Mark Feather
General Manager, Strategic Energy Policy and Energy Systems Innovation
Australian Energy Regulator
Submission by email to NetworkPolicy@aer.gov.au

9 December 2022

Dear Mark,

Subject: Australian Energy Regulator (AER) Flexible Export Limits Issues Paper

SA Power Networks welcomes the opportunity to provide feedback in response to the above consultation paper.

South Australia is at the forefront of the transition to distributed energy, and SA Power Networks is committed to playing our part in enabling and accelerating this transition. We have set a public goal to double the amount of rooftop PV we can accommodate on our network by 2025 and we are working with the solar industry and other stakeholders on a range of initiatives to enable this.

Flexible exports is SA Power Networks' flagship initiative within our future energy portfolio and a key enabler to support us in meeting our solar enablement goals. Our journey with flexible export limits began in 2018 as we were developing our strategy to manage the uptake of distributed solar in South Australia in the 2020-2025 regulatory control period. This work culminated in our LV Management Business Case[1], the first DNSP business case to try to quantify the benefits of dynamic export limits using a methodology similar to the AER's CECV. This work showed that the introduction of flexible export limits is in the best, long-term economic interest of all energy consumers. The funding proposal was approved by the AER, which enabled us to commence work on implementation.

In 2019 we completed the first practical demonstration of flexible export limits with the Tesla SA VPP in the ARENA-funded *Advanced VPP Grid Integration* project. This project successfully demonstrated that flexible export limits could double the export capacity for the 1,000 South Australian customers participating in the trial[2]. A key output of this project was an API communications specification that fed into the development of the CSIP-AUS communications profile.

In our next ARENA funded project, *Flexible Exports for Solar PV*, we have worked with the solar industry to help bring the first CSIP-AUS compliant products to market in mid-2021 and launch the first flexible network connection options for residential solar customers in the NEM. There is now a small but growing cohort of customers in congested network areas in South Australia that have taken advantage of flexible exports to connect larger systems[3], and export more energy to market, than has been possible in the past whilst remaining within safe network operating parameters.

SA Power Networks is now in the process of transitioning the flexible exports connection offer to business-as-usual, to coincide with the SA Government's Dynamic Export Regulations. Under these

[1] SA Power Networks LV Management Business Case:
https://www.talkingpower.com.au/43062/widgets/230765/documents/172028
[2] SA Power Networks, Advanced VPP Grid Integration Final Knowledge Sharing Report
https://arena.gov.au/assets/2021/05/advanced-vpp-grid-integration-final-report.pdf
[3] Currently 328 customers have taken up flexible export connections in pilot areas

regulations, all new solar systems installed in South Australia from 1 July 2023 must have the technical capability to support flexible exports using the CSIP-AUS, and customers will have the opportunity to opt-in as an alternative to a basic fixed export limit. This will be the first network-wide flexible export offer in the NEM.

We have been active participants in the national conversation around best practice for the transition to flexible exports nationally, including as members of the DEIP Dynamic Operating Envelopes Working Group, and we welcome the AER's review of the regulatory landscape. Our high-level feedback and recommendations on the AERs consultation paper are summarised below, and we have included detailed responses to the consultation questions in Appendix A.

1. **We support a principles-based approach over prescriptive regulation**

   We are strongly supportive of the AER taking a principles-based approach to governance of flexible export limits. While South Australia is progressed in its flexible exports implementation, we expect to continue to refine our approach as we rapidly scale from a pilot to business as usual service offering. During the implementation, we want to ensure our approach best services the needs of our customers, which may be different from the needs of customers in other DNSPs. To that end, we consider affording DNSPs flexibility in detailed implementation aspects of flexible export limits is essential.

   We note that the paper considers several areas where the AER is considering providing more regulatory oversight with respect to flexible exports. The AER's role is to regulate electricity networks to ensure a DNSP's investments result in the best, long term economic interest of electricity consumers. We do not consider this role should extend to prescribing how these outcomes should delivered from an operational perspective, and that DNSPs are best placed to make these operational decisions once guiding principles and desired customer outcomes have been set. We caution against burdening the process, adding cost, and stifling innovation with significant additional regulatory overhead.

2. **Governance should focus on consumer outcomes**

   SA Power Networks agrees that consumer buy-in is critical to the success of flexible exports. Any governance efforts in this area should focus on flexible export service outcomes that customers value rather than seeking to regulate underlying operational methods or processes, which may vary considerably between DNSPs according to their specific circumstances.

   The service level a customer receives on a flexible export connection is influenced by a number of factors, including the DNSP's:

   - intrinsic network hosting capacity;
   - Systems infrastructure;
   - data availability;
   - flexible limit calculation methodology; and
   - hosting capacity allocation methodology.

   Regulatory oversight and benchmarking on customer service level outcomes network-wide would guide the DNSP to optimise all these factors to balance outcomes for all energy consumers.

   Transparency on expected and actual service outcomes presented in a consumer-friendly manner will be essential in building social license and customer uptake of flexible export

limits. In our current flexible exports trial, SA Power Networks provides customers with an indication of expected service levels prior to sign-up (10kW export limit for 98% of the time in the trial) and has developed a customer visibility platform, SmartView[4], for launch in 2023, that provides visibility of current and historic export service level performance.

3. Capacity allocation principles

We are broadly supportive of the capacity allocation principles developed by the DEIP Dynamic Operating Envelopes Working Group as included in section 3.3.1 of the AER paper[5]. We agree with the findings of the DEIP Working Group's outcomes report that a principles-based approach to capacity allocation is appropriate. We agree strongly with the AER's position that we should not to seek to impose a common capacity allocation methodology across the NEM as a 'one size fits all' approach will likely stifle implementation efforts and potentially prevent DNSPs from optimising their methodologies to suit their individual networks, technical capabilities and customer preferences.

