

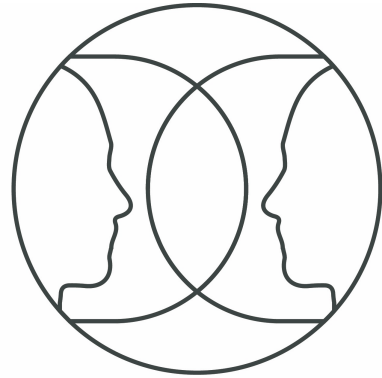


Supporting
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Think Human Future Network 2 Deep Dive Workshop report

2020-2025
Regulatory Proposal
July 2018





Think Human

Strategy. Dialogue. Design.

Future Network Deep Dive Report **SA Power Networks**

2nd July 2018
version 3

Table of contents

Executive Summary	3
Background	6
Workshop overview	7
Summary of results	10
“To what extent do you support SA Power Networks’ approach to enabling the Future Network transition?”	10
“To what extent do you support SA Power Networks’ approach to AUGEX and non-network solutions?”	14
Evaluation	15
SA Power Networks’ evaluation	15
Facilitator’s evaluation	16
Appendix	18
Question and answer responses	18



Executive Summary

As part of the Regulatory Price Reset Engagement Project, SA Power Networks has undertaken a series of Deep Dive workshops in the in-depth phase of engagement, to explore complex aspects of the regulatory Proposal. This report outlines the process, results and evaluation of the Deep Dive on Future Networks Capital Expenditure (Capex) and Operating Expenditure (Opex), Augmentation Capex (Augex) and Demand Management Incentive Scheme (DMIS) as well as non-network options.

The workshop aimed to build understanding of Future Network photovoltaic (PV) penetration in South Australia and seek feedback on SA Power Networks' preliminary approach and proposed expenditure on future networks and understanding the impact of increasing Distributed Energy penetration.

Workshop Overview

The workshop was designed to move progressively from information-sharing, with the flow being predominantly from experts to participants, towards deliberation and feedback with information flowing from participants back to the experts, to inform the final content of the draft Regulatory Proposal.

Participants received a range of presentations as follows, with an opportunity for question and answer sessions at four key points through the day:

1. Future Network Strategy and expenditure proposal
2. Australian Energy Market Operator (AEMO) challenges and opportunities
3. SA Power Networks challenges and opportunities
4. What we have heard from customers
5. Strategies and Options
6. Future Network Capex/Opex proposed expenditure
7. Augex and DMIS proposed expenditure

Who was in the room?

Workshop attendees came from a broad cross-section of stakeholder groups and backgrounds, making for a robust and diverse discussion of topics presented. The distribution of participants is described in the table below.

Stakeholder group	Number of attendees
Customer Consultative Panel (CCP14)	3
Australian Energy Regulator	3
Retailers	2
State Government	3
Renewables Reference Group	7
Business Reference Group	2
Community Reference Group	1
SA Power Networks	18
Australian Energy Market Operator	1

Summary of results

Dynamic Management

Participants supported moving away from placing fixed limits on distributed energy resources (DER) that would mean excluding later installations on residential premises as a fair and equitable way to proceed. Some suggested that a barrier to new DER entrants would limit innovative and experimental approaches, such as community solar farms. Participants noted however that they did not all feel they had enough knowledge to give an outright 'yes' to this proposal. For example, some sought more modelling of what the relative financial benefits were of dynamic management versus static limits.

Improved Monitoring

Participants largely agreed that SA Power Networks and AEMO need to have better visibility into the state of network and improved monitoring and control at peak periods. As this improved data becomes available, it is important that forecasts and modelling are constantly revised by AEMO and others to ensure decisions continue to be made on the basis of the best available data. It is also important that attention is paid to which customers are impacted and how; ongoing quality of service and 'lights on' for all customer is critical, and attention should be paid in particular to impacts on low income customers.



Customer-focused approach

Participants wished to be sure that proposed plans were in the best interests of customers. There was some concern that customers were not being given an option but were being told it was this or pay more in the long-term. Participants asked for other options to be costed and put on the table to enable comparison with the current proposal, including other options mapped out for implementing dynamic control, with costs and customer value for each explained. A customer-focused approach is critical in the context of escalating customer bills, and SAPN needs to consider this as an urgent issue to address.

