AEMC

RULE

Australian Energy Market Commission

CONSULTATION PAPER

NATIONAL ELECTRICITY AMENDMENT (UNLOCKING CER BENEFITS THROUGH FLEXIBLE TRADING) RULE

NATIONAL ENERGY RETAIL AMENDMENT (UNLOCKING CER BENEFITS THROUGH FLEXIBLE TRADING) RULE

PROPONENT
AEMO

DECEMBER 2022

INQUIRIES

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ABOUT THE AEMC

The AEMC reports to the Energy Ministers' Meeting (formerly the Council of Australian Governments Energy Council). We have two functions. We make and amend the national electricity, gas and energy retail rules and conduct independent reviews for the Energy Ministers' Meeting.

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SUMMARY

1 Consumers are increasingly connecting devices to their homes and businesses such as rooftop solar, batteries and electric vehicle chargers. These Consumer Energy Resources (CER) are now a fundamental component of the power system, and are expected to play an increasingly important role in the transformation of our energy system to a decentralised, digitalised and net-zero system. CER uptake by households and businesses has been driven by the benefits they provide to consumers, such as bill reduction via greater control of energy generation and consumption along with emissions reductions.

2 As the uptake of CER continues, there is a growing need to also achieve effective market and technical integration of CER in the National Electricity Market (NEM). The Australian Energy Market Operator (AEMO) forecasts that CER coordinated through Virtual Power Plants (VPPs) will reduce maximum demand in the NEM between 6-16% by 2031-22, and that if demand-side coordination does not emerge as predicted, approximately 1,190 additional MW would need to be built to meet demand in New South Wales, Victoria and South Australia by 2032.[1]

3 Better integration of CER can unlock additional value for households and businesses who own CER, and enable the electricity system and markets to operate more efficiently, reliably, and securely in a manner that benefits all customers through lower costs and increased reliability.

4 The Energy Security Board (ESB) post-2025 review proposed several reforms seeking to achieve better integration of CER so that consumers have opportunities to receive new products and services, including being rewarded for flexible demand and generation. It highlighted the need to set up arrangements and remove barriers so new business models and innovative offerings can emerge to offer greater choices to customers - while ensuring they remain appropriately protected.[2]

5 Specifically, the ESB identified that allowing consumers to separate their CER from their other load would offer more flexibility, including the ability to take up new and innovative services for CER while not needing to change their behaviour for their everyday energy use.[3] It could also provide new ways for businesses to manage their energy use and costs.

6 Following the ESB's recommendation, AEMO submitted a rule change request on 6 May 2022. The Commission has started considering the request, and this consultation paper is the first step in the public consultation process.[4]

7 We are seeking your feedback on AEMO's proposal and how we propose to assess the request to determine if it will promote the long-term interests of consumers.

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1 AEMO, *2022 Electricity Statement of Opportunities,* August 2022, pp. 69-71.

2 ESB, *Post-2025 Market Design, Final advice to Energy Ministers, Part B,* July 2021, p. 66. https://esb-post2025-market-design.aemc.gov.au/32572/1629945809-post-2025-market-design-final-advice-to-energy-ministers-part-b.pdf

3 ESB, *Post-2025 Market Design, Final advice to Energy Ministers: Part C, Appendix,* July 2021, p.38. https://esb-post2025-market-design.aemc.gov.au/32572/1629945838-post-2025-market-design-final-advice-to-energy-ministers-part-c.pdf

4 AEMO's rule change request is available on our website at https://www.aemc.gov.au/rule-changes/unlocking-CER-benefits-through-flexible-trading

AEMO's proposal to unlock CER benefits through flexible trading

8 AEMO proposes to introduce flexible trading by enabling consumers to have their CER separately identified, and therefore treated independently in market settlements - allowing consumers to engage with multiple service providers if they choose to.

9 It is possible today for consumers to separately contract their CER if they establish multiple connection points with their local distributor. AEMO noted in its rule change proposal that there are a number of issues that prevent or disincentivise consumers from taking up this option including:

- existing network policies
- the time it takes to obtain the connection, costs to consumers, including potential for additional distribution network access chargers
- the practicality of adding the connection (e.g. requirements on size and location of fusing, metering, and other equipment).

10 Consequently, AEMO has proposed a model and arrangements to enable more flexible trading. AEMO's proposed model would create new secondary settlement points for CER *behind* consumers' current meters. We refer to these new metering points as secondary settlement points.[5] Further discussion of AEMO's specific proposal is provided below and outlined in Part B of this paper.

11 AEMO notes that a consumer could choose to have one secondary settlement point for all of their controllable or flexible resources while keeping all of their other electrical load measured by their primary settlement point and on a separate contract. Alternatively, a consumer could choose to have individual secondary settlement points for individual devices. In both cases, the proposal is for the arrangements to be made for and by one customer.

12 Under AEMO's proposal the consumer could contract with more than one financially responsible market participant (FRMP) for individual devices or one for less flexible load and another for their flexible load - or all of their resources could be managed by one FRMP, but with different types of pricing.[6]

Metering of secondary settlement points

13 AEMO has also put forward that current metering requirements would create barriers to the establishment of secondary settlement points, due to the necessary size of meters (under the current rules) increasing the complexity and cost of installation. To address this, the rule change request proposes establishing a new category of minor energy flow meter in the rules. This metering installation could then be used at secondary settlement points.

14 AEMO has also proposed that this new type of meter should also be able to be used for currently unmetered loads. Metering these loads could introduce access to retail competition for non-contestable loads such as bus shelters and CCTV cameras, or use of energy efficiency

5 Secondary settlement points as a term is outlined in Section 1.4 and further discussed in Appendix B.

6 This consultation paper uses the term 'FRMP' instead of retailer to refer to the type of company a consumer could contract with, refer to Section 1.4 and Appendix B for more information.

technologies such as dimming technology for street lights, which as deemed loads must currently be predictable.[7]

We would like stakeholder input on the benefits of CER

15 AEMO's rule change request puts forward that by separating flexible and inflexible loads, consumers could access more value from their CER - including through better access to incentives for their CER to support the market and power system operation. To examine this hypothesis, it is important to understand what types of value consumers may be looking for from their CER and what motivations and preferences influence their choices to take up CER or related offers, so that we can assess the potential benefits from flexible trading. The Commission has set out some initial consideration of these matters in Chapter Two of this paper.[8]

16 In addition to examining what value consumers may want from their CER, we look at the offers available to consumers to access this value. These include diverse offers which range from optimising generation and usage in response to energy prices for lower costs (for example through a home energy management system), to signing up to a Virtual Power Plant where a customer receives an incentive (typically financial) for their CER to not only be optimised in response to energy prices, but to be aggregated and act in concert with other consumers' CER in order to respond to network support needs or provide ancillary services.[9]

17 We are seeking stakeholder views on the value that could be obtained from CER, and if there are gaps in the market or regulatory barriers to innovative offers and services.