We agree that, where a DNSP is proposing to use flexible export limits as part of its approach to CER integration, the AER has an existing method for regulatory oversight over the capacity allocation approach through the CER Integration Strategy that the DNSP is required to provide as part of its regulatory proposal. A DNSP will be expected to illustrate in this document the approach it intends to take to capacity allocation, and the DEIP capacity allocation principles provide a framework for the AER in its assessment of the DNSP's approach against the NEO.

4. Role of traders

As more customers choose to enrol their CER assets with retailer and aggregator traders to participate in energy markets, the relationship between customers, traders and DNSPs will need to be formalised. This need extends to the implementation of flexible export limits in that:

- traders will need to be responsible for ensuring their dispatch operation is within the DNSP flexible export limit; and
- some traders may take on the responsibility of managing the flexible export limit on the customer's behalf.

Establishment of agreements to cover these matters is not possible today as there is no formal recognition of the Trader role within the NER. SA Power Networks recommend the AER work with industry to initiate a rule change request to establish recognition for this role and mandate that traders establish standard agreements with DNSPs that include:

- conditions and penalties for orchestrated dispatch exceeding the limits of the distribution network; and
- ability for customers to delegate the obligation of managing their export limit (flexible or static) to the trader, including enforcement penalties, so that customers are not placed at risk should the operation of their resources by their trader violate their network connection agreement.

[4] Refer Appendix C

[5] While we support the principles generally, we do have some concerns with some of the specific wording, as detailed in our response to question 1 in Appendix A below.

5. Flexible export connection offers should be opt-in

We support customers having the option of a basic static export limit as an alternative to flexible export limits. We see this is important as there will be some consumers who prioritise self-consumption, do not have a reliable internet connection or choose not to participate in flexible limits for other reasons.

For that reason, our flexible export option is "opt in" in that both the static and flexible export options are presented at the time of network connection application. Even once the SA Government Dynamic Export Regulations are in place from 1 July 2023 customers will still have the choice to "opt in" to a basic static export level or flexible exports connection option. The regulations only mandate that all sites have the requisite technology capability to participate in flexible exports if they choose to do so.

6. Connection agreements (Model Standing Offer)

SA Power Networks' Model Standing Offer (MSO)[6] was updated on 14 July 2021 to incorporate the flexible export connection option and was approved by the AER ahead of publication. This version of the MSO incorporates some of the operational aspects of flexible exports outlined in Section 3.3.5 of the paper.

While we agree it is appropriate that the MSO clearly outlines expectations and obligations of the service, in our view the following items proposed in Section 3.3.5 of the paper are <u>not</u> appropriate for inclusion in the MSO:

- **Service performance:** Export service levels (e.g. 95% of customers can export 95% of the time) are an average that networks seek to achieve across the network, rather than a specific customer guarantee – just as is the case for reliability standards for the consumption service. Under a flexible connection arrangement, customers will experience varying levels of service performance based upon their location within the network and operating environment. We therefore recommend that indicative performance levels are provided to customers as part of the materials provided around the connection process. These may be general or specific to an individual and would be akin to the "typical evening speed" indications consumers receive from NBN providers to aid in the decision-making process.

- **Technical performance:** Technical parameters such as the flexible export update frequency and forecast duration will continue to evolve as DNSPs build more sophistication into their calculation engines. These details are best captured within DNSP technical standards and the CSIP-AUS which should be referenced from within the MSO.

- **Compliance enforcement approaches:** We agree it is appropriate to include consumers' compliance obligations within the MSO, however, approaches to identifying and notifying of compliance breaches will evolve as DNSPs get access to more smart meter data and analytics capabilities. Hence, we recommend these are not included in the network connection agreement. Once again, this would be consistent with the approach taken in respect of the consumption service.

[6] SA Power Networks Model Standing Offer 3602
https://www.sapowernetworks.com.au/public/download.jsp?id=9704

7. Integration with export pricing

The AER's paper notes the interaction between flexible export limits and future export tariffs. As a proponent of both flexible exports and export pricing[7], we see the two as complementary tools that help us to optimise the service we provide to exporting customers:

- Flexible export limits maximise customers' access to available network capacity and increase asset utilisation compared to static export limits. To the extent that we make investments in adding new export capacity, which DER customers pay for through export tariffs, flexible export limits maximise the value that customers receive from those investments.
- Export pricing provides a price signal that rewards customers for using the network efficiently, commensurate with their willingness to pay, and acts to improve asset utilisation and reduce the need for network investment, lowering costs to customers in the long run.
- As we engage with customers in the development of our 2025-2030 regulatory proposal, having the flexible export capability in place means that we can be confident that we can continue to enable the continued growth in solar and other DER, and we can offer our customers a choice in terms of how much we invest in new export capacity. With flexible exports, we can choose the level of investment according to the level of service DER customers want and are willing to pay for. The more we invest in new capacity, the higher the level of service we can provide (i.e. the less likelihood of curtailment under a flexible connection), but the higher the export tariff required to recover the cost.
- In our recent stakeholder engagement we have been able to engage with our customers on a range of different potential investment levels for 2025-2030, with corresponding grades of export service and expected bill impacts. This is a level of customer engagement and customer choice that wouldn't otherwise be possible.
- This being the case, we see flexible exports as a key enabler of efficient export customer service offers and pricing, however, we do not consider there should be any requirement that one be specifically linked to the other.

We look forward to continuing to engage with the AER, ESB and AEMC as the three concurrent CER related consultation processes progress and we would welcome the opportunity to meet with the AER to discuss these matters in more detail. In the meantime, If the AER has any questions on any aspect of our response, please contact James Brown, Strategy Lead – DER integration on [redacted] or [redacted].