Shift from ongoing 'business as usual'

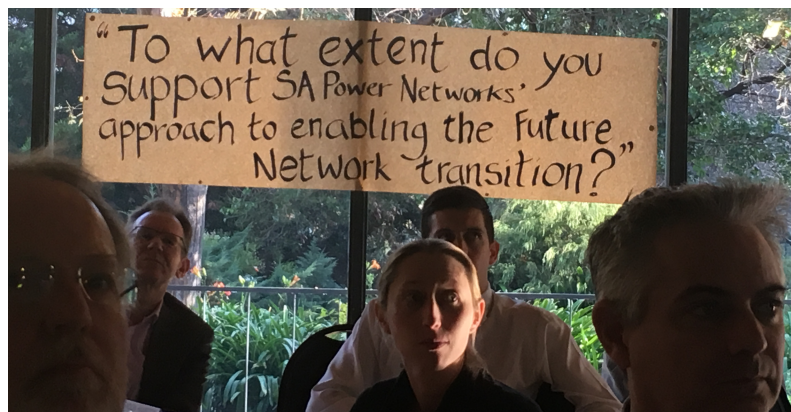
Participants all agreed that something had to change, even if there were questions about the modelling and costing of what was being proposed. Ongoing business as usual was seen as an inefficient and expensive option that did not provide the required level of service and future-proofing required. Likewise, participants recognised that SAPN is at the forefront of what will be a growing issue globally and have an opportunity to set precedent. SAPN is encouraged to seek aligned partners (e.g. Energy Queensland) and identify ways to test their thinking in future networks options and non-network solutions.

Ongoing investment in non-network solutions.

Participants were broadly supportive of ongoing investment in non-network solutions, and encouraged SAPN to keep an open mind to a range of solutions and to ensure that the financial implications of any non-network solution were carefully scrutinised. Some felt it was important that non-network solutions enable SAPN to 'think out of the box' for new long-term solutions.

Greater choice and customer involvement.

Participants felt that with more options and community discussion, customers could actively participate in non-network decision-making and SAPN should continue to create opportunities to engage customers in identifying solutions together.



Background

Every five years, SA Power Networks (SAPN) develops a Regulatory Proposal outlining its proposed operations and expenditure. Engaging the public to understand their most pressing concerns and priorities is an integral component of how this Proposal is developed. This proposal is submitted to the Australian Energy Regulator (AER) for assessment.

The Regulatory Reset Proposal Customer Engagement Program for the 2020-2025 Regulatory Proposal has been designed drawing on best practice from the industry and from community engagement practice as well as building on previous SAPN experience. Key frameworks and principles underpinning this work include the International Association for Public Participation (IAP2) Public Participation Spectrum and the AER Stakeholder Engagement Framework.

The Customer Engagement Program is designed in three phases, as follows:

Phase 1: Strategic Research and Early Engagement

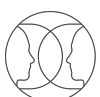
The key platforms for this phase were preliminary customer research, a reference group survey and planning workshops with stakeholders. These activities were designed to build an understanding of current customer and stakeholder needs, values and priorities and subsequently develop an appropriate and accessible engagement approach. Key deliverables were a set of Customer Insights, the Engagement themes and the Engagement Program Framework.

Phase 2: In-depth Engagement

There were three key platforms in this phase: a series of Directions workshops, targeted engagement for specific customer groups and online engagement through the *Talking Power* platform. The objectives of this phase were to deliberate on the engagement themes and deepen understanding of stakeholder and customer preferences and priorities across the breadth of SAPN's stakeholder groups, including vulnerable customers and those from Culturally and Linguistically Diverse background. This phase concluded with an assessment of phase outcomes and the development of an overall Engagement Outcomes Report.

Phase 3: Draft Plan Development and Engagement

There are two main platforms for Engagement in this phase: a set of Deep Dive workshops to explore complex and technical aspects of the Regulatory Proposal and technical workshops at the request of the Australian Energy Regulator (AER). Following an



assessment of the outcomes of this and prior phases, SAPN will develop its draft plan and Tariff Structure Statement discussion paper.

This report outlines the process and outcomes from the Deep Dive workshop held on 31st May 2018.



