AEMC consultation paper - National Electricity Amendment (Unlocking CER Benefits Through Flexible Trading) Rule

NBN Co submission

16 February 2023

1. Executive Summary

NBN Co Ltd (**NBN Co**) thanks the Australian Energy Market Commission (**AEMC**) for the opportunity to respond to its *National Electricity National Electricity Amendment (Unlocking CER Benefits Through Flexible Trading) Rule: National Energy Retail Amendment (Unlocking CER Benefits Through Flexible Trading) Rule Consultation Paper* (**Consultation Paper**).

As the operator of the National Broadband Network (also referred to as the **nbn** network), NBN Co is responsible for the operation of a telecommunications network providing essential voice and broadband services across Australia and its external territories.

NBN Co acknowledges that the primary intent of the Australian Energy Market Operator's (**AEMO**) proposed rule change request is to seek metering reform to structurally lower access barriers that limit uptake of flexible trading arrangements amenable to Consumer Energy Resources (**CERs**). NBN Co is supportive of the proposal in the Consultation Paper to allow street furniture to be included in future flexible trading arrangements, and of the AMEO's proposal for a new category of minor energy flow meter (**MEFM**), which will relax current revenue metering requirements.

NBN Co's submission offers comments on how the rules may be applied to encourage uptake by commercial and industrial consumers and, in particular, by telecommunications network providers such as NBN Co. Primarily, NBN Co's view is that:

- The AEMC should consider the impact of costs that may be imposed by any requirements to meter presently unmetered loads, particularly if such arrangements are intended to be applied retrospectively to incumbent assets;
- Keeping MEFM installed costs as low as possible will be critical to uptake;
- Any secondary settlement point limitations should not exclude non-controllable loads such as those generated by telecommunications network power supplies from using MEFMs;
- Using MEFMs to obtain contestability should be discretionary rather than mandatory;
- Where currently unmetered sites possess assets qualifying as CERs with potential for flexible trading, NBN Co suggests the primary grid connection may remain unmetered with a MEFM characterising relevant CER;
- AEMO's proposal to validate metering designs on an ad-hoc basis is a sufficient mechanism to clarify how a secondary metering solution could differentiate a loss of mains supply (so that correct settlement data can be provided) as it may eliminate the need for additional infrastructure to physically switch a secondary meter out-of-circuit in such instances (thus minimising costs); and
- Where appropriate, the AEMC should seek to engage the National Measurement Institute to guide the appropriateness and practical avenues for cost containment of any proposed metering and adjacent specifications.

2. About NBN Co

NBN Co is the Government Business Enterprise (**GBE**) responsible for the construction and operation of the **nbn** network in accordance with Commonwealth Government policy. In working as a GBE, a key focus for NBN Co is to operate efficiently within its capital constraints and to proactively manage its costs. [1]

NBN Co's objective is to deliver a wholesale broadband network that delivers high-speed broadband to customers across Australia over an area of more than seven million square kilometres and thereby support Australia's digital economy by creating opportunities for communities, governments, and industry to drive digital adoption and innovation.

Working in collaboration with industry partners and telecommunications retail service providers (**RSPs**), NBN Co is committed to meeting the current and future broadband needs of households and businesses, fostering productivity and innovation, and supporting the nation to be a leading digital economy and society. NBN Co is committed to responding to the digital connectivity needs of all Australians, working with industry, governments, regulators and community partners, to lift the digital capability of Australia.

As the **nbn** network is used nationally, the network's ongoing operation makes us a significant consumer of electricity. In delivering upon government policy, NBN Co has built its network using a range of fixed-line superfast broadband technologies using fibre, fixed wireless, satellite, copper and Hybrid Fibre Coaxial (HFC) networks, in what we refer as a multi-technology mix, to provide broadband to Australian residential homes and businesses. Each of these access technologies has grid connections at different points of the network design to deliver broadband traffic.

Electricity Consumption and Emissions Reduction

The **nbn** network relies upon the national electricity grid as critical supportive infrastructure for its 57,000 electricity grid connections which include 44,000 unmetered sites and 40,000 sites with battery backup. During FY22, NBN Co consumed approximately 400GWh of electricity, making it one of Australia's larger electricity users.

