SA Power Networks Regulatory Proposal Engagement 2025-30

Focussed conversation – Energy Transition

Workshop 2 – 18 October 2022

Workshop notes – table discussions and online discussions

SA Power Networks

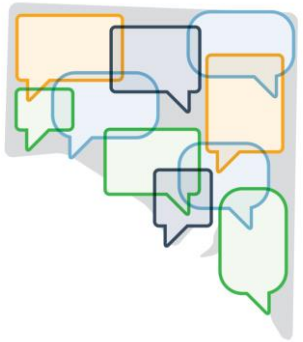


DER integration initiatives – increasing export capacity

Initiative	Scenario 1	Scenario 2	Scenario 3
Indicative annual bill impact range (to be refined for workshop 3)*		$2-$20 residential $10-$60 business	
Enhanced Voltage Management (EVM) phase 2			
Investment in more advanced dynamic voltage management at the substation level – implement closed-loop voltage control	No	Yes	Yes
LV transformer re-tapping program – reduce average voltage across the network	BAU only	Yes	More LV areas
LV phase balancing program			
Targeted export capacity augmentation			
LV transformer capacity upgrades	No	Yes	More LV areas
Replace old fixed-tap LV transformers	No	Yes	More LV areas
Infill transformers – add capacity by splitting LV areas	No	Yes	More LV areas
Install voltage regulators	BAU only	Yes	More LV areas
Other HV voltage management equipment	BAU only	Yes	Yes
Zone substation upgrades	No	Northfield, Meadows	Northfield, Meadows, + 1-2
Supporting systems and business functions			
Flexible exports engine and API recurrent maintenance and scaling costs	Yes	Yes	Yes
Operations centre staff – DER management systems and optimisation	2xFTE	2xFTE	4xFTE
SCADA to substations with reverse flows but no visibility	Yes	Yes	Yes
Compliance program			
Working with industry to improve compliance to technical standards (e.g. inverter standards) that enable the network to operate efficiently, plus automated systems	No	Yes	Yes

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Discussion



Straw poll

1. Have we adequately explained our approach to forecasting demand, what we mean by ‘DER integration expenditure’, and the kinds of investments we are considering to resolve voltage and capacity constraints?

   Yes No

2. Is there anything we’ve not considered?

3. Do you agree with our proposed approach to expressing the level of service we provide to DER customers?

   Yes No

4. Should we target a market economic outcome, or a customer service level outcome?

   Yes No

5. How important is equity of access?

6. Should we offer DER customers a choice of export service levels?

   Yes No

   Choice is good

   Things are complicated enough

1. Have we adequately explained our approach to forecasting demand, what we mean by ‘DER integration expenditure’, and the kinds of investments we are considering to resolve voltage and capacity constraints?

- Assumption for forecasting, e.g. hydrogen, shift to solar self-consumption due to higher energy costs, hesitance to upgrade based on loss of PFiT
- Good job, good amount of information. Helps put things into perspective
- Yes (residential – businesses would be treated differently)
- What is the current service level?

2. Is there anything we've not considered?

- Community batteries, medium-scale network connected batteries
- Expanding beyond the view of behind-the-meter, larger network connected generation
- Reduction in relative costs of PV & BESS over the past decade, likely to continue decreasing as supply increases
- Customers moving off-grid, reducing value in grid-connections vs going off-grid
- There is a 'grey' area about extension (eg Dec 2022 or 2023?)
- What happens to customers who have a 'big system' and expect costs to go down? Incentive to purchase EV/battery storage
- What is the incentive for customers to 'export' as $ is low?
- People on a premium tariff will want to continue to export at the higher Feed in Tariff (FiT)
- Have SAPN effectively modelled change in FiT in 2028?
- If you are on a Time of Use (ToU) tariff you don't care about J tariff
- Does SAPN have a role to set tariff to recover costs associated with export?
- Consider car charging might be on weekends, due to increased mileage (not everyday or night)
- Needs to consider commercial impacts e.g. charging state of demand, access and price signals. SAPN will design large/commercial customers
- Is SAPN looking at Virtual Power Plants (VPP) and batteries?
- Are VPPs only for retailers and do they respond to more signals?
- How is the intrinsic hosting capacity calculated as it's not straight forward?
- Does SAPN have issue with high voltage at night?
- Would we consider EV chargers a solution to curtailment?
- New smart meters can help with 'behind the meter' use
- When business charge during the day they get FB tax. Hopefully this might change
- SAPN has modelled large fleet (e.g. bus) charging
- Real estate development
- Emerging products
    - Community batteries
    - Non-SAPN specific options
    - SAPN incentivising other options
    - New tariffs arrangements
- How do other externalities impact demand shaping initiatives e.g. climate change, supply change, energy/tech price?
- Evidence of consumption behaviour inputs e.g. EV charging profiles
- Different sensitivities to show materiality
- Deep dive on the modelling with interested stakeholders
- Non-network solutions
- Environmental value of solar enablement
- Cost recovery for investments that benefit load and export
- The nature of load is evolving e.g. reactive power control, smart loads, HEMS
- Targeted programs to encourage

