
*APVI Submission to the AER on the
Issues Paper on SA Power Network's Regulatory Proposal
December 2014*

Summary of APVI Response

General Comments

SA Power Networks (SAPN), like all other network businesses in Australia, is facing a period of rapid change. Consumers are becoming more involved in their energy services and are increasingly choosing to manage their own supply and use, via onsite generation (mainly Photovoltaic systems (PV)¹ and solar hot water (SHW)), smart appliances and energy management systems, operated via mobile phones or otherwise. Over the five years of this regulatory period, we can expect these trends to continue, with the likely introduction of other distributed energy systems and services, including onsite storage and electric vehicles, as well as significantly more energy efficient buildings and appliances.

SAPN can be commended for acknowledging these changes and for taking on board the findings of their customer surveys, which show that customers expect SAPN to not only accept, but to facilitate their distributed energy choices. SAPN is also beginning to examine new technology options for its own operations, such as micro-grids for isolated areas. However, the efforts being put into these new areas, and into demand management opportunities, are very limited and are unlikely to keep up with the pace of change over the next five years.

A key reason for the approach taken by SAPN is the continued heavy reliance on the regulated asset base (RAB) as the key driver for allowed revenue. None of the other adjustments to this driver are sufficient to negate the strong incentive this provides for network businesses to continue to look for means of increasing their RAB. Hence, despite significant reductions in electricity use, changes to customer preferences and the availability of new technologies which could provide lower cost, lower risk and more reliable solutions to long grids, significant expenditure is planned to strengthen and increase the cost of these grids, and hence their RAB. This leaves customers with a legacy of sunk costs which they will have to pay for, whether or not they use them or want them. This approach locks Australia into old technology and old business models which will keep electricity prices high, erode the competitiveness of existing businesses and limit the opportunities for development of new technologies and new businesses.

It is clear that networks can no longer be viewed as a 'natural monopoly'. There are many options to network connection, to alternative supply and to demand management. Any capital expenditure on networks going forward should be open to third party competition, if customers are to get the most suitable energy services in the long term. The RIT-D provisions are a very tentative start, but do not cater for grid refurbishment or expenditure less than \$5 million, and do not necessarily facilitate competition. The next 5 years will be crucial, given the age of Australia's grids and the rapid technology and climate changes underway.

¹ South Australia currently has the highest level of residential PV uptake in Australia - <http://pv-map.apvi.org.au/historical#4/-26.67/134.12>.

APVI comments on key issues

General observations

- SAPN had higher revenues over the last regulatory period than was allocated, indicating increased profitability.
- \$25M is being carried through from 'efficiency gains'
- Electricity demand, including peak demand, has fallen and is projected to remain flat over the new regulatory period. PV has contributed to this.
- A 47% increase in SAPN regulated asset base is proposed – which in turn increases a range of allowed charges, such as return on investment and opex.
- The proposals made by SAPN would result in electricity price increases averaging 2% per year over the period 2015-20.

1. Is the SAPN capital expenditure proposal adequately justified?

SAPN proposals

- SAPN underspent its 2010-15 capex allocation but proposes to increase its expenditure in the 2015-20 period by 50%.
- On the basis that it has relatively old assets, that recent increased inspections have found more issues and it has higher costs to meet ESCOSA requirements, a doubling (94% increase) of expenditure on asset replacement is proposed.
- A 49% increase of expenditure on augmentation is proposed, one third being safety related (bushfire alleviation), undergrounding, moving power poles near intersections etc.
- Connection costs are projected to increase, despite demand reduction.
- Non-network expenditure (e.g. DSM) is claimed to have limited potential to impact capital expenditure.

APVI Comments

Revenue:

Over the period 2005-15, SAPN has experienced over-recovery of revenues. We note that around \$25 million is being carried forward into the new regulatory period.

Repex:

SAPN has proposed an increase of 94% to its repex requirement. When replacement is required and demand peaks are projected to increase, the network size would be increased. Likewise, when demand peaks are projected to decrease for the foreseeable future, consideration should be given to decreasing the size of the network when assets are renewed or replaced. PV systems are getting cheaper and it is likely that within the next 5 years distributed batteries will be as common as PV systems are now, and will have spread into the commercial sector as well. Given the high PV uptake in SA over the past 5 years, it seems likely that SA customers will also have a high interest in batteries. This uptake will be accelerated by the types of cost-reflective tariffs currently being considered. Forecasts of demand peaks should take this into account as these trends could significantly decrease repex requirements.