Workshop overview

This Deep Dive was designed to deliver on the following objectives:

- to build understanding of Future Network PV penetration in SA
- to explore possible strategies for mitigation
- to seek feedback on SAPN preliminary approach to the issue of PV penetration
- to explore what customers and stakeholders value in relation to several future networks capital and operational expenditure categories
- to seek feedback on preliminary expenditure step changes proposals to inform Draft Plan
- to identify areas of stakeholder acceptance and areas that require further discussion

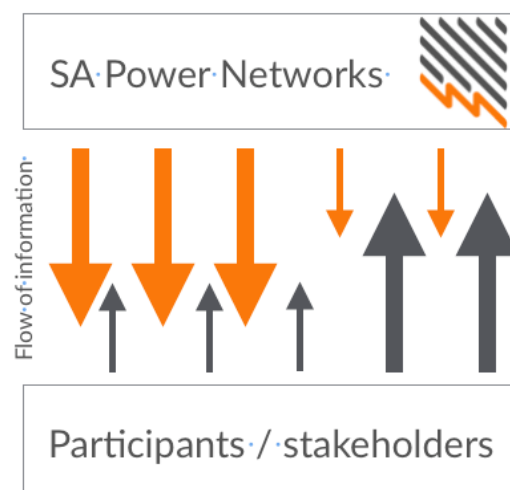
Planning took place over a series of three plenary sessions involving all SAPN stakeholders who were contributing to content development and delivery, with additional content development carried out by individual content experts between planning sessions. All plenary planning sessions also involved the external facilitator to ensure delivery methods were appropriate and accessible for the stakeholder groups attending.



The overall workshop methodology was designed to move from an expert-led flow of information to participants into a participant/stakeholder-led flow of information back to the experts, in this case SAPN. The diagram to the right describes the overarching workshop design.

In order to deliver on this methodology, the workshop was divided into two sections:

1. Information sharing
2. Deliberation and feedback



1. Information sharing

The early stages of the workshop were designed to maximise information flow from SAPN to workshop participants. Presentations in this first section, which spanned the morning session, were:

Future Network Strategy and expenditure proposal

Introducing the Future Network Strategy and the capital and operating expenditures (capex and opex) of the proposals - a brief presentation by Mark Vincent, General Manager, Network.

AEMO challenges and opportunities

An overview of the current challenges and opportunities facing South Australia from the perspective of the Australian Energy Market Operator from Dr. Jenny Riesz, Principal - Operational Analysis and Engineering.

SA Power Networks' challenges and opportunities

An overview of the current challenges and opportunities facing South Australia from the perspective of SA Power Networks from Mark Vincent.

What we have heard from customers

An overview of the Customer Engagement program and what SAPN has heard in relation to Future Network by Jessica Vonthethoff, Manager, Stakeholder Engagement.

Strategies and Options

An overview of the Future Network Strategy, the the options and proposed approach and a case study to demonstrate the imperative for change, presented by Brendon Hampton, Future Networks Transition Manager.

Presentations were followed by a question and answer session where participants could challenge presenters and seek clarity on information presented. A full list of questions asked during these sessions is included as an appendix to this report.

To enable participants to maximise the opportunity to gather the required information from the morning presentations, two devices were designed into the methodology to strengthen the participant voice:

- a. **Key overarching question:** Participants were presented at the outset with an overarching question which was visible at all points through the workshop and was their 'true north' to guide their thinking, questioning and recommendations throughout the workshop. This question was determined in advance by SAPN with guidance from the external facilitator, to ensure it was broad enough to enable participants to seek to their own priorities and enabled them to challenge SAPN to provide greater clarity or depth as required. For this workshop the question was: "To what extent do you support SA Power Networks' approach to enabling the Future Network transition?"
- b) **Critical Thinking Elements¹:** Participants were introduced to a set of critical thinking elements and encouraged to use these to help them ask challenging questions of presenters. These critical thinking elements help participants to seek greater clarity, relevance, accuracy, depth, breadth and logic in the information they are receiving.

2. Deliberation and feedback

The second half of the workshop was designed to maximise the flow of information from participants back to SAPN. Participants heard further input from SAPN content experts and had a further opportunity to engage in a question and answer session before deliberating in small groups. Presentations to inform this second section, which spanned the afternoon session, were:

Future Network Capex/Opex expenditure

A detailed breakdown of proposed capital and operating expenditure for Future Networks projects, presented by Bryn Williams, Future Network Strategy Manager.