We are seeking your feedback on the barriers and solutions for flexible trading

Barriers presented by one connection point

18 AEMO's proposal seeks to change the existing arrangements wherein a consumer's resources are typically on one connection point, with one meter. AEMO considers that where resources are not separately metered, consumers cannot take up different pricing for different parts of their load with one FRMP, and there is no option to contract with multiple FRMPs for different offers. We are interested if stakeholders consider that the single settlement point arrangement is a key barrier to consumers being able to access the full value of their CER.[10]

Benefits of multiple settlement points with one FRMP

19 Additional market settlement points could allow residential consumers to split their flexible devices such as a pool pump, battery and hot water heater from the part of their load that is less flexible, e.g. lighting and other household appliances, and take up separate pricing

7 AEMO's metering proposal is discussed in Chapter Seven, with further detail on using minor energy flow meters for currently unmetered loads in Section 7.6.

8 We have had regard to extensive work undertaken in this area, including from the ESB.

9 Further details on these offers is set out in Appendix A.

10 We note that 'flexible trading' is currently possible, in that consumers can have multiple connection points at their premises and contract with multiple FRMPs for that connection point. However, AEMO's proposal claims that there are significant barriers to establishing a second connection point, which is discussed in Section 3.4.

contracts. Businesses could take up similar opportunities - for example, a manufacturer who is able to shift operations could take up different flexible pricing contracts (including for demand response) for their manufacturing line, and choose to take up a stable pricing offer for inflexible load such as climate control for storage. Alternatively, a consumer could take up a contract with their retailer where they receive financial incentives for some of their resources (such as a battery) to be traded in the ancillary services markets. There are current arrangements for some flexibility, for example with multi-element meters enabling controlled load tariffs for hot water heaters. The Commission would like input on if there are regulatory barriers preventing additional types of flexible offers to consumers.

Benefits and challenges of multiple FRMPs at consumer premises

20 As noted above, consumers typically have one FRMP for their premises. AEMO has set out some potential opportunities consumers could access if they could contract with multiple FRMPs - however, having multiple FRMPs at premises could also potentially introduce issues that the Commission will need to consider when examining the overall costs and benefits of flexible trading. We have categorised these into four key areas:

- retail energy market and competition, including the risk of 'hollowing out' the retailer at the primary connection point such that they retain the costs of consumer protections but lose material revenue streams to a FRMP that may not have similar protection requirements
- network-related considerations, such as allocation of network tariffs and the implementation of Dynamic Operating Envelopes
- consumer risks and protections, including whether existing arrangements are fit for purpose for additional settlement points
- operational requirements and implementation, such as needs around communication and information flows.

Models for introducing multiple FRMPs

21 The above-identified issues will also be considered in determining which model could be used to support flexible trading for one customer. The four potential models we are aware of are:[11]

- improving the current ability to establish a second connection point, to which AEMO has said there are significant barriers today[12]
- parallel metering, as considered in the Multiple Trading Relationships rule change[13]
- potential for multi-element metering, similar to what is in place for hot-water heaters today but with the capability to be managed by multiple FRMPs

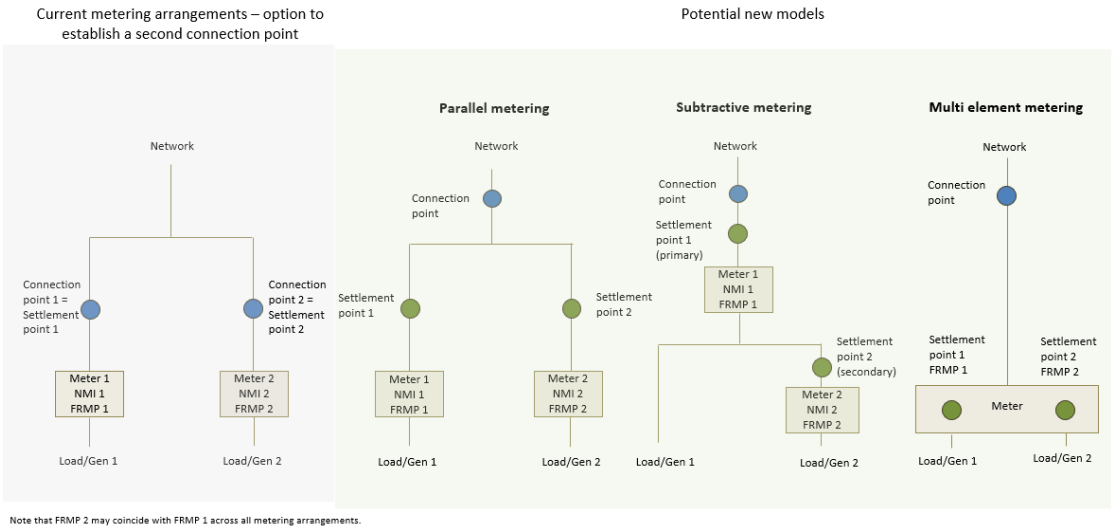
11 We note that implementation of these models would not necessarily be mutually exclusive.

12 Australian Energy Market Operator, *Rule change request - Flexible trading arrangements and metering of minor energy flows in the NEM, 6 May 2022,* p. 5 and p. 8.

13 The Multiple Trading Relationships rule change request was initiated in July 2015. In February 2016, the Commission published a final determination to not make a rule in relation to the request. Further information is available here: https://www.aemc.gov.au/rule-changes/multiple-trading-relationships

- establishing a sub-metering arrangement by introducing secondary settlement points as proposed by AEMO, either for a single FRMP or multiple FRMPs.

Figure 1: Options to enable flexible trading



Source: AEMC

22 The Commission is seeking views on each of the relevant options and proposals for how flexible trading could be implemented, including associated issues for each. More detail on each of the above areas is provided in Chapter Three of this consultation paper.

We consider that there are six assessment criteria that are most relevant to considering flexible trading and AEMO's rule change request

23 Considering the National Electricity Objective and the National Energy Retail Objective, and the issues raised in the rule change request, the Commission proposes to assess the rule change request against six assessment criteria. Stakeholder feedback is sought on the proposed assessment criteria:

- outcomes for consumers
- impacts on safety, security, and reliability
- principles of market efficiency, in particular, competition
- if it would increase innovation and flexibility
- implementation costs and considerations
- decarbonisation.

The Commission requests input on AEMO's specific proposal to introduce secondary settlement points

24 As set out above, AEMO has proposed one potential model for increasing the opportunity for consumers to trade and obtain value from their CER through flexible trading, discussed in Part B of this consultation paper.

25 Chapter Five sets out a number of specific issues and operational questions related to AEMO's proposal for establishing secondary settlement points. These specific issues are related to the broad considerations above and include:

- potential competition issues due to the subordinate relationship between the FRMP at the primary connection/settlement point and the FRMP at a secondary settlement point
- how network costs might be allocated between FRMPs at the primary and secondary settlement points
- arrangements for communication, information, and data flows between parties, including networks
- if there should be limitations on what can be connected to or the use of secondary settlement points
- operational and other implementation questions, such as:
  - how secondary settlement points should be treated in market settlements
  - the creation of the NMI for a secondary settlement point
  - the continued use of the embedded network framework in place of secondary settlement points at customer premises.