Further, SAPN is in a good position to be able to examine the replacement of old assets with new technology and new service delivery models. With a relatively old asset base and 70% of its grid servicing 30% of its customer base, and presumably an even lower percentage of its load, there is an excellent opportunity to look to stand-alone power systems, mini and micro-grids, grid storage systems, demand management (DSM) and energy efficiency (EE) drives as options to rebuilding or strengthening

existing grids. In bush fire areas especially, where power lines can themselves cause fires, or where supplies can be cut for long periods during fires or other severe weather events, such alternatives to long grids may be significantly cheaper, more resilient and more flexible than the undergrounding and other upgrades proposed by SAPN. Similarly, DSM is dismissed as having low potential to reduce capex, with limited evidence that extensive examination of DSM options has been undertaken, other than for specific cases cited². EE is not mentioned as a significant opportunity to both reduce customer bills and extend the life of existing assets. With the current rapid level of technology development, new appliances are significantly more efficient than previous models. Over a 5 year period, this will have significant implications for demand. In many jurisdictions, including US States such as Massachusetts, network operators accelerate such technology uptake, as it provides a much cheaper option than asset replacement or refurbishment.

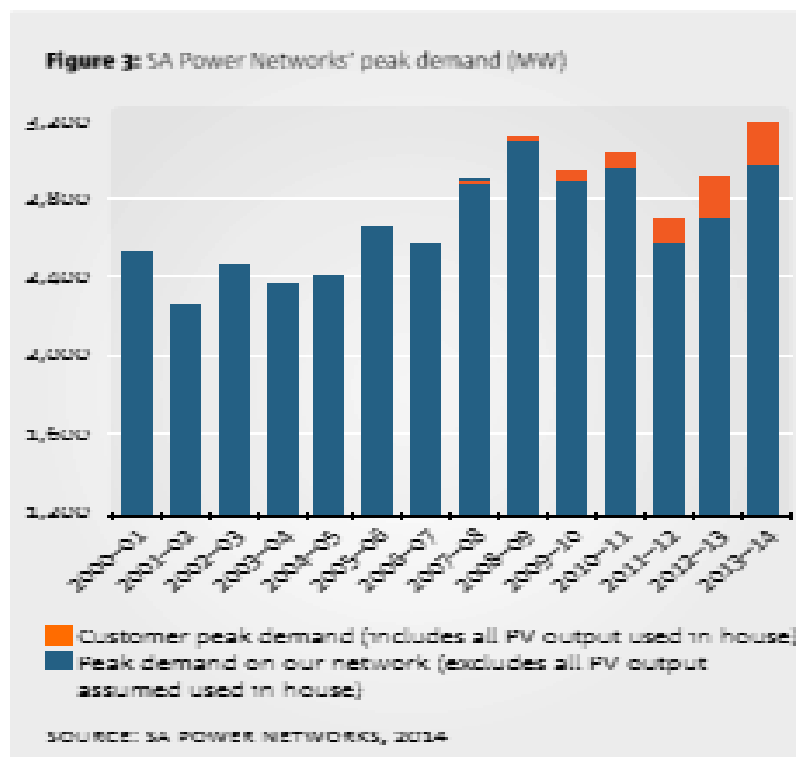


Figure 1: SA Peak Demand 2000-01 to 2013-14, including contribution of PV (SAPN)

Augex:

How much stock does SAPN hold in inventory, either in their own stores or held in manufacturer’s facilities due to over expenditure during the present regulatory period? If stock levels have changed over the period, this should be taken into consideration when calculating repex and augex. In any case, the appropriate level of stock to be carried should be assessed.

Air conditioners:

Note that although the uptake of air conditioners is forecast to increase, they will also become more efficient over time, both due to government programs such as MEPS and because of technological advances. Historically the Energy Efficiency Ratio and the Coefficient of Performance of A/Cs in

² We note, however, that DSM incentives for customers are included, and are approached via proposed application of new tariff structures, which could reduce peaks and flatten demand curves.

Australia have improved by about 5% annually.³ AC efficiency increases are mentioned in the SAPN proposal, but the extent of its inclusion in demand projections is not clear, nor EE improvements in other appliances or processes.

RIT-D:

Although outside the scope of this Regulatory Proposal, it is worth mentioning that currently the RIT-D does not need to be applied where the project is related only to the refurbishment or replacement of existing assets. This is because on page 95 of the AEMC's 14 June 2012 draft decision, it states:

“It is appropriate to exempt these projects from the scope of the RIT-D on the basis that the benefits to be gained from their assessment under the RIT-D would, in most cases, be unlikely to outweigh the costs, risks or regulatory burden on relevant NSPs from applying the RIT-D process.”

