Supporting Information

Capital expenditure in the Current Access Arrangement Period

Responses to the 2021 to 2026 Access Arrangement Regulatory Information Notice

July 2020

Australian Gas Networks

Capital expenditure in the Current Access Arrangement Period

Supporting Information

This document has been prepared to respond the following clause in the Regulatory Information Notice (RIN):

3.1 Explain in the materials submitted to the *AER*:

(a) in terms of the nature of the work undertaken (scope, scale or other deviation from proposed works), the volume and the cost (deviation in unit rates), any *material difference* for each *capital expenditure purpose* between:

(i) the *capital expenditure* approved by the *AER* and the actual and/or estimated *capital expenditure* for the *current access arrangement period*; and

(ii) the *capital expenditure* proposed by the *pipeline service provider* and the actual and/or estimated *capital expenditure* for the *current access arrangement period*.

Requirement 3.3 (a) (i) variations to approved capital expenditure

Table 1: Variations to Approved Nominal Net Capital Expenditure by purpose ($ million nominal)

Variance	2016-17	2017-18	2018-19	2019-20	2020-21	Total	Per cent
E5. Connections	6.962	7.450	5.314	0.607	27.894	48.227	50%
E3. Mains augmentation	-0.027	2.224	1.988	-8.230	-1.709	-5.753	-34%
E2. Mains replacement	-20.453	-3.744	-8.781	-8.164	-6.393	-47.535	-15%
E6. Telemetry	-0.141	-0.254	-0.041	-0.139	0.315	-0.260	-21%
E4. Meter replacement	0.986	0.206	1.479	0.163	0.662	3.496	19%
E12. ICT	-8.718	-15.012	-10.485	-0.375	14.504	-20.086	-33%
E10. Capitalised network overheads	-1.958	-3.060	-3.005	-2.910	-1.152	-12.084	-21%
E10. Capitalised corporate overheads	0.000	0.000	0.000	0.000	0.000	0.000	NA
E13. Other	-2.547	-3.803	-4.739	-4.714	2.683	-13.120	-32%
Total	**-25.895**	**-15.992**	**-18.270**	**-23.762**	**36.804**	**-47.114**	-8%
Total Ex OH	**-23.938**	**-12.932**	**-15.265**	**-20.852**	**37.956**	**-35.030**	-6%
Actuals	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**Total**	
E5. Connections	24.627	24.606	24.074	20.921	49.506	143.735	
E3. Mains augmentation	0.619	2.769	3.660	2.506	1.519	11.072	
E2. Mains replacement	43.312	50.565	54.536	58.535	55.167	262.114	
E6. Telemetry	0.182	0.003	0.189	0.107	0.481	0.961	
E4. Meter replacement	5.382	4.518	5.516	3.477	3.337	22.231	
E12. ICT	0.768	3.386	5.065	8.805	22.972	40.997	
E10. Capitalised network overheads	9.011	9.209	8.878	9.265	10.196	46.559	
E10. Capitalised corporate overheads	0.000	0.000	0.000	0.000	0.000	0.000	
E13. Other	5.670	4.157	3.471	3.623	11.066	27.987	
Total	**89.572**	**99.213**	**105.389**	**107.239**	**154.245**	**555.657**	
Total Ex OH	**80.561**	**90.004**	**96.511**	**97.974**	**144.049**	**509.098**	
Benchmark	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**Total**	
E5. Connections	17.665	17.156	18.761	20.314	21.613	95.508	
E3. Mains augmentation	0.645	0.545	1.672	10.735	3.227	16.825	
E2. Mains replacement	63.765	54.308	63.317	66.699	61.559	309.649	
E6. Telemetry	0.323	0.256	0.229	0.246	0.166	1.221	
E4. Meter replacement	4.396	4.312	4.038	3.314	2.675	18.735	
E12. ICT	9.486	18.398	15.549	9.180	8.469	61.082	
E10. Capitalised network overheads	10.968	12.268	11.883	12.175	11.348	58.643	
E10. Capitalised corporate overheads	0.000	0.000	0.000	0.000	0.000	0.000	
E13. Other	8.217	7.960	8.209	8.337	8.384	41.107	
Total	**115.467**	**115.204**	**123.659**	**131.001**	**117.440**	**602.772**	
Total Ex OH	**104.499**	**102.936**	**111.776**	**118.826**	**106.093**	**544.128**	

Positive variations signify overspending.

