factor productivity
PPI	partial performance indicators
PTRM	post-tax revenue model
RBA	Reserve Bank of Australia
RFM	roll forward model
RIN	regulatory information notice
RoLR	retailer of last resort
RSA	Reference Service Agreement
RPP	revenue and pricing principles
SLCAPM	Sharpe-Lintner capital asset pricing model
STTM	Short Term Trading Market
TAB	tax asset base
UAFG	unaccounted for gas
UNFT	Utilities Network Facilities Tax
WACC	weighted average cost of capital
WPI	Wage Price Index

6 Capital expenditure

This attachment outlines our assessment of ActewAGL's proposed conforming capital expenditure (capex) for 2009–16 and forecast capex for the 2016–21 access arrangement period.

Expenditure referred to in this attachment is un-escalated unless otherwise stated.

6.1 Final decision

Conforming capex for 2009–16

We approve $102.1 million ($2015–16) of total net capex for ActewAGL for the period 2009–15 as conforming capex that complies with rule 79 of the NGR. Table 6.1 shows our approved capex for 2009–15 by category.

Table 6.1 AER approved capital expenditure by category over 2009–15 ($million, 2015–16)

Category	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16
Market expansion (connections)	7.4	8.6	8.8	9.5	8.0	8.5	7.6
Capacity development (augmentation)	3.0	4.0	2.8	2.1	8.0	10.7	11.5
Stay in business							
- network renewal & upgrade	0.0	0.1	2.6	7.4	1.0	2.7	7.9
- meter renewal	0.5	1.2	1.2	1.7	2.0	2.1	2.8
Capitalised regulatory expenditure	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Non–system	0.3	0.4	0.3	0.2	-0.3	0.0	0.0
Overheads	0.0	0.0	0.0	0.0	0.0	0.0	1.8
GROSS TOTAL CAPEX	12.1	14.4	15.6	20.8	18.6	24.0	31.6
Contributions	0.3	1.5	0.1	1.6	0.1	0.0	0.7
NET TOTAL CAPEX	11.8	12.9	15.5	19.2	18.6	24.0	30.8

Source: AER analysis.

Notes: (a) Some categories include related party margins. A confidential version of this table showing direct costs (excluding related party margins) is available in confidential appendix .

(b) As set out in Attachment 2 and section 6.4.1 of this attachment, the 2015–16 amounts have not been assessed by the AER as approved capex under this decision. This is because these values are estimates. The AER will undertake the assessment of whether the 2015–16 amounts are conforming capex as part of the next access arrangement determination.

Conforming capex for the 2016–21 access arrangement period

We approve $80.7 million ($2015–16) of total net capex for ActewAGL for the period 2016–21 as conforming capex that complies with rule 79 of the NGR. This is 13.5 per cent less than ActewAGL's revised proposed expenditure of $93.2 million ($2015–16).

Our final decision reflects an increase of $3.8 million from our draft decision. ActewAGL proposed $115.6 million ($2015–16) in its initial proposal and in our draft decision we approved $76.8 million ($2015–16).

The increase from our draft decision largely reflects our acceptance of ActewAGL's revised tariff V connection numbers for medium density/high rise (MD/HR) dwellings. Our alternative forecast of market expansion capex in the draft decision was largely driven by our lower alternative estimate of connections numbers for MD/HR dwellings. Thus, in accepting these connection numbers, we have accepted ActewAGL's market expansion capex. Our final decision on market expansion capex is 3.8 per cent higher compared to the draft decision and 24.0 per cent lower compared to ActewAGL's forecast in its initial proposal.

Table 6.2 shows our approved capex for the 2016–21 access arrangement period in each year and by category. We have revised the access arrangement having regard to our reasons for refusing to approve ActewAGL's proposal and the further matters identified in the NGR section 64(2). Our revisions are reflected in the *Approved Access Arrangement, ActewAGL Distribution 1 July 2016 to 30 June 2021* (May 2016).[1]

Table 6.2 AER approved capital expenditure by category over the 2016–21 access arrangement period ($million, 2015–16)

Category	2016–17	2017–18	2018–19	2019–20	2020–21	Total
Market expansion (connections)	8.2	8.6	8.5	8.5	8.4	42.2
Capacity development (augmentation)	2.7	1.2	0.7	0.3	1.1	6.0
Stay in business						
- network renewal & upgrade	3.4	4.4	3.7	1.0	1.5	14.0
- meter renewal	2.7	2.4	2.9	3.0	2.8	13.7
Non–system	0.2	0.1	0.2	0.0	0.0	0.5
Escalation	0.6	0.6	0.9	0.8	0.9	3.7
Overheads	1.1	1.0	1.0	0.8	0.9	4.8

[1] NGR, rr. 64(1), (5).

Category	2016–17	2017–18	2018–19	2019–20	2020–21	Total
GROSS TOTAL CAPEX	**18.8**	**18.3**	**17.8**	**14.3**	**15.5**	**84.8**
Contributions	0.7	0.8	0.8	0.8	0.8	4.1
Asset disposals	0.0	0.0	0.0	0.0	0.0	0.0
NET TOTAL CAPEX	**18.0**	**17.5**	**17.0**	**13.5**	**14.7**	**80.7**

Source: AER analysis.

Notes: (a) Some categories include a construction management fee (CMF) paid by ActewAGL. A confidential version of this table showing direct costs (excluding CMF) is available in confidential appendix .

Table 6.3 shows ActewAGL's proposed capex compared with the AER's approved capex for each category. In coming to our position, we assessed ActewAGL's forecast capex taking into account the available evidence and submissions from stakeholders.

As Table 6.3 shows, the main differences between our alternative capex estimate and ActewAGL's proposal relate to augmentation capex and capex for network renewal and upgrades.

This capex attachment discusses our assessment of those capex categories which ActewAGL re-proposed in its revised proposal, these being market expansion capex, augmentation capex, and network renewal and upgrade.

We accepted the following capex items in our draft decision:[2]

- a construction management fee;
- non-system IT; and
- an overhead allocation rate of six per cent to capex.

ActewAGL accepted our draft decision on cost escalation.

Table 6.3 Comparison of AER approved and ActewAGL's proposed capital expenditure over the 2016–21 access arrangement period ($million, 2015–16)

Category	Proposed	Approved	Difference ($millions)
Market expansion (connections)	42.2	42.2	0.0
Capacity development (augmentation)	14.4	6.0	-8.4

[2] AER, *Draft decision: ActewAGL Distribution access arrangement 2016 to 2021: Attachment 6 – Capital expenditure*, November 2015.

Category	Proposed	Approved	Difference ($millions)
Stay in business			
- network renewal & upgrade	16.7	14.0	-2.8
- meter renewal	13.7	13.7	0.0
Non–system	0.5	0.5	0.0
Escalation	4.4	3.7	-0.7
Overheads	5.5	4.8	-0.7
GROSS TOTAL CAPEX	**97.3**	**84.8**	**-12.6**
Contributions	4.1	4.1	0.0
Asset disposals	0.0	0.0	0.0
NET TOTAL CAPEX	**93.2**	**80.7**	**-12.6**

Source: AER analysis.

Notes: (a) Some categories include a construction management fee (CMF) paid by ActewAGL. A confidential version of this table showing direct costs (excluding CMF) is available in confidential appendix .

6.2 ActewAGL's revised proposal

2009–16 period

While the current period covers the 2009–16 period (due to the interval of delay), the AER only approved capex amounts for the 2009–15 period.

ActewAGL proposed total net capex over the 2009–16 period of $132.9 million ($2015–16), where capex in 2015–16 is an estimate. Without the estimate of capex for 2015–16, ActewAGL proposed $102.1 million ($2015–16) as conforming capex. This is shown in Table 6.4.

Table 6.4 ActewAGL proposed capex by category over the 2009–16 period ($million, 2015–16)

Category	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16
Market expansion (connections)	7.4	8.6	8.8	9.5	8.0	8.5	7.6
Capacity development (augmentation)	3.0	4.0	2.8	2.1	8.0	10.7	11.5
Stay in business							
- network renewal & upgrade	0.0	0.1	2.6	7.4	1.0	2.7	7.9

Category	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16
- meter renewal	0.5	1.2	1.2	1.7	2.0	2.1	2.8
Capitalised regulatory expenditure	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Non–system	0.3	0.4	0.3	0.2	-0.3	0.0	0.0
Overheads	0.0	0.0	0.0	0.0	0.0	0.0	1.8
GROSS TOTAL CAPEX	**12.1**	**14.4**	**15.6**	**20.8**	**18.6**	**24.0**	**31.6**
Contributions	0.3	1.5	0.1	1.6	0.1	0.0	0.7
NET TOTAL CAPEX	**11.8**	**12.9**	**15.5**	**19.2**	**18.6**	**24.0**	**30.8**

Source: AER analysis.

Notes: (a) Some categories include related party margins. A confidential version of this table showing direct costs (excluding related party margins) is available in confidential appendix .

2016–21 access arrangement period

In its revised proposal ActewAGL included total net capex of $93.2 million ($2015–16) for the 2016–21 access arrangement period. Table 6.5 sets out ActewAGL's proposed capex by category over each year of the forecast period.

Table 6.5 ActewAGL proposed capex by category over the 2016–21 access arrangement period ($million, 2015–16)

Category	2016–17	2017–18	2018–19	2019–20	2020–21	Total
Market expansion (connections)	8.2	8.6	8.5	8.5	8.4	42.2
Capacity development (augmentation)	2.7	1.2	1.9	6.2	2.3	14.4
Stay in business						
- network renewal & upgrade	4.3	5.3	4.6	1.0	1.5	16.7
- meter renewal	2.7	2.4	2.9	3.0	2.8	13.7
Non–system	0.2	0.1	0.2	0.0	0.0	0.5
Escalation	0.6	0.6	1.0	1.2	1.0	4.4
Overheads	1.1	1.1	1.1	1.2	1.0	5.5
GROSS TOTAL CAPEX	**19.8**	**19.3**	**20.3**	**21.0**	**16.9**	**97.3**
Contributions	0.7	0.8	0.8	0.8	0.8	4.1

Category	2016–17	2017–18	2018–19	2019–20	2020–21	Total
Asset disposals	0.0	0.0	0.0	0.0	0.0	0.0
NET TOTAL CAPEX	**19.0**	**18.5**	**19.4**	**20.2**	**16.1**	**93.2**

Source: AER analysis.

