ActewAGL
Access Arrangement 2016-21
ACT, Queanbeyan and Palerang

Review of Capex Forecasts
for
Selected Projects

Report
to
Australian Energy Regulator
by
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Contents

Page

1 BACKGROUND

1.1 ActewAGL Distribution (**AAD**) has submitted to the Australian Energy Regulator (**AER**) proposed terms for access to the ACT, Queanbeyan and Palerang Gas Distribution Network (**Network**) for the period 2016/17 to 2020/21.

1.2 I have been asked by the AER to review capital expenditure (**Capex**) forecasts for selected projects included by AAD in its plans for the Network over the period 2016/17 to 2020/21.

1.3 The objective of the review is to ascertain whether the proposed Capex is prudent and efficient and, if necessary, make recommendations regarding the level of Capex that might be prudent and efficient. To be allowable for tariff setting purposes, Capex 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.

1.4 My review, and my recommendations to the AER regarding prudent and efficient Capex, are set out in the following sections of this Report.

2 CAPACITY DEVELOPMENT CAPEX

2.1 Molongo Primary Extension Stage 1

2.1.1 The AER has requested that, in reviewing the Molonglo Primary Extension Stage 1, I consider whether the primary extension is required for "augmentation" reasons.

2.1.2 AAD proposes[1] to install 3.5 km of 250 mm nominal diameter primary main and 500 m of 100 mm nominal diameter secondary main to reinforce gas supply, particularly for the Molonglo land development. The primary main will be operated at secondary pressure until subsequent network development allows its operating pressure to be raised to primary level.

2.1.3 AAD proposes to progressively extend the primary main as development of the Molonglo housing area proceeds. AAD states[2] that "*a primary extension terminating in a PRS will ultimately be required to ensure supply to a fully developed housing area* [ie, Molonglo]"

2.1.4 In paragraphs 2.2.5 to 2.2.7 of this Report I set out information relating to the Molonglo land development. By 2020, there will be 4,000 sites available in Wright and Coombs Estates and 2,000 sites (of which 1,000 are medium to high density) available in stage 1 of Denman Prospect Estate. This gives a potential 6,000 dwellings. Of course, not all dwellings will necessarily have been developed, nor will those that are developed necessarily elect to use natural gas. It is presently unclear whether, or to what extent, stages 2 or 3 of Denman Prospect Estate may be underway by 2020.

2.1.5 ActewAGL has estimated the winter peak load in the new Molonglo Valley estate to be 5,061 m^3/h in 2020[3]. I consider this estimate to be marginally high but not unrealistic, especially should the stage 2 development of Denman Prospect have commenced.

2.1.6 ActewAGL has provided winter 2020 pressure performance modeling for the secondary network servicing Molonglo[4]. Contrary to the estimate set out in paragraph 2.1.5 above, the network pressure modeling is based upon [redacted] I therefore consider the modeling conclusions to be invalid.

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1 ActewAGL Distribution, "Attachment 6.03: Capacity Management Strategy, 2015 - 2033", p. 42. I note that differing lengths of primary main installation are quoted in other AAD documents.

2 ActewAGL Distribution, "Attachment 6.07.4: Canberra High Pressure Network, Capacity Assessment, 2013 – 2033", 24 June 2015, p. 33.

3 ActewAGL Distribution, "Attachment 6.07.4: Canberra High Pressure Network, Capacity Assessment, 2013 – 2033, Table 4-2, p. 16.

4 Appendix 1 to "AER ActewAGL 003 - Opportunity Brief Cost Estimates", 20 July 2015, p.6 (confidential).

2.1.7 I recommend completion of the Molonglo Primary Extension Stage 1 is not required in the period to 2020/21.

2.1.8 If and when the Molonglo Primary Extension is required, consideration should have been and should still be given to alternative and potentially more optimal approaches that do not necessitate significant extensions of both the primary and secondary systems. For example, consideration could have been given to designing and constructing the Molongo Secondary Extensions to have capability for upgrading of their operating pressure, potentially to primary level, thereby avoiding the need for parallel extensions.