Consumer protection considerations for secondary settlement points

26 The Commission will need to give due consideration to the consumer risks and protections required under AEMO's proposed rule change request. AEMO, as part of its rule change request, has highlighted a number of specific consumer protection issues that should be considered. These include but are not limited to:

- what consumer contract type/s should apply at secondary settlement points
- if there need to be changes to move-in and move-out provisions, including how consumers can identify established secondary settlement points in premises they move into
- whether there need to be changes to re-energisation and de-energisation requirements for primary and secondary settlement points
- if life support equipment and services should be able to be connected to secondary settlement points
- how Retailer of Last Resort provisions should apply at secondary settlement points
- whether a pricing protection such as the Default Market Offer should be considered for secondary settlement points.

27 The Commission will consider these issues and others in the context of the rule change request. We note that the Australian Energy Regulator (AER) is undertaking a broad review of future energy services and options for reform of the NECF, and recently released an options

paper for stakeholder feedback.[14] The Commission is working with the AER on its review, and we will consider the interactions between that review and the requirements for this rule change request. Further discussion of the consumer protection issues for AEMO's specific model for establishing secondary settlement points is provided in Part B, Chapter Six.

AEMO's proposal for minor energy flow metering installations

28 As set out in section 1.1.1, AEMO has proposed establishing a minor energy flow metering installation category for use at secondary settlement points. In Part B, Chapter 7 we seek stakeholder feedback on whether current metering requirements would prevent the adoption of secondary settlement points, and if so, what the minimum functional requirements for metering of secondary settlement points should be to enable market participation. This includes questions such as display, minimum service specifications, and remote communications. We are also seeking feedback on the potential uses for such a category in addition to secondary settlement points, such as currently unmetered loads.

Submissions are due by 16 February 2023, with other engagement opportunities to follow

29 There are multiple options to provide your feedback throughout the rule change process.

30 Written submissions responding to this consultation paper must be lodged with Commission by **Thursday 16 February 2023** via the Commission's website, www.aemc.gov.au.

31 There are other opportunities for you to engage with us, such as one-on-one discussions or industry briefing sessions. See the section of this paper about "How to engage with us" for further instructions and contact details for the project leader.

14 https://www.aer.gov.au/retail-markets/guidelines-reviews/review-of-consumer-protections-for-future-energy-services

HOW TO MAKE A SUBMISSION

We encourage you to make a submission

Stakeholders can help shape the solutions by participating in the rule change process. Engaging with stakeholders helps us understand the potential impacts of our decisions and, in so doing, contributes to well-informed, high quality rule changes.

We have included consultation questions in this paper, however, you are welcome to provide feedback on any additional matters that may assist the Commission in making its decision.

How to make a written submission

Due date: Written submissions responding to this consultation paper must be lodged with Commission by **16 February 2023**.

How to make a submission: Go to the Commission's website, www.aemc.gov.au, find the "lodge a submission" function under the "Contact Us" tab, and select the project reference code ERC0346**.**[15]

Tips for making submissions on rule change requests are available on our website.[16]

Publication: The Commission publishes submissions on its website. However, we will not publish parts of a submission that we agree are confidential, or that we consider inappropriate (for example offensive or defamatory content, or content that is likely to infringe intellectual property rights).[17]

Other opportunities for engagement

There will be other opportunities for you to engage with us, such as one-on-one discussions or industry briefing sessions. Information will be provided through the AEMC website.

For more information, you can contact us

Please contact the project leader with questions or feedback at any stage.

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Telephone: 02 8296 0648

15 If you are not able to lodge a submission online, please contact us and we will provide instructions for alternative methods to lodge the submission.

16 See: https://www.aemc.gov.au/our-work/changing-energy-rules-unique-process/making-rule-change-request/our-work-3

17 Further information is available here: https://www.aemc.gov.au/contact-us/lodge-submission

CONTENTS

1 PART A: THE CONTEXT FOR THIS RULE CHANGE REQUEST

On 6 May 2022, the Australian Energy Market Operator (AEMO) submitted a rule change request on 'Flexible Trading Arrangements (Model 2) and Metering of Minor Energy Flows in the National Electricity Market (NEM).'[18] The rule change request proposes modifications to the National Electricity Rules (NER) and National Energy Retail Rules (NERR) for implementing flexible trading and minor energy flow metering.

AEMO proposes a model to introduce flexible trading to enable consumers (households and businesses) to unlock the benefits of their behind-the-meter electricity resources - load, storage and generation. We refer to these energy resources as Consumer Energy Resources (CER).[19]

AEMO proposes to achieve this by:

- separately measuring (metering) these resources within a consumer's home or business, so they can be recognised and traded independently on the market, and
- enabling consumers to contract with different service providers for parts of their load or generation at the same premises.

We are seeking stakeholder feedback on the potential benefits of enabling flexible trading, AEMO's proposed approach, and other models that could be considered.

This paper is split into two parts. Part A (Chapters 1-4) is on **Optimising CER for consumers and the market**, and covers opportunities, barriers and potential solutions for flexible trading, and how the Commission will make our decision on the rule change. Part B (Chapters 5-7) specifically examines **AEMO's proposal for secondary settlement points.**

This chapter sets out the context for this rule change request, including timelines, key terms and related reforms that intersect or may intersect with the rule change request.

1.1 Increasing uptake and impact of Consumer Energy Resources

Consumer adoption of CER has been strong and is expected to continue to grow, particularly with expected growth rates in electric vehicles.

The predominant example of CER today is rooftop solar. Approximately thirty per cent of Australian detached homes have solar panels on their roof, the highest uptake figure globally to date.[20] Currently, the combined capacity of distributed PV and small-scale batteries in the NEM amounts to nearly 16 GW, almost 30 per cent of the NEM's generation capacity.[21]

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18 https://www.aemc.gov.au/rule-changes/unlocking-CER-benefits-through-flexible-trading

19 CER includes devices that can generate or store electricity such as solar PV, home batteries and electric vehicles, along with energy-consuming devices that could be used at different times or in different ways, within limits (such as air conditioning, water heating or pool pumps), and depending on the context can also include any consumer-owned electrical device.

20 Energy.gov.au, Solar PV and batteries: https://www.energy.gov.au/households/solar-pv-and-batteries#:~:text=Australia%20has%20the%20highest%20uptake,produces%20zero%20greenhouse%20gas%20emissions

21 AEMO, *2022 Integrated System Plan: Inputs, assumptions and scenarios workbook*. https://aemo.com.au/en/energy-systems/major-publications/integrated-system-plan-isp/2022-integrated-system-plan-isp

CER uptake is forecast to increase, becoming a greater proportion of the overall capacity in the NEM. AEMO's 2022 Integrated System Plan (ISP) Step Change scenario forecasts 69 GW of distributed PV by 2050, a five-fold increase compared to current levels and a surge in EV ownership in Australia, with 99 per cent of all vehicles expected to be battery EVs by 2050.[22]

The Step Change scenario relies on increasingly coordinated battery installations along with coordination of the time when consumers charge their EVs.[23] AEMO's Electricity Statement of Opportunities (ESOO) states that "in New South Wales, for example, [Virtual Power Plants] VPPs are projected to offset maximum demand by 1,800 MW by 2031-32, approximately 13% of the peak forecast in the ESOO Central scenario [Step Change scenario]."[24] Overall, the ISP forecasts that by 2050 distributed storage, including coordinated VPPs, will represent almost three-quarters of the dispatchable capacity in the NEM.[25] This means that it is increasingly important to ensure that CER is better integrated into the power system to help with reliable outcomes and lower prices over time.