Notes: (a) Some categories include a construction management fee (CMF) paid by ActewAGL. A confidential version of this table showing direct costs (excluding CMF) is available in confidential appendix .

6.3 AER's assessment approach

Under the NGR we are required to make two decisions regarding ActewAGL's capex. First, we are required to assess past capital expenditure and determine whether it meets the criteria set out in the NGR, where approved capex is added to the starting capital base.[3] Where capex meets these criteria, it is referred to as 'conforming capex'.[4] Second, we are required to assess ActewAGL's proposed forecast of required capex for the 2016–21 access arrangement period to determine whether it is also 'conforming capex.'

The following sections set out our approach and the tools and techniques we employ in making these two decisions. We also need to take into account timing issues associated with the lag between actual capex data being available in the last year of the 2010–16 period and the need to forecast an opening capital base for the 2016–21 access arrangement period. This is explained in the next section.

6.3.1 NGR requirements for conforming capital expenditure

The definition of capex is set out in rule 69 of the NGR. Capex is defined as costs and expenditure of a capital nature incurred to provide, or in providing, pipeline services.[5]

Capex is based on a forecast or estimate which must be supported by a statement of the basis of the forecast or estimate (under rule 74(1) of the NGR). In accordance with rule 74(2) of the NGR, any forecast or estimate submitted must:

- be arrived at on a reasonable basis; and
- represent the best forecast or estimate possible in the circumstances.[6]
- Capex will be 'conforming' if it conforms with the new capex criteria in rule 79 of the NGR. There are two criteria that must be met under this rule:

[3] NGR, r. 77(2)(b).
[4] NGR, r. 79.
[5] NGR, r. 69.
[6] NGR, r. 74(2).

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

The four grounds set out in rule 79(2) of the NGR can be summarised as follows. The capex must either:

- have an overall economic value that is positive
- demonstrate an expected present value of the incremental revenue that exceeds the present value of the capex
- 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
- be justifiable as a combination of the preceding two dot points.

Rule 79(3) of the NGR provides:

> 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 have limited discretion when making decisions under rule 79 of the NGR.[7] This means we must approve a particular element of the access arrangement proposal if we are satisfied that the element complies with the applicable requirements of the NGR and NGL and is consistent with any applicable criteria set out in the NGR or NGL.[8]

6.3.2 Assessment of conforming capital expenditure in the previous period

In assessing ActewAGL's proposed capex in the previous period, we reviewed ActewAGL's supporting material. This included information on ActewAGL's reasoning and, where relevant, business cases, audited regulatory accounts, and other relevant information. Using this information we assessed whether capex over the previous period was conforming capex and, in turn, whether that capex should be included in the opening capital base in accordance with rule 77(2)(b) of the NGR.

We do not approve certain estimates and forecasts provided by ActewAGL if the information does not meet the requirements set out in the NGR.[9] We must exercise our

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7 NGR, r. 79(6).

8 NGR, r. 40(2).

9 For instance, r. 74 of the NGR requires estimates and forecasts to be made on a reasonable basis, amongst other things.

economic regulatory functions in a manner that will or is likely to contribute to the achievement of the NGO.[10] For instance, having regard to the NGO, we take the view that a prudent service provider will seek cost efficiencies through continuous improvements, and that customers ultimately share in these benefits. This also provides the service provider with a reasonable opportunity to recover at least its efficient costs in accordance with the revenue and pricing principles.

The revision commencement date in ActewAGL's current access arrangement was 30 June 2015. As part of the 2012 rule changes, however, the AEMC made provision for the submission date for ActewAGL's next access arrangement to be extended to 30 June 2015.[11] This means that ActewAGL's current period is six years in length: the original five years from 2010–11 to 2014–15, plus 2015–16.[12] We therefore consider capex for six years, including 2015–16, when determining the opening capital base for the 2016–21 access arrangement period.

Although the capital base roll forward relates to the 2010–16 period, we are also required to adjust for the difference between actual and forecast capex in the capital base.[13] Generally, the final year of the previous period is based on forecast capex (in this case, 2009–10). Therefore, our assessment of conforming capex includes the period 2009–16. We consider the following when determining the opening capital base for the 2016–21 access arrangement period:

- 2009–10 capex—when conducting the previous period's review, we did not have actual capex for 2009–10. We therefore included ActewAGL's 2009–10 capex estimate in the capital base benchmark during that review. The NGR requires adjustment for differences between actual and estimated capex.[14] Since actual capex for 2009–10 is now available, we assessed whether this capex is conforming capex under rule 79 of the NGR.[15] Where ActewAGL's 2009–10 capex estimate differs from our conclusions on conforming capex, we adjusted the capital base roll forward.[16]
- 2010–11 to 2014–15 capex—since we have actual capex for these years, we assessed whether they are conforming capex under the NGR.[17] We included conforming capex in the capital base roll forward.[18]
- ActewAGL included a capex estimate for 2015–16 due to the extension for submitting its access arrangement proposal. For this final decision we do not yet have actual capex for 2015–16. The capital base roll forward therefore includes the

10 NGL, s. 28(1).
11 NGR, schedule 1, r. 35(3).
12 The forthcoming period is five years in length from 2016–17 to 2020–21. AER, *Letter to ActewAGL – gas access arrangement period*, 24 November 2014.
13 NGR, r. 77(2)(a).
14 NGR, r. 77(2)(a).
15 NGR, r. 79.
16 NGR, r. 77(2)(b).
17 NGR, rr. 77(2)(b), 79.
18 NGR, r. 77(2)(b).

estimate for 2015–16 as an input. We will assess whether ActewAGL's actual capex for 2015–16 is conforming capex under the NGR in the next access arrangement review. Because the 2015–16 regulatory year was not subject to an ex ante review, we will conduct a detailed ex post review of capex for that year. We will adjust the capital base at that time as required.

6.3.3 Assessing forecast capex for the 2016–21 access arrangement period

We assessed the key drivers for capex to assess whether ActewAGL's proposed capex in the projected capital base is conforming capex under rule 79 of the NGR. In doing so, we relied on information including:

- the access arrangement information—this document outlines ActewAGL's program of capital expenditure and describes the main drivers of increased capital expenditure[19]
- the Asset Management Plan, 20 Year Asset Strategy, Capacity Management Strategy and Plan, Delivery Plan, and other attachments which provided specific expenditure detail[20]
- ActewAGL's RIN template[21]
- opportunity briefs which detail expenditure requirements of specific projects[22]
- ActewAGL's tender and contract documentation[23]
- ActewAGL's capex model.[24]

We then assessed the prudency and efficiency of the proposed capex. For analysis purposes the capex was broken into categories depending on whether the expenditure is driven by:

- growth in demand - extensions, connections, augmentation
- replacement on the basis of asset life, obsolescence, safety or regulatory obligations - mains, services, meters, regulators, city gates, IT, SCADA, or

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19 ActewAGL, *Attachment 6: Capital expenditure: Access arrangement information for the 2016–21 ACT, Queanbeyan and Palerang access arrangement*, June 2015; ActewAGL, *Access arrangement information for the 2016–21 ACT, Queanbeyan and Palerang access arrangement,* January 2016.

20 ActewAGL, *Access arrangement information*, June 2015, Appendices 6.01, 6.02, 6.03, 6.06, 6.07.

21 ActewAGL, *Access arrangement information*, June 2015, 2016–21 – PUBLIC Gas Reset RIN MASTER FINAL_revised_6 July2015.xls; ActewAGL, *Revised RIN data 14_15 – Master revised February 2016 (revised in response to IR 046).xls.*

22 ActewAGL, *Access arrangement information*, June 2015, Appendices 6.05.1, 6.05.2, 6.05.3, 6.05.4, 6.05.5 (all CONFIDENTIAL).

23 ActewAGL, *Access arrangement information*, June 2015, Attachment 4 (CONFIDENTIAL), Appendices 4.01 – ASA, 4.01 – DAMS, 4.02, 4.03, 4.04, 4.05a, 4.05b (all CONFIDENTIAL except 4.03 and 4.04).

24 ActewAGL, *Access arrangement information*, June 2015, Attachment 6.04.1 – CONFIDENTIAL - CapexForecastModel.xls; ActewAGL, Access arrangement information, January 2016, Attachment 6.01.01 – CONFIDENTIAL - CapexForecastModel.xls.

- other - new regulatory or safety obligations, opex or reliability improvements.

We assessed the proposed capex, to determine whether it would be incurred by a prudent operator acting efficiently in accordance with accepted good industry practice to achieve the lowest sustainable cost of providing services.[25] We also assessed whether the proposed capex is justified on one of the four grounds specified in rule 79(2) of the NGR.

For each category of expenditure the scope, timing and cost of the proposed expenditure was considered in order to form a view on the prudency and efficiency of the expenditure. Our assessment also considered whether cost forecasts have been arrived at on a reasonable basis and represent the best forecast possible in the circumstances.

The following sections set out our approach to assessing ActewAGL's forecast of required capex for the 2016–21 access arrangement period. Our tools and techniques cover:

- assessing whether any outsourcing to third-parties reflect genuine arm's length arrangements
- assessing historical expenditure under the revealed cost approach
- how we compare costs against previous decisions we have made (benchmarking)
- consideration of technical engineering advice
- determining the appropriate estimate for equity raising costs.

6.3.3.1 Assessing competitive tender processes for outsourced activities

Outsourcing to specialist providers of a particular service is a common means by which businesses in the economy are able to gain access to economies of scale and scope and other efficiencies.

