14 September 2023

Lisa Shrimpton
Director
Australian Energy Market Commission (**AEMC**)
Via email lisa@shrimpton@aemc.gov.au
Ref code: ERC0346

Dear Ms Shrimpton,

Joint NSW DNSP response to the AEMC's Unlocking CER Benefits Through Flexible Trading Directions Paper

Ausgrid, Endeavour Energy and Essential Energy (NSW distribution network service providers (**DNSPs**)) thank the Australian Energy Market Commission (**AEMC**) for the opportunity to provide a submission on its Unlocking Benefits Through Flexible Trading Arrangements Directions Paper (the **Directions Paper**).In doing so we express support for the Institute of Public Works Engineering Australia (IPWEA) submission which supports a minor energy flow framework that utilises smart street lighting capabilities to reduce costs and emissions and provide a range of other benefits.

The electricity system is undergoing a fundamental transformation with the rapid uptake of customer energy resources (**CER**), community batteries, electric vehicles (**EVs**), standalone power systems (**SAPS**), smart meters and several other future energy technologies all playing uniquely different roles across the networks areas that we serve. The NSW DNSPs are central to this transformation. We are each at distinct stages of emerging technology penetration and as such are each facing similar but different challenges. Ausgrid's Project Edith[1], Endeavour Energy's Bawley Point Community Microgrid, and Essential Energy's SAPS are examples of how NSW DNSPs are leading developments to unlock CER benefits through innovative CER programs. As such, the Directions Paper is a timely opportunity to review existing arrangements to ensure customers can maximise the benefits and opportunities available to them. The timeliness is further reflected in the recent NSW Government response to the *Electricity Supply and Reliability Check Up*, which sees a role for DNSPs in CER orchestration.[2]

NSW DNSPs support the Direction Paper's policy intent of flexible trading arrangements and demonstrates the need for NSW DNSPs to offer future energy services and system support services as part of our service classification. In particular, we note the following areas of priority for our businesses, including:

- Taking a holistic approach to CER integration, emphasising the potential of dynamic operating envelopes (**DOEs**) and dynamic network pricing as versatile tools for network capacity management and consumer flexibility;

[1] Project Edith is a demonstration of dynamic network pricing and dynamic operating envelopes aimed at increasing market participation of CER and efficiently rewarding customers for network support.
https://www.ausgrid.com.au/About-Us/Future-Grid/Project-Edith

[2] NSW Office of Environment and Climate Change. *Electricity Supply and Reliability Check Up*. [LINK]

- Supporting the AEMC's decision outlined in the Directions Paper to not progress the specific proposal for multiple service providers with secondary meters at small retail customer premises at this time. We agree that there could be an opportunity to progress this approach as trials through a sandboxing trial rule through the Australian Energy Regulator's (**AER**) Innovation Tool Kit at a later point in time or through a DNSP ring-fencing waiver under the current service classification framework;
- Recognising the opportunity to create flexible retail arrangements for public electric vehicle charging infrastructure (**EVCI**). We want to collaborate with stakeholders to develop a simple model to support them. This includes ensuring full retailer power of choice for EV customers;
- Supporting reforms that focus on the need to modernise the management of street lighting through the adoption of smart controllers, emphasising their potential to enhance operational efficiency, reduce costs, and offer environmental benefits. We call for a framework that accommodates various ownership and metering scenarios which supports customer choice in the transition to this new system.
- In relation to SAPS, the existing rules framework applies overly prescriptive remote data read requirements, which are preventing the economic deployment of SAPS. We welcome alternative suggestions for applying minor energy flow meter framework to a SAPS unit. This would deliver an immediate improvement that would remove the need to install expensive satellite communications for SAPS meters and aligns with the original intent of the *2020 Review of the Regulatory Frameworks for Standalone Power Systems.*

We have also included in **Attachment A** additional detail regarding these and other aspects for AEMC's further consideration. We look forward to continued collaboration with the AEMC in the pursuit of improved customer outcomes and a more sustainable and resilient energy landscape. Please contact for:

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- Endeavour Energy: Patrick Duffy at patrick.duffy@endeavourenergy.com.au; and
- Essential Energy: Anders Sangkuhl at anders.sangkuhl@essentialenergy.com.au.

