



Technical advice to Energy Consumers Australia

Review of South Australia Power Networks' revised regulatory proposal

20 January 2020

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NOTE - This report is an independent assessment of South Australia Power Networks' revised proposal based on our expertise in economic regulation of electricity networks. The views expressed in this document do not necessarily reflect the views of Energy Consumers Australia.

Summary of findings

We have been engaged by Energy Consumers Australia (ECA) to provide expert regulatory advice on South Australia Power Networks' (SAPN) revised regulatory proposal for the 2020-25 regulatory period. This follows a report we prepared for the ECA in May 2019 which reviewed SAPN's original regulatory proposal.

The ECA has asked us whether SAPN's revised proposal on a 'decision-as-a-whole' basis is capable of acceptance by the Australian Energy Regulator (AER). In coming to this view, we were asked to identify material evidence gaps in the regulatory proposal. Our advice will help the ECA form its own view on matters to raise in public submissions to the AER on SAPN's revised proposal.

Our analysis has considered whether SAPN's revised regulatory proposal reflects the long-term interests of South Australian electricity customers with respect to price and quality of services. We examined the concerns raised by the AER in the draft determination, and the documents submitted by SAPN in its revised regulatory proposal. Our review is limited by the short period provided to stakeholders to make submissions on the revised regulatory proposal. We expect the AER would have more time and resources to undertake a deeper review.

At a high level, we consider that SAPN has delivered excellent outcomes for its customers since it was privatised 20 years ago. SAPN has kept network prices below the Consumer Price Index and delivered reliable services in an increasingly complex energy market. SAPN's revised proposal for the 2020-25 period seeks to further reduce prices for its customers, while being on the front foot with tackling the challenges of the future grid. On this basis, we consider the revised proposal is generally reasonable and will further the long-term interests of SAPN's customers.

However, we consider that there are some areas of SAPN's revised proposal where further evidence is required before the proposal is capable of acceptance. Table 1 provides a summary of key elements of the revised proposal, and our findings. We provide a view on whether the proposal element is capable of acceptance and any evidence gap. The table also shows the relevant section of our report which provides more details on our findings.

Our estimate of the evidence gap in SAPN's revised proposal is \$110 million in revenue.¹ The majority of the gap is the claimed reward of \$76 million for underspending its capital expenditure in the 2015-20 period. We see no evidence to show that consumers have benefited from an apparent under-delivery of the promised program. The residual evidence gap relates to proposed opex (about \$20 million) and proposed capex (about \$150 million of capex which translates to about \$14 million of revenue) for the connections, reliability and property and fleet programs.

¹ At a high level, we have assumed that the returns on replacement and augmentation capex in 2020-25 is about 10% of the capital costs. This is based on the expected returns of investment for a 50 year asset at 3% real rate of return midway through the regulatory proposal. We have assumed 20% returns for property capex on the basis of a 25 year life. This is a rough estimate for the purpose of estimating the value of the evidence gap.

We note that the evidence gap is significantly less than what we advised the ECA upon review of SAPN's original proposal, where we found a gap of \$240 million. This reflects the efforts of SAPN to carefully review the AER's draft determination and to engage with its stakeholders on areas requiring revision and further evidence. We commend SAPN for the quality of the additional analysis contained in the revised proposal and note this has helped to narrow the evidence gap.

Table 1 – Summary of our review

Element of proposal	Capable of acceptance	Materiality	Key findings
Operating expenditure (See section 1)	No	\$20 million revenue	<p>We are satisfied that SAPN have provided evidence to demonstrate efficiency of base year, increases in opex for output, and most step changes.</p> <p>However, we consider there is an evidence gap for the Guaranteed Service Level (GSL) payments step change. We also consider there is insufficient evidence to justify the proposed labour price increase.</p>
Capex – Repex (See section 2a)	Yes	\$0	<p>SAPN has provided compelling data to show that an increase in repex is necessary to avoid reliability issues (and price shocks) in the long term. SAPN have also provided new evidence to address issues raised by the AER about SAPN’s forecasting model of replacement volumes. Finally, SAPN have provided reasonable business cases to address issues raised by AER on specific projects.</p> <p>We encourage SAPN to develop a long-term replacement strategy, which contemplates retirement of network assets (rather than ‘like for like’ replacement) by incorporating more efficient design from emerging technology opportunities.</p>
Capex – Augex (See section 2b)	Yes	\$0	<p>SAPN have reduced proposed augex to address certain issues raised by the AER. SAPN have provided sufficient evidence to show that there are no overlaps or duplication in the low voltage augmentation programs. Further, SAPN have now applied a reduction to opex to reflect the expected efficiencies from the program. SAPN have undertaken further additional analysis to demonstrate that the selected option for major projects is efficient and prudent.</p>
Capex – Connections (See section 2c)	No	\$80 million capex (about \$8 million revenue)	<p>The AER found that SAPN’s connections capex was overstated by about \$40 million. We consider evidence provided by SAPN to show that the upwards revision to net capex (about \$40 million) requires independent verification by a forecasting expert. We are not convinced that actuals in 2018-19 should be given such weight in the forecasts.</p>