2.1.9 By way of further observation of potential relevance to the AER's deliberations, I note that ActewAGL envisages[5] "…*the primary main will form a loop around Canberra…the significant benefit* [of which] *will be the creation of security of supply in the event of a rupture*". If development of a primary loop around Canberra is a reason for undertaking the Molonglo Secondary and Primary Extensions in the manner proposed by ActewAGL, then it would be prudent to quantify the purported security of gas supply benefit to ensure the proposed approach is justified from an overall perspective. It is not presently clear that the proposed approach represents the optimal way of meeting the gas requirements of the Molonglo land development.

[5] ActewAGL Distribution, "Attachment 6.03: Capacity Management Strategy, 2015 - 2033", paragraph 9.2.2, p. 41.

2.2 Molongo Secondary Extension Stage 2

2.2.1 AAD is in the process of installing the Molonglo Secondary Extension Stage 1, comprising [redacted] The overall cost of this project is approximately $5.56m[7].

2.2.2 AAD proposes to install the Molonglo Secondary Extension Stage 2, [redacted] at a total cost of $3.66m ($2015–16, direct costs)[9].

2.2.3 AAD further proposes to install the Molonglo Secondary Extension Stage 3, comprising [redacted] This proposed timing of this installation is largely beyond the next access arrangement period.[11]

2.2.4 The AER has requested specific consideration be given to Molonglo Secondary Extension Stage 2. My observations follow.

2.2.5 The Molonglo Secondary Extension Stage 2 is required to meet gas requirements of the second stage of development of the Molonglo land subdivision. The second stage of land development at Molonglo (the Denman Prospect Estate) will itself be staged. There will be 4 stages, as follows:[12]

- Stage 1A: 400 dwellings
- Stage 1B: 1,600 dwellings (including 1,000 medium to high density)
- Stage 2: 1,200 dwellings
- Stage 3: 1,000 dwellings

2.2.6 A developer for stages 1A and 1B has only recently been announced[13], following an unsuccessful 2013 attempt by Government to secure a developer, followed by a period when Government considered carrying

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6 ActewAGL, "AER ActewAGL 022 – Capital Works Authorisation – Molonglo Secondary Extension Stage 1" (Confidential).

7 ActewAGL, 2016-21 – PUBLIC Gas Reset RIN MASTER FINAL_revised – July 2015", page "Augmentation growth capacity". Real June 2016 dollars.

8 ActewAGL, Opportunity Brief C414-43 "Molonglo Secondary Extension Stage 2 – Gate 1 Certificate", July 2015.

9 ActewAGL, "Attachment 6.07.4: Canberra High Pressure Network, Capacity Assessment, 2013 – 2033, Table 5-9, p. 30; ActewAGL, 2016-21 – PUBLIC Gas Reset RIN MASTER FINAL_revised – July 2015", page "Augmentation growth capacity".