Because rule 5.17.3(5) (NER) explicitly exempts refurbishment or replacement projects, the AER has no authority to request that the RIT-D application guidelines apply to this type of project. However, application of the 'greater than \$5 million' rule should exclude projects where the costs outweigh the benefits – at least as well as it does for network augmentations. In such cases, if non-network alternatives are shown to have a greater net economic benefit over the projection period, the size/cost of the network could be reduced, which could result in absolute cost reductions. Exclusion of refurbishment or replacement projects from RIT-D also provides an incentive for augmentation projects to be misclassified in order to avoid the RIT-D requirements.

2. Is the SAPN operating expenditure proposal adequately justified?

SAPN proposals

- SAPN proposes a 33% increase in opex, significantly higher than for the last period
- Increases are forecast for labour costs, output growth (related to increase network size due to capex) and customer growth
- Significant expenditure also proposed on IT (including moving customers to demand meters, telecommunications and information) and increased inspections.

APVI Comments

Since opex is related to capex, the latter drives increased opex. It is unclear why labour costs are expected to increase, especially as SAPN expects older staff to be replaced by younger ones over the coming 5 years and labour costs are static or falling in real terms. Increased costs for IT are separately budgeted. With the significant downturn in the SA economy expected as the car industry progressively closes down, it is hard to see how projections of strong economic growth, with associated increased demand and customer connections could be justified. In fact, the implications of this large economic change for future electricity demand in SA should be discussed in detail.

Expenditure on IT is justified, given the large changes anticipated in customer energy service requirements. However, there appears to be a doubling up of expenditure here with anticipated revenue from metering changes, including the proposed transfer fees being charged to customers.

³ 'Evaluation of Energy Efficiency Policy Measures for Household Air Conditioners in Australia', by EnergyConsult for the Department of Climate Change and Energy Efficiency, Nov 2010 - <http://www.energyrating.gov.au/program-publications/?viewPublicationID=2153>.

3. Do you consider departures from the Regulated Rate of Return justified? Comment on the departures proposed by SAPN

SAPN Proposals

SAPN proposes a different rate of return, including different ways of calculating borrowing costs (5.74%), return on equity (10.45%) and imputation credits.

For imputation credits they propose 0.25 rather than 0.4 in the AER Guidelines, based on a market average rather than an electricity sector average.

SAPN has used a BBB rating to calculate borrowing costs, rather than the AER benchmarked BBB+ rating.

APVI Comments.

The AER has put considerable effort into providing a benchmarked rate of return for use by the Networks, including imputation credits relevant to the electricity sector and a ten year rolling average to incorporate actual values, so there is no justification for SAPN using another method. Catering for different tax implications for locally owned versus overseas owned networks should not be an issue for the AER which is tasked with providing the best outcome for customers. Also, selection of a BBB rating, rather than the benchmark BBB+ rating cannot be accepted without more specific justification and evidence directly related to SAPN.

4. Has SAPN adopted the consumer Engagement Guideline to build genuine consumer engagement across all business activities?

SAPN Activities

- SAPN has established a Talking Power website with customer information, undertaken surveys and workshops.
- They have had 4994 web visitors from a customer base of 575,000 and direct engagement with 573 customers

APVI Comments.

SAPN has improved its customer interactions, and appears to be taking on board customer comments, albeit showing surprise at some of the findings. This is a positive development, although most effort seems to have focused on explaining current and planned operations and ascertaining willingness to pay limits. It is not clear how much customers have been told about alternatives which may be available to current methods of energy service delivery, and what their preferences might be.

With regard to strong customer preference evident for PV and other Distributed Energy uptake, it would seem relevant for SAPN to examine significant changes to service delivery methods, and very different grid structures and operating procedures.

5. Metering

AER proposes to remove metering from Network charges and open it up to competition

SAPN Proposals

SAPN proposes to charge customers \$550 in exit fees should they choose to move to a third party meter provider.

APVI Comments.

There are two separate issues here. 1) how well the DNSP calculates the residual cost of the old meters, and 2) how that cost should be recovered.

1) Exit fees for customers choosing new service providers is not justified. The transfer fee of \$550 would appear to be higher than the original meter cost, and definitely higher than its depreciated (and paid for) value. If any exit fee is to be contemplated, the following questions will need to be answered first:

- What was the cost of class 5 and 6 meters currently installed?
- What costs were charged to customers for these meters, via connection fees or otherwise?
- If not paid for up-front, over what period are their costs recouped?
- How often are they normally replaced?
- What is the average age of current meters?
- What is the cost of new 'smart ready' meters?