Yours sincerely,

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ATTACHMENT A: NSW JOINT DNSP RESPONSE TO SPECIFIC TOPIC AREAS UNLOCKING CER BENEFITS THROUGH FLEXIBLE TRADING ARRANGEMENT DIRECTIONS PAPER

CER INTEGRATION AND SUPPORTING WORK PROGRAMS

Whole of system CER integration thinking and CER orchestration is the key to achieving a sustainable and secure energy system for all. To that end, we encourage the next stage of the consultation process to further contemplate the benefits that DOEs and dynamic network pricing can provide as network capacity management tools, allowing network operators to manage network capacity for consumers. Helping customers understand the linkages between the abundance of renewable energy in the middle of the day and increased electrification of things like transport means that dynamic solutions are needed to ensure networks are operating safely and system security is maintained.

DOEs combined with other CER integration works can offer new ways for customers to access low-cost electricity by opting their flexible load such as EVs, hot water and pool pumps into these programs on a discretionary basis. Practically this could be achieved through leveraging inverter controls or the ability to turn-off the export channel on smart meters for short periods. This solution has not yet been fully considered as a policy response for integration as the focus has mainly been (understandably) on solar exports.

Likewise, dynamic network pricing offers greater incentives for flexible CER to respond to network capacity constraints in a way that minimises costs for all, while encouraging greater market participation at times of abundant capacity.

We welcome the AEMC's recognition in the Directions Paper on page 14 that:

> *'distribution businesses are exploring the opportunities to be distribution system operators that actively incentivise flexibility through dynamic operating envelopes, dynamic prices and other incentives.'*

We also welcome the AEMC's stated intention 'to review the opportunities for networks to influence and manage energy flows'.

As part of the next stage of the AEMC's consultation process, we would encourage further detailed analysis and investigation into the roles of and values that DNSPs and DOEs can play in any future CER landscape, providing confidence to participants to continue researching DOE solutions to make this part of default flexible trading product offerings.

FLEXIBLE TRADING WITH MULTIPLE SERVICE PROVIDERS AT A CONSUMER'S PREMISES

The initial rule change proposal to introduce multiple Financially Responsible Market Participants (**FRMPs**) was met with significant concern by DNSPs due to the inherent complications and potential impediments it may introduce. The intent of the rule change broadly aligns with our shared vision of promoting an end-to-end energy system and providing future energy services that actively engage customers in the market and reduces overall system costs to customers. However, the introduction of multiple FRMPs seems counterproductive or, at a minimum, introduces unnecessary complexity to achieving this vision when applied to all potential CER scenarios.

Broadly speaking, NSW DNSPs still maintain this view. Introducing secondary FRMPs may create confusion among customers who generally value simplicity and is likely to discourage them from participating. The feedback our businesses have consistently heard through our respective 2024-29 Regulatory Proposal consultations is that customers are wary of complexity. As outlined in the Directions Paper, in practice, implementing complex changes such as this would necessitate intricate system upgrades, which might prove costly without delivering guaranteed commensurate benefits.

In addition, there are inherent challenges associated with aligning responsibilities in a system with multiple FRMPs, particularly when it comes to managing flexible CERs. The responsibility should ideally lie with the entity exerting the most control, but there remains a risk of a misalignment of accountabilities. From our perspective, introducing secondary FRMPs, in particular for small customers, risks increasing the complexity of applying network pricing and operational controls,

thereby driving up costs which ultimately are passed on through to consumers, as well as dis-incentivising them to participate.

For these reasons, we support the AEMC's decision outlined in the Directions Paper to not progress the specific proposal for multiple service providers with secondary meters at small retail customer premises at this time. We agree that there could be an opportunity to progress a sandboxing trial rule through the AER's Innovation Tool Kit at a later point in time for this model, if the proponent feels like that is the appropriate mechanism to conduct a trial or through ring fencing waivers.