Element of proposal	Capable of acceptance	Materiality	Key findings
Capex - Reliability (See section 2d)	No	\$30 million capex (About \$3 million revenue)	We consider that SAPN's additional advice received from Oakley Greenwood is not sufficient to outweigh the findings of the Essential Services Commission of South Australia (ESCOSA) who found that customers were not willing to pay more to improve reliability. However, we consider the AER may wish to seek the view of SAPN's customer panel to understand their view. On this basis, we consider that the improve reliability programs should not be funded by the customer.
Capex – ICT (See section 2e)	Yes	\$0 million	The AER has reviewed non-recurrent programs and found these were prudent. SAPN has developed new business cases for 4 non-recurring ICT projects to address AER concerns. Our high-level analysis suggests that SAPN have demonstrated the need and prudence of the option.
Capex – Property and Fleet (See section 2f)	No	\$40 million (About \$10 million of revenue)	SAPN have not addressed the concerns raised by the ECA on whether the programs will be delivered, given the deliverability issues that have arisen over 2 regulatory periods. We would need to understand how SAPN's deliverability issues have been resolved. We note however that the business cases demonstrate that additional capex may be prudent given the issues with the sites.
Capex – Contingent project (See section 2g)	Yes	\$0	We consider SAPN have provided sufficient evidence to support the proposed contingent project to address an Australian Energy Market Operator (AEMO) notification. We note that customers would be safeguarded by an additional AER review if the project is triggered.
Rate of return and tax (See Section 3)	Yes	\$0	SAPN have used the parameters in the AER's rate of return guideline and have applied the AER's tax calculations.
Incentive rewards (See Section 4)	No	\$76 million	SAPN have still not provided evidence that the capital underspend in 2020-25 was due to efficiency rather than delivery issues.

Section 1 – Operating expenditure (opex)

In our initial review of SAPN's original regulatory proposal, we considered SAPN had provided sufficient evidence to justify the efficiency of its base year. However, we found an evidence gap on SAPN's proposed output factors, labour escalation and step changes. The AER's draft decision made similar findings. While accepting that the base year was efficient, the AER reduced the proposed opex to reflect lower estimates of step changes, output factors and labour escalation.

SAPN's revised proposal includes revisions to its base year, changes to its step change forecast, modifications of its output forecast, and further information to justify its labour escalation. We discuss each in turn.

Base year

SAPN has proposed a downward adjustment to base year opex. This is because its actuals for 2018-19 were lower than the estimate included in the original proposal. We agree that SAPN should use actual data as a source for its base year. Given that the AER has already concluded that SAPN is currently at the forefront of efficiency in the National Electricity Market (NEM), we consider there is sufficient evidence to accept the revised base year.

Step changes

SAPN has accepted the AER's decision to reduce the opex amount for low voltage (LV) management, cloud transition, and cable and conductor repairs step changes. We consider this provides evidence that the revised amount is appropriate for these step changes. We also note that SAPN has proposed a lower amount for the step change relating to critical infrastructure based on new tender information. We commend SAPN for including this reduction in its revised proposal and consider this provides further evidence that the step change is appropriate.

SAPN has included two new step changes that increase opex, and one which decreases opex. The first one is for a cyber security uplift which relates to the opex costs for a capital project that responds to cyber security threats. We consider that cyber security is essential, and there is a clear case for the inclusion of additional expenditure in the 2020-25 period. SAPN has also included higher opex for a step change relating to distribution licence fees. We consider there is sufficient information to show this is a regulatory obligation. SAPN has also included a negative step change for the savings relating to a capital program. We consider this demonstrates a willingness to incorporate productivities from its capital projects. Our conclusion is that there is sufficient evidence to demonstrate that the new step changes are justified.