Where ActewAGL has used tendered rates as the basis of proposed unit costs, we relied on our approach to assessing outsourcing arrangements.[26] The first stage of the conceptual framework is a 'presumption threshold' designed to be an initial filter to determine which contracts can be presumed to reflect efficient costs that would be incurred by a prudent operator.[27]

In undertaking this ‘presumption threshold’ assessment, we consider:

- Did the service provider have an incentive to agree to non-arm’s length terms at the time the contract was negotiated (or at its most recent re-negotiation)?

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[25] NGR, r. 79(1)(a).

[26] AER, *Better Regulation: Expenditure Forecast Assessment Guideline for Electricity Distribution*, November 2013, pp. 9–10.

[27] NGR, r. 71(1).

- If yes, was a competitive open tender process conducted in a competitive market?

In the absence of an incentive to agree to non-arm's length terms, we consider it reasonable to presume a contract price reflects efficient costs. We also consider this presumption to be reasonable where an incentive to agree to non-arm's length terms exists but the contract was the outcome of a competitive open tender process in a competitive market.[28]

Where an arrangement 'passes' the presumption threshold, we consider the starting point for setting future expenditure should be the contract price itself, with limited further examination. This further examination involves checking whether the contract wholly relates to the relevant services and whether the contract price already compensates for risks or costs provided for elsewhere in the building blocks.

6.3.3.2 Revealed cost approach

The revealed cost approach considers information revealed by the past performance of a gas business. Under the ex-ante regime, gas businesses are rewarded for spending less capex than allowed by the regulator. This incentive enables us to place some reliance on the historical costs of a gas business when reviewing its forecast capex. We used historical costs and volumes as an indicator of efficient costs and volumes for certain categories of capex in this decision. In particular, we used historical total costs, unit costs and volumes in assessing capex related to market expansion (connections), network renewal and upgrade, and meter renewal and upgrade.

The revealed cost approach is an accepted industry practice. Many gas businesses, including ActewAGL, have used this approach as a basis to forecast expenditure proposals. We have also used this approach previously in our assessment of access arrangement proposals for the Victorian and NSW gas businesses.

6.3.3.3 Benchmarking against the other businesses' proposed unit costs and volumes

We also conducted comparative analysis of unit costs ActewAGL used to develop its capex forecast. Comparing the costs incurred by one regulated entity against the costs incurred by other regulated entities in similar circumstances, and using the comparison to assess the efficiency and prudency of those costs, is known as 'benchmarking'. We consider that the use of benchmarking to assess whether capex is conforming is consistent with the requirements of the NGR.

We undertook a high level benchmarking of a selection of ActewAGL's unit costs against similar unit costs of the Victorian, NSW and South Australian gas businesses. Where required some adjustment for compositional difference was made. We used this comparison to assess connections/market expansion and meter renewal expenditure.

[28] NGR, r. 71(1).

Where this benchmarking indicated that ActewAGL's capex may not be efficient, we undertook a detailed review of ActewAGL's proposal. Our detailed review involved consideration of relevant documentation and the impact of factors expected to differ from the past and/or from the Victorian, NSW and South Australian gas businesses.

We recognise that forecast efficient costs may legitimately depart from those revealed through past performance, and compared with other gas businesses. For example, gas businesses may discover more efficient processes over time. The gas businesses may propose that they can best achieve their safety, reliability or regulatory obligations by incurring expenditure to implement new, more efficient processes and include such expenditure in their proposed forecast capex. We consider it likely that a prudent service provider, acting efficiently, would only change operating processes (from revealed, or otherwise efficient processes) if they are likely to result in efficiency gains (in the absence of any information to suggest other reasons for the change). Where we consider that future cost savings should result from capex investments, we have taken this into consideration in determining ActewAGL's forecast opex.

6.3.3.4 Specialist technical advice

We drew on engineering and other technical expertise within the AER to assist with our review on the prudency and efficiency of ActewAGL's proposed market expansion capex.

We also engaged an engineering consultant, Sleeman Consulting, to provide specialist technical advice on the prudency and efficiency of ActewAGL's proposed capex related to capacity development and network renewal and upgrade.[29]

6.3.3.5 Cash flow analysis for equity raising costs

To determine the amount of equity raising costs, we have undertaken an assessment of benchmark cash flows calculated in the PTRM. Under this method, a prudent service provider, acting efficiently, would first exhaust the cheapest sources of funding, such as internal cash flows, before using more expensive external sources of funding, such as equity financing. The cash flow modelling approach used by the AER incorporates this assumption to determine if any external equity financing would be required based on the AER's capex forecast for ActewAGL. For further discussion see attachment 3 of this decision (rate of return).

6.3.4 Interrelationships

In assessing ActewAGL's total forecast capex we took into account other components of its proposal, including:

[29] Sleeman Consulting, *ActewAGL access arrangement 2016–21: Review of capex forecasts for selected projects*, 18 November 2015; Sleeman Consulting, *ActewAGL access arrangement 2016–21: Comments on ActewAGL response to the AER's draft decision*, 28 March 2016.

- the trade-off between potential capex and opex solutions in our assessment of ActewAGL's proposed capex
- any change in the capitalisation policy applied between the current period and the 2016–21 access arrangement period. This relates to the change from the expensing of in–line inspection (pigging), integrity digs, and corporate overhead expenditure in the current period to capitalising in the next access arrangement period.

6.4 Reasons for final decision

6.4.1 Conforming capital expenditure for 2009–15

We consider that the $102.1 million ($2015–16) of net capex incurred by ActewAGL for 2009–15 is conforming capex under rule 79 of the NGR.

In reaching this view we have considered the following factors:

- ActewAGL's actual capex was $2.3 million (23.7 per cent) more than the $9.5 million ($2015–16) approved by the Independent Competition and Regulatory Commission (ICRC) for 2009–10
- ActewAGL's actual capex was $8.1 million (8.2 per cent) less than the $98.4 million ($2015–16) that we approved for 2010–15
- ActewAGL's actual capex for the market expansion (connections) category was $2.6 million (6.3 per cent) more than the $40.7 million ($2015–16) that we approved for 2010–15. ActewAGL explained that this was due to two unanticipated projects during the period. This also resulted in actual capital contributions being $2.9 million more than the $0.4 million ($2015–16) that we approved[30]
- ActewAGL's actual capex was less than that which we previously approved for the other capex categories as follows:
    - in the capacity development (augmentation) category, ActewAGL spent $0.5 million (1.7 per cent) less than the $28.1 million ($2015–16) that we approved
    - in the stay in business category, ActewAGL spent $6.5 million (22.8 per cent) less than the $28.5 million ($2015–16) that we approved. ActewAGL stated that this was primarily due to statistical sampling which indicated it could extend the economic life of residential gas meters. ActewAGL was therefore able to defer metering capex[31]
    - in the non–system category, ActewAGL spent $0.8 million (56.4 per cent) less than the $1.4 million ($2015–16) that we approved. ActewAGL stated

[30] ActewAGL, *2016–20 access arrangement period: Attachment 6: Capital expenditure,* June 2015, p. 18.
[31] ActewAGL, *2016–20 access arrangement period: Attachment 6: Capital expenditure,* June 2015, p. 22.

that the GIS portion of the forecast ($0.3 million) was subsequently identified as opex and therefore not rolled into the capital base.[32]

6.4.2 Conforming capital expenditure for the 2016–21 access arrangement period

We received a number of submissions in response to ActewAGL's revised proposal. The AER's Consumer Challenge Panel (CCP) expressed concern over ActewAGL's revised capex over the 2016–21 access arrangement period. The CCP submitted that the revised proposal will have the effect of increasing the regulatory asset base (RAB) by 18 per cent over the period (or by 55 per cent over the 11 year period spanning the current and previous periods). The CCP does not consider that these increases in the RAB are consistent with actual demand trends.[33]

A further submission received from Peter Sutherland, Australian National University College of Law, welcomed the reduction in capex in the draft decision compared to ActewAGL's initial proposal.[34]

Having regard to the information before us, we approve $80.7 million ($2014–15) of ActewAGL's proposed $93.2 million ($2014–15) total net capex for the 2016–21 access arrangement period as conforming capex under rule 79(1) of the NGR. Some of the cost drivers in this section include a construction management fee (CMF) paid to a subcontractor, Zinfra, who is a related party. Direct costs for each capex driver excluding the CMF are set out in confidential Appendix .

The rest of this attachment sets out our final decision on those capex items which ActewAGL has re-proposed in its revised proposal.

6.4.2.1 Growth assets (connections)

Distribution businesses have a regulatory obligation to make a connection offer to residential and commercial/industrial customers making an application to connect to its distribution network.[35] The capex associated with these connections includes the cost of new mains, the service pipe from the main to the meter and the meter itself. The make-up of these assets generally differs depending on whether the connection is for a Tariff V customer or a Tariff D (Industrial and Commercial (I&C) contract) customer.[36]

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32 ActewAGL, *2016–20 access arrangement period: Attachment 6: Capital expenditure,* June 2015, pp. 28–29. GIS refers to Geographic Information System.

33 CCP, *Advice to the AER from CCP sub-panel 8 regarding the AER draft decision and ActewAGL's revised access arrangement 2016–21 proposal,* March 2016, p. 3.

34 Sutherland, P, *Response to the AER draft decision, ActewAGL distribution access arrangement 2016–21,* 4 February 2016, p. 1.

35 NGR r. 119S for basic and standard connections and NGR r. 119V for negotiated connections.

36 Tariff V customers are residential and commercial/industrial customers who consume less than 10 TJ/year. Tariff D customers are major industrial customers who consume more than 10 TJ/year.

Connections capex is conforming capital expenditure if it would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services and is justified on a ground stated in rule 79(2). Connections capex is justified if the present value of the expected incremental revenue to be generated exceeds the present value of the capital expenditure.[37]

In its revised proposal, ActewAGL proposed forecast expenditure of $42.2 million ($2015–16, unescalated) during the 2016–21 access arrangement period.[38] ActewAGL's revised proposal is 24 per cent less than its initial proposal of $55.5 million and is 3.8 per cent more than our draft decision of $40.6 million.