10 ActewAGL, Opportunity Brief C414-46 "Molonglo Secondary Ext Stage 3 CDP", July 2015, p. 1 (Confidential).

11 ActewAGL, 2016-21 – PUBLIC Gas Reset RIN MASTER FINAL_revised – July 2015", page "Augmentation growth capacity".

12 http://www.lda.act.gov.au/molonglo/denman-prospect

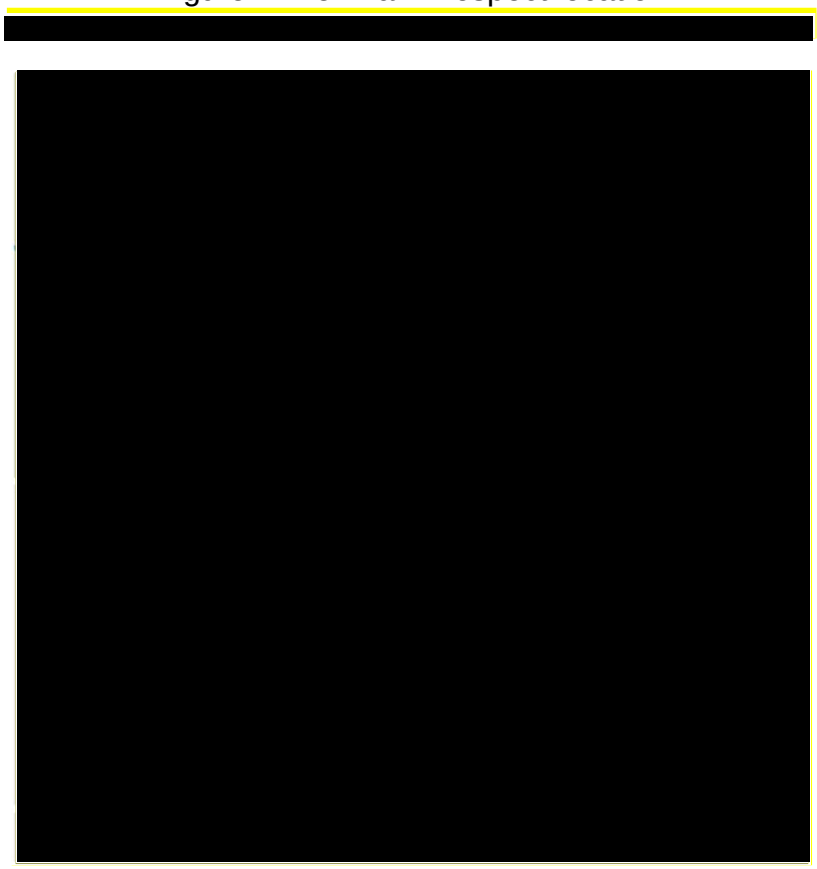
13 ACT Land Development Agency, 28 July 2015. Refer to www.lda.act.gov.au

out the development itself. No commitment has yet been made to development of stages 2 and 3.

2.2.7 Stage 1A of the Molonglo land development will become progressively available over the next 12 months, with first residents potentially established by the end of 2016. It is proposed development of Stage 1B will be fast-tracked and progressively available for occupation until around mid 2018.

2.2.8 As shown in Figure 1 below, the stage 1A and 1B Molonglo land developments are immediately to the north of the District Regulator Set to be installed by AAD as part of the Molonglo Secondary Extension Stage 1. This regulator will be capable of supplying gas into the initial stages of development of Denman Prospect.

Figure 1: Denman Prospect location



2.2.9 In my opinion the Molonglo Secondary Extension Stage 2 will not be required in the timeframe proposed by AAD (that is, [redacted][14]) and is unlikely to need to be completed during the period to 2020/21.

[14] Opportunity Brief C414-34, "Molonglo Secondary Ext Stage 2 CDP", p.1.

2.3 West Belconnen Secondary Extension, Stockdill Drive

2.3.1 AAD is proposing the following secondary main developments to service future new estate developments in the West Belconnen area[15]:

- Stage 1 – installation by 2017 of 3.0 km of 200 mm nominal diameter secondary main (along Stockdill Drive) and a regulator set.

- Stage 2 – installation by 2031 of 3.0 km of 200 mm nominal diameter secondary main (along Southern Cross Drive, west of Spofforth St) and a regulator set.

- Stage 3 – installation by 2033 of 3.0 km of 200 mm nominal diameter secondary main (along Southern Cross Drive, east of Spofforth St) and a regulator set.

2.3.2 While there is inconsistency in referencing[16] of the abovementioned developments, on the basis of available information regarding development of West Belconnen[17], extension of the secondary network along Stockdill Drive is presently the logical first stage of network extension.

2.3.3 Development of the West Belconnen housing estate should commence by early 2017, provided a requisite Territory Plan variation is approved and gazetted by the end of 2015[18]. The Territory Plan variation process is underway, with a public submission period closed on 6 July 2015[19].

2.3.4 Modeling[20] provided by ActewAGL demonstrates, and I agree, that development of the West Belconnen Secondary Extension Stage 1 (Stockdill Drive) will be necessary early in the development of West Belconnen.