SAPN has not accepted the AER's decision to impose a greater opex reduction for GSL payment forecasts. In its original proposal, SAPN considered that GSL payments would fall relative to the estimated base year. The AER examined the data and concluded that GSL payments would be even lower than estimated by SAPN. SAPN's revised proposal now considers that the downwards adjustment for the GSL step change should be closer to zero. The reasoning is that the 2018-19 actuals in the base year included a much lower GSL payment than initially estimated. Further, SAPN has provided analysis

to show that GSL payments are likely to increase over time. The materiality of the revision is about \$20 million.

In our view, the GSL payment is the only line item for step changes where there is insufficient evidence to accept the increase in opex compared to the AER's draft decision. We note that the spreadsheet provided in Attachment 6.2 of SAPN's revised proposal contains many assumptions and workings which are difficult for stakeholders to analyse in the time available. We would like further information on how the actuals in 2018-19 have contributed to the revised amount, and what new analysis has altered SAPN's original proposal. We would also like the AER to interrogate the model put forward to test the validity of forecasting more extreme weather events as a basis for its forecast.

Output factors

The AER used a lower opex for output factors in its draft determination compared to SAPN's original proposal. SAPN has accepted the AER's decision but has identified that the AER's modelling may require refinement in the future. To the extent that SAPN has revised its proposal to address the issues raised by the AER, we consider this is sufficient evidence to accept the proposed opex amount.

Real price (labour) growth

The AER substituted a lower opex for labour escalation than SAPN's original proposal. SAPN had used the forecast of its economic consultant (BISOE) and had proposed that the AER choose the midpoint between the AER's economic forecaster (DAE) and that of BISOE as per the AER's past regulatory practice. The AER undertook additional analysis and concluded that DAE had been more accurate than BISOE in the past. On this basis, the AER decided to apply the forecasts of DAE and to put no weight in BISOE. The difference is about \$10 million of opex.

SAPN's revised proposal raises two issues with the AER's draft decision. SAPN considers that the AER should give weight to different forecasters rather than rely on a single forecaster. SAPN also considered that the AER's analysis on the accuracy of the forecasts was flawed. On this basis, SAPN asserted that BISOE forecasts should have an equal weight as DAE forecasts.

We consider that the additional evidence submitted by SAPN does not provide a positive demonstration that its independent forecast should be given equal weight in the AER's decision. We consider the methodology and assumptions underlying the forecast should be examined in greater detail, to ensure a more robust evidence base, rather than relying solely on the credentials of the forecaster. This is particularly the case if the methodology has not produced accurate results in the past as suggested by the AER. Having said this, we would encourage the AER to draw out the differences in assumptions and methods between DAE and BISOE and provide a view on why they think one forecast should be preferred to another.

Until this matter is resolved, we cannot conclude that SAPN's higher proposed labour escalation of \$10 million is capable of acceptance.

Section 2a – Capex: Repex

In our initial review of SAPN's original proposal we had recommended that the AER accept SAPN's proposed capex. Our reasoning was that the level of replacement in the network appeared unsustainable, and could lead to price shocks and reliability issues in the medium term that would not be in the long term interests of South Australian customers. We had provided evidence to show that SAPN's original proposal was to replace only 0.3% of the value of its network each year, and that this seemed too low given that 15% of its asset base was over 50 years of age.

The AER's draft decision reduced SAPN's proposed repex by 20 per cent. It found issues with SAPN's replacement modelling tool and found evidence gaps in business cases. On this basis, the AER used its calibrated repex model as an alternative source to predict SAPN's replacement.

SAPN's revised proposal for repex is of a similar magnitude to its original proposal. Importantly, it has provided new data and analysis to support its position. This includes an expert review of its replacement modelling tool by an expert engineering consultant (Cutler Merz) and new business cases. SAPN has also provided new data to show that its replacement is well below sustainable levels given the age of its network.

In our view, SAPN's new evidence has addressed many of the legitimate concerns raised by the AER in its draft determination. We have reviewed the Cutler Merz review and one of the new business cases. In our view, both documents provide crucial new information to support the forecasts and address the issues raised by the AER.

We also note that we are currently conducting research with Macquarie University on the causes of price shocks. Our analysis indicates that SAPN's arguments on replacement sustainability are very strong. Our initial results show that a key marker of a price shock is when the value of the opening asset base is a very low proportion of the replacement value of assets. We have found that SAPN has the lowest proportion in the NEM with a regulated asset base (RAB) of \$4 billion compared to a replacement value of \$30 billion. We encourage the ECA to raise this issue with the AER in its submission, as we see it as the most critical issue facing the South Australian network in the next 15 to 20 years. We would be happy to share our initial analysis with the ECA and the AER.