However, we are open to exploring alternative models to support the specific use case of having a different FRMP for public EV charging, where this can be accommodated by separating the electric vehicle supply equipment (**EVSE**) load from the other loads, while maintaining the ability to apply cost-reflective pricing and DOEs to the EVSE.

SEPARATELY IDENTIFYING AND MEASURING FLEXIBLE CER

We acknowledge the current challenges in separating flexible CER from passive loads are preventing some customers from realising the full value of their flexible CER. For example, it impacts EV customers who are trying to charge their EV when away from their residences but not wanting to sign up to multiple EV retail offerings. As such, we support the AEMC's proposal to assess the costs and benefits to better integrate flexible CER via a cost-benefits analysis (**CBA**). As noted above, we consider the increased participation of distributed and controllable CER in wholesale and network markets could be achieved through the promotion of DOEs and dynamic pricing rather than applying a one size fits all approach to engage multiple service providers at a single premises for all CER technologies. For these reasons, we agree to the AEMC's initial position not to progress the specific proposal for multiple service providers with secondary meters at small retail customer premises at this time. Instead, we consider alternate approaches are better explored via trials, waivers or opt-in processes at this time.

In evaluating options, we recommend the AEMC consider which options would best align with the 'scheduled lite' mechanism being considered in parallel by the AEMC's *Integrating Price-Responsive Resources into the NEM* rule change consultation process. The CBA should provide transparency of any systemic changes required to give effect to these options and can inform recommendations that are economically justified, promote safe outcomes and are aligned with the best interests of consumers.

We agree that the cost implications and the value proposition will likely vary under each option, such that allowing for a range of different options would likely provide customers and service providers with the flexibility to utilise the solution most appropriate for their circumstances. However, it may be neither efficient nor safe to address the various technical and market functionality issues to facilitate every possible connection or metering configuration.

The ways in which flexible CER is metered should be limited to arrangements that are relatively simple and technically feasible and therefore able to be easily utilised by CER customers and service providers. Our preliminary feedback to the options highlighted in the Discussion Paper is discussed further in the sections below.

ESTABLISHING A SECOND CONNECTION POINT

The current framework allows customers to apply to DNSPs to have their CER device connected directly to the distribution network separately from their primary load. Distinct advantages of this option are that CER can be connected through established processes, monitored by NEM compliant metering and managed by a different retailer or service provider.

Applications for secondary connection points specifically for CER are considered on equal terms as for non-CER applications with assessments typically focussing on the impact of the proposed connection to the network, other customers and its conformance to the safety requirements including those set out in the NSW Service and Installation Rules (**SIR**).

With respect to the observation at page 26 of the Directions Paper that the connection application process is "*costly and can be time-consuming*", we note that connection services in NSW are provided

under a contestable framework with competitive tension among accredited services providers (**ASPs**) ensuring costs are efficient. Fees for any applicable administrative site establishment and application assessment work undertaken by the NSW DNSPs are set at efficient levels by the AER. We also note that DNSPs have made improvements to streamline the connection application process, such as Endeavour Energy's online connections portal which provides customers with access to a range of connection services, including real-time visibility of their application status through a dashboard interface. Procedural improvements have also enabled connection service applications to be processed within 10 business days of receiving the application.

Nevertheless, this option is rarely utilised for CER as the costs of providing a connection via a new, separate service or consumer mains, combined with the associated ongoing network service charges often make it uneconomic for small customers. Whilst not prohibited, the one-to-one relationship between a connection point and NMI is embedded in network systems to adhere to AEMO's NMI Procedure. Any proposal to allow additional NMIs to be allocated to a single connection point would require this procedure to be consulted on and updated before DNSP systems can be upgraded to allow this. We note this is not an issue currently encountered for granny flats or duplexes as a different address to the primary premises/residence is formally established as part of their respective council's development application process, allowing a unique NMI to be attributed to the premise.

