Clean Energy Council submission to the AER Issues Paper: Flexible Exports Limits

Executive Summary

The Clean Energy Council (CEC) welcomes the opportunity to provide feedback to the Australian Energy Regulator (AER) Issues Paper, *Flexible Exports Limits*.

The CEC is the peak body for the clean energy industry in Australia. We represent and work with Australia's leading renewable energy and energy storage businesses, as well as accredited designers and installers of solar and battery systems, to further the development of clean energy in Australia. We are committed to accelerating the transformation of Australia's energy system to one that is smarter and cleaner.

Flexible export limits provide a smart approach to managing network capacity, both maximising the ability of the network to carry local generation, while minimising investment in poles and wires, noting that DNSP investment will be needed in network monitoring, modelling and IT.

Flexible export limits, like many new approaches, requires the ability to communicate effectively and rapidly with connection points. This means that technical standards are a critical enabler and compliance will be essential to deliver the suggested benefits of flexible exports. Additionally, the ability to access connection point data will be an important underpinning requirement and this means that access to real-time data is critical.

Determining network capacity and allocating that capacity fairly will be complex but needs to be delivered transparently by DNSP and via consistent national approaches, supported up by performance monitoring and reporting to ensure that customers are being treated equitably as capacity changes with time.

The role of ringfencing in the emergency backstop management of inverters has not been assessed and it is critical that the approach to flexible export limits complies with the ringfencing framework, with limits (constraints) applied at the connection point and not the device. It is also important to consider alternative approaches that would manage export (and import) via tariffs and markets, rather than modifying the connection point capability to limit exports.

Interaction with other related workstreams

As we have indicated in previous responses to the Energy Security Board (ESB) directions paper on interoperability and the Australian Energy Market Commission (AEMC) consultation paper on technical standards for Customer Energy Resources (CER), this AER work on

flexible export limits is highly integrated and dependent on the outcomes of the ESB and AEMC CER workstreams and the work needs to be coordinated by a single market body to ensure efficient outcomes with no unintended consequences.

Additionally, the current AEMC draft report Review of the Regulatory Framework for Metering Services also interacts with this work on CER. Determining compliance and/or actioning flexible and dynamic connections will not be possible without real-time data. Customers, traders and Distribution Network Service Providers (DNSP) will need access to real-time data to have visibility of CER behaviour. The cost-efficient approach is not to require additional metering (as in the Flexible Trading Arrangements rule change proposal) or the requirement for device meters, but to ensure that the data from smart meters is made freely available to customers as a priority, given it is their data, and to other parties.

Determining what customers want

While recognising that the uptake of CER can have system consequences, the current work on CER has been initiated and developed by the market bodies, the DNSP and the Australian Energy Market Operator (AEMO) and has not been focused on the customers that are investing in CER. There is a very real risk that the various initiatives related to CER will not be adopted by customers or that customers will seek to avoid the very rigid approach that is being taken to manage and control CER. It would be helpful to have clarity on whether customers see the benefits of this work flowing to them, versus the additional costs they will incur to enable flexible exports or market participation.

Capacity determination and Allocation

DNSP have limited insights into their network capacity, which changes dynamically. DNSP will need to determine network capacity at some defined date, which would essentially grandfather the connections and export limits that apply to current (solar PV) installations. DNSP could determine the "baseline" capacity without any solar PV and then allocate that total baseline equitably, but this is unlikely to be acceptable to those that have legacy solar PV systems, particularly if DNSP are applying export tariffs.

Another key issue is the treatment of the replacement of legacy solar PV systems, with new systems. Grandfathering export capacity will need to be handled carefully and consistently by DNSP. Presumably, as the connection will have changed, the customer will be offered a flexible or static (non-zero) limit. However, it is not clear whether the customer will retain the "grandfathered" export limit assigned to the legacy system, or whether that capacity will go back into the "pool" before being reallocated under a standard methodology that may result in a lower export limit than the original legacy system held.

DNSP could allocate export capacity only to those connections that currently export, with no notional capacity allocated to connection that currently do not export. This would mean that customers not currently exporting would be disadvantaged should they decide to install generation. Ideally, every connection should have some minimum level of export allocation, whether the connection currently exports or not.