E5. Connections

New connections overspend to date has mainly been driven by higher than expected residential housing developments. Major new and continuing developments include Springwood, Gawler East, Roseworthy, Seaford and Aldinga Heights.

New residential connections are forecast to decline the by the end of 2020 financial year (FY), in line with recent HIA reporting, before picking up slightly in the final year of the Access Arrangement (AA) Period. By AA end residential connections are forecast to be above the benchmark by 13 per cent, while industrial and commercial is forecast to be above by 32 per cent.

Unit rates continue to trend higher on account of:

- new developments requiring additional large diameter polyethylene mains which drive up average unit rates;
- from June 2019 higher contractor rates on new mains to established urban areas close to the Adelaide CBD which are more expensive due to delivery complexities such as traffic and managing supply interruptions;
- introduction of new meter installation and meter location standards which require meter bars and brackets to be installed to remove potential stress on fittings and affect the selection of meter location in the customer property, increasing the cost of materials and labour involved when connecting new services to existing homes; and
- we have seen increasing complexity, and hence cost, as the pool of existing homes available for connection reduces.

The final year of the AA also includes around $28 million for the Mount Barker connection which was not anticipated in the approved capex benchmark.

E3. Mains Augmentation

The approved benchmark includes around $8 million to replace 5 kilometres of metal transmission pipeline (SA21 Southern Transmission Pipeline) in 2018/19 or 2019/20. This is not being undertaken as augmentation expenditure in this AA, but instead is forecast to incur just over $3 million in other capex in the last two years of the AA.

E2. Mains Replacement

The total volume of mains replaced to date tracks to the benchmark closely. Actual mains replaced are forecast to meet benchmark volumes, replacing 1,059 km (including 18 km of decommissioned mains and 6.8 km of piecemeal) by the end of the AA.

Virtually all underspend has therefore been on account of lower unit rates. In particular trunk mains replacement has saved from 50 to 70 per cent on annual unit rates per meter. High density polyethylene (HDPE) 250 has saved from 16 to 21 per cent on annual unit rates per meter.

Generally a less expensive mix of work has been undertaken to date. The more expensive CBD and multi-service work was deferred while block mains replacement was bought forward to the first year awaiting the outcome of a regulatory decision for HDPE

replacement. CBD block work deferred commenced later at favourable rates saving around 37% on annual unit rates per meter.

Forecasts for CBD block volumes are higher than benchmark in FY 2020 and 2021. Some reactive multi-service work is also scheduled for 2020 and 2021. The AA target volumes will mainly be met with HDPE 250, 575 and block replacement.

E6. Non-network (Telemetry)

Telemetry projects are forecast to go ahead with a small underspend to benchmark ($260,000) for the AA which is 21 per cent of its benchmark.

The lower expenditure is a trend carried on from the last AA reflecting increased penetration of telemetry on industrial meters reducing the need for telemetry on nearby parts of the network. This is because the required pressure readings can be taken from the telemetry on these industrial meters instead. Telemetry installation costs on these industrial meters are lower than on specific distribution sites such as Regulators and Valves.

E4. Meter Replacement

Volumes are forecast to decline in line with benchmark and will finish slightly below, but within 10 per cent of the approved total volumes.

The overspending to benchmark has and will therefore been driven by higher than expected unit rates on meters which will continue through to AA end.

The main driver is the mix between (more expensive) new and (less expensive) refurbished meters has moved more toward new meters. This is due to less refurbished meters being available resulting in a more expensive mix of meters being installed over the past three years.

Additionally, new meter fitting/replacement contracts commenced in mid-2019, which had a higher rate due to extra ancillary work such as replacing or sealing meter boxes and changing regulators now being undertaken at the same time as the periodic meter replacement. It is more efficient, both in direct and administrative costs, to address these issues during periodic meter replacement than reactively/piecemeal.