As we discuss below, we are satisfied that ActewAGL's revised proposal of $42.2 million ($2015–16, unescalated) is conforming capex under rule 79 of the NGR.

Tariff V connections

ActewAGL forecast capital expenditure for Tariff V connections for four categories of Tariff V customers. In doing so, ActewAGL relied on estimates of the unit costs for the components of the connection (mains, services and meters)[39] which it applied to volume forecasts. The categories of connection are set out below in Table 6.6.

Table 6.6 Tariff V connection categories

Connection type	Description
Residential	
Electricity-to-gas (E to G)	Customers currently not using gas, generally converting from electricity and/or LPG. May be on the line-of-main or may require a short main extension. It also includes infill connections, where an existing home is demolished and less than three new dwellings are constructed in its place. If three or more dwellings are constructed they are classified as medium density connections.
New estates	Customers connected in new estate developments. Typically these are constructed in parallel with other services in the estate development with the benefits of greenfield construction and shared trenching.

[37] NGR r. 79(2)(b).

[38] ActewAGL Distribution, *Revised 2016-21 access arrangement proposal - Appendix 6.01.01 Capex Forecast Model-CONFIDENTIAL.xlsm*, January 2016.

[39] This includes the cost of meter data loggers (MDLs) with Tariff V residential medium density/high rise connections.

Medium/high density	Customers in medium/high density apartments. These usually involve gas for cooking and hot water using a centralised hot water system, and may include heating. This involves a service to the apartments and provision of a hot water meter and gas meter for each residence.
Industrial and commercial (I&C)	
Volume market	This includes small business and industrial and commercial (I&C) customers which are not on contract. The 2011-14 historical average use was ~512 GJ p.a.

Source: AER analysis; ActewAGL, *ACT Gas Networks Asset Management Plan RY16–RY21*, 30 June 2015.

Volumes

We are satisfied that ActewAGL's revised forecast of new residential connections is the best estimate in the circumstances.

In the draft decision we were not satisfied of this. In particular, we did not agree with ActewAGL's forecast of a significant increase in new medium density/high rise (MD/HR) connections, which were driven by the assumption of a 90 per cent gas penetration rate.[40] Our alternative estimate was based on applying the historical gas connections rate of 62 per cent for all new dwellings over the forecast period,[41] with a gas connection rate of 36 per cent for MD/HR dwellings.

In its revised proposal, ActewAGL adopted a gas connection rate of 72 per cent based on historical connections data over the 2010–11 to 2013–14 period to update its forecast new connections for MD/HR dwellings. We are satisfied that this revised gas connection rate for MD/HR dwellings will result in a connections forecast that is reasonable and the best estimate in the circumstances. The reasons for our position are set out in attachment 13 (demand).

Connection unit rates

We are satisfied that ActewAGL's connection unit rates result in an estimate of market expansions capex that is arrived at on a reasonable basis. In the draft decision, while we accepted the contract unit rates applied by ActewAGL, we did not accept that the forecasting approach and the cost step changes applied by ActewAGL would result in an estimate arrived at on a reasonable basis.[42]

In the draft decision we raised concerns regarding ActewAGL's:

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40 AER, *Draft Decision: ActewAGL Distribution Access Arrangement 2016–21, Attachment 6 - Capital Expenditure*, November 2015, p. 6-23.

41 AER, *Draft Decision: ActewAGL Distribution Access Arrangement 2016–21, Attachment 6 - Capital Expenditure*, November 2015, p. 6-24.

42 AER, *Draft Decision: ActewAGL Distribution Access Arrangement 2016–21, Attachment 6 - Capital Expenditure*, November 2015, p. 6-24.

1. forecasting approach
2. cost step change for energisation costs
3. cost step change for hot water meters
4. escalation of unit rates
5. inclusion of an internal main for medium density/high rise connections.

We are satisfied that ActewAGL addressed these issues in its revised proposal such that its revised unit rates model produces unit rates that result in an estimate of market expansion capex that is arrived at on a reasonable basis. We consider each of these issues in turn below.

Forecasting approach

In the draft decision, we were not satisfied that ActewAGL's forecasting approach for connections unit rates would result in a forecast that is arrived at on a reasonable basis. We raised concerns regarding the data used in ActewAGL's unit rate model, the meter data logger and hot water meter roll out assumptions and forecasts and the number of connections used in its unit rate model.[43] We considered that ActewAGL could improve its estimate by taking into account the expected downturn in large apartment developments and separately forecasting a number of elements of the medium density and high rise dwelling unit rates.[44]

We are satisfied that ActewAGL has addressed our concerns in its revised proposal by developing a new forecasting methodology that:

- disaggregates the forecast of MD/HR connections into separate medium density connection forecast and high rise connection forecast;
- predicts how gas will be used by developers in those two scenarios and, on that basis, what type of connection assets will likely be required for those connections;
- forecasts unit rates based on those two scenarios.[45]

ActewAGL has relied on HIA housing forecasts to determine the number and ratio of medium density and high rise connections that are likely to be required over the 2016–21 access arrangement period.[46] ActewAGL then forecasts how gas was likely to be used in those two scenarios as follows:

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[43] AER, *Draft Decision: ActewAGL Distribution Access Arrangement 2016–21, Attachment 6 - Capital Expenditure*, November 2015, p. 6-25.

[44] AER, *Draft Decision: ActewAGL Distribution Access Arrangement 2016–21, Attachment 6 - Capital Expenditure*, November 2015, p. 6-25.

[45] ActewAGL Distribution, *Response to the AER's draft decision -2016-21 ACT, Queanbeyan and Palerang Gas Network Access Arrangement*, 6 January 2016, p. 48.

[46] ActewAGL Distribution, *Response to the AER's draft decision -2016-21 ACT, Queanbeyan and Palerang Gas Network Access Arrangement*, 6 January 2016, pp. 49–50.

- One dominant medium density configuration of each end customer having an individual gas meter for cooking and/or heating and/or an individual gas instantaneous hot water unit (no hot water meter required)
- Two potential high rise configurations, each with 50 per cent market share:
    - boundary metered gas cooking and/or heating with a central hot water system (requires boundary gas meters and individual hot water meters), and
    - central hot water system only (requires a boundary gas meter and individual hot water meters).[47]

ActewAGL acknowledged that this 50/50 split was based on a significant degree of judgment. Due to the introduction of the Gas Service and Installation Rules Code and the Gas Network Boundary Code Amendment, gas meters must be installed external to high rise buildings. This means that gas for cooking can only be supplied to high rise apartments using a boundary gas meter. Therefore, there is little merit in using historical metering configurations as a basis for forecasts.[48]

We accept that these asset requirements are a reasonable estimate of the required assets for these connection types. In determining this:

- we recognise that relying on the HIA disaggregated forecast of medium density/high rise connections data, which is a well-accepted industry standard indicator of connection activity, is reasonable in the circumstances. [49]
- we agree that there is a degree of uncertainty in forecasting the split for high rise meter configurations and accept that ActewAGL's forecast is reasonable in the circumstances.

Using this 50/50 split, ActewAGL assessed the asset requirements for each medium density and high rise connection type in order to forecast unit rates for these connection types.[50]

Since we accepted the contract unit rates in the draft decision and ActewAGL has addressed our concerns, we are satisfied that resulting unit rates for MD/HR connections are estimates that are arrived at on a reasonable basis.

Cost step change for energisation costs

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47 ActewAGL Distribution, *Response to the AER's draft decision -2016-21 ACT, Queanbeyan and Palerang Gas Network Access Arrangement*, 6 January 2016, p. 50.

48 ActewAGL Distribution, Response to AER information request 050 [email to AER], 12 February 2016, p. 4.

49 HIA is a private-sector industry association comprising mainly house construction contractors. HIA forecasts have been used by the industry since 1984: see Mills, Anthony and Harris, David and Skitmore, Martin R, *The Accuracy of Housing Forecasting in Australia*, Engineering Construction and Architectural, Management 10(4), 2003, pp. 245-253. Accessed from: http://eprints.qut.edu.au/archive/00004441/.

50 ActewAGL Distribution, *Response to the AER's draft decision -2016-21 ACT, Queanbeyan and Palerang Gas Network Access Arrangement*, 6 January 2016, p. 51; ActewAGL Distribution, *Revised 2016-21 access arrangement proposal - Appendix 6.01.02 ME unit rates model-CONFIDENTIAL.xlsx*, January 2016.

In its initial proposal, ActewAGL proposed a step change for energisation costs for medium density connections that it attributed to the introduction of the National Energy Customer Framework (NECF).[51] In the draft decision, we rejected this step change because ActewAGL is able to allocate energisation costs to the connecting party, by requiring a retail contract to be in place before establishing a new connection.[52] ActewAGL has removed these energisation costs from its connections unit rates model in its revised proposal.[53]

Cost step change for hot water meters

In its initial proposal unit rate model, ActewAGL referred to three different types of hot water meters, but applied the unit rate for a hot water meter which is materially more expensive than the other hot water meter types.[54] In the draft decision, based on the information available, we were concerned about the use of a materially more expensive hot water meter than the alternative that was proposed in the tender reports which ActewAGL obtained. Therefore, we did not accept this proposed step change for hot water meters on the basis that using the more expensive hot water meters would result in a forecast that was not arrived at on a reasonable basis.[55]

In a confidential appendix to its revised proposal, ActewAGL submitted further information regarding the costs, features and life cycle costs of the meters it proposed to use.[56] On the basis of this information, we accept that using the proposed hot water meters results in a forecast that was arrived at on a reasonable basis.

Escalation of unit rates

Initially, ActewAGL proposed to escalate unit rates in the same way as it did for forecast opex to account for expected component price changes over the 2016–21 access arrangement period.[57] In preparing the draft decision, we were unable to identify these escalations. We therefore did not include escalation in the unit rates.[58]

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51 ActewAGL Distribution, Access Arrangement Information for the 2016–21 ACT, Queanbeyan and Palerang Access Arrangement: Attachment 6: Capital expenditure, June 2015, p. 45.