Management of diminishing capacity with time, as increasing exporting devices connect, will need to be handled carefully, with monitoring of how often and how much capacity is flexed down needed to ensure that it is (a) clear when network investment to increase export capacity is needed and (b) ensure that customers are being treated appropriately.

Post-network investment to resolve diminishing capacity, it will need to be made clear whether that new capacity is only allocated to new customers or whether it is allocated to all exporting customers that may have been constrained previously.

Consistent methodologies and performance monitoring

While noting that each distribution network is different, with different physical and technical constraints, for the ease of understanding and implementation by broader industry, particularly in discussions with potential customers, it would be preferable that DNSP adhere to nationally consistent methodologies for determining network capacity and for capacity allocation. Flexible export limits should be monitored throughout the early development period of its implementation. This includes stakeholder consultation and clear transparency in the determination of limits by the DNSP and how those limits may be modified with time.

Additionally, nationally consistent performance standards, monitoring and reporting as part of the routine reporting required from DNSP by the AER, is essential and required. This will allow the outcomes for different DNSP to be compared, consolidated and shared, particularly in this early development period, to ensure a consistent national approach.

Ringfencing implications

Currently, many DNSP are in the process of requiring emergency backstop approaches for solar PV inverters. This allows the DNSP to directly control the inverter, at the request of AEMO to manage minimum demand issues. This direct control allows DNSP to reach beyond the connection point to a customer asset. While the implications to ringfencing of this emergency backstop approach has not been assessed, flexible export limits should only apply at the connection point, not the inverter (or device), that is the dynamic operating envelope should manage the connection, not the device. This will ensure that the approach to flexible export limits fits within the current ringfencing framework.

Network tariffs vs direct inverter control

There are other approaches to managing export, via a third party, rather than direct control of inverters or managing the export limit of the connection point, such as dynamic network tariffs (as being trialled by Ausgrid and Project Edith) and DNSP-led procurement of network services, which allow the customer responsiveness to be valued for managing export (and import). Effectively and efficiently managing the capacity of the distribution networks should be a combination of connection point limits, tariff signals and network service markets, ensuring that supporting operation of the network is rewarded and it is critical that DNSP do not focus on one approach.

Compliance

It will not be possible to manage either inverters or connection points without ensuring compliance with technical standards, including all sections of AS4777.2:2020, that will support communication between DNSP, trader, connection point and device. For this reason, a continuing and urgent focus on delivering compliance of devices is critical to facilitating the “smart” approaches to distributed energy resources.

Currently, there is no one single body that has oversight of all technical standards, the development of new standards, the consistent application and interpretation of standards and the compliance in the field with standards. It is essential that a new independent national body

should have responsibility for the interpretation, compliance, and enforcement of standards to give industry, installers and customers the confidence to invest.

Responses to questions raised in the Issues Paper

General questions

- 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, without flexible export limits, DNSPs will have to implement tougher limits on customer connection points, assuming no load control (turn up service).

Immediate actions

Capacity allocation

- Do stakeholders agree with the DEIP Working Group principles for capacity allocation? Why / why not?

The DEIP principles are adequate for now but should be subject to review. They provide for a consistent approach across the NEM. They provide a transparent process that offers choice and fairness even though the outcome may not be the same for all applicants.

- Should these principles for capacity allocation be binding for DNSPs?

These principles should be binding but there may need to be provision for exceptions in extenuating circumstance.

- Should the application of capacity allocation principles by DNSPs be auditable to assure consumers of fairness?

The adherence to the principles should be auditable, this will increase likelihood of DNSP compliance.

- Should principles for static export limits also be developed for use by DNSPs going forward?

Principles for defining minimum static export limits (non-zero) should also be developed for use by DNSPs going forward. SAPN found that with no control, if every house had solar, each house could have an export limit of roughly 1.5kW. The process for arriving at a figure like this should be standardised and implemented across the NEM. This will give a fair export limit to those who aren't able to have or are unwilling to have a flexible export limit without impacting the incentive for those who will.

- 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?

More detail is required.