Augmentation Capital (Augex) and DMIS Expenditure

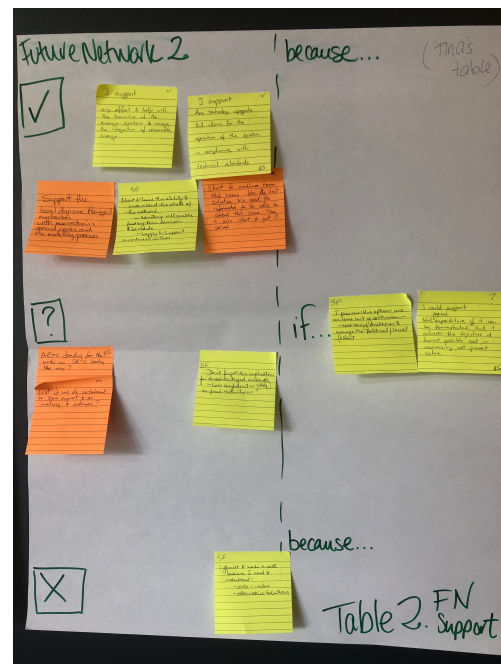
A detailed breakdown of proposed Augex expenditure and current non-network opportunities by Mark Pynn, Distribution Planning Manager, and Travis Kauschke, Future Networks Engineer.

During this deliberation, participants were asked to respond to their key overarching question and give feedback to SAPN on what aspects of the proposal they supported, what aspects required more information and what aspects they could not support. Participants were given a proposed framework to capture their feedback to minimise the opportunity

¹ Mosaic Lab. <https://www.mosaiclab.com.au/news-all-posts/2016/10/17/in-the-works-critical-thinking>. Accessed 21/05/18.



we support...	because...
we could support...	if...
we do not support...	because...



for misinterpretation in reporting; however, all were given a blank sheet and could report back in their own format if desired. The proposed framework, with an example of how participants put it to use in the workshop is shown below.

Summary of results

“To what extent do you support SA Power Networks’ approach to enabling the Future Network transition?”

We could support... Dynamic Management

Participants supported moving away from placing limits on DER that would mean excluding later installations on residential premises, which would lock people out. DER management seems to support this as a more fair and equitable way to proceed. Some suggested that a barrier to new DER entrants would limit innovative and experimental approaches, such as community solar farms.

“It seems like the most sophisticated response to rapid change.”



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“Things are changing quickly. We need strategies that allow flexibility, efficiency and fairness.”

Participants noted however that they did not all feel they had enough knowledge to give an outright ‘yes’ to this proposal. For example, some sought more modelling of what the relative financial benefits were of dynamic management versus static limits. Likewise, participants asked for more transparency in the data from the trial sites to deepen their understanding of the proposal. Some participants recommended the development of a set of principles to govern dynamic constraints and control.

Most groups acknowledged that this was a good start, and acknowledged that something needed to change rapidly to manage the challenge. Whilst there was broad agreement for the principle behind this strategy and for its implementation in the next five years, there was also support for combining dynamic management with a more sophisticated tariff system to manage the issue through shifting load distribution.

Participants largely agreed that they could support this proposal if they were confident that the modelling is accurate, it is based on best practice and it represents the best value to customers for the most economical spend.

“SA Power Networks have made a good case that change is necessary. I just doubt the models and the solution.”

A number of questions arose that participants ask SA Power Networks to consider in moving forward:

- How confident is SA Power Networks about price reductions? Please don't forget the implications to disadvantaged customers.
- How much Dynamic DER management do you need if you're managing via price?
- How does this approach work if SAPN is not the 'DER orchestrator'? e.g. AGL, DeX etc. will all have their own DER control strategy)
- Is the LV management strategy the industry standard or bespoke to SAPN?
- Are solar farms being considered?
- What will need to be spent anyway, regardless of whether we proceed with dynamic control?

We can support... Improved Monitoring

Participants largely agreed that SA Power Networks and AEMO need to have better visibility into the state of the network and improved monitoring and control. Participants supported moving to a Smart system that allowed access to the data and control to enable Smart responses. It was recognised that good monitoring is required to make good long-term decisions.



“[We need] regulation - so you have to have a smart inverter that coughs up the system information if you want to use the system.”

As this improved data becomes available, it is important that forecasts and modelling are constantly revised by AEMO and others to ensure decisions continue to be made on the basis of the best available data. It is also important that attention is paid to which customers are impacted and how; ongoing quality of supply and ‘lights on’ for all customer is critical, and attention should be paid in particular to impacts on low income customers. Some suggested SA Power Networks needed to take the argument to government to provide more support for vulnerable customers to be able to afford any customer costs for the changes required.