NBN Co noted in its recent Annual Report 2022, a primary source of emissions stem from the electricity used to operate **nbn**'s network. NBN Co has committed to Science Based emission reduction targets through the Science Based Target initiative (SBTi) and long-term greenhouse emissions reductions and achieving Net-Zero emissions in line with the Australian Governments Net-Zero commitments[1]. To achieve these targets **nbn** is implementing projects that deliver 25GWh pa of energy reductions by 2025 and purchasing 100% renewable electricity by December 2025. These are enabled through our long-term network investment plan that include reductions in network power demand and eventual transition to more energy efficient technologies.[2] The **nbn** network also plays a role in supporting Australia's transition to Net-Zero emissions by enabling customer to reduce emissions supported by an energy efficient **nbn** connection.

NBN Co has undertaken a Climate Change Risk Assessment as part of its ongoing Sustainability program, which has highlighted the risk of potential increases in electricity prices from transitioning electricity market reforms. It

[1] NBN Co Limited, Statement of Expectations 19 December 2022

[2] NBN Co Limited, Annual Report 2022, p52.ss

is crucial for Australia's economy that the AEMC and other energy agencies continue to develop these important reforms to encourage market competition in producing sustainable and efficient energy prices, as the success of these reforms will directly impact the maintenance of other critical infrastructure sustaining the national economy via telecommunications networks, and the prices of broadband services upon which Australian consumers, businesses and the economy depend.

3. Minor energy flow meters

The introduction of MEFM (if applied to unmetered sites) would allow previously non-contestable unmetered sites to be contestable and thus allow customers to go to market for the best electricity prices (i.e., and enter into long term electricity retail contracts which will assist customers to manage risk against short term electricity price volatility).

Where street cabinets are deployed, a key challenge experienced to date is that the standard accredited market meter have been too large to fit inside the cabinets, necessitating the construction of a separate meter pillar at significant cost and visual amenity impairment. A smaller MEFM that could fit within existing street cabinets would reduce the need for additional street furniture.

MEFM Financial Viability

NBN Co is supportive of the proposal to allow street furniture to be included in future flexible trading arrangements, noting that the current proposal is based on the requirement to install a MEFM. Future metering developments afforded by this and other rule changes may generate new possibilities that will allow NBN Co (and other customers seeking metering solutions) to better manage and control electricity use. However successful adoption of this proposal by NBN Co and other like customers remains dependent on the cost benefits being sufficient to justify a capital-intensive exercise of installing MEFM's.

For telecommunications network providers seeking to take advantage of MEFMs in the future, it is essential that the benefits of applying MEFM into a telecommunications network's core function are sufficiently strong to justify future investment, therefore the ability to keep implementation and network operational costs as low as possible is essential. The CER rule changes the AEMC is presently contemplating and the AEMC's influence more broadly in enabling retail competition through (in part) the development of low-cost metering will be critical for establishing future business cases.

NBN Co recently conducted a trial in which 110 trial MEFMs were installed in FTTN cabinets in NSW to obtain and assess cost and performance data. The results indicated that whilst the MEFM used in the trial performed very well and provided consistent and accurate data via **nbn** fibre, the cost to install was high both in terms of device cost and costs associated with retrofitting new equipment. NBN Co estimates costs could be reduced if MEFMs were installed as part of any new network powered cabinet development and installation. However, in NBN Co's view, these opportunities are significantly fewer than situations where a new MEFM would need to be retrofitted into existing network assets across the country, given that the **nbn** network is treated as 'built and fully operational'. Therefore, where the rule change can encourage device simplification and low-cost devices to be produced, keeping overall device costs low will be an important consideration when assessing future business cases.

Flexible Settlement points

AEMC's proposed rule change to allow MEFMs to be applied using a settlement point model that maximises cost outcomes for the energy consumer is similarly important. NBN Co suggests, where a primary load is currently suitable for unmetered agreements and incorporates a CER that allows flexible trading, the CER's proposed rule change should be structured to allow a secondary MEFM against the connected CER only, saving the cost of metering a primary load with known shape.

Impact of retrospective changes

Given the extent to which grid connections are deployed to support telecommunications assets, it is also crucially important for telecommunications network providers to be given flexibility in the timeframes within which they may choose to deploy new metering solutions. Therefore, NBN Co suggests the AEMC consider the impact of potential costs that may be imposed with any future requirements to meter presently unmetered loads, particularly if such arrangements are intended to be applied retrospectively to incumbent assets. Other commercial and industrial consumers, and other telecommunications network providers, where they hold unmetered loads in significant number are likely to have common interest.