2.3.5 With construction of the West Belconnen estate not scheduled to commence until the beginning of 2017, and allowing time for subsequent development of dwellings, I consider the West Belconnen Secondary Extension Stage 1 (Stockdill Drive) will, at earliest, not be required until winter 2018. I recommend the timing of the project be adjusted for completion by winter 2018. I note that this timing requirement will slip if estate or dwelling development is delayed.

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15 ActewAGL Distribution, "Attachment 6.07.4: Canberra High Pressure Network, Capacity Assessment, 2013 – 2033", 24 June 2015, paragraphs 5.6.2, 5.13.2 and 5.14.3.

16 For example: ActewAGL, 2016-21 – PUBLIC Gas Reset RIN MASTER FINAL_revised – July 2015", page "Augmentation growth capacity", provides for Stage 2 (Southern Cross Drive West) being completed by 2018 with work on stage 1 (Stockdill Drive) commencing in 2020/21; and Opportunity Brief C414-43 "West Belconnen Secondary Ext Stage 1 CDP" (Confidential) [redacted]

17 In particular, refer to the website of the ACT Land Development Agency.

18 See www.talkwestbelconnen.com.au/qa/

19 "Planning and Development (Draft Variation No 351) Consultation Notice 2015".

20 ActewAGL, "AER ActewAGL 003 - Appendix 1" (confidential), p. 12.

2.3.6 AAD estimates the cost of the West Belconnen Secondary Extension Stage 1 (Stockdill Drive) to be $3.5m ($2015–16, direct costs)[21]. I consider this estimate to be reasonable.

2.3.7 In consideration of the above it will be necessary to make at least the following corrections to the ActewAGL 2016-21 Gas Reset RIN:

- Rows 748 to 769 should be corrected to reflect that first stage of West Belconnen Secondary Main Extension is on Stockdill Drive, (not Southern Cross Drive). That is, no dollar amounts should appear in rows 748 to 758, columns Q to T.

- Dollar amounts for development of the West Belconnen Secondary Main Extension along Stockdill Drive should correspond to the estimate set out in paragraph 2.3.6 above and timed to reflect project completion by winter 2018. There should be no amounts in column W, rows 759 to 769.

[21] ActewAGL, 2016-21 – PUBLIC Gas Reset RIN MASTER FINAL_revised – July 2015", page "Augmentation growth capacity".

3 NETWORK RENEWAL AND UPGRADE CAPEX

3.1 Inlet Piping Rectification (OB C462-154)

3.1.1 AAD has identified [redacted].

3.1.2 [redacted] is prudent [redacted]

3.1.3 AAN has provided a detailed review[22], and cost estimate, of work required [redacted] I consider these Capex estimates to be reasonable. They are based upon detailed review of work requirements and options.

3.1.4 [redacted].

3.1.5 AAN has budgeted [redacted]

3.1.6 [redacted]

3.1.7 [redacted] is reasonable.

[22] Sellick Consultants Pty Ltd, Draft report: Gas service upgrade for major shopping centres in ACT", 30 January 2015. CONFIDENTIAL

[23] [redacted]

3.2 Watson CTS Pressure Limiting Station (OB C424-146)

3.2.1 Gas enters the Network at two supply points, namely Watson, from the Moomba to Sydney Pipeline, and Fyshwick, from the Eastern Gas Pipeline.

3.2.2 It is standard practice in such a circumstance to have one supply point operate on pressure control, with the other supply point operating on flow control and being the main source of gas supply.

3.2.3 Historically, the Fyshwick supply point has operated on pressure control and the main source of gas supply into the Network has been via Watson, from the Moomba to Sydney Pipeline.

3.2.4 AAN has advised that the principal user of the Network intends in future to source gas primarily via Fyshwick, from the Eastern Gas Pipeline[24] and that this necessitates installation of pressure control facilities at the Watson supply point.

3.2.5 I accept that, for Fyshwick to operate as the principal source of gas supply into the Network, pressure control facilities will be required at the Watson supply point. Installation of such facilities is therefore prudent.

3.2.6 AAN has estimated the cost of designing and installing pressure control facilities at the Watson delivery point to be $1.92m. AAN's cost estimate is based upon the cost estimate prepared for the Coolamon POTS Upgrade, a copy of which has been provided[25].