Additionally, providing pathways to integrate CER into the power system means more consumers will be able to get value for their CER by taking up different types of pricing and/or energy product and service contracts, as discussed in Chapter Two.

1.2 AEMO proposes the Rules be changed so consumers can engage with multiple energy service providers

To help consumers secure value from their CER and ensure it is well integrated, the Energy Security Board (ESB) proposed as part of its post-2025 electricity market design final advice that consumers should be able to separate their flexible and inflexible resources, so they could be rewarded for outsourcing the management of their flexible demand while not having to change their behaviour for their conventional energy use.[26]

The current regulatory framework already allows consumers to do this by establishing more than one connection point to the grid, however, there are significant barriers to existing households doing so (discussed in Chapter Three).

The ESB's proposed solution was to allow a customer to choose to split their electrical resources 'behind the meter' by introducing the option for a sub-metering arrangement, using secondary settlement points. These secondary settlement points would allow certain resources in a consumer's home or business to participate - independent of other resources

22 AEMO, *2022 Integrated System Plan For the National Electricity Market (ISP)*, June 2022, pp. 39 and 55. https://aemo.com.au/-/media/files/major-publications/isp/2022/2022-documents/2022-integrated-system-plan-isp.pdf?la=en

23 AEMO, *2022 Electricity Statement of Opportunities (ESOO),* August 2022, pp. 22 and 70. https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/nem_esoo/2022/2022-electricity-statement-of-opportunities.pdf?la=en&hash=AED781BE4F1C692F59B1B9CB4EB30C4C

24 AEMO ESOO, p. 69.

25 AEMO ISP, p. 55.

26 ESB, *Post-2025 Market Design Final advice to Energy Ministers*: Part C, July 2021, Appendix. p.38.

on the premises - in the NEM wholesale or ancillary services markets. This could be via one or more retailers or financially responsible Market Participants (FRMPs).[27]

Based on the ESB recommendation, AEMO further developed the proposal and submitted a rule change request to:

- establish the framework for how these sub-metered resources would be treated in wholesale market settlement
- create a new type of 'minor energy flow meter' for these sub-metering arrangements (and potentially other uses, such as traditionally unmetered loads like street furniture - e.g. street lights and payphones), and
- consider if any consumer protections need revising, so they are fit for purpose.

When contemplating the rule change request, it is worth noting that AEMO has not proposed any direct changes to the controllability of a home or business' electricity resources. This would remain a matter for the consumer and their service provider to decide and would be established in their contract for services.

1.3 Interaction with other reforms in the NEM

The Commission, along with the other market bodies, is progressing a range of reforms that will impact how consumers engage with energy. To unlock CER value, this rule change will look at how those reforms will come together for a consumer, including how they could take advantage of new opportunities to lower their bills.

The rule change proposal forms part of the ESB's Horizon One CER Implementation Plan. An overview of the ESB's work can be found on its website,[28] but below are some key reforms being progressed by the ESB, AEMO and AEMC that we have identified as relevant to or intersecting with this rule change request.

Scheduled Lite: This is a proposed voluntary mechanism to incentivise non-scheduled load and generation to share information about their operation or participate directly in the NEM scheduling process.[29] AEMO released a consultation paper on a high-level design for Scheduled Lite on 14 June 2022.[30]

Using a single 'standard' connection point, traders wishing to participate in scheduled lite would be responsible for both the passive and price-responsive components of a customer's load. AEMO has put forward that flexible trading would allow a trader to separate the price-responsive and passive components of a customer's load and facilitate more accurate participation in scheduled lite.

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27 The roles and responsibilities of FRMPs in relation to metering are detailed in NER rule 7.2. Their roles and responsibilities in relation to registering for, and participating in, the wholesale energy and ancillary services markets are set out in NER Chapters Two and Three. A FRMP may be required to be an authorised retailer under the NERL and NERR if it sells electricity to the customer for use at premises.

28 esb-post2025-market-design.aemc.gov.au/

29 ESB, *Final Advice to Energy Ministers, Part B*, July 2021, pp. 87-89. https://esb-post2025-market-design.aemc.gov.au/32572/1629945809-post-2025-market-design-final-advice-to-energy-ministers-part-b.pdf

30 Consultation paper available at: https://aemo.com.au/initiatives/trials-and-initiatives/scheduled-lite

Dynamic Operating Envelopes (DOEs): Distribution Network Service Providers (DNSPs) currently use operating envelopes to limit import from and export to the electricity grid. DOEs are an emerging network capacity management tool that can allow distributors to dynamically vary the network connection export (and import) limits of consumers on their network. More specifically, 'flexible export limits' offer an alternative method to the use of static export limits.[31] Allowing these limits to vary over time and location through 'dynamic' operating envelopes could help manage growing minimum load issues at a system level and local congestion at different points within the distribution grid.[32]

DOEs are expected to be calculated by the distributor and communicated to the consumer via their retailer or their authorised agent, e.g. an aggregator. Trials are underway and DOEs have been examined by the Australian Renewable Energy Agency's (ARENA) Distributed Energy Integration Program (DEIP).[33] Distributors in the NEM are at different stages of DOE adoption, although all have indicated their intention to introduce DOEs. In October 2022, the AER initiated a review to assess whether the current regulatory framework supports the implementation of DOEs - specifically flexible export limits.[34]. AEMO's recommendation on the interaction of DOEs and the rule change proposal is set out in Section 3.3.

Interoperability: The ESB and DEIP are working on interoperability policies to support the other recommendations and changes resulting from the ESB 2025 proposals.[35] While interoperability may be relevant for the potential uptake of flexible trading, considering how to encourage interoperability is outside of the scope of the rule change request.

AER Review of consumer protections for future energy services - options for reform of the NECF: As part of the AER's review, it is considering if energy-specific consumer protections are needed for services that do not currently fall within the NECF, some of which could be delivered over additional settlement points at a customer site introduced through this rule change. We are working with the AER and will consider that work in assessing and making our decision.[36]

AEMC metering review: The AEMC is undertaking a review of metering arrangements and published a draft report in November 2022.[37] While AEMO's proposed secondary settlement point arrangements are outside of the scope of the metering review, we will monitor the

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31 "The term 'flexible export limit' refers to the ability to 'vary export limits over time and location based on the available capacity of the local network..." DEIP - ARENA, *Dynamic Operating Envelopes Working Group: Outcomes Report*, March 2022, p.5. https://arena.gov.au/assets/2022/03/dynamic-operating-envelope-working-group-outcomes-report.pdf

32 ESB, *Final Advice to Energy Ministers Part B,* p. 75. https://esb-post2025-market-design.aemc.gov.au/32572/1629945809-post-2025-market-design-final-advice-to-energy-ministers-part-b.pdf

33 For more information, see: https://arena.gov.au/knowledge-innovation/distributed-energy-integration-program/dynamic-operating-envelopes-workstream/

34 Issues paper available at: https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/review-of-regulatory-framework-for-flexible-export-limit-implementation

35 For more information, see: https://esb-post2025-market-design.aemc.gov.au/integration-of-distributed-energy-resources-der-and-flexible-demand#delivering-the-der-implementation-plan and https://arena.gov.au/knowledge-innovation/distributed-energy-integration-program/interoperability-steering-committee/

36 Further information on the AER's review is available here: https://www.aer.gov.au/retail-markets/guidelines-reviews/review-of-consumer-protections-for-future-energy-services

37 AEMC, Metering review for a smarter energy future, available at: https://www.aemc.gov.au/news-centre/media-releases/metering-review-smarter-energy-future

feedback to the draft report and map potential interactions between outcomes from the metering review and metering requirements for flexible trading.