One group noted that they supported improved information on DER installations through a registration process and database. Participants were unclear how standards would be implemented into upgraded inverters.

We can support... a customer-focused approach

Participants wished to be sure that proposed plans were in the best interests of customers. There was some concern that customers were not being given an option but were being told it was this or pay more in the long-term.

“Clearly there’s a problem and it needs solved. but we need more customer framing, more customer-focused. We can’t put customers ‘over a barrel’”.

Participants asked for other options to be costed and put on the table to enable comparison with the current proposal, including other options mapped out for implementing dynamic control, with costs and customer value for each explained.

Again, differentiation between different customers is important with attention being paid to vulnerable and low income customers to ensure they do not face increasing costs or escalating debts and risk of disconnection. A customer-focused approach is critical in the context of escalating customer bills, and SAPN needs to consider this as an urgent issue to address.

Some suggested that consideration be given to a more phased approach without spending ‘truckloads of money.’

Some participants questioned if limiting export back into the Network might suppress customer demand for solar and alter projections and assumptions. Customers expect to be able to export power into the grid and be rewarded for it, and engagement with customers is critical to build understanding and ensure accuracy in modelling based on assumptions about consumer behaviour.



Participants urged SAPN to be able to tell a good and meaningful story to customers about this, why it is critical and what it means for them. This requires deeper consideration of these proposals from the customer's perspective, not from a technical perspective, in order to take customers on the journey.

"The value proposition to customers does not engender trust or commitment."

We cannot support... ongoing 'business as usual'

Participants all agreed that something had to change, even if there were questions about the modelling and costing of what was being proposed. Ongoing business as usual (BAU) was seen as an inefficient and expensive option that did not provide the required level of service and future-proofing required. Likewise there was support voiced for transitioning the energy system to better manage the integration of renewable energy.

"BAU can't be an option because it only maintains the inequality and inefficiencies of today."

Participants did not doubt the technical arguments for why change was necessary, but sought greater clarity to the different components of the proposed spend, what each would deliver and why they are essential to dynamic control. As already noted, some were interested in what a phased or 'stepped down' approach to the proposed expenditure would look like, and what the implications would be of a more phased approach.

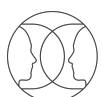
Likewise, participants recognised that SAPN is at the forefront of what will be a growing issue globally and have an opportunity to set precedent. SAPN is encouraged to seek aligned partners (e.g. Energy Queensland) and identify ways to test their thinking in future networks options and non-network solutions. A small number of participants voiced concerns about the lack of visible partnerships in this proposed way forward.

At the other end of the spectrum, one group also noted that continuing to apply no constraints and choosing to upgrade the entire system was also not an efficient or smart option.

As a general comment, one group made a series of observations about the recent changes to metering rules and felt that in light of the day's conversations, this decision had come at a bad time and they voiced concern that this would add to the problems.

"The more we hear, the more problems that become relevant as a result of Low Voltage network 'not being seen'. You are working in the dark."

This group suggested that in the future SAPN would be allowed to charge people for export, or conversely pay people to reduce their export at critical times.



“To what extent do you support SA Power Networks’ approach to AUGEX and non-network solutions?”

We can support... ongoing pursuit of non-network solutions.

Participants were broadly supportive of ongoing investment in non-network solutions, and encouraged SAPN to keep an open mind to a range of solutions and the financial implications of any non-network solution were carefully scrutinised. Some felt it was important that non-network solutions enable SAPN to ‘think out of the box’ for new long-term solutions. Underpinning any investment there was the assumption that rigorous business cases would be developed and AER support gained. Some participants were happy to see investment in non-network solutions particularly where this would provide benefit to low income customers, whilst others saw an opportunity to leverage government funding programs for solar and battery. As with the Future Networks proposed spend, some participants wanted to see more comparisons and trade-offs between options, and clear cost benefit analyses for customers, to give a considered opinion. SAPN needs to be able to demonstrate that they can deliver the savings they propose.

Some participants questioned how small the figures seemed to be; given the right conditions and subject to robust business cases, there was widespread support for the ongoing investment in non-network solutions.

“It seems small in total - I’m surprised there aren’t more opportunities for non-network.”

Some participants were pleased to see that planned AUGEX spending was less than in the previous regulatory period.