Standard Billing Format for MEFMs and use of MSATs

For large national corporates consuming electricity across multiple distribution areas, being able to receive its billing information in a defined format allows them to aggregate their own energy information from multiple electricity Financially Responsible Market Participants (FRMPs), and to further optimise their energy strategy at a macro level. With the quantity of bills increasing with secondary settlement points, electricity consumers, such as NBN Co, who manage a high volume of connections, need to be able to receive billing information in a consistent digitally processable format (e.g., defined data structure such as JSON or CSV).

Extending a common format to unmetered accounts as well as metered would mean all energy could be reviewed under the same business process. NBN Co considers it essential that the digital infrastructure used to warehouse and access relevant metering data from both secondary settlements and (previously) unmetered access points should provide access and functionality that meets or exceeds the current Market Settlement and Transfer Solutions (**MSATS**) and is incorporated with respect to MSATS' objectives.

More information on MEFMs still required

We note that this space is rapidly evolving and therefore we consider (that whilst potentially impactful) this rule change proposal forms a part of ongoing power system and market reform, which will evolve over time as the access barriers, operational models, and value of flexibly traded CERs become better understood. We note there are several projects underway with the support of a variety of federal agencies (e.g., AEMO, ARENA, etc.) that will aid this knowledge. More information is therefore required for telecommunications network providers to comment on the most efficient methods to apply CER, and indeed flexible trading, within their networks.

NBN Co understands there are separate technical specification reviews underway that may also influence future thinking in metering development. For example, Frequency Response Ancillary Service (FCAS) metrology and delivery mechanisms to evolve within the Market Ancillary Service Specification. As the technical specifications are further refined, it will be important for future CER rule changes to be amended as swiftly as possible. In any case, an outcome that enables low access costs and the greatest flexibility of possible future use cases will enable

consumers making near-term investments in MEFMs to better participate in future CER flexible trading value pools.

4. Responses to AEMC questions

In addition to the commentary NBN Co has provided above, it has also responded to some of the questions specifically raised in the Consultation Paper.

QUESTION 2: EXISTING AND FUTURE CER PRODUCTS AND SERVICES

- Could the introduction of flexible trading create an environment that fosters the development of more innovative products and services that support consumers to optimise and obtain value from their CER?

NBN Co believes the development of more innovative products and services supporting value derivation from CER would be possible were flexible trading introduced, though the Company cautions that more clarity and/or safeguards around evolving capital requirements for high-value smart grid participation would be required.

NBN Co understands metering reform is being addressed directly and adjacently by several policies and regulation, and is not limited to this initiative – particularly the Market Ancillary Services Specification (MASS) and initiatives to implement a DSO. It is therefore important (and consistent with the National Energy Objectives (NEOs)) that customers making investments against a near-term understanding of technical requirements for CER value derivation are not adversely affected should rules change and evolve in the same near term.

Importantly (if indirectly) and in addition to improving cost efficiencies for telecommunications networks, secondary settlement points may provide a benefit in serving as a data source for telecommunications carriers and Distribution Network Service Providers' OT/IT transition initiatives alike, particularly with respect to integrating a variety of data sources to capture and characterise current and historical network state. Such data may be provided at costs competitive to, or lower than, traditional revenue meter data services, and could improve the accuracy of grid power outage information which may in turn assist telecommunications network operators in responding correctly to their own network alarms.

For example, a study of the 2019–20 bushfire season found that around 88 per cent of the communication tower outages were caused by power failure, by contrast to only one per cent due to direct fire damage.[3] The **nbn** network experienced 21 emergency events in 2022. The loss of commercial power supply remains the biggest risk to telecommunication networks' resilience, with the frequency and severity of power loss increasing due to increase prevalence of extreme weather events.

QUESTION 3: BARRIERS TO ACCESSING CER VALUE

- Does having one connection and settlement point prevent consumers from accessing the full value of their CER?

[3] Royal Commission into National Natural Disaster Arrangements Report, p229-230, para 9.20

A single settlement point is a key barrier for NBN Co participating in the market with its CER, due to the arrangement of its installations and the impracticality and unfeasibility for current metering requirements to be met.

NBN Co considers installing new meters in some of its existing electrical installation population would be precluded due to cost.

QUESTION 11: POTENTIAL FOR LIMITATIONS APPLIED AT SECONDARY SETTLEMENT POINTS

- Is there a need for limitations at the secondary settlement point?
- If so, how could these be applied?
- What are your views on doing so using requirements for the metering coordinator as proposed by AEMO?