[redacted]
Mark Vincent
General Manager Strategy and Transformation

[7] SA Power Networks submitted one of the three rule change requests that led to the *Access, pricing and incentive arrangements for distributed energy resources* rule change in 2021.

Appendix A: responses to consultation questions

General questions

1. ***Do stakeholders agree with the primary use case for the implementation of flexible export limits? [The primary use case is the efficient and increased utilisation of the shared hosting capacity on the distribution network to enable consumers to obtain the benefits of exporting their energy resources such as solar PV to the grid]***
    - Yes.

Immediate actions

Capacity allocation

2. ***Do stakeholders agree with the DEIP Working Group principles for capacity allocation? Why / why not?***
    - On principle 1: *DNSPs are responsible for setting flexible export limits, with the calculation methodology used to determine the limits being transparent and subject to stakeholder consultation.*
      We are supportive of DNSPs being responsible for determining the flexible limit calculation methodology, which will be dependent on the DNSPs level of data availability and systems capability.
    - While we are supportive of principles of the calculation methodology being transparent to consumers, we have concerns about the methodology being subject to stakeholder consultation. DOE calculation is a complex engineering concept and is expected to be continually iterated and improved upon over time, making continued stakeholder engagement challenging and onerous. In place of this, we recommend that principle 2 be amended to read *"Calculation method and capacity allocation should seek to maximise the use of network hosting capacity…"* to encourage DNSPs to develop efficient algorithms and utilise regulatory benchmarks to continue to encourage continuous improvement.

3. ***Should these principles for capacity allocation be binding for DNSPs?***
    - No. SAPN consider 'guiding' principles that provide networks with sufficient design direction while still affording the flexibility to derive methodologies which best suit each networks unique circumstances and varying customer preferences will allow networks to achieve the best outcomes for customers.
    - If an instance occurs where a network deviates from a guiding principle, justification, which may explain why the deviation is necessary to achieve the NEO and expenditure objectives, could be provided as part of the capacity allocation approach included as part of the CER integration strategy.

4. ***Should the application of capacity allocation principles by DNSPs be auditable to assure consumers of fairness?***
    - DNSPs should provide transparency with regard to service levels customers are receiving. Capacity allocation principles and the specific methods DNSPs use to give effect to them, are a means to an end, not an end in themselves.
    - The AER can check DNSPs application of the capacity allocation principles by reviewing the CER integration strategy when approving a networks revenue cap.

- Network performance / customer outcomes via annual performance reports (currently under development as part of the measuring and incentivising export performance) can be used to check the customer service outcomes resulting from the DOE application.

5. ***Should principles for static export limits also be developed for use by DNSPs going forward?***

   - We intend to offer a basic static export level based on the intrinsic hosting capacity of the network per the *AER DER Integration Expenditure guidance note.*

6. ***Do stakeholders have a view as to whether existing AER guidance material is sufficient to communicate expectations regarding capacity allocation principles for flexible and/or static export limits?***
   - We do not see the need for additional AER guidance material at this time. The only circumstance in which additional guidance material from the AER may be required is if evidence were to emerge in future that DNSPs are approaching capacity allocation in a way that is not consistent with the NEO, and we see no reason to expect that this would eventuate.

Capacity allocation methodology

7. ***Is the approach outlined above [see section 3.3.2] in allowing flexibility for DNSPs to develop their capacity allocation methodologies appropriate?***
   - SAPN agree with the DEIP working group that it is unnecessary and difficult to achieve national harmonisation of a prescriptive capacity allocation methodology and support the AER's view that a detailed capacity allocation methodology should not be prescribed, to enable DNSPs to innovate with various approaches, and where necessary revise allocation methodologies should network dynamics change.
   - We therefore support flexibility in allowing DNSPs to develop their own capacity allocation methodologies.

8. ***Do stakeholders agree that DNSPs should include their capacity allocation methodology in their CER integration strategy?***
   - We support the AERs suggestion that networks outline their approach to capacity allocation as part of their CER integration strategies within regulatory proposals.

9. ***Should DNSPs be required to publish their capacity allocation methodologies, clearly outlining the trade-offs considered in setting their approach?***
   - A capacity allocation methodology contained within a regulatory proposal CER integration strategy may not be the best 'consumer facing' approach to communicate to customers how export capacity / DOEs operate.
   - We consider consumers are best served through being made aware of service outcomes rather than potentially complicated backend operational calculations to achieve those outcomes.

10. ***Should the AER have a role in approving DNSP capacity allocation methodologies? If so, what form should this mechanism take?***
    - No. The DNSP should outline its approach to capacity allocation in its CER Integration strategy document which provides the AER a means of oversight to ensure that the DNSP has had regard to the capacity allocation principles and that their approach is motivated by the NEO.

- The AER does not have a role in the approval of specific methodologies or operational processes.

Consumer participation

11. Do stakeholders agree with the expectation that over the near to medium term, consumers should continue to have the option of static export limits?

- Yes, we support customers having the option of a basic static export limit as an alternative to flexible export limits. We see this is important as there will be some consumers who prioritise self-consumption, do not have a reliable internet connection or choose not to participate in flexible limits for other reasons.

12. Should consumers be expected to opt-in or opt-out of flexible export limits (where available)?

- Our flexible export option is "opt in" in that both the static and flexible export options represented at time of network connection application (neither option is "default").
- Even once the SA Government Dynamic Export Regulations are in place from 1 July 2023 customers will still have the choice between a basic static export level and flexible exports, the regulations just mandate that all sites have the requisite technology capability to participate in flexible exports if they choose to do so.