We can support... greater choice and customer involvement.

Participants felt that with more options and community discussion, customers could actively participate in non-network decision-making.

“In traditional vs non-network approaches, if you show more options you can allow the community to determine how much value they want for their money.”

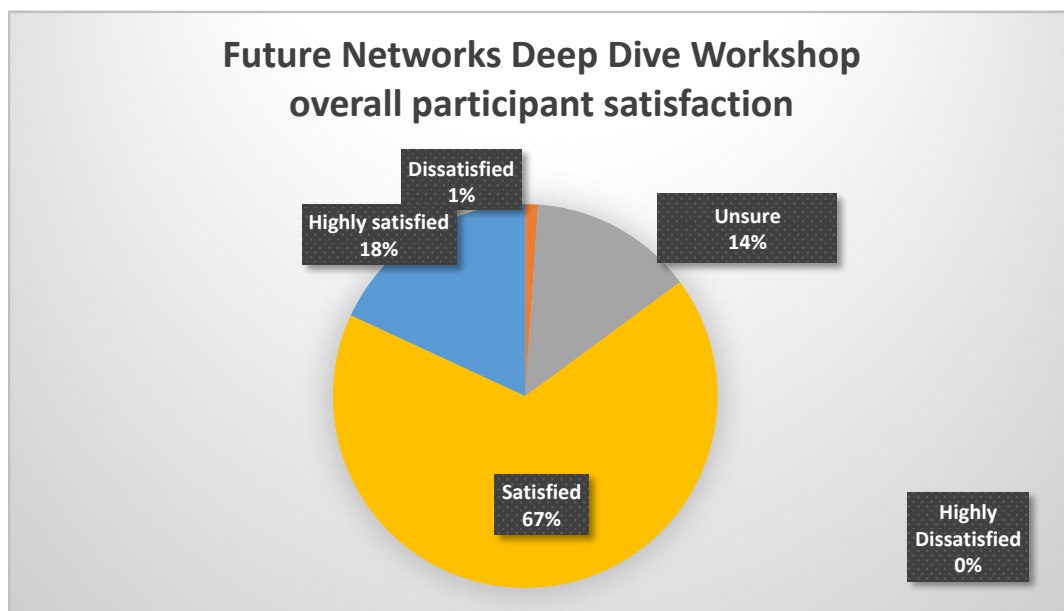
One example given was the challenge of shifting consumer behaviours to respond to the solar trough and ‘shoulder’ seasons, and how there could be various opportunities to engage customers in identifying solutions together. Participants wanted to see more narrative around this topic with examples, such as Gawler East.

Evaluation

SA Power Networks' evaluation

Participants were asked to evaluate the workshop for clarity of information, range of engagement opportunities, time provided range of topics, extent to which they felt their views were considered and the overall facilitation of the session. A total of 16 participants completed the evaluation.

Overall 85% of participants were satisfied or highly satisfied across all these dimensions. The detailed breakdown of evaluation results is included below as a percentage of total respondents.



	Highly Dissatisfied	Dissatisfied	Unsure	Satisfied	Highly satisfied
Clarity of information provided in the workshop	0%	0%	18.8%	75%	6.3%
Range of engagement opportunities provided	0%	0%	6.3%	81.3%	12.5%
Amount of time provided to allow effective participation in activities*	0%	0%	33.3%	60%	6.7%

Range of topics discussed*	0%	0%	6.7%	80%	13.3%
My views were considered within the process	0%	6.3%	12.5%	62.5%	18.8%
Session chairing/facilitation	0%	0%	6.3%	43.8%	50%

* these two questions had only 15 responses compared to 16 for all other questions.

Facilitator's evaluation

As an external facilitator of the Deep Dive workshop on Future Network and non-network solutions, I offer the following observations and feedback for consideration in the planning of future engagement.

SA Power Networks should ensure adequate time is allowed for engagement

In combining the engagement workshop for Future Network and non-network solutions, participants had constrained time for deliberation and had large amounts of technical information to digest in a short period of time. I observed that the volume of participant feedback declined significantly between the two deliberation rounds for Future Network and non-network solutions, which may suggest that the combination of two inter-related but distinct topics resulted in a slight compromise in feedback on the second topic.