2) Presumably customers will also have to pay the cost of and an installation fee for the new meter. Coupled with an exit fee, this could effectively block the foreshadowed market competition.

6. Pass through events

AER has listed events for which networks can pass through costs on top of agreed allocations

SAPN Proposals

SAPN has proposed a much longer list than provided by AER, including a range of risk and insurance related events.

APVI Comments.

Many of the listed events are also used to justify higher opex and capex charges.

The proposed additions would increase SAPN revenue, but also appear to double count their proposed spending on grid strengthening etc to deal with such events. It seems customers are being asked to pay for the higher costs of a service which may cause more problems in future, as severe weather events increase, but also to pay for the costs of this service not being available during these times, including all risk and insurance costs. The latter costs are the costs of doing business and come out of the (increasing) profit margins being enjoyed by SAPN.

7. Supply Reliability

SAPN Proposals

SAPN proposes a higher revenue stream to increase reliability, especially during severe weather events.

If applied to the last period, the revenue stream would have increased by 1.25%. For the new period, the increase in customer bills would be 1% higher than if the AER incentives are applied.

APVI Comments.

Again, there seems to be double, triple or quadruple counting of this 'reliability risk', with increased capex, opex, pass through and specific reliability revenue being sought. This issue should be dealt with under one set of proposed expenditure only, to reduce the possibility of doubling up.

As previously mentioned, grid risk profiles are likely to keep increasing as severe climate related weather events increase. Maintaining long grids with low loads, passing through difficult, fire or wind prone areas will increasingly cause problems and increase costs for all customers. The alternatives to the grid discussed above must be considered if Australia (and SA even more so) is to maintain cost-effective, reliable and resilient electricity supply into the future.

8. How should AER balance the interrelationships between the building block components

AER assesses the various building blocks of revenue, as well as the overall outcome. Incentive schemes, inflation and other adjustments also impact the relationship between building blocks.

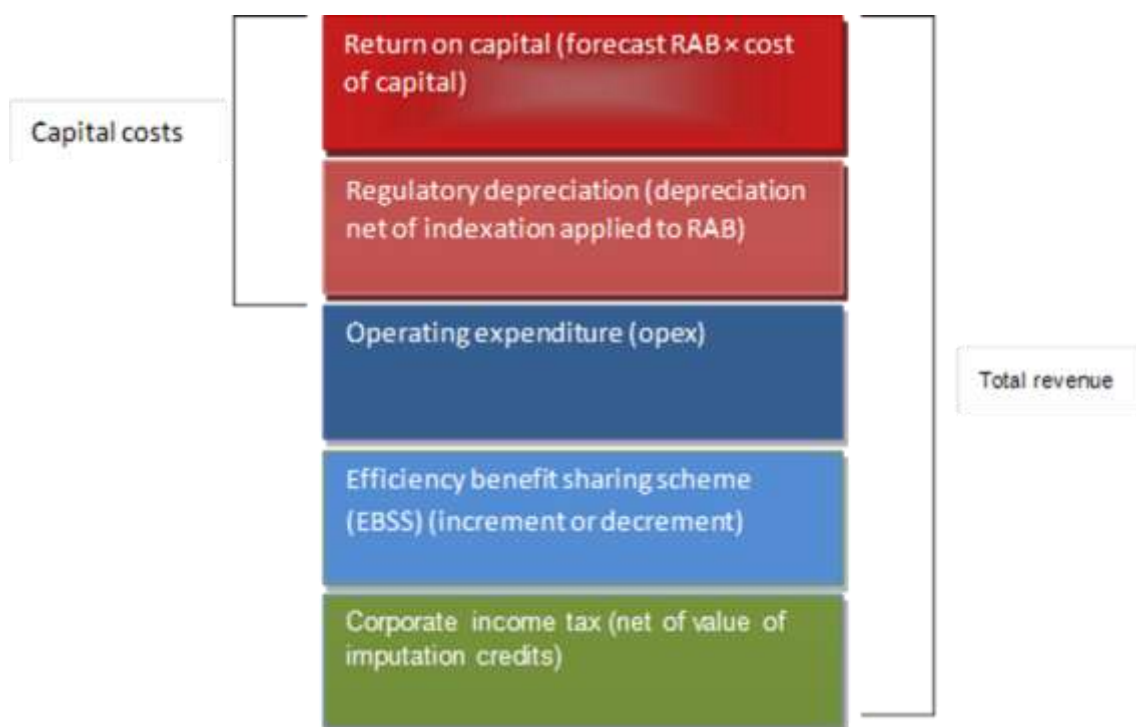


Figure 2: AER’s Building Block approach to determining regulated revenue

SAPN Proposals

SAPN has chosen to change the methods of calculating the various blocks.