13. Is it necessary for this expectation to be captured in the Model Standing Offer?

- SA Power Networks' current Model Standing Offer (MSO)[8] was updated on 14 July 2021 to incorporate the flexible export connection offer. In this revision, static export arrangements are described in equal footing, in that there is no "default" selection. The MSO also provides the facility for customers to change their connection option at any time. We recommend this as a working model that could be adopted by other DNSPs.

Governance of traders and consumer energy resources

14. Do stakeholders require further guidance with regards to the interactions of retailers and aggregators and flexible export limits outside of what is being explored through the existing workstreams?

- We agree with the AERs assessment that retailer and aggregator traders are not critical to the implementation of flexible export limits, but that they do have a role when they are orchestrating assets that are also on flexible export limit connections. Some considerations:
    - The technology solution using CSIP-AUS has been developed in a way that does not prohibit traders from orchestrating DER (whether they are involved in managing the export limit for the consumer or otherwise)
    - Broader than the implementation of flexible export limits, there is currently a gap in that there is no formal recognition of aggregators/trader role within the rules. Recognition of this role would enable DNSPs to establish standard agreements with traders to capture requirements including:

[8] SA Power Networks Model Standing Offer 3602
https://www.sapowernetworks.com.au/public/download.jsp?id=9704

- conditions and penalties for orchestrated dispatch exceeding the limits of the distribution network; and
- ability for customers to discharge the obligation of managing their export limit (flexible or static) to the trader, including enforcement penalties.

Connection agreements

15. Should DNSPs be required to set out expectations of flexible export limit operation within the connection agreement where there is no trader, or third party involved in the operation? Do stakeholders agree with the rights and obligations outlined above?

- We support outlining some operational aspects of flexible export limits within Model Standing Offers (MSOs). In response to the specific parameters outlined within the paper:
    - *Operating parameters, such as the length of the interval, notification period and how often the limit will be changed, expectations of performance (e.g., 10kW export limit 95 per cent of the time)*

      We expect the interval on which the export limit will change over time as DNSP DOE calculation methodologies improve and leverage more granular, real-time data. For example SAPN publish new flexible limits every 15-minutes today, but we anticipate this will increase to 5-minutes as our systems improve and to align with 5-minute settlement for market facing assets. It is important to note that this update frequency is for steady-state network operation, and export limits may be changed at any time in response to network or power system emergencies. Technical characteristics such as the communications frequency are best specified in CSIP-AUS and DNSP technical standards which are referenced within the MSO. Consumer digestible indications for such parameters should be provided as part of customer specific website materials or equivalent.

      Export service levels (e.g. 10kW export limit 95 per cent of the time) are an average that networks seek to achieve across the network, rather than a specific customer guarantee. We recommend that indicative performance levels are provided to customers as part of the materials provided around the connection process and may be general or specific to an individual. These would be akin to "typical evening speed" indications from NBN providers to aid in the decision-making process. These indications could be included in an address lookup solution such as our Flexible Exports Eligibility Checker[9].

    - *Conditions for the revision of the flexible export limit, including the options for the consumer to change to a static export limit (i.e., there is more than one connection agreement option available)*

      We support inclusion of the ability to switch between connection options (fixed to flexible or vice versa).

[9] SA Power Networks, Flexible Exports Eligibility Checker
https://www.sapowernetworks.com.au/connections/connect-solar-and-ev-chargers/flexible-exports-eligibility/

- *Communication processes for changes to the flexible export limits*

Specification of technical pathways for communication are a matter for DNSP technical standards. These technical standards are referenced within the MSO.

- *Consumers' compliance obligations, including DNSPs' approaches to identifying non-compliant devices*

We agree it is appropriate to include consumer's compliance obligations within the MSO however, approaches to identifying and notifying of compliance breaches will evolve as DNSPs get access to more smart meter data and analytics capabilities. Hence, we recommend these are not included in the network connection agreement.

- *Related commercial implications, including direct compensation or rebates on network charges, if service levels are not achieved.*

As above, service levels are an average that networks seek to achieve across the network, rather than individual consumer guarantees.

Governance arrangements for flexible export limits

16. ***Do stakeholders have concerns about the approach to governance outlined above, particularly embedding elements of the rectification process in the connection agreement?***

As above, rectification approach should not be contained in the connection agreement.

17. ***Is it appropriate for a technology provider/OEM be held responsible for devices that do not conform to the export limit set by the DNSP (i.e., where this is no active control)?***

- A site can be non-conformant to the export limit set by the DNSP for a number of reasons:
  1. System being incorrectly commissioned by the installer
  2. Unauthorised or uncontrolled exporting devices being installed
  3. Failure in software or hardware
  4. Trader not conforming to limits
- Roles and responsibilities for CER compliance are being explored as part of the AEMC Review into Consumer Energy Resources Technical Standards consultation process. In our submission[10], we outlined a working model for CER standards governance which includes roles and responsibilities for compliance. Below is a high-level overview of how we see flexible limit non-conformance fitting into our proposed framework:
  - For unauthorised exports related to the installation or configuration of the site (reasons 1 & 2 described above), we would utilise our CER retailer compliance process. In this process, CER retailers who are not meeting a minimum compliance benchmark will have their CER applications "slowed" and if they continue not meet their compliance benchmarks their applications will be "stopped". Without a network connection application, solar retailers cannot get access to STCs which cover approximately half of cost of the cost of a typical PV installation.

[10] SA Power Networks submission to AEMC review into CER Technical Standards, https://www.aemc.gov.au/sites/default/files/2022-11/10._sa_power_networks_-_stakeholder_submission_-_emo0045_-_20221103.pdf

- For unauthorised exports related to traders not conforming to flexible limits, we would require the establishment of standard contracts as described above to capture compliance obligations and rectification processes.