SA Power Networks should ensure data presented is clear and comprehensible to non-expert audiences

SAPN staff should be commended on their ability to share highly complex information in comprehensible ways. In particular I would like to highlight the use of a case study and some live examples to enable people to connect with the information and its applicability to consumer interests and experiences. Likewise, SAPN should be commended for engaging expertise from AEMO to support the workshop and provide breadth to the discussion. It is noted that SAPN staff were careful to explain all acronyms prior to use and made no assumptions that the audience would have prior knowledge of these terms.



However, in their efforts to make information accessible SAPN appeared to have over-simplified some data and participants required further explanation of a number of diagrams and visual representations during the presentations. Likewise, some terms required further clarification; for example, the term 'customer value' was discussed at length and appeared to be used ambiguously at times to describe a complex combination of factors that led to customer or community value. SAPN should pay attention to these issues in future engagement workshops and ensure that simplification of data does not lead to ambiguity or miscommunication.

SA Power Networks should continue with their open approach to feedback and engagement.

SA Power Networks should be commended for their openness to customer engagement. SAPN was represented by senior leaders including two general managers and other senior managers and key staff from across the business. All showed genuine openness to respond to participant questions and comments without showing defensiveness. Likewise, in working with SAPN to prepare this session, they were open to take feedback on their proposed structure and were willing to adapt to the recommendations of a new facilitator with a different range of skills and methodologies to shape the engagement. An example was their openness to use the critical thinking elements that I proposed, as well as the deliberation framework to guide participants discussion and feedback. They should be commended for considering it thoughtfully and ensuring I had walked them through this approach in detail to demonstrate how it would enhance the participant role. In planning, SAPN staff showed a genuine commitment to making the engagement process as good as it could be.

Given the complexity of information that SAPN engagement processes entails, I recommend that they continue to use the Critical Thinking elements, or similar, and the use of an overarching question, to enable participants to ask insightful questions and unpack the complexity of the information presented. I observed participants both asking focused questions (e.g. "For clarity, can you please explain...") and equally importantly, taking questions offline if they were of personal interest but off-topic e.g. "I have another question but I don't think it's relevant, so I'll discuss it with you in the break...").

Appendix

Question and answer responses

Session 1: Background	
Mike Swanston, CCP14	With regard to the suggestion that solar will be running the State by c.2027, what about the other 16 hours of the day? I am particularly concerned about what happens at night. Will this influence network design - I feel this piece is missing and would appreciate feedback.
panel response:	AEMO is looking at how we manage this transition on a daily basis; SAPN are looking at this at both a local and at a whole of system level.
Matt Curnow, RRG	We are all part of the NEM. Can we standardise across Network providers in other states and apply standard rules? What consideration is being given to this?
panel response:	The panel agreed that coming together to talk across states makes sense. Whilst there is a lot of collaboration across the industry and virtually every company does have input to the roadmap, the panel acknowledged there was room for improvement and ENA, AEMO, SAPN and Queensland agency could come together more. There is a need to standardise the process.
Jenny Marwood, CCP	SAPN isn't involved in overseeing PV and battery installation but they used to be in control. Why have they lost control?
panel response:	The requirements for connection PV and other DER to our network have not changed
Jenny Marwood, CCP	Is it possible to change the FIT to get the technical standard installed?
panel response:	SAPN is not responsible for the FIT and we therefore can not legally make these changes - something for state government and retailers or another regulated path.
Jenny Marwood, CCP	The upward trend of solar is very nice on the charts, but does this take into account the degradation of existing systems and replacement of systems?
panel response:	Jenny Riesz confirmed that AEMO's projections are calculated taking into account all these variabilities and as such are complex and based on best knowledge and projections of future market behaviour.
Juris Kuznecovs, AER	There is a PV generation focus on all the graphs. Wind generation is not represented - how are we considering the impact of wind?
panel response:	There are two wind plants in SA, both largely managed by AEMO. Both are very large - over 30mW. They are included in the modelling and calculations but they are not part of the issue as AEMO has control and can switch on and off as required.
Juris Kuznecovs, AER	If over-production of PV leads to voltage problems, why can't we increase battery absorption capacity at individual or community level?
panel response	On mild days there isn't so much underlying load and people tend to start the day with some level of charge in their battery. The battery fills up quickly and at the moment there is no incentive to delay absorption to peak charging period. We will probably move to this sort of incentive in the future. Batteries are an expensive investment for something that is a problem only a small percentage of the time. Modelling shows that this is not the most economic solution.
James Bennett, SAPN	Is the low hosting capacity described only from the very old, narrow lines?