3.2.7 I note that the scope of work for the Coolamon POTS Upgrade exceeded that required at the Watson CTS. The Coolamon POTS Upgrade included installation of a water-bath heater in addition to installation of a pressure control valve.

3.2.8 In response to a request for further information on forecast Capex, AAN has provided[26] a preliminary breakdown of costs for installation of a pressure control facilities at the Watson CTS. The provision for contractor costs represents in excess of [redacted] of the total forecast costs, or around [redacted] of direct costs (after deduction of project labour costs). The contractor cost provision appears overly generous as, when compared to other projects (such as Hoskinstown CTS Upgrade), it represents too great a portion of project costs.

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24 This corresponds with public announcements by AGL Energy Limited that, from January 2018, it will source gas from Bass Strait.

25 "Opportunity Brief: Riverina POTS Upgrade", 17 May, 2013.

26 "AER ActewAGL 036 – Metering and network renewal capex", provides estimated costs for project labour, materials and contractor.

3.2.9 The total estimated cost of the Watson CTS project is also high relative to that of the Hoskinstown CTS Upgrade, discussed in section 6 below, which has a more extensive scope of work, including metering and associated facilities as well as filtration and flow control.

3.2.10 I consider the contractor cost provision should be reduced by at least [redacted] so that it represents an appropriate proportion of total project costs. This will reduce the estimated total cost of installing the pressure control facilities from $1.92m to $1.32m. I consider this lower estimate to be reasonable.

3.3 Canberra Primary Main Integrity Digs (OB C462-163)

3.3.1 AAD proposes to carry out five ‘integrity digs’ along the Canberra Primary Main over the period 2017/18 to 2020/21, following completion in 2015/16 of an inline inspection of the main. An integrity dig involves excavation of the pipeline to allow inspection of coating and pipeline condition and, if necessary, completion of repair work.

3.3.2 I accept that integrity digs are prudent and, following an inline inspection programme, necessary to investigate anomalies and verify the accuracy of inline inspection results.

3.3.3 AAN has provided for five integrity digs at a cost of $0.3m per dig. I consider this cost estimate to be reasonable and efficient, recognising the need for manual excavation in vicinity of the high pressure pipeline, traffic management and post-dig restoration works.

3.4 ACT Facilities Compliance Upgrade Programme (OB C424-143)

3.4.1 AAD proposes to undertake a 'Facilities Compliance Upgrade Programme' at seven locations within the Network. In essence, the programme involves assessment of electrical and mechanical non-conformances (if any) and then (as appropriate) revision of design documentation, procurement of new hardware and implementation of the new design.

3.4.2 [redacted]

3.4.3 I do not consider adequate justification has been provided for the proposed Facilities Compliance Upgrade Programme. It would be appropriate to review existing facilities documentation and undertake preliminary site reviews (in the course of routine site visits) before committing to a comprehensive programme of upgrade works, purely because some instances on non-conformance were found on another gas distribution system.

3.4.4 Further, I note that major works are separately proposed for the Hoskinstown CTS and the Fyshwick Trunk Receiving Station. If compliance upgrade work did prove to be necessary at these locations it would be prudent for the various programmes of work to be coordinated.