3. Do you agree with our proposed approach to expressing the level of service we provide to DER customers?

- SAPN define a level of service as the amount of time customers have full control over their DER
- The more information we can provide on service offerings, substitutes to paying for network investment, the more informed decision customers can make
- May be a willingness to target minimal reliance on the grid
- Educating customers on how they can aid without having to pay to build out the network
    - Installing batteries, daytime load shifting
    - Installation of digital meters/smart meters, how ToU tariffs will affect them
        - Make the benefits clear for customers as well as the network
- Language customers are using is ‘minimum viable product’
    - Come asking for a large connection (i.e. 5MVA), but only need 1MVA export capacity to stack up
    - BESS blending into applications
    - What is the MVP that customers want?
        - MVP vs optimal product
- Should SAPN have hours of curtailment? Does it make sense?
- Education is very important (and interpretation)
- “Turning them off” will scare customers
- What is the impact in spring, after 2028 when PFiT ends?
- STC discount is important to encourage customers to put in larger systems
- SAPN can have a role to education customers/advise of options
- Has SAPN looked at carbon trading?
- Subjective (yes)
- Is ‘power’ a better service metric?
- Should it consider the usable capacity? (narrow window eg 10-3)
- How do we link this with investment decision calculations for CER?

4. Should we target a market economic outcome, or a customer service level outcome?

- Input from customers as to what they're willing to pay for
- Customers need to make informed decisions – the information is there, need to educate customers
- What do I get for the increased cost on my bill?
- Need more refined view of what the costs are, and the impact to you as customer
    - Cost & service outcomes
- Need to be aware of total cost to customers when customers agree to a number of individual projects
- Need to consider customer willingness to pay, not just what customers want
- Treat it analogous to the load service
- Customers are driving this transition and considering their needs, which may not be reflected in the economic case
- Economic case may disincentivise individuals who are in constrained areas – less return on their investments
- Economic case is missing key value factors and long term energy increasing of prices is fraught

4. Should we target a market economic outcome, or a customer service level outcome?

- People are time-poor, challenge around engaging them
- Low income, $20 bill impact warrants attention & care
- High income, same impact less meaningful
- Customers need to know what it means for them
- ‘How are things going to be different for me if SAPN spends $X’
- What is correlation of 5% to vulnerable customers or get low reliability?
- World Energy Council coming to SA and will have voice to equity
- There is poor understanding of customers, about the benefits of home solar and access to it (the difference between feed in, export tariff, home use)
- SAPN has a large role to education, lots of players in the supply chain
- Solar sales can/does provide incorrect information.
    - Truth is not always told or explained
    - The pay back period is important
- If we are upgrading to allow more export, who should pay? (e.g. cross subsidies)
    - If you export you have to pay
    - Everybody pays via STC
- Storage is a big problem and opportunity
- How do we define equity of access?
- Should this be a basic essential service?
- Should we create parameters to reduce equity issues. Eg limits to oversizing, export limit allocation>