NBN Co suggests any secondary settlement point limitations should not exclude non-controllable loads such as those generated by telecommunications network power supplies from using MEFM, otherwise many currently unmetered supplies will be excluded.

QUESTION 12: IMPLEMENTATION ISSUES FOR SECONDARY SETTLEMENT POINTS

- How should the NMI for a secondary settlement point be established?
- How could market settlement be best enabled for secondary settlement points? Would subtractive settlement lead to issues in practice, for either the primary or secondary FRMP?
- Do stakeholders support AEMO's proposed approach to settlement for periods of grid isolation? Are both physical and regulatory restrictions required to address this issue?
- Should the rules forbid the use of embedded networks to establish secondary settlement points within an end user's electrical installation?

NBN Co does not have a particular position on the means to establish new NMIs for secondary settlement points, though supports commentary in AEMO's submission towards customer service experiences that are accessible and convenient (specifically with respect to simplifying the process for parties with existing, analogous capabilities to those required for creation of new NMIs for secondary meters).

NBN Co does not believe that subtractive settlement would lead to substantiative issues in practice.

NBN Co acknowledges that the intent of AEMO's rule change request concerns residential CER principally, though notes that resilience assets – being energy storage and generation assets for the purpose of maintaining service uptime and quality during power outages – are common to telecommunications infrastructure. NBN Co's assets are no exception, with a large percentage of our unmetered network sites incorporating battery energy storage to these ends. Presently, resilience asset electrical configurations (defining their electrical connection to site and network hardware) are broadly standardised across our asset fleet. As the telecommunications industry evolves alternate electrical configurations may proliferate, though the total number of configurations is expected to remain small despite a high number of total deployments.

Accordingly, NBN Co acknowledges AEMO's submission and suggests that the proposed new Metering Provider accreditation category may suitably empower an appropriate provider to develop and/or procure solutions meetings amenable to Approval of Metering Provider design(s) processes through AEMO prior to deployment,

wherein relevant solutions would be capable of sensing a mains outage and managing settlement data accordingly.

QUESTION 14: METERING REQUIREMENTS FOR SECONDARY SETTLEMENT POINTS

- Are current NEM metering installation requirements likely to limit the uptake of secondary settlement points and the associated benefits?
- If changes are needed, what of the following minimum requirements need to be set in the NER for market participation and settlement at secondary settlement points?:
  - A physical display at the metering point
  - Minimum service specifications
  - Remote communications
  - Accuracy and data requirements
- Are there any other service or technical requirements that need to be specified for metering installations at secondary settlement points in the NER?
- Should changes be made to the accreditation and registration of metering providers and metering data providers for secondary settlement points?

NBN Co supports the proposal for a new category of minor energy flow meter in the rules, and the relaxation of the current metering requirements (including size, features) which are impractical in a number of CER scenarios, including many **nbn** network sites.

As discussed in the Consultation Paper, the AEMO's rule change proposal suggests the current component of a display upon the metering device itself is no longer the sole means of obtaining usage information and that a greater amount of detail could be obtained remotely.[4] NBN Co agrees a display on a MEFM is unnecessary.

NBN Co also agrees with the AEMO's proposal that metering installations at secondary settlement points should not be required to comply with the current minimum service specifications.[5] NBN Co acknowledges that the proliferation of secondary metering is in part contingent on the accessibility of any relevant solutions. Where the minimum service specification can practically be relaxed with a view to cost and physical size requirements of MEFMs, NBN Co suggests the AEMC's determinations should enable such outcomes.

These are not relevant for MEFM nor likely to impact the ability for new devices to be developed, which enable minimising physical size and cost.

Future specifications should allow for:

- Flexibility with respect to LAN or WAN configuration, allowing for best remote communications under all conditions;
- MEFMs to be manufactured as practically small as possible, affording as wide as possible a range of installation scenarios, and
- As far as practicable, MEFMs to be manufactured in a wide range of physical configurations and environmental conditions pending the characteristics of their target market.

[4] AEMC, *Unlocking CER benefits Consultation Paper*, December 2022, section 7.2.1, p55.

[5] AEMC, *Unlocking CER benefits Consultation Paper*, December 2022, section 7.2.2, p57.

