

7 March 2025

NSW Department of Climate Change, Energy, the Environment and Water
Locked Bag 5022,
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Consultation paper – NSW Emergency Backstop Mechanism and Consumer Energy Resource Installer Portal

Endeavour Energy appreciates the opportunity to provide this response to the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) on its proposal to implement an Emergency Backstop Mechanism (EBM) and Consumer Energy Resources (CER) Installer Portal in NSW.

We are pleased to have had the opportunity to engage constructively with DCCEEW, the Australian Energy Market Operator (AEMO), Energy Networks Australia and our peer NSW Distribution Network Service Providers (DNSPs) on investigating ways we can contribute to maintaining power system security in NSW. We remain committed to working collaboratively on the shaping the detailed design and implementation of the EBM and CER Installer Portal.

We support establishing an obligation for the NSW networks to develop the capability to provide Emergency Backstop

The consultation paper discusses the need to develop “last resort” capabilities in response to growing minimum system load (MSL) risks precipitated by the increase in distributed photovoltaics (DPV) and the relatively uncontrolled way output has flowed into the system. We support establishing an EBM as an operational lever which can be utilised in emergency situations and consider its implementation critical to maintaining confidence in the reliability and security of the power system in NSW whilst supporting the uptake and integration of CER into the grid.

Our focus in recent years has been on exploring ways to improve our export hosting capacity to enable more CER to connect to our network. From this, our Flexible Exports program has emerged as a keystone initiative enabling customers to export more from their DPV in return for allowing us to briefly reduce output during times of network constraint. Following the recent launch of our trial for existing compatible customers, we intend to offer this as an opt-in new connection service for all DPV systems that conform to the Common Smart Inverter Profile – Australia (CSIP-AUS) protocol, commencing in alignment with the start of EBM mandates.

We support mandating CSIP-AUS for the EBM and consider that it would help unlock substantial benefits by providing all new, upgraded and replacement DPV systems with the requisite functionalities to also participate in Flexible Exports. This could assist in building social licence for the EBM, and the broader energy transition, as it would allow DPV customers the opportunity to significantly offset losses incurred during any backstop activation with gains from exporting at higher levels than what is available under a static export limit connection agreement. Furthermore, as participation in Flexible Exports improves Endeavour Energy’s ability to dynamically manage two-way energy flows, it will contribute to reducing the frequency and severity of MSL risks. It would also align NSW with several other jurisdictions in the National Electricity Market (NEM) where similar obligations have been introduced.

Nonetheless, it is unlikely that we will have the required critical mass of CSIP-AUS compliant DPV to deliver the curtailment capacity required by AEMO in the short-term. To avoid deploying reverse feeder shedding

to mitigate MSL risks, the EBM framework must allow the NSW DNSPs the discretion to implement complementary measures to deliver the operational response required by AEMO.

These measures are hierarchically outlined in the consultation paper, which we support, and consider their inclusion in the scope of the obligation necessary to ensure a sufficient level of EBM is available. As these measures broadly rely on existing systems and projects, our preliminary analysis suggests the expansion and/or acceleration of these investments to achieve the necessary level of EBM will only marginally (as opposed to materially) increase the costs of compliance.

We support establishing a common CER Installer Portal to improve CER compliance

The consultation paper also considers a common NSW CER Installer Portal in parallel with the backstop mechanism. We support its inclusion as it will be critical to driving the improvement in CER compliance in NSW that is needed to ensure there is sufficient availability of DPV capacity during an emergency event. A fully integrated CER Installer Portal will make it easier for installers to comply with their obligations by streamlining administrative processes and standardising commissioning, registration and testing procedures across the NSW DNSPs which can be completed on-site.

The effectiveness of the CER Installer Portal hinges on the functionality of the platform and usability of its digital interface and on this basis, we strongly support leveraging from the progress we have made in developing our own installer portal design. We have recently enhanced our connections application portal which has been well received by CER installers, and we welcome the opportunity to share insights with NSW DCCEEW to help guide the next stages of development.

However, a Spring 2025 implementation may not provide the necessary time for the new system to be designed, tested and commissioned alongside sufficient engagement with original equipment manufacturers (OEMs) and training with installers. We therefore recommend that NSW DCCEEW consider:

- staggering the timing of the CSIP-AUS mandates aligned to each networks readiness to facilitate and support CSIP-AUS. This still requires a common portal to be ready to commence but has the potential to reduce the coincident burden on OEMs in relation to onboarding and scaling, as well as providing additional time for industry awareness, engagement and training in parallel; and
- delaying the implementation date to take additional time to improve the prospects of a successful "all-at-once" commencement of a CSIP-AUS mandate and installer portal.