5. How important is equity of access?

- Needs to be a minimum level of service
    - Customers don't know what a minimum level of service is
    - With that knowledge, customers can make an informed choice
- Not an entirely new concept – akin to reliability
    - More attention on the topic during different weather, economic scenarios etc
    - Customers different priorities at different times
- Low ownership of EVs currently – struggle to get an informed decision
- How often can I run my A/C at full capacity? Relate to existing technologies
- What are people's expectations of minimum level of service?
    - How often am I being curtailed?
    - Tension increased with things like low FiT
- Energy advisory is key – people don't understand solar, let alone other DER
    - People are confused, some customers are getting left behind
- Regional needs differ to metro needs – existing experience with reliability & need for generators
- Media was focused during energy crisis on eastern states perspective
- We're connected to a national grid
    - Not looking at SA in isolation – take into account effects flowing from other states & wider economic events
- Struggle to find accurate, relevant, SA specific news & information – media tends to be biased towards eastern States
- Keeping informed on changes in the energy space that are relevant, targeted to you as a customer and the area you live in, what's happening in your space'
- Equal access to information is just as important as equal access to the network & associated services
- Better explanation can circumvent unproductive/divisive discussions
    - Customer education is key!
    - Fearmongering around DER, renewables, new technologies in general
    - How do we stop that, counter it with accurate, reliable information
- Customers want to make informed choices that benefit themselves &Two separate issues – receipt of electricity and FiT
- Minimum level of service in remote areas may be the equivalent of an average LoS in metro areas
- Payment for economically unviable services
- 'Bridging the gap' between metro and rural areas
- Consider export and demand separately
    - lower network prices for all

5. How important is equity of access? (cont.)

- Competition policy – do metro customers pay for rural customers to access?
  - If it's non-economic work, costs should be government funded as opposed to recovered from all customers via network charges
- Willingness to pay for equity
- Equity is important
- Based on expectations / Based on reasonable constraints – disadvantaged groups e.g. renters want to help but don't want to subsidise rich people's shacks
- How do we define equity of access?
- Should this be a basic essential service?
- Should we create parameters to reduce equity issues. Eg limits to oversizing, export limit allocation

6. Should we offer DER customers a choice of export service levels?

- Benefit of tiered pricing depends on issues caused by specific customers as opposed to all customers
- Can be income-dependent
- Solar customers have frustration over curtailment
- Clear explanation & education is key – good information may lead to support of such a scheme
- ToU tariffs can cause confusion – paying more at peak times but fixed FiT
- Balancing interests of networks, retailers and customers
    - Networks can set ToU tariffs to incentivise 'good behaviour' and customer savings
    - Retail control of FiT and having customer value in mind adds complexity
- Will that be across the State or into smaller areas?
- If you live in a 'congested area' what's the incentive?
- SAPN to consider tiers of service (high/med/low)
- Retailers are not proactive to support customers to shift to a more beneficial tariff
- Will SAPN text to communicate?
- Consider differences between new vs existing customers

- Yes
- Other issues:
    - Will need internet etc
    - Other costs to being a smart home
    - Will be efficient in the long term
- Is there too much choice?

Initiatives – enabling the EV transition

Initiative	Scenario 1	Scenario 2	Scenario 3
Smart EV charging and smart load enablement *Develop 'Diversify' concept to offer flexible load tariff incentive for devices or premises enrolled in a 'dynamic operating envelope' scheme* *Extend our Flexible Exports systems and API*	No	Yes	Yes
Indicative annual bill impact range (to be refined for workshop 3)*		<$2 residential, <$20 business	
Fleet EV transition program *Progressively transitioning our own vehicle fleet to EVs* *Deploying associated charging infrastructure to SA Power Networks' offices and regional depots*	No	EV only when TCO*is equivalent	Bring forward some replacements
Indicative annual bill impact range (to be refined for workshop 3)*		<$1 residential <$3 business	<$5 residential <$10 business

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**TCO = Total Cost of Ownership, considering up-front capital and operating expenses