Aside from these IT issues, safety concerns for a residential or small commercial premise with two sources of grid supply often prevents second connection points from being recommended. Unless it can be demonstrated that there is no reasonable risk of a customer's electrical installation becoming intermixed or network feeders becoming paralleled – thereby introducing a significant and potentially fatal electrocution risk – additional connection points are not generally approved. There is also the risk of multiple sources of supply increasing the risk of isolation errors.

The SIR provides NSW DNSPs with the authority to agree or require more than one connection point for an individual premise. Whilst this DNSP discretion is appropriate and should be preserved, in the context of customers connecting more and larger sized CER to the distribution network, we consider there is scope for the SIR to provide further guidance on the safe establishment of additional connection points for CER (or additional settlement points from a single connection point depending on the outcome of this consultation).

If it is subsequently determined that a review of the SIR is required, we suggest this be incorporated as part of any review to identify opportunities to reduce the remediation requirements of a customer's metering installation as recommended by the AEMC in their *Review of the Regulatory Framework for Metering Services* final report.

ESTABLISHING A SECOND SETTLEMENT POINT (AT A SINGLE CONNECTION POINT)

Establishing a second settlement point could present a technically feasible and more cost-effective alternative to providing flexible CER with improved access to markets. Although there are a range of regulatory and technical issues that will need to be resolved to give effect to each different metering configuration identified in the Directions Paper, these are not likely to all be insurmountable and options to apply different metering configurations and specifications (if required) should be investigated further.

Whilst we have not yet evaluated the relative strengths and weakness of each option at a granular level, nor established a position on a preferred model(s), from a network perspective, our key priority is to ensure any arrangements to separate flexible CER from other loads must not adversely affect network operations or hinder the ability of CER devices to respond to DOEs and dynamic pricing signals. We note that the Directions Paper does not elaborate on the allocation of network prices or DOEs between primary and secondary settlement points. We recommend that the costs of upgrading systems to ensure that network prices and DOEs are appropriately applied to flexible CER be included in the proposed CBA.

The effectiveness of DOEs as a network management tool is contingent on the network providing direct and dynamic signals to CER and receiving confirmation signals in return. This could be problematic for instance under a child/parent (subtractive) metering configuration where a CER device

is located behind a primary metering or connection point. We therefore believe the effective and efficient operation of DOEs should be prioritised when considering the merit of alternative arrangements.

Setting aside the technical feasibility of this option, if it is to be considered further, we would also recommend research is undertaken to better understand likely behavioural responses from customers to determine whether such a reform would be valued by customers. The CBA will also need to account for customer and industry education and information awareness campaigns, changes to industry standards, billing and data handling systems and modifying customer protections.

Regarding the proposal to adapt the embedded network framework to establish a second settlement point for CER, new arrangements would be required to ensure networks have downstream visibility from the parent meter. This is not the case currently with embedded networks and our successful transition to a DSO requires us to have timely access to the child meters to perform our role in providing a safe, reliable, and affordable network.

Accepted metering configurations should also preserve the safety and integrity of the customer installations and not permit actions that may introduce any safety risks. In broad terms, the SIR sets out the minimum standards for providing safe, reliable and efficient connection services to customer premises. More specifically and in relation to multiple connection points, the SIR prohibits any switching facilities between separate physical connection points or points defined by separate NMIs. That is, each connection point or NMI is to remain totally physically segregated from other sources of network supply and installations.

We note that AEMO's proposed FTM2 model provides switching facility between the primary (passive load) and secondary (controllable CER) NMIs. On face value, this model would not comply with the SIR. Switching between settlement points also has the potential to impede or disturb the efficient control and dispatch of controllable CER.

We understand that one of the key use-cases motivating the rule change proposal is to provide options to separate the billing of electric vehicle charging from the connection point of the charger. For example, for a customer to charge away from home and have the costs represented on their home electricity bill. We anticipate that a simpler model could be developed to enable this use case. This could include the concept of a floating, or mobile, NMI assigned to the vehicle. We would welcome the opportunity to work with the AEMC and stakeholders to pursue solutions to enable this use case separate from AEMO's FTM2 model.