52 AER, *Draft Decision: ActewAGL Distribution Access Arrangement 2016–21, Attachment 6 - Capital Expenditure*, November 2015, p. 6-26.

53 ActewAGL Distribution, *Revised 2016-21 access arrangement proposal - Appendix 6.01.02 ME unit rates model-CONFIDENTIAL.xlsx*, January 2016. ActewAGL Distribution, *ActewAGL Distribution response to AER information request 048*, 8 February 2016, pp. 2-3.

54 ActewAGL Distribution, *2016–21 Access Arrangement Information*, June 2015, 6.04.2-CONFIDENTIAL-MarketExpansionUnitRatesModel.xls, tab 'Input|Rates' cells I167, I171, I173.

55 AER, *Draft Decision: ActewAGL Distribution Access Arrangement 2016–21, Attachment 6 - Capital Expenditure*, November 2015, p. 6-27.

56 ActewAGL Distribution, *Revised 2016-21 access arrangement proposal - Appendix 6.07 Hot Water Meters Approach-CONFIDENTIAL*, January 2016.

57 ActewAGL, *ActewAGL Distribution response to AER ActewAGL 019 – construction management fee*, 7 August 2015, question 3, p. 4.

58 AER, *Draft Decision: ActewAGL Distribution Access Arrangement 2016–21, Attachment 6 - Capital Expenditure*, November 2015, p. 6-27.

ActewAGL provided a further explanation about how it implemented escalation of its unit rates in its revised proposal. It noted that the Distribution Asset Management Services Agreement (DAMS requires that unit rates be reset against benchmark market rates on the fifth anniversary of the Effective Time (practically, on 1 July 2018). Therefore ActewAGL proposed real price escalation only for 2018/19 to reflect the escalation required by the contract. It also proposed no real price escalation for 2016–17, 2017–18, 2019–20 and 2020–21.[59] Further, ActewAGL accepted our position in the draft decision that material cost escalation should not be applied and our labour cost escalators.[60] Therefore, in this final decision we will apply our labour escalators to the unit rates for the year 2018–19 only to address the escalation required by the DAMS.

Inclusion of an internal main for medium density/high rise connections

In its initial proposal, ActewAGL indicated that, unlike networks in other jurisdictions, it includes the internal main within the site of the villa complex in its connections capex proposal.[61] In the draft decision, we rejected this approach on the basis that the internal main is contained within the property and therefore should be paid for by the developer.[62]

In its revised proposal, ActewAGL presented further information on this issue. It cited clause 3.3 of the Boundary Code that stipulates that the boundary between a gas distribution network and a customer's premises is at the point of supply, which is the outlet of the meter assembly. ActewAGL noted that for villas and similar developments, the connection assets up to the outlet of the meter assembly include mains, internal mains, services and the meter assembly and therefore they are a part of ActewAGL's owned network. ActewAGL stated that it does not charge developers for internal mains simply because they are on the villa site.[63] Based on this information, we are satisfied that internal mains should be included in the connections unit rate for medium density/high rise for ActewAGL.

Conclusion on connections unit rates

We are satisfied that ActewAGL has addressed all the issues raised in the draft decision regarding the connections unit rates. As such, we consider that these unit rates will result in an estimate of market expansion capex that is arrived at on a reasonable basis.[64]

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59 ActewAGL Distribution, *Response to the AER's draft decision -2016-21 ACT, Queanbeyan and Palerang Gas Network Access Arrangement*, 6 January 2016, pp. 52-53.

60 ActewAGL Distribution, *Response to the AER's draft decision -2016-21 ACT, Queanbeyan and Palerang Gas Network Access Arrangement*, 6 January 2016, p. 67.

61 ActewAGL Distribution, *2016–21 Access Arrangement Information: Attachment 6 Capital expenditure*, June 2015, p. 45.

62 AER, *Draft Decision: ActewAGL Distribution Access Arrangement 2016–21, Attachment 6 - Capital Expenditure*, November 2015, p. 6-28.

63 ActewAGL Distribution, *Response to the AER's draft decision -2016-21 ACT, Queanbeyan and Palerang Gas Network Access Arrangement*, 6 January 2016, pp. 53–54.

64 NGR, r. 74.

Tariff Industrial and Commercial (I&C) contract and non-routine connections

We are satisfied that ActewAGL's proposed expenditure of $1.2 million for tariff I&C contract (and non-routine) connections is the best forecast or estimate possible in the circumstances and have included this amount in our alternative capex estimate. This is the same amount ActewAGL included in its initial proposal.

In its revised proposal, ActewAGL submit that tariff I&C contract expenditure also includes non-routine connection expenditure, which is incurred where a high-pressure connection is made using steel pipes, for instance in providing a high-pressure connection to a new development.[65]

In our draft decision, we did not include any expenditure for tariff I&C contract connections because we were unable to verify the historical expenditure which ActewAGL indicated was the basis for its proposal.

In response to the draft decision, ActewAGL noted that the historical costs were not separately reported in the historical RIN data, but were included in the 'I&C tariff category'. ActewAGL confirmed that there was no double counting of this expenditure in the market expansion capex forecast.[66] We are satisfied because the forecast is based on an historical average over 2010–11 to 2013–14 as revealed in the further information provided by ActewAGL.

6.4.2.2 Capital contributions

A customer may make a capital contribution, where the revenue generated by a new connection is less than the capex and opex cost incurred in making and maintaining the new connection.[67]

We accept ActewAGL's proposed capital contribution of $4.1 million for all tariff classes.

For tariff V customers, ActewAGL proposed capital contributions of $0.5 million (2015–16, unescalated) in its initial proposal.[68] In the draft decision we were unable to verify ActewAGL's proposed capital contribution amounts. These amounts were hardcoded in the access arrangement RIN.[69] We therefore forecast a capital contribution of $4.1

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65 ActewAGL Distribution, *Response to the AER's draft decision -2016-21 ACT, Queanbeyan and Palerang Gas Network Access Arrangement*, 6 January 2016, pp. 55.

66 ActewAGL, *Response to the AER's draft decision - 2016–21 ACT, Queanbeyan and Palerang Gas Networks Access Arrangement*, January 2016, p. 55.

67 ActewAGL, *2016–21 Access Arrangement Information*, *ActewAGL Distribution AAI_Attachment 6 Capital expenditure*, June 2015, p. 44; NGR r. 79(2)(b).

68 These are forecast contributions for E-to-G, New Homes and I&C tariff connections based on historic patterns, excluding contributions for medium density connections.

69 ActewAGL submitted that it forecast the amount of capital contributions by taking the five-year average of capital contributions as a percentage of gross capex for each connection type and applying this percentage to the forecast capex for each connection type.

million ($2015–16, unescalated), applying the method described by ActewAGL. ActewAGL accepted our alternative forecast in its revised proposal.[70]

In our draft decision we also noted that ActewAGL did not submit capital contributions for tariff I&C contract customers; however, it stated that '[a] forecast will be included in the revised proposal'.[71] In its revised proposal, ActewAGL did not provide a separate capital contribution forecast for these customers, and in response to an information request indicated that the Tariff V capital contribution of $4.1 million already includes the capital contribution for tariff I&C contract and tariff customers. ActewAGL note that given the small number and dollar value of historical tariff I&C contract capital contributions, they did not try to forecast capital contribution for contract and tariff customers separately. We note that we have concerns with the lack of transparency in ActewAGL's historical reporting of tariff I&C contract and tariff expenditure and contributions together. For future reporting purposes, we note that ActewAGL consider reporting of these tariff sub-classes separately.

6.4.2.3 Capacity development/augmentation

Capacity development, or augmentation, capex is directed at increasing the capacity of the existing network to meet the demand of existing and future customers. Augmentation capex is required to maintain gas pressure and minimise the risk of gas outages.

We have included $6.0 million ($2015–16) of augmentation capex in our alternative estimate (see Table 6.2). We are not satisfied that ActewAGL's revised proposal of $14.4 million ($2015–16) is conforming under rule 79 of the NGR.

ActewAGL proposed augmentation capex to meet growth in peak hourly load on its distribution network. This is to accommodate demand from new customers and to meet growth in peak load from existing customers as they upgrade or add appliances.[72] ActewAGL stated its augmentation capex provides 'supply security and maintenance of supply reliability', and maintains 'capacity to supply existing services', pursuant to rules 79(2)(c)(ii) and (iv), respectively, of the NGR.[73]

In its revised proposal, ActewAGL did not agree with the draft decision that the Molonglo primary and Molonglo secondary projects will not be required in the 2016–21 period. Based on new information, ActewAGL agreed it can defer two projects (although Molonglo Primary still needs to be undertaken in the 2016–21 access arrangement period) reducing its proposed augmentation capex from its initially proposed amount of $17.7 million ($2015–16).

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70 ActewAGL, *Response to the AER's draft decision,* January 2016, pp. 55–56.

71 ActewAGL, *ActewAGL Distribution response to various information requests*, 31 July 2015, p. 4.

72 ActewAGL, *Response to the AER's draft decision*, 6 January 2016, pp. 56–57; ActewAGL, *2016–20 access arrangement period: Attachment 6: Capital expenditure*, June 2015, pp. 47–49.

73 ActewAGL, *2016–20 access arrangement period: Attachment 6: Capital expenditure*, June 2015, p. 48.

Our final decision is that augmentation capex of $8.4 million ($2015–16) associated with the Molonglo Primary and Molonglo Secondary projects is not such as would be incurred by a prudent service provider acting efficiently.[74] Based on the information before us, we consider the capex ActewAGL proposed for these projects is not necessary under the NGR in the 2016–21 access arrangement period.[75] In coming to this position, we had regard to technical advice from our engineering consultant, Sleeman Consulting.