18. What is the appropriate governance arrangement for managing flexible export limits?

- **OEMs/Technology providers** are responsible for ensuring their equipment is compliant with relevant technical standards (including CSIP-AUS). They are also responsible for ensuring their product is compliant with these standards in an ongoing capacity, including when applying software upgrades or platform enhancements.

- **DNSPs** are responsible for:
  - Setting network standards
  - Developing and offering flexible connection agreements
  - Hosting the Utility Server and publishing flexible limits
  - Monitoring and enforcing installation and operational compliance
- **Traders** are responsible for**:**
  - Ensuring any CER orchestration is within the bounds of the flexible limit
  - Ensuring sites conform to flexible limits where the trader is responsible for managing flexible limits on the consumer's behalf.

19. Is it necessary to develop a separate framework to manage governance where a trader or technology provider is involved in passing-through the flexible export limit (i.e., where there is active control)?

- Yes, as above we recommend the trader/aggregator role is formally recognised within the rules and that standard agreements are established with DNSPs to capture these requirements.

20. Do stakeholders agree with our view of that consumers should not face significant penalties for non-conformance of their energy resources for flexible export limits?

- In the majority of cases, flexible export limit non-conformance is not the fault of the individual customer. This is why our compliance process (described above) targets CER retailers and traders as they are often best placed to rectify these issues.
- An individual's non-conformance to flexible export limits will reduce the hosting capacity that can be allocated to other customers in the local area, as well as potentially exacerbate local voltage issues that may impact nearby customers. For this reason, in our response to the *AEMC consultation on CER standards governance,* we have recommended that DNSP have greater powers to disconnect customers' non-compliant equipment once other compliance processes have been exhausted.

21. Do stakeholders believe there needs to be a standardised approach to enforcement for consumer energy resources under the control of a trader? For example:

a. If notified by the DNSP of an issue with device conformance (where no trader is involved), it is appropriate for the responsibility of rectification to rest with the consumer?

As described above, we believe the solar retailer should be responsible for rectifying non-conformance in the first instance.

b. ***Where a trader is involved, should responsibility for rectification rest with the trader?***

Yes, under the new agreement structure we have described above.

22. ***What should be the responsibilities of traders in ensuring consumer energy resources do not exceed any export limit set by the DNSP?***

- A trader can have up to two key compliance responsibilities when it comes to flexible export limits:
  1. The trader is responsible for ensuring any dispatch (active control) does not exceed the flexible export limit
  2. If the trader has taken on the role of communicating the flexible export limit to the customer site, they are also responsible for

Notification period for a dynamic limit

23. ***Does the issue of a framework for providing forecast information on expected dynamic limits need to be considered in the short term?***
    - SA Power Networks have successfully demonstrated the provision of flexible export limit forecasts to the Tesla SA VPP in our Advanced VPP Grid Integration trial. Additionally, CSIP-AUS has been developed with the capability to support arbitrary forecast lookahead durations and interval lengths which allows DNSPs to remain adaptive to emerging requirements.
    - Given AEMO and DNSPs already have a close working relationship, and that existing communication channels and have commenced discussion on these topics, we do not believe an additional framework needs to be established.

Broad questions regarding immediate actions

24. ***Do stakeholders agree with the areas identified above as requiring immediate attention?***

    No further comments

25. ***Do stakeholders consider there are additional matters requiring immediate attention not covered here? If so, what are they, and what specific factors should we be considering?***

    No further areas for immediate action.

Leveraging existing work

Monitoring export limit performance and information provision

26. ***Are there any additional metrics that should be considered that have not been incorporated into the broader export services review?***

    - No, we believe the metrics under consideration in the broader export services review are sufficient.

27. ***Should the AER publish data on the performance of individual DNSPs in terms of their flexible export service for consumers?***

    - This is being explored as part of the broader export services review process.

Device capability to respond to flexible export limits

28. ***Regarding the governance of a potential CSIP-Aus requirement, do stakeholders consider there should be a mandate for devices to be CSIP-Aus compliant for new connections in the NEM?***

- Yes, please refer to our submission to the ESB interoperability policy paper. The key recommendations from our submission included:
    - SA Power Networks strongly support a national Flexible Export Capable Mandate
    - The ESB should support the development of an interoperability standard that captures the full scope of "Flexible Exports Ready" functionality in the form of AS4777.3
    - The ESB should Mandate new installations are "Flexible Exports Capable", not "Flexible Exports Ready", in that the site includes inverters that are capable of participating in flexible exports but are not required to be configured or commissioned to do so.
    - DNSPs are best placed to enforce a "Flexible Exports Capable" Mandate
    - A national approach to PKI and the establishment of a national Certificate Authority are critical to the success of the mandate

29. Do stakeholders have views on how this mandate could be most effectively implemented?

- Yes, please refer to our submission to the ESB interoperability policy paper.

Interval length

30. Do stakeholders agree that DNSPs are best placed to determine the interval length of flexible export limit operation? If not, what guidance would stakeholders like to see on this issue?

- Yes, we agree that DNSPs are best placed to determine the interval length for flexible export limit operation. The highest frequency at which a flexible export limit is updated depends on the integration of real time data into the calculation engine. Different DNSPs will be at differing levels of data and systems capability, and, in many cases, a 5-minute update frequency will not be possible or necessary in the early days of operation.

- Alignment with 5-minute settlement for market active assets does not necessitate the requirement for 5-minute flexible limit. In SA for example, the flexible limit is updated every 15-minutes when a new solar insolation estimate is received. A market active asset would use the 15-minute duration flexible limit for 3 market intervals to manage their operations.

Demonstrating investment need

31. Do you agree the AER has sufficient guidance on what information DNSPs are expected to provide to justify specific flexible export-related proposals?