We are concerned that SAPN has not put forward a long term strategy on how it will methodically and innovatively replace assets in poor condition. In particular, we note the report by its consultant (Frontier Economics) which puts forward the proposition that all 'non-redundant' assets will need to be replaced in the future. We consider new technology such as batteries and solar will provide new opportunities to efficiently re-design and optimise the network. This may provide opportunities to retire failing assets, leading to lower replacement allowances.

In conclusion we see strong evidence for the AER to accept the revised repex of SAPN for the 2020-25 period, but urge SAPN to develop an innovative replacement strategy as part of its future network thinking.

Section 2b – Capex: Augmentation

In our initial review, we considered that there were many evidence gaps in SAPN’s original proposal for augmentation capex (augex). This included higher than expected capacity investment and apparent overlaps in low voltage programs.

The AER made similar observations, concluding that there was insufficient detail for major programs, opportunities to defer some programs, and potential inter-relationships with its Distributed Energy Resources capex that had not been fully explained.

SAPN’s revised proposal has accepted some of the AER’s decisions, which has led to a \$30 million reduction to its proposed augex compared to the original proposal. SAPN has also provided new business cases, and a detailed analysis of how its low voltage program fits together. In our view, the combination of a lower augex proposal and the inclusion of new information, is sufficient to recommend that the program is capable of acceptance. We also note that SAPN has included a reduction in its proposed opex to reflect the efficiencies from its new investment on low voltage transformer monitors.

Section 2c – Capex: Reliability

SAPN’s original proposal had included a program to maintain ESCOSA’s reliability standards, together with programs that aimed to improve low reliability feeders for worst performing lines and harden the network. Our initial review to the ECA had questioned whether it was appropriate for SAPN to be investing in improving reliability when customers indicated affordability was their priority. We had noted the work of ESCOSA who found that customers were not willing to pay for improvement in reliability.²

The AER accepted SAPN’s proposed program to maintain reliability but substituted marginally lower capex. However, the AER did not accept SAPN’s proposed programs to improve reliability noting that there was no specific regulatory obligation and that there was insufficient evidence that customers would be willing to pay more for improvements in reliability.

SAPN’s revised proposal accepted the AER’s minor reduction to the maintain reliability program. However, it has provided additional material to justify the reliability improvement and hardening the network projects rejected by the AER. SAPN submitted a report from its consultant (Oakley Greenwood) which sought to show that the value of improved reliability outweighs the costs of the programs. On this basis SAPN suggest that there is a quantified market benefit to the customer, even if surveys suggest customers are not willing to pay.

We have not had enough time to analyse the Oakleigh Greenwood report in detail. However, SAPN has not been able to demonstrate that South Australian customers are willing to pay for reliability improvements. We consider that the views of SAPN’s customer panel on the additional material put forward by SAPN may provide a proxy for customer opinion. From a long term perspective however, we have reservations on expanding the network due to stranding risks from emerging technology.

² ESCOSA, SA Power Networks 2020 reliability standards review, <https://www.escosa.sa.gov.au/projects-and-publications/projects/electricity/sa-power-networks-2020-reliability-standards-review>.

Section 2d - Connections

In our initial review, we considered that there may be a level of overstatement in connections capex proposed by SAPN. The AER found that SAPN's modelling had unsupported assumptions and reduced the net connection component by about \$40 million.

In its revised proposal, SAPN has raised potential misunderstandings between the AER and itself on the proposed capex. It has submitted additional information to support its modelling. Further, it has proposed an increase of about \$40 million compared to its original proposal. The rationale is that the latest actual data in 2018-19 shows an increase in connection activity, which SAPN claims is a return to normal levels after an abnormal slump in the three previous years due to economic activity. A further upward adjustment relates to a lower weighted average cost of capital (WACC) which lowers the amount it collects off the connecting customer, and increases the net capex funded by the general customer base.

We have been unable to analyse the modelling data underlying SAPN's revised proposal. At this stage, we cannot conclude that the revised connections capex is capable of acceptance. We have reservations about whether 2018-19 reflects a return to normal levels of connection activity, or if it is an abnormal break from the structure of low connection activity in the 3 previous years. We consider this issue could be discussed in greater detail with the AER and SAPN.

Section 2e – Information and Communications Technology (ICT)

In our initial review to the ECA we had noted the difficulty in assessing the prudence of ICT spends. We had noted that SAPN had made considerable investments in ICT over the last decade, and this appeared to be an important driver of its efficient practices. However, we noted a lack of evidence to show how SAPN's ICT infrastructure supported efficient activity. We also noted that investment in proposed new ICT was not accompanied by a reduction in proposed opex or capex.