Molonglo Primary

We do not consider ActewAGL's proposed capex of $8.2 million ($2015–16) for this project is conforming capex under rule 79 of the NGR. We also do not consider ActewAGL arrived at its capital expenditure forecast on a reasonable basis.[76]

Based on the information before us, including advice from Sleeman Consulting, we assess that ActewAGL's revised peak demand forecasts—the underlying basis of its proposed augmentation capex—is overstated.[77] Thus, we consider that augmentation capex ActewAGL proposed for Molonglo Primary is not necessary under the NGR over the 2016–21 period, and can be deferred to subsequent access arrangement periods.[78] We therefore do not consider ActewAGL's proposed expenditure for Molonglo Primary is consistent with expenditure by a prudent service provider acting efficiently.[79]

In the initial proposal, ActewAGL included $8.2 million ($2015–16) for this project. In the draft decision we did not include this project in our alternative capex forecast because we considered ActewAGL's forecast new dwellings and peak demand forecasts were excessive. In addition, ActewAGL did not demonstrate that it had considered other options to ensure integrity of supply to the Molonglo area as new loads arise.[80]

ActewAGL's revised proposal provided an analysis of other options it considered, and updated modelling numbers.[81] ActewAGL also clarified how it derived its 1 in 20 peak

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74 NGR, r. 79(1)(a).

75 NGR, rr. 79(1)(a), 79(2)(c)(ii) and (iv).

76 NGR, r. 74(2)(a).

77 *Meeting between ActewAGL Distribution and AER staff*, 2 February 2016; ActewAGL, *Revised access arrangement proposal: Appendix 6.03: Capacity development capex*, 6 January 2016.

78 NGR, rr. 79(1)(a), 79(2)(c)(ii), 79(2)(c) (iv). ActewAGL stated the key driver for Molonglo Primary is capacity constraints within the secondary network in the Molonglo area caused by growth in the Molonglo Valley Development. ActewAGL, *Revised access arrangement proposal: Appendix 6.03: Capacity development capex*, 6 January 2016, p. 4.

80 AER, *Draft decision: ActewAGL Distribution access arrangement 2016 to 2021: Attachment 6 – Capital expenditure*, November 2015, p. 34.

81 ActewAGL, *2016–21 access arrangement: Response to draft decision*, 6 January 2016, p. 61; ActewAGL, *2016–21 access arrangement: Response to draft decision: Appendix 6.03*, 6 January 2016, p. 14.

demand forecasts.[82] To determine an overall peak demand, ActewAGL applied its estimate of 1 in 20 peak hourly gas demand per customer to the total number of dwellings to be developed in the Molonglo area. We consider ActewAGL's estimated overall peak demand forecast to supply the Molonglo area is still excessive as:

- its assumption of a 100 per cent gas penetration rate in Molonglo is not reasonable, and
- it does not account for the trend of declining peak load per customer, which overstates the 1 in 20 peak demand forecast.

We also consider that ActewAGL's forecasting approach lacks transparency.

Given these reasons, our final decision is that augmentation capex for Molonglo Primary is not such as would be incurred by a prudent service provider acting efficiently.[83]

The Master Builders Association (MBA) submitted that the pace of development in new areas such as Molonglo is often difficult to forecast. The MBA stated it is important ActewAGL retain the flexibility to respond to changes in urban development in order to provide gas network infrastructure. Without this flexibility, ActewAGL may not be able to provide the infrastructure to meet demand. This risks reducing the gas network customer base, which would increase long term costs for other users.[84]

We acknowledge forecasting the pace of new developments is difficult. However, we would expect a gas distributor to use rigorous methods underpinned by reasonable assumptions to produce peak load forecasts (and forecasts in general). As we detail below, we do not consider ActewAGL arrived at its peak load forecasts, and its capex forecast, on a reasonable basis.

In addition, the regulatory regime provides flexibility to gas distributors like ActewAGL during an access arrangement period. We determine conforming capex level by reference to our analysis of the proposed capex under the NGR.[85] Once we determine conforming capex, the gas distributor is able to prioritise its capex program given its circumstances over the course of the access arrangement period. The gas distributor may need to undertake projects or programs it did not anticipate during the access arrangement period. The gas distributor may also not require some of the projects or programs it proposed for the period. We consider a prudent and efficient gas distributor would consider the changing environment throughout the access arrangement period in its decision-making.

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82 ActewAGL clarified it designs and builds its gas network to ensure it can supply gas during a 'severe', or 1 in 20, winter. ActewAGL, *2016–21 access arrangement: Response to draft decision*, 6 January 2016, p. 59.

83 NGR, r 79(1)(a).

84 MBA, *Submission: ACT AER draft decision for ActewAGL gas distribution 2016-2021*, 29 January 2016, pp. 1–2.

85 NGR, r. 79.

Assumed gas connection rate for Molonglo is not reasonable

In response to the draft decision, ActewAGL updated the peak load forecasts for a 1 in 20 winter in its modelling for Molonglo Primary (see Table 6.7). ActewAGL submitted pressures will reach critical levels in the Molonglo area by 2021, hence its proposal to complete Molonglo Primary in the 2016–21 period.[86] ActewAGL clarified it assumed a 100 per cent penetration rate for new dwellings in the Molonglo area when deriving its peak load forecast because they did not include non-residential load in their calculations. It also assumes a total of 6000 new dwellings in Molonglo and a peak load per customer of 0.98m³/h.

Table 6.7 ActewAGL peak load forecast for Molonglo[87]

	Base (m3/hour)	1 in 20 winter (m³/hour)	Minimum pressure (kPa)
Winter 2018	3623	4203	709
Winter 2019	4342	5037	655
Winter 2020	5061	5870	599
Winter 2021	5779	6704	533 (Critical)
Winter 2022	6498	7538	454 (Critical)

Source: ActewAGL, *2016–21 access arrangement: Response to draft decision*, 6 January 2016, p. 59; ActewAGL, *2016–21 access arrangement: Response to draft decision: Appendix 6.03*, 6 January 2016, pp. 4–6

As Table 6.7 shows, ActewAGL estimates that by winter 2020, non-severe demand is estimated at 5061m³/hour, and at 5870m³/hour for a 1 in 20 peak. We note that Sleeman Consulting in its advice to our draft decision had assumed that the 5061 m³/hour was based on a planning (that is, severe) scenario, and had therefore taken the view that this estimate was "marginally high but not unrealistic".[88] Upon ActewAGL's clarification that in fact the 5061m³/hour relates to a non-severe winter peak demand, Sleeman Consulting now considers his previous estimate to be generous.[89]

We assess that a 100 per cent gas penetration rate overstates the number of dwellings that connect to gas, particularly in light of ActewAGL's historical estimate of a gas penetration rate of 71.3 per cent for new dwellings.[90]

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86 ActewAGL, *2016–21 access arrangement: Response to draft decision*, 6 January 2016, p. 59.

87 ActewAGL clarified that the peak load forecasts it used in its revised proposal (as in Table 6.7) correspond to the 'low' forecast in its initial proposal. ActewAGL did not consider this scenario to be realistic for various reasons and did not use its low forecast in the modelling for its initial proposal. See ActewAGL, *Response to AER information request 051*, 17 February 2016, pp. 5–9.

88 Sleeman Consulting, *Review of capex forecasts for selected projects (Public)*, 18 November 2015, p. 3.

89 Sleeman Consulting, *Comments on ActewAGL response to the AER's draft decision*, 28 March 2016, section 2.1.4(ix)–(x).

90 See Attachment 13 (demand).

Using a 71.3 per cent overall dwellings gas penetration rate, Sleeman Consulting estimated Molonglo's peak demand for winter 2020 to be 4184 m³/h. Applying ActewAGL's assumptions of 6,000 new dwellings and peak load per customer of 0.98m³/h, we estimate that pressures would not reach critical levels until winter 2024 at the earliest where the 1 in 20 winter peak demand would be 6,415 m³/hour.[91] It follows that as pressures will not reach critical levels until after the 2016–21 access arrangement period, augmentation capex for Molonglo Primary is not necessary under the NGR for the next access arrangement period.[92] Further, we note that our analysis is conservative (that is, pressures may not reach critical levels well beyond 2024) as we applied ActewAGL's assumption of 6000 new dwellings in Molonglo and its assumption of a peak load per customer of 0.98 m³/h per customer. We note Sleeman Consulting considered there is potential for 6,000 new dwellings in Molonglo, but not all dwellings will necessarily be developed by 2020.[93] We and Sleeman Consulting also consider ActewAGL's assumption of 0.98 m³/h per customer may be overstated, as discussed further below. At best, Sleeman Consulting considered this figure is at the very top of the reasonable range.[94]

We acknowledge this analysis does not include non-residential customers. However, ActewAGL provided little evidence regarding the potential contribution such load would have on peak demand. We discuss this in more detail later in our reasons.

Trends in peak load per customer

In their initial and revised proposals, ActewAGL used the figure of 0.98 m³/hour per customer for a 1 in 20 winter. This figure, multiplied by the forecast number of new dwellings, approximates the peak load forecasts ActewAGL used in its pipeline pressure modelling to justify Molonglo Primary. We consider ActewAGL's forecast of 0.98 m³/customer for a 1 in 20 winter is overstated given the overall historical trend in peak load per customer.

ActewAGL derived its 1 in 20 winter peak load per customer by multiplying its forecast for non-severe peak load per customer by a 'severity factor'.[95] ActewAGL derived the non-severe winter figure (0.84 m³/hour per customer) for 2020 from the non-severe

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91 We use linear extrapolation because it is consistent with ActewAGL's peak demand forecasts for the Molonglo area, which follow a linear pattern. See ActewAGL, *Access arrangement information: Attachment 6.07.4: Canberra primary and secondary network capacity assessment*, July 2015, figures 5-2, 5-6, 5-8, 5-10, 5-12, 5-14, 5-16, 5-18, 5-19, 5-21, 5-24; ActewAGL, *Revised proposal: Appendix 6.03: Capacity development capex*, January 2016, p. 4.