There is an implication that flexible export limits will rarely be required, but whilst this may be the case initially, it should be assumed that eventually, as we reach high penetrations of rooftop solar with diminishing physical capacity, that the application of flexible exports will be frequent, perhaps every sunny day.

Capacity allocation methodology

- Is the approach outlined above [see section 3.3.2] in allowing flexibility for DNSPs to develop their capacity allocation methodologies appropriate?

While DNSPs should be allowed to develop their own capacity allocation methodologies, each individual DNSP developing their own bespoke approach is inefficient and will result in higher costs. DNSP should learn from their peers to avoid unnecessary investment in duplicating approaches. The goal should be to have a nationally consistent approach to determining capacity and allocation.

- Do stakeholders agree that DNSPs should include their capacity allocation methodology in their CER integration strategy?

It seems reasonable to include DNSP capacity allocation methodology in their CER integration strategy, but for transparency the methodology should be easily and publicly available and designed to be understood by non-technical audiences.

- Should DNSPs be required to publish their capacity allocation methodologies, clearly outlining the trade-offs considered in setting their approach?

In the interests of transparency, DNSPs should be required to publish any trade-offs considered and any other relevant factors in their methodology. This will support customers to understand the rationale for the need for limits and any changes in limits with time.

- Should the AER have a role in approving DNSP capacity allocation methodologies? If so, what form should this mechanism take?

Given the potential impact on customers, the AER has an important role in examining capacity allocation methodologies, particularly at this early stage. Once a consistent national approach is developed, the AER could develop a guideline to underpin the methodologies for capacity determination and allocation.

Consumer participation (opt-in or opt-out)

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

Consumers should have the option of static export limits. This will be particularly important to build comfort and social licence for flexible export limits.

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

For the overall social licence, opt-in combined with a strong education campaign, and potentially incentives, is probably likely to deliver broader community support for flexible export limits.

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

The option of static export limits should be in the Model Standing Offer.

Governance of traders and consumer energy resources

- 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?

It is not immediately clear how this work on flexible export limits will interact with the AEMO flexible trading arrangements rule change proposal and the suggestion of secondary connection points/financial settlement points. It is also not clear how flexible export limits interacts with the distribution ringfencing guideline. If flexible export limits are provided to the connection point (not the customer device), then there appears to be no issue with ringfencing guidelines. However, if the intent of the DNSP is provide the export limit to the device (as is the intent of direct DNSP inverter control in the emergency backstop approach to manage minimum demand) then this would be inappropriate under ringfencing requirements.

It would be hoped that there are solutions to network capacity management that would see customers provide network services to support network operation, rather than dynamic limits on the connection point. This can be achieved through dynamic tariffs (e.g., Project Edith; Ergon and Energex load control tariffs).

Connection agreement

- 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?

DNSPs should be required to set out expectations of flexible export limit operation within the connection agreement.

The DNSP should required to report annually on how often exports have been limited, to what degree and the locations (feeders) most impacted. This will provide important information to customers and industry on changing export capacity, which might impact customer investment decisions, while also signalling where network reinforcement might be required.

Governance arrangements for flexible export limits

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

Yes. Where a trader is involved in executing a flexible export limit on behalf of the consumer, if it is within the trader's power to rectify, they should do so, once informed of the problem by the DNSP.

- 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)?

If a problem is found to be systemic amongst the products of an OEM (within the products' warranty), it is appropriate the OEM be held responsible for the non-conformance and rectify. Otherwise if the problem is just that product has not been setup correctly, this is an installation issue and the consumer will have to get the/an installer back to rectify.

Noting that there are approaches where a trader may be managing a customer's assets and may breach any flexible limits. In this, case the trader would be held responsible.

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

DNSPs are responsible for the smooth operation of their network, therefore it is appropriate that they govern the system and identify non-compliance with flexible export limits. The DNSP would then take action to limit the consequence of non-compliance in the future and/or ensure rectification.

- 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)?

A separate framework will be necessary to manage governance for the responsible party for ensuring flexible limits are met, this will include traders, technology providers and potentially others.

- 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?

Since the customer is not to interfere with any inverter/inverter control settings, customers should be left out of compliance processes as they will not have any visibility or control over what is happening on their behalf.