- Yes, we agree the AER has provided sufficient guidance within the DER Integration Expenditure Guidance Note.

32. Do DNSPs need more information than is currently available to demonstrate the investment need for flexible export limits?

- Noting that SA Power Networks has already made a regulatory business case that demonstrated the investment need for flexible export limits that was capable of acceptance by the AER we consider there is likely to be sufficient information available. Two specific challenges are (a) limited access to smart meter data outside Victoria which makes it more challenging for DNSPs to estimate hosting capacity and (b) the limited scope of the AER's CECV, which means that DNSPs seeking to demonstrate the

investment need for flexible export limits may need to undertake work to quantify the broader range of market benefits associated with export enablement.

Consumer protections

33. ***Beyond the issues being canvassed in the Review of Consumer Protections for Future Energy Services and the AEMC's review of CER technical standards, are there any other specific consumer protection issues we should explore in the context of the implementation of flexible export limits?***
    No additional issues identified.

Data protection and privacy

34. ***Are more data protection and privacy requirements needed for the implementation of flexible export limits beyond those already available in the current framework and what is being considered in the ESB data strategy?***
    - The data generated and communicated for flexible exports is largely replicating existing customer data already available to parties in the energy system. This includes:
        - Information about a customer's DER installation which is already captured in the DER register
        - Time-series data including power and voltage
    - As the recipient of this data, DNSPs fall under the existing Critical Infrastructure Centre rules that govern how sensitive customer data is collected, stored and shared. Data collected under flexible exports would full under this process.
    - Third parties such as technology providers, aggregators and traders currently have no recognition in the rules and, as far as we're aware, no rules exist around the collection, storage and sharing of sensitive data for these parties. This presents a significant cyber security and data privacy risk that extends beyond the scope of flexible export limits. As recommended above, formal recognition of these parties under the rules would enable such requirements to be established.

35. ***What impact is there likely to be on metering service providers from the implementation of flexible export limits?***

    - Metering service providers may choose to provide technology that enables the communication of flexible export limits as a gateway/HEMs device.
    - Besides this, flexible export limits have no impact on metering service providers.

Consumer understanding and interest

36. ***What do consumers need to know about flexible export limits at each step in the journey to properly understand and engage with them?***
    - Refer to Appendix B for an extract of the customer journey map that was developed to guide the customer experience workstream of our flexible exports program.
    - At a high level, customers need the following information at various stages in the journey:
        - Awareness and research phase:
            - Which export options are available to them (fixed and flexible). We achieve this through our eligibility checker
            - How flexible exports works at a high-level

        - Information on expected service level outcomes at their location (e.g. export 95% of the time)
    - Purchasing phase (engage phase on the journey map diagram):
        - What equipment they need to install to participate in flexible exports
        - How flexible exports impacts will impact their expected bill savings and system payback
        - Requirements to maintain an internet connection and impacts when communications are lost
    - Installation phase (enrol and delivery on the journey map diagram):
        - How to check the ongoing export performance of their system and whether it is online/offline. We aim to achieve this through our new SmartView customer visibility platform.
        - Who to contact for support with flexible exports
        - Reminder of the internet connectivity requirements
    - Ongoing support (support and follow up on the journey map diagram)
        - Be notified when their system is offline for an extended period
        - Who to contact for support.

37. What communication materials do consumers need to understand the opportunities offered by flexible export limits?

- Customers need to understand the general concept of flexible exports and how it works. We have created website and other customer facing materials, including:
    - **Customer infographic** (Also contained in Appendix C)
    - **Customer animation**
    - **Website and FAQs**
- Customers need to understand how flexible exports impacts their expected bill savings and system payback time from their solar system. The overall system benefits are influenced by many factors including the capacity of the installation, orientation, tilt, shading, self-consumption, export option and export service level. Solar installers are best placed to add the impact of a customers expected service level to the solar yield calculations that are presented as part of a customer quote.

Integration with export pricing

38. In response to all 3 questions on export pricing:

The AER's paper notes the interaction between flexible export limits and future export tariffs. As a proponent of both flexible exports and export pricing[11], we see the two as complementary tools that help us to optimise the service we provide to exporting customers.

- Flexible export limits maximise customers' access to available network capacity and increase asset utilisation compared to what is possible under static export limits. To the extent that we make investments in adding new export capacity, which DER customers pay for through export tariffs, flexible export limits maximise the value that customers receive from those investments.

[11] SA Power Networks submitted one of the three rule change requests that led to the *Access, pricing and incentive arrangements for distributed energy resources* rule change in 2021.

- Export pricing provides a price signal that informs customers of the costs associated with exporting into the network. This enables customers to make better decisions regarding how they choose to use the network, commensurate with their willingness to pay, which acts to improve asset utilisation and can reduce the need for network investment, lowering costs to customers in the long run.

- The basic export level in an export tariff is intended to reflect the 'intrinsic hosting capacity' of the network. In South Australia this is 1.5kW per customer. This is the level at which our fixed export option is set for customers who chose not to take up a flexible connection, and is also the 'floor' of the flexible export limit in normal system operation, which operates between 1.5kW and 10kW.

- As we engage with customers in the development of our 2025-2030 regulatory proposal, having the flexible export capability in place means that we can offer our customers a choice in terms of how much we invest in new export capacity to support continued growth in solar and other DER:

    - At one extreme, if we make no investment in new export capacity then we can still continue to allow new DER customers to connect and export energy through the network, but we will increasingly need to rely on flexible exports to curtail solar at times of congestion to within the network's existing (intrinsic) export capacity. In this case, customers would pay no export tariff since there is no new expenditure in export capacity to recover[12]. Export customers would, however, experience a declining level of service (more frequent curtailment) year-on-year as more DER connects and the network becomes more congested.