E12. Information and Communication Technology (ICT)

The underspending on ICT results from the deferral of major projects. This includes the Geospatial Information System (GIS), Mobility Integration and Business Intelligence. They were deferred because more customer-critical systems such as Maximo upgrade and Metering and Billing consolidation projects took priority.

The projects, together with Applications Renewal will spend around $34 million of the $56 million approved. Again, this is partly a result of the prioritisation, but also efficiencies from consolidating service providers, negotiating better rates and reducing the number of upgrades compared to forecast while maintaining systems integrity.

By AA end, GIS is forecast to have completed major upgrades and Mobility Integration completed a field project bringing its total within 10 per cent of benchmark. Applications Renewal will begin as a new project in the next AA incorporating learnings and efficiencies of the current AA.

E10. Capitalised network overheads

Capitalised overheads are lower than benchmark coming in at around 8.7 per cent of costs compared to the benchmark annual average of 10.8 per cent. Almost all of the variance is associated with actual overheads allocated to mains replacement. Over the AA these are around $26 million compared to the benchmark of around $38 million.

E13. Other

Regulator capex is forecast to underspend the approved benchmark by around $5.5 million.

Within regulator capex, Industrial and Commercial Meter Set Refurbishment SA08 underspent the $1.8 million proposal by around $750,000. Project SA22 was approved to replace 15 below district regulator stations (DRS) at a cost of around $5 million. However alternative cost-efficient options were implemented avoiding the need to replace around 10 DRS.

Also within Regulator and Valve capex, Business case SA33, endorsed expenditure of $2 million on replacing 24 non-compliant Industrial and Commercial (I&C) meter sets based on a survey of 15 units. Replacement of around 7 to 10 units will materialise or around 14 to 17 units less than forecast based on the sample of 15 units.

Mains alterations and relocations not included in the benchmark were largely offset by contributions made within the period, however AGN will have funded around $800,000 of this type of expenditure within the AA.

Other distribution capex underspent by around $6.1 million. Around $3.4 million of this underspend falls within the HDPE live camera inspection and repairs project (SA52). This was because around 70 per cent of the approved kilometres were undertaken due to delivery constraints. Remaining inspections will continue into next AA.

Non-distribution plant and equipment underspent by around $2.2 million due to in house sourcing of vehicles not materialising as planned.

Requirement 3.3 (a) (ii) variations to proposed capital expenditure

Table 2: Variations to Proposed Nominal Net Capital Expenditure by purpose ($million nominal)

Variance	2016-17	2017-18	2018-19	2019-20	2020-21	Total	Per cent
E5. Connections	5.014	4.319	2.527	-7.742	26.490	30.609	27%
E3. Mains augmentation	-1.084	-6.700	-1.168	-0.197	0.524	-8.625	-44%
E2. Mains replacement	-35.198	-29.274	-27.551	-28.991	-30.531	-151.545	-37%
E6. Telemetry	-0.141	-0.254	-0.041	-0.139	0.315	-0.259	-21%
E4. Meter replacement	0.985	0.207	1.482	0.169	0.663	3.506	19%
E12. ICT	-10.667	-16.081	-11.006	-0.927	13.911	-24.771	-38%
E10. Capitalised network overheads	-3.463	-4.828	-4.706	-4.630	-2.655	-20.28	-30%
E10. Capitalised corporate overheads	0.000	0.000	0.000	0.000	0.000	0.000	NA
E13. Other	-7.734	-7.812	-8.644	-8.336	-0.627	-33.154	-54%
Total	**-52.288**	**-60.422**	**-49.107**	**-50.795**	**8.089**	**-204.523**	-26.9%
Total Ex OH	**-48.825**	**-55.594**	**-44.401**	**-46.164**	**10.744**	**-184.240**	-26.6%
Actuals	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**Total**	
E5. Connections	24.627	24.606	24.074	20.921	49.506	143.735	
E3. Mains augmentation	0.619	2.769	3.660	2.506	1.519	11.072	
E2. Mains replacement	43.312	50.565	54.536	58.535	55.167	262.114	
E6. Telemetry	0.182	0.003	0.189	0.107	0.481	0.961	
E4. Meter replacement	5.382	4.518	5.516	3.477	3.337	22.231	
E12. ICT	0.768	3.386	5.065	8.805	22.972	40.997	
E10. Capitalised network overheads	9.011	9.209	8.878	9.265	10.196	46.559	
E10. Capitalised corporate overheads	0.000	0.000	0.000	0.000	0.000	0.000	
E13. Other	5.670	4.157	3.471	3.623	11.066	27.987	
Total	**89.572**	**99.213**	**105.389**	**107.239**	**154.245**	**555.657**	
Total Ex OH	**80.561**	**90.004**	**96.511**	**97.974**	**144.049**	**509.098**	
Proposal	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**Total**	
E5. Connections	19.613	20.287	21.547	28.663	23.016	113.126	
E3. Mains augmentation	1.703	9.469	4.829	2.702	0.995	19.698	
E2. Mains replacement	78.509	79.839	82.087	87.526	85.697	413.659	
E6. Telemetry	0.323	0.256	0.229	0.245	0.166	1.220	
E4. Meter replacement	4.397	4.312	4.034	3.309	2.674	18.726	
E12. ICT	11.435	19.468	16.071	9.732	9.062	65.767	
E10. Capitalised network overheads	12.474	14.037	13.585	13.896	12.851	66.842	
E10. Capitalised corporate overheads	0.000	0.000	0.000	0.000	0.000	0.000	
E13. Other	13.405	11.968	12.115	11.960	11.694	61.142	
Total	**141.860**	**159.635**	**154.496**	**158.034**	**146.156**	**760.180**	
Total Ex OH	**129.386**	**145.598**	**140.912**	**144.138**	**133.305**	**693.338**	