- Do stakeholders believe there needs to be a standardised approach to enforcement for consumer energy resources under the control of a trader? For example:
    - 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?
    - Where a trader is involved, should responsibility for rectification rest with the trader?

A standardised approach to enforcement for consumer energy resources under the control of a trader will formalise the process for rectification when a flexible limit or similar is not being executed as per the DNSPs direction.

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

Given the network security issues, if a trader is managing customer energy resources, then they are responsible for ensuring any limits are not breached. But it will be hard to manage if there are multiple parties behind a connection point managing different assets. The ability to equitably share capacity between multiple parties at a single connection is not yet developed and needs significant work.

Notification period for a dynamic limit

- Does the issue of a framework for providing forecast information on expected dynamic limits need to be considered in the short term?

This is a lower priority. A framework for providing forecast information on expected dynamic limits will eventually need to be considered however, the technology is still in its

infancy and will not be rolled out in large enough numbers to support the framework for several years.

- Do stakeholders consider this will be sufficiently addressed through the Scheduled Lite workstream?

Scheduled lite and the associated flexible trading arrangements rule change proposal only address the needs of one party, the Market Operator. This is just one approach to managing activities at the distribution level and it is not clear whether the centralised top-down model is the most efficient and practical approach or whether other approaches may better manage system risk and forecasting without the significant additional costs of scheduled lite.

Broad questions regarding immediate actions

- Do stakeholders agree with the areas identified above as requiring immediate attention?

Flexible export limits have not yet progressed beyond trials and flexibility is needed as the industry works towards business as usual application of flexible export limits, particularly given all the dependencies on other work, such as technical standards compliance and data availability to support visibility. The AER should prioritise the various aspect of flexible export limits with focus on customers and equitable allocation of network capacity, rather than developing multiple frameworks to cover all the various aspects of flexible limits.

- 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?

The capacity of rooftop solar in Australia will increase significantly over the next 5-7 years and consideration should be given to the need for flexible export limits to be realised more quickly and used more often than anticipated by most.

However, the behaviour of CER, including the degree to which solar PV, even that which can not be controlled directly, can be effectively managed behind-the-meter by using demand. Network tariffs, as well as “smart” controls of inverters, offer an approach to managing network capacity and the AER should also consider the role of network tariffs, whether customers who chose, should have the option to be exposed to dynamic network tariffs (either directly or through their agent).

What will be essential is the need for agility, both in the application of flexible limits, but also in the ability of the DNSP to develop new tariffs in response to changing network conditions and customer actions. Limiting DNSP to setting tariffs once every 5-7 years will limit innovative ways to manage CER and for customers to earn value from their CER. The AER should give consideration to a method that allows a DNSP to develop tariffs responsively on shorter time frames (e.g. annually) without out reopening the entire final determination.

Leverage existing work

Monitoring export limit performance and information provision

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

The DNSP should share whether other approaches to managing network capacity, such as tariffs, were a credible option and any costs differences between the various approaches.

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

The AER should include the performance of individual DNSP with regards to flexible limits as part of the annual reporting (e.g. STPIS) that is already routinely required.

Device capability to respond to flexible export limits

- 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?

CSIP-Aus should not be mandated in the NER and it is too early to be sure that CSIP-Aus is the best approach to inverter control.

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

An independent national body for technical standards development and compliance should be created.

Interval length

- 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?

It is likely DNSPs are best placed to determine the interval length and experiment with it. One important consideration is the ramp rate inverters are allowed to adopt in response to a flexible limit. If the ramp rate is too slow, 5 minute intervals between limit directions may not be very effective (Cl. 3.3.4 AS/NZS4777.2:2020).

Demonstrating investment need

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

The AER needs to ensure that the DNSP has demonstrated that flexible limits are the least-cost approach to managing network capacity and CER operation. The costs and benefits should not only explore the costs and benefits to the DNSP, but the impact on customers of opting for flexible limits over other approaches (e.g. dynamic network tariffs).

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

DNSP have limited visibility of their networks and limited understanding of their “baseline” capacity. A lack of readily available connection point data in all states bar Victoria, is a significant impediment to DNSP being able to demonstrate a clear need for flexible limits.