The last point is particularly important. In NBN Co's candidate scenarios MEFMs may ideally be suitable for installation on a distributor's pole in their own enclosure such that devices could feasibly be added to existing electrical installations on distributor's poles in a manner acceptable to the distribution network service provider. Another potential installation environment may be within metal roadside cabinets, subject to relatively high temperatures and with poor wireless network reception. These physical configurations may, in turn, define a specific environmental specification requirement of an MEFM suitable to NBN Co's specific needs. NBN Co is however cognisant that secondary metering requirements for other classes of CER may lend themselves to diverse physical specifications for best customer outcomes. Accordingly, NBN Co suggests that MEFM specifications within the scope of this regulatory process allow for a diversity of suitable product solutions to these ends.

With respect to matters around metrology specifications and relevant maintenance, accreditation and service provider registrations, NBN Co urges the AEMC to seek advice from the National Measurement Institute (NMI) as the responsible body for Australia's measurement system, as these matters would appear to fall (wholly or in part) within the NMI's mandate.

QUESTION 15: MINOR ENERGY FLOW METERS FOR USE AT SECONDARY SETTLEMENT POINTS

- Should the requirements that apply to type 4 metering installations be amended to create a new minor energy flow metering installation, or are there more flexible regulatory approaches to enable market settlement for secondary settlement points?
- Are there other changes to requirements for type 4 metering installations that should also be considered for a minor energy flow metering installation?
- What different obligations will need to be placed on metering providers and metering data providers for minor energy flow metering installations? Should these obligations be set out via AEMO's proposed approach of new categories in the NER?
- What would be an appropriate inspection and testing regime for minor energy flow metering installations?

NBN Co suggests ownership of the MEFM should be clarified by AEMC in its final rule change, particularly in circumstances where the devices may be installed in secured sites or other assets which may be party to other sector-specific security regulation.

Regarding an inspection and testing regime for MEFMs, the MEFM owner should determine what testing and inspection is required to ensure the MEFM remains in good operational condition, and a testing and inspection frequency that considers the risks associated with the MEFMs in-service operational environmental factors in accordance with relevant standards telecommunications carriers are also party to (e.g. AS/NZS 3000-2018: Wiring Rules or AS/NZS 3760-2010: *In-service safety inspection and testing of electrical equipment*).

NBN Co notes that many meters relevant to electricity metering are factory-calibrated and are designed to not require recalibration over the product lifecycle; and that it may be possible – using analytical approaches interrogating remote meter data – to determine whether a meter is faulty or otherwise. To the degree that it is possible to create a MEFM specification not requiring periodic testing or maintenance and that performance can be verified remotely, NBN Co urges the AEMC to pursue these options with a view to a creating a MEFM specification that is as operationally cost-efficient as possible.

QUESTION 16: MINOR ENERGY FLOW METERS FOR STREET FURNITURE

- Should minor energy flow meters be able to be used for street furniture?
- If so, should DNSPs be allowed to act as metering coordinator, metering provider, and metering data provider for street furniture under certain circumstances?
- Would any other changes to the rules be required in relation to metering for street furniture?

NBN Co supports in principle the proposal to allow minor energy flow meters to be used to make currently non-contestable unmetered loads contestable. We would consider deploying MEFM to existing unmetered installations, depending on whether feasibility to retrofit and the financial case made this type of development viable. Adding contestability to currently non-contestable unmetered loads may bolster the case for such investment, in addition to (potentially) engage in flexible trading arrangements in future.

NBN Co suggests the AEMC consider flexibility in installation locations along the wire line between secondary loads and secondary meter locations e.g., in the case of an unmetered supply where a small main switchboard is installed on a distributor's pole with consuming equipment in a street cabinet, such flexibility could allow a MEFM could be installed downstream of the main switchboard but before the consuming devices, and still allow the whole installation to be contestable. NBN Co notes that such flexibility would make MEFMs amenable to CERs more broadly.

NBN Co encourages requirements that allow for as small a MEFM as possible, to enable retrofit into existing space-limited installations and allow the greatest possible number of use cases to take advantage of this rule change.

5. Conclusion

NBN Co commends both the AEMC and AEMO on this initiative. This Consultation Paper initiates essential discussion around metering reform as relevant to current energy transition. Consistent with a transition that is unprecedented in scope and depth, discussions around ways to increase the proliferation of solutions allowing better, more flexible energy engagements will continue for some time.

We welcome this opportunity to provide a submission and look forward to working collaboratively and constructively with the AEMC. We would be happy to provide any further assistance as AEMC works through these proposed changes.

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