1.4 Concepts and language in this consultation paper

This rule change request proposes new concepts to the energy framework that may not fit neatly with current terminology, and it is important for all parties to have a shared understanding of key concepts. Below is an overview of the key terms introduced or used in this paper. Appendix B includes a more detailed explanation of these concepts and additional terms.

Consumer energy resources (CER): Behind-the-meter energy resources used by households or businesses.

Connection point and **Settlement point:** Connection point is used throughout the rules (and in the electricity sector) to mean the point which is both:

(a) the physical point of connection between the consumer's premises and the distributor's network

(b) the point at which energy is measured for market settlement.

However, for the purposes of this paper, we use 'connection point' in a more limited way to cover only paragraph (**a**) above and the associated responsibilities, such as the connection contract or operational responsibilities. We use the new term '**settlement point**' to cover paragraph (**b**) and associated settlement obligations, such as metering requirements,[38] wholesale payment requirements[39] and customer billing requirements.[40]

Secondary settlement point: AEMO's proposed additional settlement points at a consumer's premises that would be behind the existing connection and settlement point (referred to as the **primary settlement point**), which would have a National Metering Identifier (NMI) attached to them.

Financially Responsible Market Participant (FRMP): Entities (e.g., retailers or aggregators) that a consumer would contract with for services provided at settlement points, where those services are traded in the wholesale markets. A FRMP does not necessarily have to be an authorised energy retailer (this will depend on whether it sells electricity to its customers), but, as defined in the NER, must be registered by AEMO as a business to be able to participate in wholesale markets.

1.5 We have started the rule change process

We note that the ESB as part of its post-2025 electricity market design work consulted on the proposal for enabling flexible trading and AEMO also undertook some consultation on its high-level design.

38 National Electricity Rules, Chapter Seven
39 National Electricity Rules, Chapter 3
40 National Energy Retail Rules

This paper is the first step in the Commission's consultation process. To help the Commission make a decision on this rule change request, we seek stakeholder feedback on the potential costs and opportunities for flexible trading, AEMO's proposed design, and how we propose to assess the request by **16 February 2023**.

Information on how to provide your submission is set out at the front of this consultation paper.

The indicative timeline for the rule change is set out below, noting that this may vary depending on the nature of the submissions we receive:

Table 1.1: Rule change - indicative timelines

STAGE	TIMEFRAMES
AEMO submitted rule change request	6 May 2022
Commission publishes consultation paper	8 Dec 2022
Stakeholder submissions due	16 February 2023
Commission publishes directions paper (if required)	May 2023
Stakeholder submissions due	June 2023
Commission publishes draft determination and draft rule	August 2023
Stakeholder submissions due	October 2023
Commission publishes final determination and final rule	November 2023

This process may then be followed by implementation or preparation activities by other bodies, such as AEMO or the AER, before the rules (if made) take effect.

You can find more information on the rule change process on our website.[41]

41 *The rule change process: a guide for stakeholders*, June 2017. Available at: https://www.aemc.gov.au/sites/default/files/2019-05/A%20guide%20to%20the%20rule%20change%20process_0.PDF

2 PART A: OPPORTUNITIES PRESENTED BY CER

CER can be used flexibly in a way that provides value to the consumers that own it while contributing to addressing critical challenges of the power system, such as minimum demand and peak demand, in ways that benefit all consumers. AEMO's rule change request is based on the idea that there is further opportunity to be achieved by adding flexibility to how energy for or from that CER is exchanged in the energy market, or 'traded.' This chapter considers the rule change request's hypothesis that consumers could obtain more value from their CER, including by being offered better incentives to integrate it into the power system.

In assessing this rule change, the Commission will consider the incentives and value that could be unlocked for all consumers.[42] To understand what value consumers could obtain from their CER, this chapter:

- examines what 'value' might mean to different consumers to help understand their choices to take up and use energy services and products
- looks at the types of services that can provide that value
- outlines the offers consumers can access today or that may become available.

This information will help us understand the size of the opportunity potentially presented by flexible trading and if consumers would be likely to take up flexible trading offers.

2.1 What 'value' can consumers receive from CER?

Consumers are diverse and there are differences in what they value, based on their motivations (willingness), ability, and opportunity to manage their energy use and take up CER. These differences are important, particularly whether they are residential, small business, or commercial and industrial consumers.[43]

Traditionally consumers have been passive participants in the electricity market, although in recent times consumers' interest and motivations to manage electricity use and control costs have increased.[44] Often consumers are motivated by financial benefits such as responding to retail electricity prices, although there are other factors that may influence consumer preferences and hence choices. These can include individual circumstances, behavioural biases, and the perceived benefits that the CER options may offer.[45]

It is important to recognise the diversity of values when looking at how consumers could get more value out of their CER or be better incentivised to connect it to the power system.

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42 To inform the Commission's decision-making, we will use, and where necessary build upon, the extensive research and information undertaken to date. This includes the work undertaken by the ESB, Energy Consumers Australia (ECA), and other AEMC reviews such as the Review into Metering Frameworks.

43 ACIL Allen, *Barriers and enablers for rewarding consumers for access to flexible DER and energy use (Barriers and enablers)*, June 2022, p5.

44 Energy.gov.au, *Solar PV and batteries,* www.energy.gov.au/households/solar-pv-and-batteries

45 ACIL Allen, *Barriers and enablers*, p. 22. and *Consumer archetypes for a two-sided market*, 1 April 2021.

2.1.1 Value for residential and small business consumers

There are a number of existing consumer benefits and value streams for consumers who have invested in CER including financial and non-financial benefits:[46]

- **Bill reduction or other financial benefits:** CER can reduce overall energy bills through self-generation and flexible use to take advantage of off-peak pricing. Additionally, consumers can take up offers to have their CER be responsive to certain power system needs and receive financial benefits, such as a discount on their CER device purchase or ongoing payments. These opportunities are further discussed in section 2.2.
- **Use of the appliance:** Consumers may benefit from use of the CER device itself, even where its primary function does not relate to energy, for example mobility (for electric vehicles) or comfort (with air-conditioning).
- **Reduced dependency on the grid:** Consumers can feel less reliant on the grid by having the capacity to generate their own energy using CER. This can also provide greater security of energy supply to consumers in remote areas, areas prone to natural disasters, and other areas with low supply reliability.[47]
- **Emissions reduction:** CER such as rooftop PV can reduce consumer emissions from the energy they consume, and their exports may reduce other users' emissions.