Discussion



1. Do you support our proposed approach to developing future ‘flexible load’ connection options?

2. Should we be investing to accelerate our fleet transition to electric vehicles?

3. Are there any options or opportunities that we have not considered or explored?

Straw poll

Yes No

Yes No

Yes No

1. Do you support our proposed approach to developing future ‘flexible load’ connection options?

- Application of capacity charges to high power chargers at low utilisation
  - Every other jurisdiction has exemptions for low utilisation sites – why don’t we?
  - Industry is heading that way, every other state has exemptions
- Tariff-based flexible load incentives are good
  - Incentives help to generate interest & provide two-way benefits
  - Many customers would be interested regardless of the incentive
- Diversify – trial tariff track record not great
  - RToU has hundreds of thousands of customers – how can we engage in a more traditional sense?
  - Level of differential incentivisation – ToU savings outweigh Diversify incentives by many times
  - Why go Diversify as opposed to optimising around ToU?
- Yes
- Many customers moving to ToU, yes good solution
- ToU has not been explained properly
- People still want to talk to a person, not just online (personalised services)
- Education is key, computer for people to understand
- EVs is changing – longer range = more charging options
- Allows cost saving to the consumer
- Since COVID have we seen a rise in home energy consumption? (No)
- Yes
- Accelerate this and include as many appliances as possible
- Trial multiple appliances in this period so this could be offered as standard in the next period
- E.g. Pool pumps, hot water
- The role of smart appliances are key - there's a point at which they can't respond e.g. affordability or behaviour. Smart devices can automate this capability and respond to passive tariffs signals
- Should we be focussing on investment signalling e.g. The right appliances and management hardware on site? Using carrots rather than compliance sticks
- Should we have less focus on export enablement or utilisation within their home - better support household energy use. Create the signals to signal the develop of solutions that optimise energy costs and meet customers needs
- Utilise service providers to act as the intermediary between network signals and retailers
- Disaggregated signalling for pricing
- Better use of the REPS to drive efficient operations
- Should we link our community energy fund to develop these solutions? Have do we create a competitive tension to move quicker in this space? Scale impact?

2. Should we be investing to accelerate our fleet transition to electric vehicles?

- High visibility of our fleet – merit in being a public face of transition
- Issues arise by virtue of being a regulated monopoly
- Any corporate can accelerate a fleet transition, if they have vehicles to electrify
  - We are unique in that we control the energy network behind the vehicle
  - Electrification of our fleet is less paramount to the wider support we put behind aiding everybody else to electrify
- People's Panel has the ultimate say as to whether this goes ahead – customers have their say there
- Electrification takes a long time – we should start now
  - How will the transition affect customers (particularly regional)?
  - How will EVs affect regional operations? Emergency situations?
- From a leadership perspective, emissions may be a good way to frame the benefits
  - Offset by cost of living & energy crisis
- Could consider SAPN chargers in Plug Share app for community use
- SAPN chargers not to be 'free' would undercut the market
- Would we turnover EVs every 3 years? (YES)
- Has FBT been considered?
- Has our model used 100% renewable energy?
- Consider charging infrastructure to be 'carbon neutral'
- Makes sense for SAPN to move to EVs, why should customers pay to accelerate this?
- Is a great way to show leadership of how it can be done
- Good benefit is SAPN reducing carbon emissions
- What else does "leadership" mean? eg. car sharing, education etc
- SAPN consider framing this option as 'acceleration' rather than 'leadership'
- Value back to customers is important if they pay = second hand EV market, corporate responsibility
- Need to quantify environmental benefits
- Base fleet: yes (base fleet only)
- Heavy: yes (should be a leader)
  - Will help develop the second-hand market in the future (future benefit to consumers)
  - Will mean more EV chargers around the place for when consumers have their own EVs (future benefit to consumers)
  - Should we install EV chargers in constrained network?

3. Are there any options or opportunities that we have not considered or explored?

- Use of our charging infrastructure for other parties
  - If consumers are paying for it, and the equipment sits idle, is there a value stream to allow consumers to use it?
  - Other SA services are ahead of us – talk to them first! (SA Water, SAPOL)
  - Important for SAPN to lead the way in this area
  - Federal Gov National EV Strategy - consultation open now
- SAPN to articulate the difference in value from EV scenario 1, 2 and 3 – especially the difference for 'leadership / acceleration'
  - Should we install EV chargers in constrained network?
  - TSS process – interpretation of how pricing is applied to different network types
- Electrification - biggest barrier is locations of EV charging infrastructure. The best places to connect don't often align to where charging is needed for convenient charging locations
- EV charge provider of last resort
  - Could we cover the augmentation costs in the weak parts of our network?
  - What impact will it have on regional economy if we don't open the transport corridors? It impacts on metro customers who travel as well - critical investment
- Could a purely commercial driver for EV charging rollout lead to short term decision making?
- What are the key corridors that we need to reinforce to reduce the costs of augmentation and allow for more/bigger chargers?
- Alternate view - we should expect commercial operators to amortise their costs across all their network in order to offer broad coverage with their network


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