92 NGR, rr. 79(2)(c)(ii) and (iv).

93 Sleeman Consulting, *Review of capex forecasts for selected projects*, 18 November 2015, p. 3.

94 Sleeman Consulting, *Comments on ActewAGL response to the AER's draft decision*, 28 March 2016, section 2.1.4(viii).

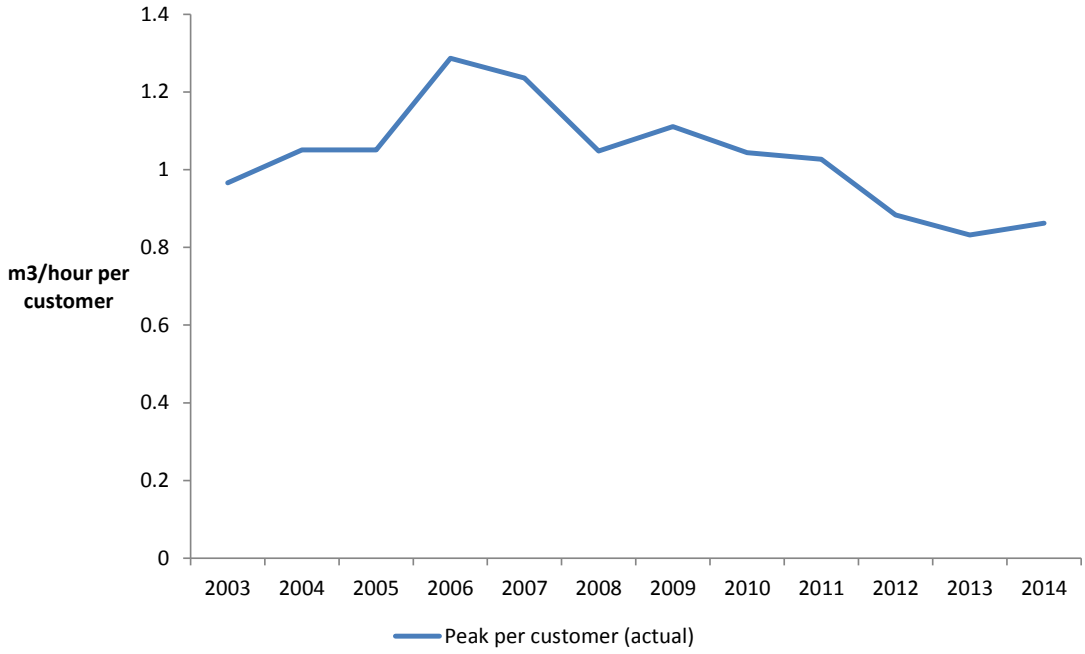
95 ActewAGL stated it derived the severity factor by comparing the maximum daily throughput for a given year against the daily throughput on 15 June 2006, the highest daily throughput recorded.

peak gas demand figure for 2013.[96] Applying the 16 per cent severity factor derives 0.98m³/hour per customer for a 1 in 20 winter.[97]

Sleeman Consulting considers the use of a fixed (2013) non-severe peak load per customer figure is likely to progressively overstate peak demand forecasts in the 2016–21 period. A fixed figure does not provide for potential ongoing decline in peak hourly demand and as overall residential gas demand declines.[98]

ActewAGL stated its estimate of 0.98m³/customer for a severe peak is well below the actual peak per customer in eight of the last 12 winters.[99] While this may be the case, this does not account for the trend in peak per customer numbers over time. Figure 6.1 shows the steady decline in peak demand per customer since 2006.

Figure 6.1 ActewAGL peak load per customer 2003–2014 (m3/hour per customer)



Source: ActewAGL, *Response to AER information request 051*, 17 February 2016, attachment 1.

A linear extrapolation of Figure 6.1 suggests (non-severe) peak per customer would be 0.79 m³/hour per customer in 2020. If we use only the data from 2006 onwards, this figure would be 0.48 m³/hour per customer. We also investigated the effects of other

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96 ActewAGL, *Response to AER information request 051*, 17 February 2016, p. 6; ActewAGL, *Response to AER information request 51A* [email to AER], 11 March 2016.

97 ActewAGL, *Response to AER information request 051* [email to AER], 17 February 2016, p. 6.

98 Sleeman Consulting, *Comments on ActewAGL response to the AER's draft decision*, 28 March 2016, section 2.1.4(vi).

99 ActewAGL, *Response to AER information request 051* [email to AER], 17 February 2016, p. 7.

functional forms (such as exponential, log and power forms) on the data (see Table 6.8). These tests suggest non-severe peak per customer figures for 2020 of between 0.5 and 0.8 m^3/hour per customer.

While the merits of these functional forms can be debated, they suggest the 0.84 m^3/customer figure (and hence, 0.98 m^3/hour per customer) may be outside of a reasonable range. This is consistent with Sleeman Consulting's assessment that 0.98 m^3/hour per customer would be at the very top of the range.[100]

Table 6.8 Non-severe winter 2020 peak load per customer using various functional forms

	R-squared value	Non-severe winter 2020 (m3/hour per customer)
All data		
Linear	0.31	0.79
Exponential	0.34	0.81
From 2006		
Linear	0.90	0.48
Exponential	0.90	0.61
Log	0.88	0.77
Polynomial (2nd order)	0.91	0.67
Power	0.85	0.80

Source: AER analysis; ActewAGL, *Response to AER information request 051*, 17 February 2016, attachment 1.

Forecasting approach lacks transparency

We consider ActewAGL's use of a 100 per cent gas penetration rate for all customer types lacks transparency around actual penetration rates for individual connection types. This is not standard practice in demand forecasting. It is also not the approach ActewAGL used in its initial and revised proposals on demand forecasts where it used separate demand forecasts for each individual connection type.

This method implicitly assumes the contribution of non-residential customers to peak load will at least make up for errors in adopting a 100 per cent connection rate. Similar to the concept of forecasting residential connection numbers by dwelling type, we consider including a separate forecast for non-residential customers is more transparent.

[100] Sleeman Consulting, *Comments on ActewAGL response to the AER's draft decision*, 28 March 2016, section 2.1.4(viii).

ActewAGL stated peak load per customer would be higher (than 0.98 m^3/hour per customer) if they included non-residential usage in its forecasts.[101] ActewAGL provided little evidence to support this claim. ActewAGL provided media releases for prospective schools, an aquatic centre in Stromlo Forest Park, and other facilities.[102] These did not include any information on gas connection or usage. ActewAGL also submitted advertisements for the auction of sites proposed to include various types of businesses. The date for the auction of these sites was 4 March 2015.[103] ActewAGL did not provide any information on the results of these auctions or whether these resulted in connection inquiries.

Molonglo Secondary

We do not consider ActewAGL's proposed capex of $0.2 million ($2015–16) for this project is conforming capex under rule 79 of the NGR. We consider ActewAGL did not arrive at its capital expenditure forecast on a reasonable basis.[104]

Molonglo Secondary and Molonglo Primary are separate and independent projects. Molonglo primary is proposed to reinforce supply into the whole Molonglo Valley area. It is also intended to form part of a primary mains loop in the ACT. Molonglo Secondary also reinforces supply to the Molonglo Valley area, but particularly new estates in Denman Prospect.[105]

In the draft decision we did not include the $3.7 million ($2015–16, unescalated) which ActewAGL initially proposed. We noted that the driver for Molonglo Secondary is the gas requirements arising from development of the Molonglo land subdivision. We noted a developer for these early stages was only recently announced and there were no commitments yet for the latter stages of the development.[106] Sleeman Consulting advised us that any gas requirements in the early stages of this development can be accommodated by the existing infrastructure arising from the Molonglo Secondary Extension Stage 1 project.[107] We therefore did not consider Molonglo Secondary is likely to be required in the 2016–21 period.[108]

In its revised proposal, ActewAGL stated it considered the updated dwelling forecasts from the ACT Government Land Development Agency when developing the revised

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101 ActewAGL, *Response to AER information request 051*, 17 February 2016, pp. 7–8.

102 ActewAGL, *Response to AER information request 051*, 17 February 2016, attachments 2, 3 and 6. (Note that attachments 2, 3 and 6 were provided to the AER on 18 February 2016).

103 ActewAGL, *Response to AER information request 051*, 17 February 2016, attachments 4 and 5.

104 NGR, r. 74(2)(a).

105 ActewAGL, *Revised proposal: Appendix 6.03: Capacity development capex*, January 2016, p. 17.

106 AER, *Draft decision: ActewAGL Distribution access arrangement 2016 to 2021: Attachment 6 – Capital expenditure*, November 2015, p. 34.

107 Sleeman Consulting, *ActewAGL access arrangement 2016–21: Review of capex forecasts for selected projects*, 18 November 2015, section 2.2.

108 AER, *Draft decision: ActewAGL Distribution access arrangement 2016 to 2021: Attachment 6 – Capital expenditure*, November 2015, p. 34.

capex forecast for Molonglo Secondary.[109] We note ActewAGL stated the driver for the project is a 1 in 20 load forecast of 7538 m3/h by winter 2022. This is the same load forecast for Molonglo Primary (see Table 6.7).[110], Hence, ActewAGL also applied a 100 per cent gas penetration rate to new dwellings and a peak load hourly demand of 0.98m^3/hour (as ActewAGL did for Molonglo Primary).

ActewAGL agreed with Sleeman Consulting that the existing district regulator set can supply gas to the initial stages of the Denman Prospect development. ActewAGL agreed that it can defer the bulk of the expenditure for Molonglo Secondary into the 2021–26 period. However, ActewAGL submitted that it will require $0.2 million ($2015–16, unescalated) in the final year of the 2016–21period for the 'assessment, requirements and definition phases'.[111]

For the same reasons outlined in our assessment of Molonglo Primary above and having regard to Sleeman Consulting's assessment of this project, we do not consider ActewAGL arrived at its demand forecasts on a reasonable basis. As we discussed in the Molonglo Primary section above, we consider ActewAGL's peak load forecasts are overstated. Hence, we do not consider the capex ActewAGL proposed for this project is conforming capex under the NGR in the 2016–21 access arrangement period.[112] We note this is consistent with Sleeman Consulting's assessment of this project.[113]

6.4.2.4 Network renewal and upgrade

Network renewal and upgrade expenditure is related to the replacement and upgrade of network infrastructure (mains and facilities) to:[114]

- ensure the reliable transport of gas through the ACT network
- ensure the integrity of the gas network infrastructure
- replace any outdated equipment.