Our detailed feedback on key aspects of EBM framework is included in Appendix A. If you have any queries or wish to discuss our submission further, please contact [REDACTED]

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Appendix A – Detailed feedback

Adopting CSIP-AUS standards will support a nationally consistent approach to curtailing DPV during emergency events.

We support DCCEEW's proposal to require all new, upgraded and replacement small DPV systems (<200kW) to comply with CSIP-AUS and allow the NSW DNSPs the flexibility to determine the requirements for curtailing output from larger DPV systems (>200kW). This approach is broadly consistent with the Victorian Emergency Backstop Mechanism (VEBM) and would allow us to leverage work undertaken to curtail exports through dynamic operating envelopes (DOE) to optimise network hosting capacity and apply this functionality to signal curtailment instructions during MSL conditions.

In relation to larger DPV systems (>200kW), it is our expectation that over time the majority of these systems up to 1500kW will be able to be connected via CSIP-AUS, minimising implementation costs for these sites, however we will provide the option for utilising our existing supervisory control and data acquisition (SCADA) system as the method for monitoring and managing DPV generation where preferred by the customer (such as if their selected inverters are not CSIP-AUS compatible). We have recently released a communications and controls standard (ADI002) defining connection and connectivity requirements for new DPV connections above >200KW.

For smaller DPV systems, we note CSIP-AUS has emerged as the standard communication method for curtailing DVP output in other jurisdictions. We have trialled and put into production a CSIP-AUS utility server as part of our Flexible Exports program and found it effective in communicating export curtailment signals to participant inverters. We are now preparing to scale up our capabilities and expect to offer Flexible Exports as an optional connection service by Spring 2025 (or aligned to a CSIP-AUS mandate commencement date). Mandating CSIP-AUS for the EBM can future-proof small DPV by ensuring all connecting systems are equipped with the requisite functionalities to enable them to also participate in Flexible Exports.

A key challenge to using a CSIP-AUS utility server relates to its reliance on a reliable internet connection. Customers' internet connectivity can be interrupted for many reasons and when detected, fall-back measures reduce output to a low static limit until connectivity is restored. While we consider this system safeguard is appropriate, we note that it could result in DPV exports being constrained for potentially long periods which may not be necessary for network management purposes and would have a negative impact on the customer's ability to get the most out of their DPV investment.

To mitigate these risks, the Victorian DNSPs can install Generation Monitoring Meters (GMM) at sites without a reliable internet connection as an alternative to CSIP-AUS. The GMM utilises a dedicated Advanced Metering Infrastructure (AMI) functionalities to monitor and control generation output and interfaces directly to the respective DNSP's communications network. By virtue of differences in metering frameworks, this is neither a feasible nor cost-effective option for the NSW EBM.

Therefore, customers with EBM-enabled DPV should be made aware of their responsibility to ensure their backstop enabled device remains connected to the internet and understand what might happen to their exports if connection is lost. Device connectivity/compliance monitoring and fail-safe procedures should be consistent across DNSPs and be included as part of a broader CER customer and installer education and support campaign, with an emphasis on their respective compliance obligations during and after installation.

A range of complimentary measures in addition to DPV curtailment is needed to deliver the required backstop capacity.

We consider the EBM can be most effectively delivered through CSIP-AUS, but we do not yet and will not have the capabilities to curtail large volumes of DPV output via CSIP-AUS by Spring 2025. This is consistent

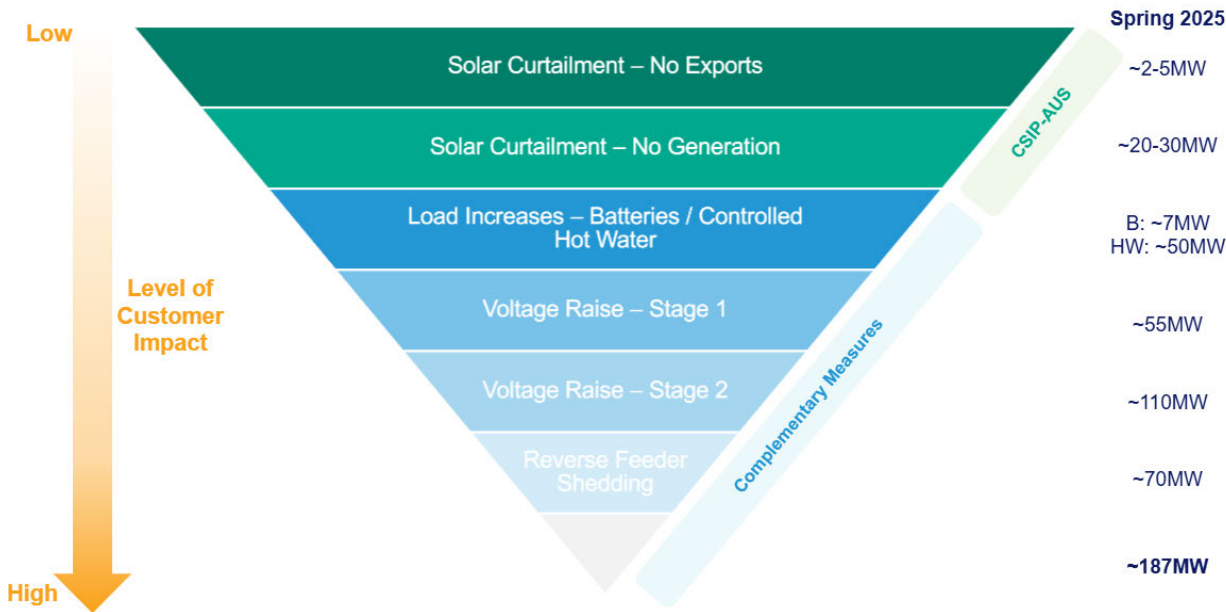
with AEMO’s observation that the NSW DNSPs at present do not possess any of the key capabilities to deliver short-and-medium term actions needed to support a NEM-wide emergency backstop mechanism.¹