Session 1: Background	
panel response	Even new lines are problematic because over demand at certain times leads to poorer hosting capacity.
Mark Byrne, TEC	How much control do you have over AS4777? Can you interrupt production over an inverter?
panel response	At the moment there are mandated settings but we rely on installers doing what they say they do. We have no legal way to check if they are complying. The capability exists in the technology in new inverters, but the permission is not there yet for SAPN to be able to control this at critical times. "What we have with PV is the equivalent of the largest power station in the state that we can't control" Mark Vincent.
Louise Benjamin, CCP14	More network assets - keep all non-network solutions in mind in the discussion, including market solutions.
panel response	Network assets refers to transmission assets

Session 2: Customer Feedback, Strategies and Options	
Mike Swanston, CCP14	The technical concept and proposal are not complex. What else do you need to make this happen - what's holding you back?
panel response:	This question was taken on notice for the afternoon session.
Mark Greening, CCP14	How do you define 'value'? (referencing customer value in slide 50 with reference to local dynamic management as compared to setting a static limit) Is it revenue?
panel response:	This isn't feed in tariff but value in the marketplace. There are currently economic consultants working on calculating lost value to the community. (A deeper discussion of this question was taken offline.)
Matt Curnow, RRG	<i>Looking at the network, you have Volt-VAR inverters, does it change the incentives? Are reactor banks the solution?</i>
panel response:	<i>It would push out time to employ other strategies. Complexity model - 77kTF on network, DER, load and AEMO forecast projections. It throws up options to pick up most effective. So incentivising is part of the model but curtailment is most effective. Smart local curtailment is a way to put energy back into the network and pull the voltage back down. But it's not 100% effective, particularly for end-of-line customers. This uses spare capacity in the customer inverter - it's quite an elegant solution. Reactor banks are not as economical as inverter replacement.</i>
Iain Maitland, CCP	As an owner of PV, my battery is charged by 10:30am. It doesn't get used until evening so it wouldn't matter if it didn't get charged until later in the day. How can you engage customers to understand and make changes to behaviour?



Session 2: Customer Feedback, Strategies and Options	
panel response:	We do want to incentivise customers and were are suggesting a new solar battery system some time in the future with 'smart' inverters, for example with 10kW cap reducing to 2kW on bright spring days as these are the days that would breach network systems. In summary, a feed-in management system at distribution level.
Mark Greening, CCP14	A major factor intro problem is the gross subsidy for residential PV. You are proposing that they connect new customers for no cost, which continues this subsidising approach. I am concerned that if we continue with this expectation of gross subsidy we can't reduce the cross-subsidies in the system.
panel response:	No cost connections is State Government legislation, so SAPN is legally required to comply. <i>Grossness of cross subsidy (premium feed in tariffs - yes) we are noticing it now... we only have the ability to... difference of equity</i>
Matt Curnow, RRG	Are we the only ones in the world experiencing this? Can we learn from elsewhere?
panel response:	AEMO is undertaking an international review. Some work is being done in California, Japan and UK - but SA is ahead of others in this space.
Mark Byrne, TEC	How do you export static limits?
panel response:	If we are successful with dynamic management, then we assume we won't need static control
Mark Byrne, TEC	There are costs involved with cross-subsidies and these need to be managed. Efficiencies will be obtained and we need to manage equity issues through tariff system. Low income households need to be involved and will need to provide guidance and support to them.
panel response:	This was taken as a comment rather than requiring a response.
Lynne Gallagher, ECA	Will data gathering be open source e.g. VPP? Open source might take out costs in other parts of the system.
panel response:	Privacy - won't publish individual data Aggregate data may be looked at as to what the best way to make aggregated data available
John Herbst, RRG	What is the value of LV transformer monitoring? Why spend the money then you could get the information from third party sources?
panel response:	A combination is required to provide the most efficient outcomes. - our aim is for the best cost effective means of data gathering we will use other open source data sets where available. 3rd party sources are unlikely to be able to offer complete visibility for some time. need data and systems in place over a time frame which is much sooner than what we see as likely 10 years from not available
John Herbst, RRG	What % of compliance do you need? How do you incentivise people rather than force them to comply?
panel response:	we don't know what level we need and this will change over time - and depends on the technical nature of the section of the network. On incentives, the current regulatory framework for us to apply incentives on demand is not currently in place - and would be required.