The AER reviewed the proposed ICT in detail. It found supporting evidence to justify the proposed recurrent ICT spend but rejected four new key projects either for lack of demonstration need or options. The AER also questioned the deliverability of the program.

In response, SAPN's revised proposal has included new business cases for these projects. It agreed with the AER that the worker fatigue program should not be included in the revised proposal. The new business cases for the SAP upgrade, ring-fencing compliance system and the assets and work systems demonstrated that the preferred option in the original proposal was least cost. SAPN also demonstrated its ability to deliver large ICT programs in the past.

We have reviewed a sample of the new business cases, and consider that the information provided suggests the programs are capable of acceptance. We also note that SAPN's ICT program is one of the few areas where it has delivered its forecast capex in the past, and that this gives some level of assurance on the deliverability. Finally, we note SAPN's revised productivity adjustment for opex (about \$20 million) which shows that customers will receive some of the efficiency benefit of its ICT program. In

conclusion, we consider that the ICT program is capable of acceptance subject to the AER's more detailed review.

Section 2f – Property and Fleet capex

In our initial proposal, we had questioned the deliverability of SAPN's proposed fleet and property programs given systematic underspends in the past 2 regulatory periods. This was in the context of SAPN seeking higher capex than actual expenditure in the 2015-20 period.

In the AER's draft determination, the AER made significant cuts to SAPN's proposed fleet and property capex. For fleet, the AER noted that SAPN performed poorly on the metric of fleet per employee. It also found that some of the fleet life could be extended to lives achieved in Queensland. Finally, it made an adjustment to the unit cost. For property capex, the AER did not allow any capex stating insufficient demonstration of need, options assessment and cost benefit assessment.

In its revised proposal, SAPN have made minor reductions to its original proposal for fleet and property. For fleet, it has provided additional data to counter the AER concerns. This includes information to show that distance is a better benchmark than employee numbers, and that SAPN perform well on this metric. It also included information on the potential life extension of its fleet. For property, SAPN have provided new business cases that seek to show that its proposed projects are least cost.

We consider the proposed capex contains evidence gaps. SAPN have not shown how it will overcome its governance issues to deliver the forecast program. In the past, consumers have funded projects which were not delivered, and then also provided an incentive reward for not delivering what was promised. Until we see some positive evidence to show how the program will be delivered, together with accountability, we consider the maximum amount allowed should be the actual capex in the 2015-20 period.

Section 2g – Contingent project

SAPN has proposed a contingent project relating to a potential notification from AEMO to undertake action on its network for the security of the system. The AER has not allowed the contingent project in its draft determination. SAPN's revised proposal has provided new information to the AER to address its concerns.

In our view, SAPN should be compensated if AEMO directs them to undertake security projects. The most reasonable means of doing so is through a contingent project. We note that there are additional safeguards for customers under the contingent project framework. The AER are required to make a robust assessment of the prudence and efficiency of the project prior to accepting the project.

Section 3 – Rate of return and tax

SAPN's original proposal aligned to the AER's rate of return guidelines. The AER made adjustments to the proposed rate of return based on new market data, which has led to a further reduction. SAPN's revised proposal has updated the rate of return parameters for latest data, and the AER will do so in the final decision. We consider that there are no issues for consumers with this process.

SAPN had proposed zero tax allowance in its original proposal. This was based on its uncertainty with the AER's finalisation of a tax review, including post tax revenue model (PTRM) modelling. The AER's draft determination provided SAPN with \$38 million allowance for tax, based on its final PTRM modelling. SAPN's revised proposal seeks a \$10 million allowance based on latest capex estimates that was unavailable at the time of the AER's decision. To the extent that SAPN has used the AER's modelling approach, and that the final amount is lower than the AER's draft determination, we see that the proposed amount is capable of acceptance.

Section 4 – Incentive rewards

In our initial proposal, we had raised concerns with SAPN's proposal to claim an incentive reward for the Capital Expenditure Sharing Scheme (CESS). While we agreed that the Efficiency Benefit Sharing Scheme was providing genuine incentives to improve operating efficiency, we considered that the CESS may reward networks for under-delivering on the proposed program. In the case of SAPN, we have not seen evidence to suggest that CESS improvements can be attributed to efficiency rather than under-delivery of programs.

The AER has allowed SAPN to claim the CESS reward. In its revised proposal, SAPN has proposed an increase in the CESS from \$67 million to \$76 million due to a reduction in capex estimates in the latter years of the 2015-20 period.

We consider that SAPN has not provided a positive demonstration that such a large reward is in the long-term interests of customers.