APVI Comments.

Note that allowed capex directly affects the size of a distributor's asset base and therefore the return on capital in the above building blocks, as well as opex.

AER considers networks to be a “Natural Monopoly” supplying an essential service. It aims to get the best outcome for consumers. However, as shown by the significant increases proposed by SAPN to cope with increased risk associated with natural disasters and safety and reliability generally, AER should be seriously considering an increase in third party access to service provision, as has been done for meters. This should include, in the first instance, DSM, which appears to be given cursory attention only, as well as service provision in bush fire prone areas, at the end of long lines, or other isolated sections of the grid. Alternative means of service provision for these customers could reduce the costs of electricity for all SA customers.

The building block approach should be used to ensure the best long-term outcomes. However, the way it has been applied here poses large risks of double counting, both because of the flow-on impacts of capex increases leading to increases elsewhere, but also because various expenditure items, particularly those related to risk, are separately listed under each category. AER will need to separate these out and ensure double counting does not occur through either mechanism.

Attachment A: Background on the APVI

The APVI is an independent Institute comprising companies, government agencies, individuals, universities and research institutions with an interest in solar photovoltaic electricity. In addition to Australian activities, we provide the structure through which Australia participates in the International Energy Agency (IEA) PVPS (Photovoltaic Power Systems) and SHC (Solar Heating and Cooling) programmes, which in turn are made up of a number of activities concerning PV and solar system performance and implementation. Further information is available from www.apvi.org.au.

APVI Objective

The objective of the APVI is to support the increased development and use of PV via research, analysis and information.

APVI subscription provides:

Information

- Australian PV data and information
- Standards impacting on PV applications
- Up to date information on new PV developments around the world (research, product development, policy, marketing strategies) as well as issues arising
- Access to PV sites and PV data from around the world
- International experiences with strategies, standards, technologies and policies

Networking

- Opportunity to participate in Australian and international projects, with associated shared knowledge and understanding
- Access to Australian and international PV networks (PV industry, government, researchers) which can be invaluable in business, research or policy development or information exchange generally
- Opportunity to meet regularly and discuss specific issues which are of local, as well as international interest. This provides opportunities for joint work, reduces duplication of effort and keeps everyone up to date on current issues.

Marketing Australian Products and Expertise

- Opportunities for Australian input (and hence influence on) PV guidelines and standards development. This ensures both that Australian products are not excluded from international markets and that Australian product developers are aware of likely international guidelines.
- Using the information and networks detailed above to promote Australian products and expertise.
- Working with international network partners to further develop products and services.
- Using the network to enter into new markets and open new business opportunities in Australia.

The International Energy Agency Programmes

PV Power Systems (IEA PVPS)

- **Mission:** *To enhance the international collaborative efforts which facilitate the role of photovoltaic solar energy as a cornerstone in the transition to sustainable energy systems*
- **Focus** (26 countries, 5 associates)
 - PV technology development
 - Competitive PV markets
 - Environmentally & economically sustainable PV industry
 - Policy recommendations and strategies
 - Neutral and unbiased information

Australia currently participates in:

PVPS Task 1: Information Dissemination

PVPS Task 13: PV System Performance

PVPS Task 14: High Penetration PV in Electricity Grids.

Solar Heating & Cooling (IEA SHC)

- **Mission:** *International collaboration to fulfil the vision of solar thermal energy meeting 50% of low temperature heating and cooling demand by 2050*
- **Focus** (21 countries, 2 associates)
 - Components
 - Systems
 - Integration into energy system
 - Design and planning tools
 - Training and capacity building

Current Australian participation:

- SHC Task 51 – PV in Urban Environments
- SHC Task 48 – Quality Assurance Support Measures for Solar Cooling Systems
- SHC Task 47 – Solar renovation of non-residential buildings
- SHC Task 46 - Solar Resource Assessment and Forecasting
- SHC Task 43 - Solar Rating & Certification Procedures
- SHC Task 42 - Compact Thermal Energy Storage
- SHC Task 40 - Net Zero Energy Solar Buildings

For further information on the Australian PV Association visit: www.apvi.org.au

For further information on the IEA PVPS Programmes visit www.iea-pvps.org and www.iea-shc.org