AEMO has advised that approximately 400MW in backstop capacity is required by October 2025 to maintain system security in NSW². We are investigating the feasibility of accelerating our planned scaling and deployment of Flexible Exports which may provide some curtailment opportunities in the medium term. However, even under a rapid take-up scenario it remains unlikely there will be enough enrolled systems to provide the curtailment capacity required by AEMO. Similarly, there will likely be a significant delay between commercial connection applications and their practical commissioning which limits the availability of backstop-enabled large DVP to contribute to AEMO’s forecast needs.

This leads us to believe that curtailing DPV alone will not be an operationally effective system management tool to manage emergency MSL events in the short-term. Limiting the scope of the EBM to curtailing output from new and upgraded DPV systems risks providing AEMO with insufficient curtailment capacity for several years after the backstop has been implemented.

To address the shortfall, we will need to apply other complementary measures that reduce MSL risks and improve demand flexibility. Our preliminary estimation of the responses available from complimentary measures is set out below. While this requires further analysis for validation, it highlights the need for a range of solutions to mitigate MSL risks in the short term.

Figure 1: Indicative estimates of emergency backstop measures and availability



The availability and contribution of complimentary measures is likely to vary across DNSPs and may include options not identified above. If reverse feeder shedding is to be avoided, it is imperative that the EBM provide the NSW DNSPs with the flexibility to deploy any combination of measures at their disposal to comply with a direction issued by AEMO. This would enable DNSPs to prioritise low impact measures ahead of more disruptive, costly or riskier interventions like triggering over-voltage trip settings on existing inverters.

¹ AEMO, [Supporting secure operation with high levels of distributed resources](#), December 2024, Table 19, p.55.

² *ibid*, p.46.

We therefore recommend any regulatory obligation is not exclusive in the form of emergency backstop capability that is implemented so that the NSW DNSPs can determine the most efficient and effective mix of solutions, balancing cost and customer impact, for achieving AEMO's targeted reduction in generation.

Implementation timeframes need to account for the efforts required by the industry to achieve the levels of compliance with backstop capabilities necessary for operational effectiveness.

For an EBM to be effective, a significant portion of the DPV fleet needs to be able to respond to an MSL event. This dictates that the implementation of backstop capability on any new and upgraded DPV system should be implemented well ahead of forecast system security concerns. With regards to implementation timeframes, AEMO states:

Experiences to date suggest that at least 1-2 years should be anticipated to achieve implementation of basic curtailment capabilities for a proportion of new installations using manual processes, and at least 2-5 years to achieve the needed levels of operability and compliance across the majority of new installations.³

We appreciate the urgent need to manage forecast MSL risks does not permit these ideal timeframes. However, implementing an EBM in a matter of months will nevertheless be a challenging task for the industry given the large number of DPV installations, CER service and product providers in the industry and the extent of integration and coordination required across different systems and parties.

For instance, many DPV installers in NSW are likely to be unfamiliar with CSIP-AUS requirements and will need dedicated training on products, testing and commissioning processes, compliance awareness and the guidance on using the CER Installer Portal. Mandating CSIP-AUS could also create supply chain issues and temporary shortages of compliant devices for original equipment manufacturers (OEMs), potentially slowing the DPV uptake in contrast to various NSW and Federal Government policy objectives.

Customer education and information programs will also be required to gain a level of social licence needed to support a smooth introduction of the mechanism. From a DNSP perspective, whilst our obligations are not yet confirmed, significant technical enhancements and resources will be required to develop systems and procedures to support each of the EBM design elements outlined in Table 1 of the consultation paper.