Other drivers of consumer choices

There has been extensive work already on the barriers and challenges consumers face taking up and engaging with new energy products and services. For example, the ESB Customer Insights Collaboration identified four critical barriers and enablers that need to be addressed for consumers to engage in flexible energy use.[48] These barriers and enablers and the strategic challenges they pose are:

- **Trust:** Earning consumer trust, noting there is a lack of confidence in new products and services on offer in the market and the offers being sold with them.
- **Incentive:** Creating incentives and nudges that make flexibility easy and attractive for consumers.
- **Inclusion:** To unlock opportunities for flexible CER and energy use to work for all consumers regardless of circumstance or accessibility.
- **Communication:** Engaging with consumers to build awareness and highlighting the benefits of participation.[49]

The October 2022 ECA Behavioural survey showed that while there was general interest from consumers in learning more about their energy consumption or new technologies, only 27

46 energyconsumersaustralia.com.au/wp-content/uploads/UMR-Usage-of-solar-electricity-in-the-national-energy-market.pdf and ACIL Allen, *Barriers and enablers.*

47 Energy Consumers Australia, *Connections that Matter,* August 2021.

48 ACIL Allen, *Barriers and enablers*.

49 ESB, *DER Implementation Plan Customer Insights Collaboration Release 1.* June 2022.

per cent of residential consumers self-identified as an 'early adopter' whereas 43 per cent of small businesses did.[50]

As a part of this rule change, the Commission will consider what incentives are needed for consumers to optimise their CER to gain additional value from flexible trading.

2.1.2 Value for commercial and industrial consumers

Commercial and industrial (C&I) businesses are characterised by high electricity usage, typically above 100 MWh per year.[51]

C&I consumers may value CER for reasons including:

- **Decarbonisation:** For instance, generating needed power through on-site PV and storage or using EVs for fleets. This can be part of a business' broader environmental, social and governance (ESG) goals, or it can provide additional profits because of increasing demand for 'green' products.[52]
- **Bill savings:** Like residential and small business consumers, C&I businesses who are able to invest in CER can save money on their bills by using the energy they generate and/or store, and programming smart equipment to turn on when energy is cheapest. Furthermore, C&I businesses that are able to cost-effectively electrify their processes and applications (e.g., heavy vehicle equipment applications and process heating) could optimise CER through energy-management systems, which would result in improved operational efficiency, in addition to a higher utilisation of those assets.[53]
- **Security of supply:** CER can reduce reliance on distribution networks if critical loads can be supplied in 'islanded' mode of operation, which can support the continuity of operations for a range of businesses and operations, including telecommunications exchanges and hospitals.[54]
- **Additional revenue streams:** C&I businesses could use flexible heating/cooling loads and CER to change ("flex") their operational demand following a particular need of the power system. Various markets and instruments such as frequency control ancillary service (FCAS) markets, the Reliability and Emergency Reserve Trader (RERT), or the wholesale demand response mechanism may reward the C&I consumer for using their CER flexibly.

  AEMO's 2022 ESOO forecasts nearly 1.5 GW of demand-side response for summer 2031-32 across the NEM regions.[55] Additionally, a research study estimated 3GW of demand-response potential in the Australian market, of which 60 per cent could come from commercial energy use and 30% from industrial use by 2030.[56]

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50 ecss.energyconsumersaustralia.com.au/behaviour-survey-oct-2022

51 ACCC, 2018, available at: www.accc.gov.au/speech/ci-users-need-affordable-energy

52 IEA, 2021 www.iea.org/commentaries/distributed-energy-resources-for-net-zero-an-asset-or-a-hassle-to-the-electricity-grid and Perrine Faye for Fastmarkets, *'Green steel' premiums to become commonplace within the next decade,* 9 June 2022. www.fastmarkets.com/insights/green-steel-premiums-to-become-commonplace-within-the-next-decade

53 McKinsey & Company, *Harnessing momentum for electrification in heavy machinery and equipment,* 2019 and *Plugging in: What electrification can do for industry,* 2020.

54 Energetics, *Distributed energy resources for primary industries: exploring barriers to deployment.* June 2021

55 AEMO, *2022 ESOO,* August 2022, p.37

2.1.3 Value for all consumers

As discussed in Chapter One, greater uptake of CER and appropriate integration of CER into the power system will provide benefits to all energy consumers. AEMO's ISP indicates that distributed storage and demand response through virtual power plants are "expected to assist in maintaining grid reliability and provide further benefits for consumers."[57]

AEMO's 2022 ESOO Central outlook estimates a reduction of maximum demand by between 6-16 per cent through VPPs and assumes a strong increase in coordination and orchestration of these devices to meet power system needs.[58] Demand flexibility could reduce investment requirements for large-scale generation and storage capacity. A study on Load Flexibility by ARENA estimates $8-18 billion in savings from demand flexibility, meaning lower system costs and electricity prices for all consumers.[59]

QUESTION 1: OPTIMISING AND OBTAINING VALUE FROM CER FOR CONSUMERS

- What are stakeholders' views on the value that consumers could obtain from their CER, and what incentives may be needed for consumers to take up opportunities that are or may become available?
- Would flexible trading enable consumers to optimise their CER in ways that align with their motivations and preferences?
- Is there additional value for residential, small businesses, and C&I consumers that could be optimised by the introduction of some form of flexible trading, including the model proposed by AEMO?

2.2 Existing and future CER products and services

As outlined above, CER can provide a range of different values to consumers. They can also obtain value by accepting offers with incentives to allow their CER to be aggregated and/or responsive to power system needs. The Commission is interested in understanding the breadth of these services, to assist in identifying:

- how much innovation and value is in the market today
- if there are barriers to expanding any of these services or introducing new services (further discussed in the following chapter).

An overview of these services are set out below, with specific examples provided in Appendix A.

56 RACE for 2030, *Flexible demand and demand control,* October 2021.

57 AEMO, *2022 Integrated System Plan,* pp. 39, 55, 99.

58 AEMO, *2022 ESOO,* August 2022, p.69

59 Australian Renewable Energy Agency and NERA Economic Consulting, *Valuing Load Flexibility in the NEM*, February 2022, p. 111. https://arena.gov.au/assets/2022/02/valuing-load-flexibility-in-the-nem.pdf

2.2.1 Value through optimisation

Consumers can receive value from their CER by optimising generation, storage and use in response to wholesale energy prices or specific network tariffs for lower costs. There are services such as home energy management systems which will automate these responses if a customer wishes to provide control to a company, or will provide information to a consumer so they can choose if and when they wish to respond to optimise their usage or generation. It appears that today, these are often provided by a company other than the customer's retailer.[60]

2.2.2 Additional incentives

There are also opportunities for consumers to receive incentives (typically financial) for their CER to be aggregated and act in concert with other consumers' CER to provide specific market or network services, which include:[61]

- **Wholesale energy demand response:** through participation in the NEM and responding to energy price signals, CER can help with demand management (noting that this is separate from the Wholesale Demand Response Mechanism)
- **Essential System Services:** through providing contingency frequency control ancillary services (FCAS)
- **Reliability:** through participation in the Reliability and Emergency Reserve Trader (RERT) mechanism
- **Network services:** such as network support services for distribution networks.