Positive variations signify overspending.

E5. Connections

With some minor exceptions to tariff D in the last three years of the Access Arrangement (AA), approved connections were unchanged from those proposed.

New connections overspend to date has mainly been driven by higher than expected residential housing developments. Major new and continuing developments include Springwood, Gawler East, Roseworthy, Seaford and Aldinga Heights.

By AA end residential connections are forecast to exceed the initial proposal by 13 per cent, while industrial and commercial is forecast to exceed by 32 per cent.

The final year of the AA forecast actuals includes around $28 million for the Mount Barker connection which was not anticipated in the approved capex benchmark or proposal. When this project is removed, connections capex overspends within 5 per cent of the initial proposal.

This overspend is a result of total connections (residential and I&C) outgrowing the initial proposal by around 13 per cent while on average unit rates across total connections came in around 10 per cent lower than proposed. The actual average total unit rate fell roughly between the approved benchmark and the initial proposal.

E3. Mains Augmentation

The initial proposal includes around $8 million to replace 5 km of metal transmission pipeline (SA21 Southern Transmission Pipeline) in 2018/19, 19/20 and around $3.5 million for a project to address corrosion issues on welded joints around metal transmission lines (SA21a). SA21 is not being undertaken as augmentation expenditure in this AA, but is forecast to incur just over $3 million in 'Other capex' in the last two years of the AA. No capital expenditure has been recorded against SA21a because it has been treated as regulatory opex in line with the Australian Energy Regulator (AER's) treatment in the last approved benchmark for the AA.

E2. Mains Replacement

The total volume of mains replaced to date is around 16 per cent under the initial proposal. Virtually all of this is due to 61 per cent less Cast Iron (CI) and Unprotected Steel (UPS) block being replaced over the AA than the initial proposal, however more than half of these lower volumes were replaced with HDPE.

While total volume explains a material part of the mains replacement capex underspend to initial proposal, the majority of the savings have been on account of favourable rates obtained on HDPE 250, 575, trunk and CBD work. Substituting CI/UPS with HDPE at these favourable rates and foregoing around 3 km of trunk work (actually completed final year of last AA, but updated in arrears) are secondary factors contributing to underspending the proposal.

E6. Non-network (Telemetry)

Variance to the initial proposal on telemetry is similar to the variance to approved benchmark. As at March 2020 telemetry spend had been delayed due to issues securing

land and approvals. The project is still forecast to go ahead with a small underspend to benchmark ($260,000) for the AA which is 21 per cent of its benchmark.