It is noteworthy that the Victorian DNSPs experienced challenges in implementing certain aspects of the VEBM and following a review of industry readiness, its commencement was deferred. Despite this delay, we understand the VEBM has encountered significant implementation issues, specifically around on-site testing and availability of DNSP utility servers, which has resulted in some poor outcomes for CER installers and customers. An industry reference group has now been formed to explore solutions and address these concerns. Similar industry concerns also resulted in a decision to push back the start of the emergency standards in South Australia.

Recognising the NSW DNSPs and industry will need to work together to deliver a functional EBM within a more compressed timeframe, it is conceivable that a deferral and or a staggered approach may also be required. We therefore encourage NSW DCCEEW consider a commencement that enables industry to be better placed to manage implementation challenges so that the risk of non-compliance is minimised.

This may involve a pre-launch trial run to test the range of functionalities of the CER Installer Portal, its integration with the requisite DNSP systems, and compatibility with the utility server. A limited pilot would also allow DNSPs and participant installers to trial new testing and commissioning processes and provides

³ *ibid*, p.10.

an opportunity to rectify any technical issues before the CSIP-AUS obligations commence and CER Installer Portal goes live to all installers.

The poor experience in other jurisdictions suggests a staggered or phased implementation may offer a better balance between mitigating forecast MSL risks and industry readiness considerations. Beyond the technical challenges, training and support must also be delivered to ensure industry is prepared for changes from commencement and the impacts of the changes are mitigated. With installers responsible for ensuring DPVs comply with the mandated standards, a structured rollout of requirements may provide them a better opportunity to undertake the training and development needed to navigate the portal's functions and become familiarised with DNSP utility server integrations.

If a delay or partial delay to the CSIP-AUS or CER Installer Portal obligations be deemed necessary to address deliverability concerns, it need not adversely impact AEMO's ability to manage MSL risks in so far that complementary measures that are not reliant on these could be made available to the NSW DNSPs to deliver the required load increase or generation reduction when responding to an EBM notice.

The obligations should promote consistency among the DNSPs and provide investment certainty.

We consider the EBM obligations should be applied consistently to each NSW DNSP. Consistency across networks is also critical to improving the ability of the OEMs, CER installers and other customer agents, to meet the CSIP-AUS requirements as stipulated in updated connection agreements. EBM compliance would be improved and a smooth transition supported if there was alignment in key DNSP processes impacting industry participants, such as:

- Product accreditation, stakeholder education and communication, and installer training.
- CSIP-AUS testing and commissioning procedures capable of verifying conformance to the standard at the time of installation.
- Compliance monitoring framework which defines non-compliance, the frequency of compliance monitoring, arrangements for contacting customers suspected of non-compliance and options available to those customers for returning to compliance.

We support a harmonised approach to implementing the EBM and have been working closely with the other NSW DNSPs to align our internal technical capabilities. The obligations will require the NSW DNSPs to implement significant changes which cannot be realistically achieved without additional investment.

As previously discussed, we are well positioned to expand and accelerate our Flexible Exports program and although we have started initial planning for the introduction of the EBM and CER Installer Portal ahead of any requirement to do so, we cannot finalise our investment and delivery plans until we have the certainty of the final obligations. As the EBM was not contemplated during our 2024-29 regulatory determination process, we will need to re-prioritise it over projects and programs consulted on and agreed with customers as part of our 2024-29 determination project. An obligation will ensure it receives the appropriate priority and avoid attracting penalties under our incentive schemes. Depending on the materiality of the costs involved we may also need to recover implementation costs via the cost-pass through mechanism outlined in the National Electricity Rules (NER).

Any potential re-prioritisation and subsequent pass-through application (and its assessment by the AER) would be best facilitated if the variations to the NSW DNSPs licence conditions clearly and thoroughly set out the actions and capabilities required to deliver the EBM. It is particularly important the amendments are drafted in such a way as to provide DNSPs with confidence that expenditure to enhance capabilities on a range of complimentary measures – to the extent they are necessary to meet AEMO's forecast operational needs – would be recoverable. This also applies to obligations to establish and manage integrations with the CER Installer Portal in so far that it supports EBM compliance.

We also note the NSW Energy Minister has requested the NSW DNSPs begin working on developing systems to support the EBM in advance of any licence condition changes. A similar direction occurred in South Australia, while the AER allowed these costs it did comment that it was not sufficient for them to approve expenditure undertaken before the cost pass through solely on the basis that it has been included in the regulation.⁴ The AER's position creates some uncertainty as to whether these early establishment works are cost-recoverable, and we therefore recommend that NSW DCCEE and the NSW DNSPs discuss this issue with the AER to reduce uncertainty.

⁴ AER, [*Determination April 2022 emergency standards cost pass through – SA Power Networks*](#), September 2022, p.10.