In the future, with further technical and market developments, aggregated CER may be able to deliver further value streams to consumers and the market. These could include value delivered through participation in:[62]

- **Additional Essential System Services:** including services such as Regulation FCAS and Fast Frequency Response or potential future services such as inertia or voltage management.
- **Management of minimum system load:** Potential for aggregated CER to participate if arrangements are put in place
- **Additional local network support services:** such as network demand response or reactive power support.

Consumers are often incentivised to provide these services through VPPs, although there are other models on the market such as Energex's PeakSmart,[63] and home energy management systems as discussed above which also designed respond to system needs that are signalled through prices.[64]

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60 Solar Choice, *A comparison of home energy management systems in Australia,* 26 Jan 2017 and CHOICE, *Home energy management systems,* 11 Sep 2017.

61 Gabrielle Kuiper, IEEFA, *What is the State of Virtual Power Plants in Australia?* March 2022. p. 5.

62 IEEFA, *What is the State of Virtual Power Plants in Australia?*, p. 25.

63 Energex, *Air-conditioning rewards.* Accessed November 2022. https://www.energex.com.au/home/control-your-energy/cashback-rewards-program/air-conditioning-rewards

64 Queensland government, *Home energy management system pilot project,* July 2021.

There have been several trials seeking to demonstrate how aggregated CER as part of VPPs can be integrated to deliver value to consumers and the system. VPPs have continued to mature and become commercially available and there are now several VPP offers and products available to residential consumers, as well as small business and C&I consumers. The VPP offers provide incentives and rewards to consumers in exchange for participation in the programs and letting the aggregators operate their assets and provide services into the markets.

The Commission notes that there are some consumer issues emerging from participation in VPPs and that these are being considered in the broader AER work on consumer protections and future energy services[65]. The Commission will also consider such issues in the context of relevant consumer protections required if the rule change is made.

2.2.3 Emerging energy models and services

Introducing flexible trading could give rise to more innovative energy models and allow consumers to gain greater access to emerging models that are beginning to take shape in the market. Some emerging or potential models are below, described in further detail in Appendix A:

- Peer-to-peer trading, contributing to community sharing: This is a virtual market that enables excess energy from one consumer to be sold through an online platform to other users connected to the electricity grid.
- Community-owned batteries: Most current community batteries are owned and operated by network operators, but there is evidence that consumers have an appetite for batteries that can serve the community in more targeted ways such as by being directed to power specific buildings or businesses.[66]
- Mobile billing for EVs: A potential way for EV owners to charge their cars at any charging station for a fee, often serviced through an app.

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?

65 https://www.aer.gov.au/retail-markets/guidelines-reviews/review-of-consumer-protections-for-future-energy-services

66 Community Microgrids and Sustainable Energy Program, *Community Engagement Outcomes - Mallacoota*, August 2022 update

3 PART A: BARRIERS AND SOLUTIONS FOR FLEXIBLE TRADING

AEMO proposes introducing 'flexible trading' - consumers being able to take up different contracts for different parts of their electrical resources. This chapter examines the potential regulatory barriers that might be preventing consumers from taking up those contracts and preventing energy businesses from being able to offer new and innovative services to consumers. It specifically looks at whether the typical arrangement of one connection and settlement point per premises creates barriers to getting value, and if current regulatory arrangements allow for sufficient flexibility when trading with one FRMP at a site.[67]

The chapter then sets out, for stakeholder consultation, what the benefits and potential challenges of multiple FRMPs at one site would be, allong with the approaches/models that might be used to implement multiple FRMPs at a consumer's premises. This includes examining the significance of barriers identified by AEMO to establishing an additional connection point at a consumer's premises.

We note that the Commission considered a rule change request on multiple trading relationships in 2015 providing for multiple settlement points to be associated with a single connection point, and that in February 2016 the Commission ruled against such a change in part due to costs.[68] However, AEMO's rule change request states that its new proposal would have additional flexibility and lower costs, while still achieving the same benefits.[69] While there are similar questions to consider for this rule change request, the evolution of technology and market offerings necessitates an updated investigation of the overarching benefits and costs of flexible trading, along with consideration of AEMO's specific proposed model outlined in Chapter Five.

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

3.1.1 Current arrangements

Most consumers, especially small customers, have a single physical connection to the electricity network for their premises. Under the current framework, this connection point is also associated with a single settlement point where the energy flows for the consumer are metered.[70] This metered energy is then used to determine the consumer's bill and the wholesale market liability of a FRMP for the energy consumed at the premises.[71] This one-to-

67 The Commission notes that there are other issues that impact the ability of consumers to derive greater value from their resources, such as the technical capability of CER, customer motivations, and social license issues. Chapter Two has more detail on consumer motivations for the take-up and use of their CER. The Commission will consider these issues in the rule change process where relevant.

68 AEMC, *Multiple Trading Relationships rule change*.https://www.aemc.gov.au/rule-changes/multiple-trading-relationships

69 AEMO, *Rule change request*, p. 17.

70 Metering of electricity flows needs to meet technical requirements set through the rules, AEMO procedures and requirements set via the National Measurements Institute.

71 In these situations, the FRMP is typically the consumer's retailer of choice.

one relationship means that most consumers engage with one FRMP at their premises in respect of all of the consumer's electricity consumption and export.[72]

It is possible for consumers to establish an additional connection point for their premises, but AEMO has put forward that there are significant barriers to these arrangements. This is further discussed in section 3.4.1.

3.1.2 Current arrangements may create barriers to aggregation offers

Having one settlement and connection point has potentially created barriers to a number of potential offers or different types of pricing consumers could take up if they were able to establish multiple settlement points. These are set out for stakeholder comment in section 3.2 and section 3.3. Additionally, we consider that the one connection and settlement point arrangement may be creating a specific barrier for aggregation offers.

As highlighted in Chapter Two, there are businesses currently offering VPP products and services to consumers on a commercial basis which can help consumers get more value from their CER through aggregation, with additional benefits to the power system and thereby all consumers.[73] However, businesses seeking to aggregate CER to participate in the energy market and offer new and innovative products - and hence offer greater value to consumers in return - may face regulatory barriers.[74]

We have identified two current regulatory pathways for CER aggregators to operate in the market when there is one connection and settlement point:

1. **Direct entry by operating as the customer's retailer/FRMP:** The aggregator would need to register as a market participant with AEMO, e.g. as a market customer, small generation aggregator, demand response service provider, or from 2024 an integrated resource provider, and also seek an energy retailer authorisation or exemption with associated conditions from the AER. It would need to establish all the necessary systems (including billing systems) to support that function and comply with the resulting obligations.
2. **Partnership with a retailer:** CER aggregators could seek to enter into a commercial agreement with an existing electricity retailer (who has a retailer authorisation and AEMO participant registration) and operate the customer's CER to optimise the retailer's exposure in the wholesale market. The retailer and the VPP aggregator can enter into agreements to share the revenues from energy retailing and trading of the customer's CER.

Both of these pathways may pose challenges for CER aggregators.