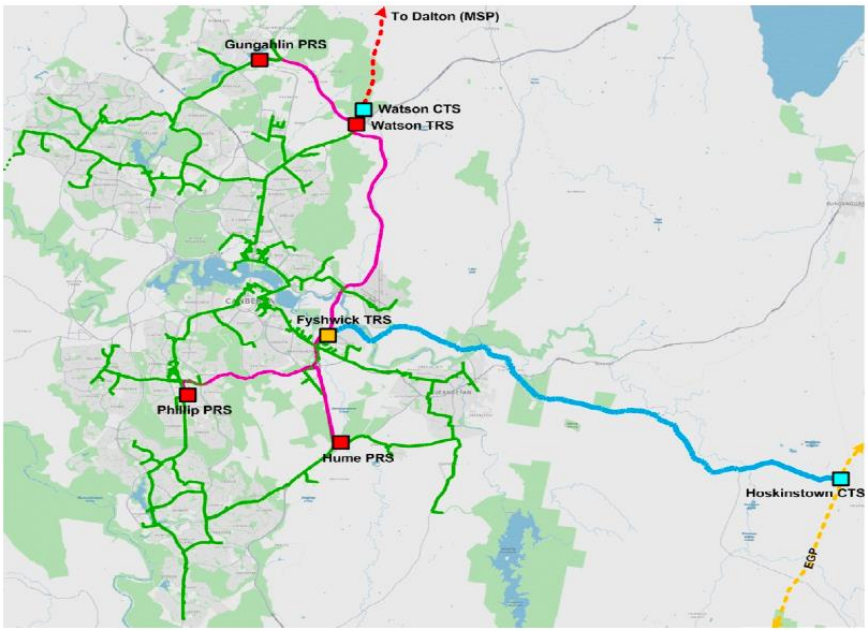
3.4.5 I consider the proposed programme of work is not efficient.

[27] ActewAGL, Opportunity Brief: Facilities compliance upgrade program (C424-143), March 2015, p. 1 (confidential).

3.5 Hoskinstown CTS Upgrade (OB C424-141)

3.5.1 Gas entering the Network via Fyshwick flows through the ActewAGL owned Hoskinstown to Fyshwick pipeline, which is shown in blue in Figure 2 below.

Figure 2: ActewAGL Owned Transmission, Primary and Secondary Pipelines



3.5.2 As per the discussion in Section 3.2 of this Report, Fyshwick is going to become the primary point of entry of gas into the Network.

3.5.3 At present, the Hoskinstown Custody Transfer Station (**CTS**) has only one metering and flow control run. AAN proposes to upgrade the Hoskinstown CTS to incorporate duplicate runs.

3.5.4 I accept that, as the principal source of gas supply for the Network, the Hoskinstown CTS should incorporate duplicate runs. This will ensure continuity of gas supply in the event of a component failure and is, in my opinion, consistent with good industry practice.

3.5.5 APA has provided a reasonably comprehensive overview of the proposed upgrade of the Hoskinstown CTS[28] and, in response to a request for further information, has also clarified[29] the composition of the estimated cost of the upgrade. The cost components are reasonable for the scope of work to be undertaken.

3.5.6 I consider Capex associated with upgrading of the Hoskinstown CTS to be reasonable, prudent and efficient.

[28] See Opportunity Brief C424-121 "Hoskinstown CTS Upgrade".
[29] "AER ActewAGL 036 – Metering and network renewal capex".

4 CONCLUSIONS

4.1 The table on the following page provides a summary of my findings as set out in sections 2 and 3 of this Report.

Summary of Findings

Capex driver	Project	Comment	Capex Impact
Capacity development	Molonglo Primary Extension Stage 1	• Project is not required in period to 2020/21	$8.22m reduction (real June 2016 terms, direct costs)
	Molonglo Secondary Extension Stage 2	• Stage 2 Extension is not required in period to 2020/21.	$3.66m reduction (real June 2016 terms, direct costs)
	West Belconnen Secondary Extension Stage 1	• Clarify that Stage 1 Extension is along Stockdill Drive. • Project is prudent but timing should be slipped by 1 year for completion by winter 2018. • Project cost estimate of $3.5m (real June 2016 terms, direct costs) is considered reasonable.	Delay only (subject to confirmation that correct Capex estimate has been utilised).
Network renewal & upgrade	Inlet Piping Rectification	• Proposed Capex is reasonable, prudent and efficient.	No impact
	Watson CTS Pressure Limiting Station	• Provision for contractor costs is generous and should be reduced.	$0.6m reduction (real June 2016 terms, direct costs)
	Canberra Primary Main Integrity Digs	• Proposed Capex is reasonable, prudent and efficient.	No impact
	ACT Facilities Compliance Upgrade Program	• Need for project is not demonstrated • Proposed Capex is not efficient.	$1.4357m reduction
	Hoskinstown CTS Upgrade	• Proposed Capex is reasonable, prudent and efficient.	No impact