    - Alternatively, we can invest in adding new export capacity to the network. With flexible exports, we can choose the level of investment according to the level of service DER customers want and are willing to pay for. The more we invest in new capacity, the higher the level of service we can provide (i.e. the less likelihood of curtailment), but the higher the export tariff required to recover the cost.

    - In our recent stakeholder engagement we have been able to engage with our customers on a range of different potential investment levels for 2025-2030, with corresponding grades of export service and expected bill impacts. This is a level of customer engagement and customer choice that wouldn't otherwise be possible.

This being the case, we see flexible exports as a key enabler of efficient export customer service offers and pricing, however, we do not consider there should be any requirement that one be specifically linked to the other.

Compliance and enforcement of technical standards that facilitate flexible export limits

No further comments on this section

[12] In this case customers are simply sharing the intrinsic capacity they have already paid for through their consumption tariffs.

Future actions

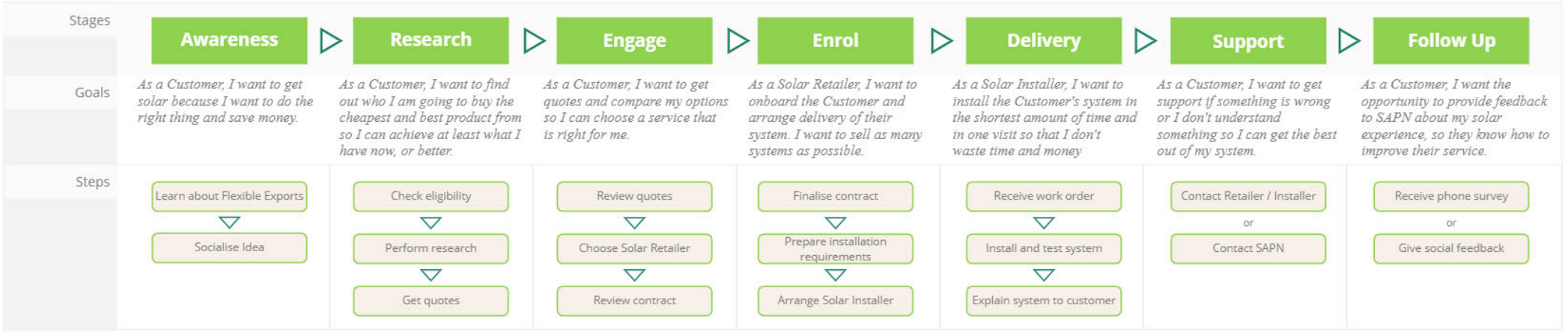
Efficient communication of flexible export limits at scale

39. ***Do stakeholders have any views on which data exchange model may be the most efficient for the NEM?***

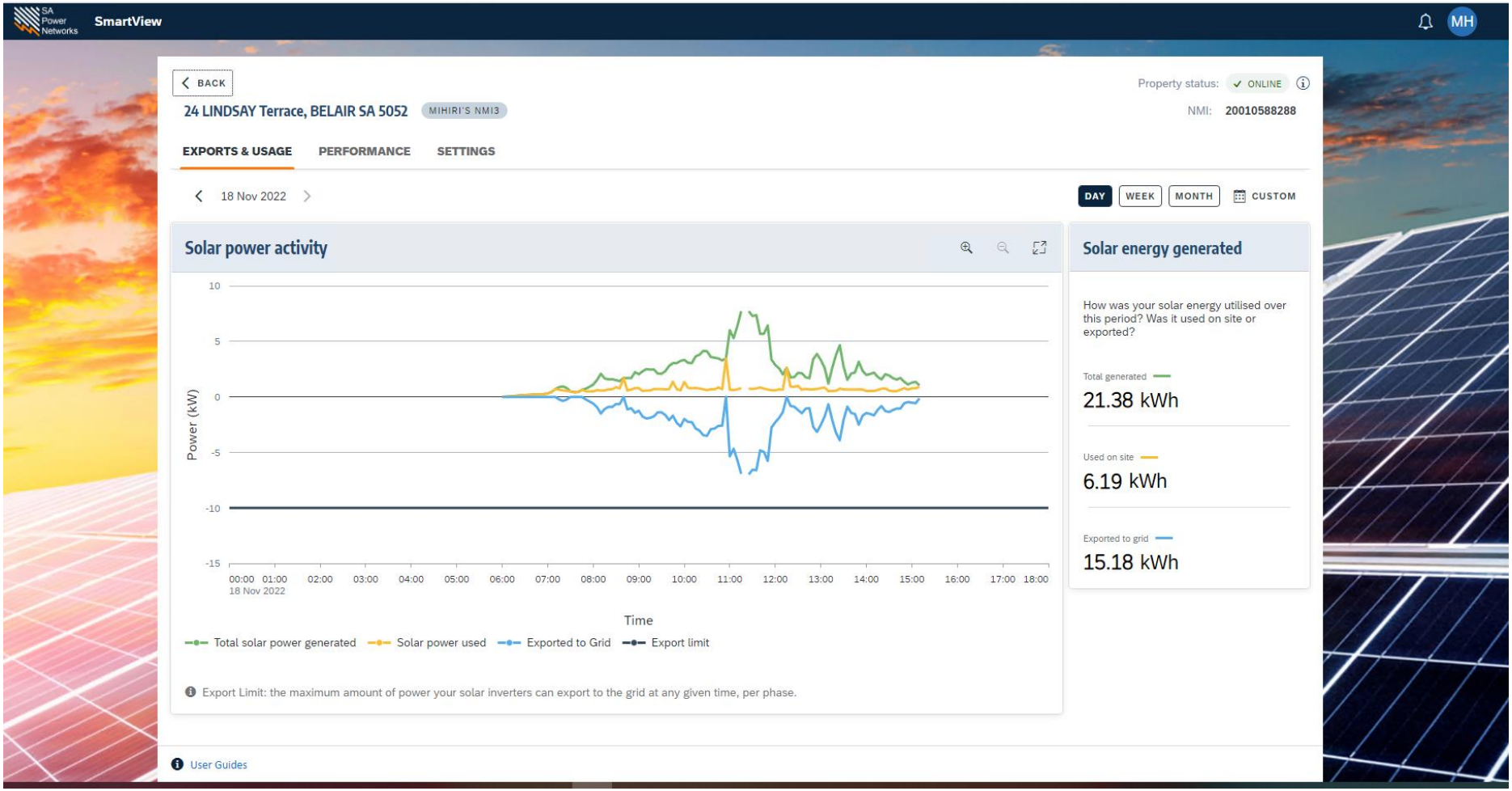
The paper observes that " *Under AEMO's ISP Step Change scenario, there could be times when the entire NEM demand for electricity may be met with distribution connected resources. To facilitate the operation of dynamic operating envelopes (or flexible export limits), there will need to be orders of magnitude more data being shared amongst many more industry participants relating to millions of consumer energy resources*".