We have included $14.0 million ($2015–16, unescalated) of network renewal and upgrade expenditure in our final decision, which is $2.8 million less than ActewAGL's revised capex of $16.7 million ($2015–16, unescalated).

In its revised proposal, ActewAGL accepted our position in the draft decision to reduce its proposed capex for the construction of the Watson CTS pressure limiting station by $0.6 million, where ActewAGL had initially proposed $1.9 million ($2015–16). However, ActewAGL did not accept our position in the draft decision on its proposed capex for

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109 ActewAGL, *2016–21 access arrangement: Response to draft decision*, 6 January 2016, p. 61.

110 See ActewAGL, *Revised access arrangement proposal: Appendix 6.03: Capacity development capex*, 6 January 2016, pp. 4 and 17.

111 ActewAGL, *2016–21 access arrangement: Response to draft decision*, 6 January 2016, p. 62.

112 NGR, rr. 79(1)(a), 79(2)(c)(ii) and (iv).

113 Sleeman Consulting, *Comments on ActewAGL response to the AER's draft decision*, 28 March 2016, section 2.2.5 and 2.2.6.

114 ActewAGL, *Access arrangement information, Attachment 6: Capital expenditure,* June 2015, p. 51.

the ACT facilities compliance program.[115] In its revised proposal, ActewAGL has more than doubled its proposed capex for the program from $1.4 million to $3.1 million ($2015–16). We did not accept capex for this program in the draft decision as we did not consider the proposed costs were conforming capex under rule 79 of the NGR. We continue to hold this position in our final decision.

ActewAGL also submitted that in the draft decision we removed $20,000 in costs associated with ActewAGL funded relocation projects.[116] Upon reconsidering the material in support of the inclusion of these costs in this final decision,[117] we have reinstated the $20,000 we erroneously removed in the draft decision.

6.4.2.5 ACT facilities compliance program

We have not included ActewAGL's revised capex forecast of $3.1 million ($2015–16) for a facilities compliance program for the 2016-21 access arrangement period.[118] We are not satisfied that ActewAGL has demonstrated that the proposed expenditure is conforming capex under rule 79 of the NGR. This position is consistent with the advice of Sleeman Consulting.

ActewAGL proposed this program on the basis that Jemena Asset Management identified electrical non–conformances on Jemena's NSW gas network and it anticipated that similar non–conformances would be identified on ActewAGL's network. ActewAGL submitted that the objective of this project is to deliver electrically and mechanically compliant facilities by assessing non-conformances, revising existing station design documentation, procuring new hardware (as required), and implementing a revised design.[119]

In the draft decision, we did not accept ActewAGL's capex of $1.4 million ($2015–16) for this program. We did not consider that instances of non–conformance on one gas distribution system meant that non–conformances also exist on another network.[120]

In its revised proposal, ActewAGL submitted that it has since undertaken electrical and instrumentation audits at four sites which confirm that the facilities compliance program is required. ActewAGL also increased its forecast for the program from $1.4 million to $3.1 million ($2015–16), noting that the updated costs reflect the outcome of the audit

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115 ActewAGL, *Response to the AER's draft decision,* January 2016, pp. 62–64.

116 ActewAGL, *Response to the AER's draft decision,* January 2016, p. 65.

117 ActewAGL provided two historical examples where infrastructure was required to be relocated and the costs could not be recovered from third parties. ActewAGL, *Response to AER information request 007,* 22 July 2015, pp. 1–2.

118 ActewAGL forecast $0.4 million of this expenditure to be incurred over 2015–16, with the remainder to be incurred in the 2016–21 access arrangement period.

119 Jemena, *Opportunity brief, Facilities compliance upgrade program,* 13 March 2015, p. 1.

120 AER, *Draft decision, ActewAGL Distribution 2016 to 2021, Attachment 6: Capital expenditure,* November 2015, p. 6-37.

reports.[121] It also provided further information in response to our information requests.[122]

Prudency of the program

ActewAGL stated that regulatory compliance requirements in terms of Acts and Standards have significantly changed since each of the affected facilities were built or upgraded.[123] Sleeman Consulting observed that the key standards referenced[124] by ActewAGL are those that form the AS/NZS 60079 series, relating to the use of electrical apparatus in explosive atmospheres. These standards have been in force for more than six years since 2009.[125]

We consider that since these compliance requirements have been in place for the last six years, a prudent operator should have addressed non-conformances as they arose. In particular, Sleeman Consulting observed that the majority of the suggested non-conformances appear to relate to matters that a reasonable and prudent operator should attend to in the normal course of business.[126] Some of these non-conformances that should have been dealt with include maintaining documents such as inspection sheets, hazardous area documentation, equipment identification and installation documentation, and non–conformance registers.

In situations where there is a potential threat to staff or possibility of loss of containment as suggested by ActewAGL,[127] we consider that a prudent service provider would rectify non–conformances as a matter of priority. We note Sleeman Consulting advised that it is unlikely that ActewAGL would allow operations to be non–compliant for an extended period. In the case of lightning protection systems, Sleeman Consulting noted that the relevant standard[128] has been in place since 2007, and in any case, the standard is non–mandatory.

We also note that ActewAGL is required to report to the Independent Competition and Regulatory Commission each year on compliance with the Utilities Act, industry and technical codes and any other licence requirements.[129] ActewAGL has not reported

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121 ActewAGL, *Response to the AER's draft decision,* January 2016, p. 64.

122 ActewAGL, *Response to AER information request 045*, 4 February 2016.

123 Jemena, *Gungahlin PRS electrical and instrumentation holistic audit,* 10 December 2015, p. 4; Jemena, *Bungendore POTS electrical and instrumentation holistic audit,* 10 December 2015, p. 4; Jemena, *Hoskinstown CTS electrical and instrumentation holistic audit,* 10 December 2015, p. 4; Jemena, *Watson PRS electrical and instrumentation holistic audit,* 10 December 2015, p. 4.

124 See section 1.3 of Gungahlin PRS Electrical and Instrumentation Holistic audit (confidential).

125 Sleeman Consulting, *ActewAGL access arrangement 2016–21: Comments on ActewAGL response to the AER's draft decision*, March 2016, pp. 7–8.

126 Sleeman Consulting, *ActewAGL access arrangement 2016–21: Comments on ActewAGL response to the AER's draft decision*, March 2016, p. 8.

127 ActewAGL, *Response to AER information request 045* [email to AER], 4 February 2016, p. 5.

128 AS/NZS 1768:2007 'Lightning Protection' was introduced in 2007, to replace AS/NZS 1768:2003.

129 Under the *Utilities Act 2000* (ACT) and the *Gas Supply Act 1996* (NSW).

any known breaches of any licence or authorisation requirements.[130] This indicates that the non–conformances which ActewAGL's proposed capex is intended to rectify is not justified under rule 79(2) of the NGR.

Efficiency of the program

We consider that the proposed capex for the program is not efficient. Having regard to Sleeman Consulting's advice, we consider that the cost estimate is excessive. In particular, when the scope of work was reduced from seven to five facilities, it does not seem reasonable that estimated project costs should have more than doubled between ActewAGL's initial proposal and revised proposal.[131] This is particularly so in light of ActewAGL's submission that the non-conformances identified by the holistic audits are identical to those identified in similar audits by JGN of its network.[132]

It also appears that ActewAGL has not undertaken an analysis of how it can coordinate the program with other works to potentially reduce costs. In the draft decision we noted that major works are separately proposed for the Hoskinstown CTS and, if compliance work did actually prove necessary at this site, it would be prudent for the various programs of work to be coordinated.[133] ActewAGL did not respond to this comment in its revised proposal or in its responses to subsequent information requests. Similarly, while ActewAGL now intends on applying its facilities compliance program to its Watson facility,[134] it has not considered the option of coordinating work programs in costing this program. Sleeman Consulting noted that this facility is also due to undergo a major upgrade which presents an opportunity for coordination of work programs.[135]

6.4.2.6 Meter renewal and upgrade

Meter renewal and upgrade expenditure relates to the replacement of meters and associated equipment as it reaches the end of its economic life (or is found to be defective). This is to ensure the safety of customers and accurate customer billing.[136] In this final decision we have accepted ActewAGL's revised proposed meter renewal capex amount of $13.7 million ($2015–16, unescalated).

In the draft decision we reduced ActewAGL's proposed meter renewal and upgrade capex by $0.4 million. This was driven by a reduction in the unit rate for hot water

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130 Sleeman Consulting, *ActewAGL access arrangement 2016–21: Comments on ActewAGL response to the AER's draft decision*, March 2016, p. 8.

131 Sleeman Consulting, *ActewAGL access arrangement 2016–21: Comments on ActewAGL response to the AER's draft decision*, March 2016, pp. 8–9.

132 ActewAGL Distribution, ***Response to the AER's Draft Decision***, January 2016, p. 64..

133 AER, *Draft decision, ActewAGL Distribution 2016 to 2021, Attachment 6: Capital expenditure,* November 2015, p. 37.

134 Jemena, *Project estimating model, Summary page,* December 2015.

135 Sleeman Consulting, *ActewAGL access arrangement 2016–21: Comments on ActewAGL response to the AER's draft decision*, March 2016, p. 9.

136 ActewAGL, *2016–21 Access Arrangement Information*, June 2015, ActewAGL Distribution AAI_Attachment 6 Capital expenditure.pdf, p. 52.

meters. We were not satisfied that ActewAGL's proposed unit rates complied with rule 79(1)(a) of the NER. As discussed earlier in this attachment, after further consideration of the information provided by ActewAGL as part of its revised proposal, we now consider that ActewAGL's proposed hot water meter unit rate is reasonable.