MEASURING ENERGY FLOWS FROM STREET LIGHTING AND OTHER STREET FURNITURE

OPPORTUNITIES AND BENEFITS OF IMPROVING EXISTING ARRANGEMENTS

We agree with the Directions Paper that there are opportunities to improve existing arrangements for the measurement of street lighting and public furniture. For instance, discussion within the Directions Paper contemplates the integration of a new framework is a useful acknowledgement of the technical advances in this area. Many modern LED streetlights can now be easily equipped with smart controllers that have remote control and communications functions.

Smart controllers can enhance the efficiency of managing lights. Under current arrangements, all DNSPs run operational inspections on streetlights on major roads to verify their functionality (night patrols). Despite this, the majority of light malfunctions are reported by the public. Unfortunately, some of these reports are inaccurate, leading to unnecessary checks on functional lights. Introducing new flexible frameworks that will support large adoption of smart controllers across our networks would eliminate such redundant visits. Annual expenditure on night patrols cost our businesses hundreds of thousands of dollars of expenditure, which is ultimately reflected in bills for Public Lighting Customers. By introducing metering via smart controllers, consumers stand to benefit significantly.

In addition, Public Lighting Customers would have the option to dim lights during select night-time hours if they chose, consequently lowering energy usage, and associated costs. Unlocking financial benefits from public lighting dimming has been proven by some studies as a key element in accelerating rollout of smart controllers.

Improving the existing arrangements to enable large scale adoption of smart controllers also has environmental benefits. Dimming luminaires results in lower carbon emission, reduces light pollution and has broader environmental impact in supporting biodiversity in sensitive areas.

MARKET FUNCTIONS AND OBLIGATIONS - METERING ROLES

We acknowledge that there is value in establishing a new Metering Provider (**MP**) accreditation to ensure that the metering provider has the capability and competency to manage specific streetlight metering. Any new proposed framework must be consistent across the NEM regardless of ownership of the streetlighting smart controller that will act as the metering device. We acknowledge that in some situations, local councils might own of unmetered streetlights and by installing smart controllers on their assets will also become owners of the metering device and will have access to all billing data. Any new proposed framework should comprehensively evaluate all potential ownership arrangements or allow use of smart controllers for metering only in certain circumstances (i.e., DNSPs).

Any new framework should allow for automation, standardisation (i.e., mandate the same output from all CMS systems) and appropriate cyber security to enable fast and safe data processing and to ensure the ability to remotely operate lights is secure.

TECHNICAL REQUIREMENTS

Given the location where smart controllers would be installed (on top of luminaires) it would be impractical to request physical inspections of all devices. We support the introduction of a simplified testing regime that would recognise the technical capabilities of smart controllers that can be regularly monitored and tested via remote software.

We acknowledge that there are various potential suppliers of devices that can be used to measure minor energy flow meters. The new framework should focus on standardisation on both software and hardware making sure that outputs from different devices are comparable and interoperable. Currently, each supplier of smart controllers uses different software and has different approaches to data extraction, polling intervals and diagnosing tools. Standardisation on all levels is vital for the success of the new framework.

IMPLEMENTATION AND TRANSITION

We propose that customers have the option to opt in or opt out from the new framework for their respective network of streetlights. In our view, it would be impractical to have one public lighting customer with different billing arrangements for streetlights with smart controllers. If the customer chooses to opt in for billing through smart controllers, then all smart controllers in their inventory should be used for billing, not just in some areas. For optimal advantages and cost-efficiency, we recommend that customers be incentivised to implement intelligent controllers across their entire luminaire portfolio, rather than limiting deployment to specific subsets.