We note that in South Australia we have already reached the point where the entire demand for electricity is met at times with distribution connected resources. The efficient exchange of data, while important, has not been a factor limiting this outcome so far. While further research on efficient data exchange frameworks to support the future NEM is welcome, at this stage we do not foresee any issues with scalability of flexible exports using the data exchange methods we have today, at least in South Australia.

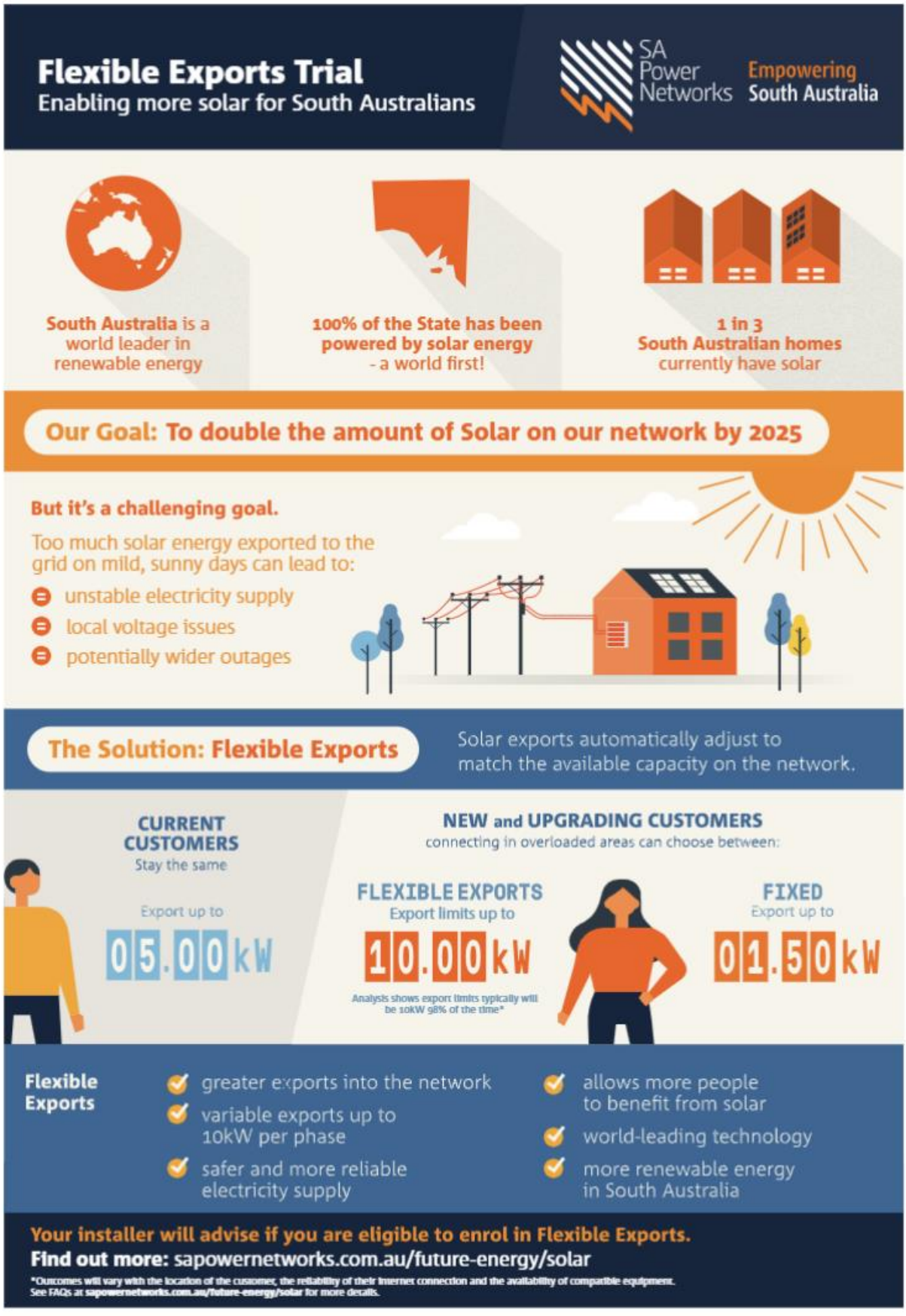
Appendix B: Customer journey map



Appendix C: Customer resources



The SmartView portal for Flexible Exports customers, due to launch in early 2023



Flexible export customer infographic