The lower expenditure is a trend carried on from the last AA reflecting increased penetration of telemetry on industrial meters reducing the need for telemetry on nearby parts of the network. This is because the required pressure readings can be taken from the telemetry on these industrial meters instead. Telemetry installation costs on these industrial meters are lower than on specific distribution sites such as Regulators and Valves.

E4. Meter Replacement

The approved benchmark volume of meters is the same as that initially proposed. Volumes are forecast to decline in line with benchmark and will finish slightly below, but within 10% of the approved total volumes.

The overspending to benchmark and the initial proposal will therefore been driven by higher than expected unit rates on meters which will continue through to AA end.

The main driver is the mix between new and (less expensive) refurbished meters has moving more toward new meters. This is due to less refurbished meters being available resulting in a more expensive mix of meters being installed over the past three years.

Additionally, new meter fitting/replacement contracts commencing in mid-2019 have a higher rate due to extra ancillary work such as replacing or sealing meter boxes and changing regulators during periodic meter replacement. It is more efficient, both in direct and administrative costs, to address these issue during periodic meter replacement than reactively/piecemeal.

E12. ICT

The underspending on ICT to the initial proposal results from the deferral of major projects, re-scoping of projects and the postponement of projects (SA64 and 64) at least until after the next AA. This has been because more customer-critical systems such as Maximo upgrade and Metering and Billing consolidation projects took priority.

Deferred projects include the Geospatial Information System (GIS), Mobility Integration and Business Intelligence. Applications renewal has been re-scoped. The Remote Meter Reading project (SA64, not approved by the AER) has no forecast expenditure, while the Industry Upgrades project (SA65) has forecast around $100,000 in the final year of the AA. Both of these projects will not be undertaken until a later date.

The Applications Renewal project is the main driver having spent around $7 million of the $19.2 million proposal. Business intelligence and GIS will have collectively spent around $17.3 million of the $25.3 million proposal.

Collectively the Remote Meter Reading and Industry change project will underspend the $4.7 million proposal by around $4.6 million.

By AA end, GIS is forecast to have completed major upgrades and Mobility Integration completed a field project bringing its total within 10% of the initial proposal. Applications Renewal will begin as a new project in the next AA incorporating learnings and efficiencies of the current AA.

E10. Capitalised network overheads

Capitalised overheads have underspent the initial proposal coming in at around 8.7 per cent of costs compared to the proposal annual average of 9.64 per cent. Almost all of the underspend is associated with actual overheads allocated to mains replacement and other capex. Over the AA overheads on these are around $31 million compared to the proposal of around $51 million.

E13. Other

Regulator capex is forecast to underspend the initial proposal by around $8.5 million.

Within regulator capex, no expenditure was recorded against SA75 Meter Relocation projects which proposed spending of around $2.3 million, but was rejected by the AER. During the period we will prioritise or defer projects based on risk with regard to the total capital allowance set by the AER.

Project SA22 was approved to replace 15 below district regulator stations (DRS) at a cost of around $5 million. However alternative cost-efficient options were implemented avoiding the need to replace around 10 DRS.

Business case SA33, endorsed expenditure of $2 million on replacing 24 non-compliant I&C meter sets based on a survey of 15 units. Replacement of around 7 to 10 units will materialise or around 14 to 17 units less than forecast based on the sample of 15 units.

Industrial and Commercial Meter Set Refurbishment SA08 underspend the $1.8m proposal by around $750,000. The proposed SA09 Valve Corrosion Protection project (around $300,000) was moved from capex to opex as directed by the AER.

Outside regulator and valve capex, mains alterations and relocations not included in the benchmark were largely offset by contributions made within the period, however AGN will have funded around $800,000 of this type of expenditure within the AA.

Other distribution capex underspent by around $23 million. Around $17 million of the proposal was not approved by the AER. Again, during the period we will prioritise or defer projects based on risk regarding the total capital allowance set by the AER.

Of the $6.1 million variance to approved other distribution capex, around $3.4 million of this underspend falls within the HDPE live camera inspection and repairs project (SA52). This was because around 70 per cent of the approved kilometres were undertaken due to delivery constraints. Remaining inspections will continue into next AA.

Non-distribution plant and equipment underspent by around $2.2 million due to in house sourcing of vehicles not materialising as planned.