In terms of billing costs, we appreciate the proactive outreach from Local Government Authorities (**LGAs**) who have sought to gain a more accurate understanding of their streetlighting energy consumption for both cost management and emissions reporting purposes. We are committed to assisting these local governments as they navigate the complexities of the energy transition. However, it is also worth noting that the current billing methodology for streetlighting relies upon estimations. Therefore, the introduction of minor energy flow metering, whilst a positive advancement, does risk the occurrence of bill shock, should metering indicate that actual energy usage is more than expected. Whilst we are hopeful such occurrences are minimal, we would still encourage LGAs to still be prepared for such an occurrence.

Similarly, we note that NMIs used for public lighting are currently grouped. Transitioning to minor energy flow metering will require individual NMIs per meter. This could increase costs levied on a per NMI basis and involve additional fees to obtain a NMI for each new public light. To reduce the administrative burden on Councils and the risk of additional fees it is worth exploring further whether the new framework could make an exception to enable the continued grouping of NMIs in the case of public lights.

OTHER TOPICS – IMPROVING METERING ARRANGEMENTS FOR STAND ALONE POWER SYSTEMS (SAPS): CHALLENGES & RECOMENDATIONS

NSW DNSP businesses are at varied stages in introducing SAPS into their service areas. It is known that over the next decade SAPS will undoubtedly play an important role in the future energy mix as we transition to a more resilient grid.

In May 2023, the rules framework enabling SAPS was enacted. During the standard implementation of SAPS across our networks, the NSW DNSPs are uncovering a range of practical and economic complexities that were not contemplated at the time of the original rule development. For instance, a current significant implementation concern relates to the requirement for SAPS units being required to install metering on a SAPS generation unit to a Type 1-4 level with remote communications capabilities (NER 7.8.4). However, almost by definition, SAPS are often targeted to be installed in remote and/or rural parts of networks, where modern communication infrastructures, like 3G, 4G, or 5G networks, are sparse or at times non-existent.

Therefore, to achieve reliable meter reading connectivity in remote areas often necessitates the use of high-end equipment, such as satellite antennas, which are costly. Recent market soundings by our businesses have revealed that the financial cost of such systems is considerable, with installation costs of approximately $4000, plus approximate annual costs in excess of $5000 for meter data reading alone. For context, the total spend on generation running costs for a SAPS unit is estimated to be approximately $770 per year. Unfortunately, the high costs associated with ensuring reliable meter reading connectivity is a substantial barrier to the wider implementation of SAPS units. Left unaddressed this will lead to fewer SAPS being installed across the network, with customers not being able to realise the benefits of SAPS through improved reliability and lower network maintenance costs.

As a result, the NSW DNSPs have engaged with AEMO to confirm metering expectations and to explore alternative approaches to meeting NER requirements. Through these engagements AEMO has confirmed that where a SAPS has a single generating unit, the quality of the metering data delivered to AEMO for the SAPS connection point is not relevant for AEMO to perform any settlement function or meet any other rules obligation. Settlement is undertaken on metering data received at the customers retail metering connection point(s).

As such, AEMO and our respective businesses have consulted closely together in exploring alternative conceptual metering approaches which seek to:

a) Avoid the need for expensive remote meter reading communications if AEMO's market requirements can be served through an alternative metering mechanism and;

b) Continue alignment with the fundamental principle that a SAPS generation unit will have an associated NMI installed at the connection point.

To that end, we understand that that as part of AEMO's submission to the Directions Paper, it is proposing an alternative suggestion of applying minor energy flow meter framework to a SAPS unit. In such a situation, a proponent may be able to obtain AEMO approval for a metering system which meets market requirements but allows for alternative approaches to managing data delivery. The alternative approaches will make SAPS more economic than the NER currently allows.

I We would encourage the AEMC to consider this proposal as part of their Directions Paper recommendations.

We appreciate AEMO's pragmatic and constructive engagement on this issue. Their cooperation in developing alternative solutions that prioritise both efficiency and cost-effectiveness aligns with both the NEO and the policy intent of the original *2020 Review of the Regulatory Frameworks for Standalone Power Systems.*