It is not clear that DNSP have sufficient wide-scale network data and information to conclusively demonstrate a need for flexible limits. Trials of both dynamic tariffs and limits are nascent (e.g. Project Edith) and more work and understanding is needed to ensure that flexible limits (via inverter control) are likely to deliver the best outcomes.

Consumer protections

- 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?

Equitable distribution of network capacity between customers and connection points based on a "first come, first served" approach may not be the best outcome for all customers. Clarity on issues related to capacity determination, allocation and reallocation (changing connections or post-investment to alleviate constraints) need to be addressed,

Data protection and privacy

- 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?

Different parties who have specific access to a customer's CER (or a specific device) should only be able to access relevant to the service they provide. This will mean limiting access to non-relevant data.

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

Data will be essential to deliver the benefits from not just flexible exports, but other approaches to CER, particularly as CER participation in markets, either wholesale, ancillary or network services grows. Metering service providers are monopolies that restrict access to customer data and then monetise that data. It is likely that flexible limits will be a significant income generating exercise for metering providers, with customers footing the bill. It is critical that customers have free and ready access to their own real-time electricity data to enable them to manage their electricity use and costs. A framework for customer access to their own electricity data should be developed.

Consumer understanding and interest

- Should the Customer Insights Collaboration workstream be leveraged to improve consumer understanding of flexible export limits and/or for consideration of impacts upon consumers and consumer sentiment?

Customer engagement on flexible limits has been minimal and the decision to implement them has already been made, so while engagement with customers would have been a key requirement prior to rolling out flexible limits, it would seem that the approach now being taken is to "sell" the concept to customers – this is the case with much of the Post-2025 market design work.

- What do consumers need to know about flexible export limits at each step in the journey to properly understand and engage with them?

Customers will need to understand whether flexible export limits, will increase the payback period on their investment. This means that DNSP, solar retailers and installers need to be having honest conversations with customers prior to installation. This will particularly be the case as capacity diminishes with time.

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

Customers will need easy to understand material on both the advantages and disadvantages of flexible export limits. The communications will need to be coordinated and consistent between the parties involved, such as the DNSP, installer, solar retailer and potentially trader. The development of materials and the hosting/provision of materials will need to be via trusted partners, none of which are likely to be the parties listed above.

Integration with export pricing

- How do stakeholders see flexible export limits and network tariffs interacting, for example, on the basic export level?

This is being examined in Project Edith, where flexible limits are used in conjunction with dynamic tariffs. Flexible limits set the capacity of the network. Increasing that capacity and managing that capacity could be remunerated via tariffs or a networks services market. Flexible limits do not reward customers with CER for behaviour that supports efficient network operation. It would be preferable for customer responsiveness to be rewarded, rather than setting hard limits.

- What types of tariff structures could apply to flexible export limits?

Tariffs could sit alongside flexible export limits (For example Project Edith)

- Do stakeholders have views on how export tariffs and flexible export limits could be implemented to complement each other?

Compliance and enforcement of technical standards that facilitate flexible export limits

- Are there any issues stakeholders consider will fall outside the AEMC's review of technical standards and consideration of associated roles and responsibilities the AER should be aware of?

The ringfencing implications of both "emergency backstops" and flexible limits has not been assessed. DNSP should only interact with the connection point, not with customer devices behind the connection point. Implicit in all of the work on inverters is DNSP-direct control of customer assets. The AER need to ensure that these approaches do not breach ringfencing guidelines. Customer agents, such as traders and aggregators, could/should be interacting directly with customer assets behind the connection point.

- Are there any issues that stakeholders consider will fall outside of CSIP-Aus that the AER should consider?

CSIP-Aus is not the only standard under consideration.

- Do stakeholders foresee issues with DNSPs monitoring device performance?

See comments on ringfencing.

Future actions

Efficient communication of flexible export limits at scale

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

There are a variety of approaches for exchanging data and all approaches should be allowable. The latency of the cloud may be an issue for ensuring timely responses, noting that not all customers have good mobile or internet access, but may still be able to provide network support.