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72 The current consumer protection arrangements are also based around this single connection point arrangement and relationship between a customer, their retailer and the relevant DNSP.

73 These benefits are discussed in Section 2.1.3.

74 Other business models such as specialist retailers that don't involve CER aggregation could also be facing regulatory barriers due to the single connection point model, and we would be interested to receive any examples of this from stakeholders.

Challenges relating to direct entry

Some new entrants might prefer to become specialist providers of energy services focusing on certain types of consumer resources e.g. electric vehicles, batteries or pool pumps. However, the arrangement of having all of a consumer's resources on one connection point means that the provider must become the FRMP for the household or business's entire premises. This would require them to become an authorised energy retailer, responsible for providing the full suite of consumer protections under the NERL and NERR, rather than solely being responsible for the consumer's flexible resources or a particular type of resource.

Challenges relating to partnering with a retailer

The approach of CER aggregators providing value to customers by entering into a partnership with an existing electricity retailer could also face challenges due to existing retailers acting as customer gatekeepers. Key issues could include:

- **Lack of competitive alternatives:** There is currently only a very small number of existing retailers partnering with third-party VPP service providers. This could mean CER aggregators may have low bargaining power when entering into terms to share the value generated by trading CER in the markets with existing retailers. This would mean existing retailers can capture a greater share of the value generated by CER aggregators than would be possible under a more competitive market.
- **Stranding risks:** If a CER aggregator pays upfront costs when initially enrolling a customer into their program (such as installing kit at the location), there are risks of stranding those assets if the customer chooses to engage a different retailer. The cost to manage these risks may lead to CER aggregators providing offers to customers that are less attractive, e.g. lock-in contracts. If the CER aggregator could become the FRMP for the second settlement point, then retailer churn at the primary connection point shouldn't impact the aggregator's ability to offer services to the customer.
- **Diluted incentive for existing retailers to participate:** Some existing retailers may not have strong incentives to partner with CER aggregators as their incentives and motives may not be well aligned with the interests/preferences of consumers.

These factors mean that, where CER aggregators are able to generate value from trading CER in the wholesale market under the current framework, they have to share that value with the existing retailers instead of being able to share this value directly with consumers. Small margins may not result in deals at all and existing retailers may add a margin before sharing cost reductions with the customer. This would mean customers face the risk of receiving less value from their CER being traded in the market than if they could directly engage with CER aggregators to trade their flexible resources in the markets.

> QUESTION 3: BARRIERS TO ACCESSING CER VALUE
>
> - Does having one connection and settlement point prevent consumers from accessing the full value of their CER?

3.2 What are the potential benefits of multiple settlement points?

As noted in Chapter One, CER uptake has been and will continue to grow, with an increasing share of rooftop solar installations likely to include batteries and EVs becoming more common. It is not just solar, batteries and EVs that could present opportunities for flexible trading, but as more devices become connected to the internet, it will become more common for a consumer to be able to schedule the time their washing machine turns on, or remotely control certain business operations to take advantage of low or negative prices.

Adding additional market settlement points could allow consumers to split their flexible devices such as a pool pump, battery and hot water heater from the part of their load that is less flexible, e.g. lighting and other household appliances, and take up separate pricing contracts. For example, a consumer could choose to be spot-price exposed for those flexible resources, and remain on a more traditional contract for the remainder of their load, preventing them from needing to change behaviour and potentially lowering any perceived risk. These types of offers could also be useful to businesses.

Alternatively, a residential or business consumer could take up a contract with their retailer where they receive financial incentives for some of their resources (such as a battery) to be traded in the ancillary services markets. Being able to do so without needing behaviour change on less flexible load may lead to more consumers taking up such offers.[75]

3.2.1 Current opportunities for flexible trading with one FRMP

Currently, multi-element meters can separately measure different loads or exports at consumers' premises.[76]For example, controlled loads such as electric hot water systems or underfloor heating can be on different circuits on a separate channel of the same meter (that is used to measure the whole household's consumption).[77]

A consumer can choose to take up such an arrangement through their FRMP (currently, their retailer) as part of a lower controlled load tariff negotiated with the distributor. In this case, these appliances can be made to operate during off-peak hours (usually overnight and during weekends). Controlled loads typically show up as separate items on the consumer's electricity bill.[78]

However, beyond the aforementioned controlled load tariffs for hot water heaters and specific offers for generation (solar panels), we have not observed many offers for consumers to take up different pricing for different parts of their load. The Commission is interested in understanding if there are regulatory barriers, or physical barriers such as the need to rewire

75 The value streams available for CER and benefits of its integration into the power system are further discussed in Chapter Two.

76 These data flows are identified in AEMO's MSATS with additional suffixes added to the NMI. See: AEMO, *Standing data for MSATS*, June 2021, pp. 24 - 29. https://aemo.com.au/-/media/files/electricity/nem/retail_and_metering/market_settlement_and_transfer_solutions/2021/standing-data-for-msats-v452.pdf?la=en

77 Additional information available at https://www.energymadeeasy.gov.au/frequently-asked-questions/what-is-a-controlled-load, and https://www.energymadeeasy.gov.au/hot-topics/understanding-controlled-loads

78 This differs based on the region. For example, bills may show controlled load as "Tariff 31"or "Controlled Load" in New South Wales and the Australian Capital Territory, "Tariff 33" in Queensland, "Controlled load" in South Australia, and "Tariff 61" or "Tariff 63" in Tasmania.

premises, preventing retailers from offering these types of offers to consumers, and if so, what the potential benefits of removing those barriers would be.

BOX 1: FLEXIBLE TRADING WITH ONE RETAILER IN CALIFORNIA

The California Public Utilities Commission (CPUC) has made it possible for Electric Vehicle (EV) owners to measure the electricity use of their cars separately from their main utility meter. The decision requires the relevant utilities to implement a plug-in EV sub-metering protocol for all customers with plug-in electric vehicles and customer-owned sub-meters. The decision will allow EV owners to capitalise on EV-specific off-peak rate structures, previously not accessible unless they purchased an additional utility-grade meter. Furthermore, such sub-metering arrangements and protocols would enable EV owners to access demand-response programs.

For comparison purposes it is important to note that in California, the 'utilities' are both the retailer and the distributor for each customer, and there is no retail competition.

The proposed sub-metering arrangements will retain the arrangements wherein the main meter is owned by the utility, but would introduce the option for customer-owned sub-meters to allow customers to access new metering technologies, per section 6.6 of the decision.

Notably, the program excludes net-energy metering customers (i.e., customers with CER on their premises generating some or all of their own electricity) from participating, as the CPUC Decision paper states that "there is no current way to ascertain whether a [] customer's energy consumption registered on a plug-in EV submeter is sourced from the [] distribution grid, local renewable generation, or battery storage system." Furthermore, this limitation cannot currently be circumvented by subtracting the EV consumption from the main utility meter, with conventional additional meters being the only solution to measure on-site generation and battery storage systems.

Source: California Public Utilities Commission, *CPUC Decision Makes California First State in the Nation To Allow Submetering of Electric Vehicles*, 4 August 2022. https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-decision-makes-california-first-state-in-the-nation-to-allow-submetering-of-electric-vehicles 2) CPUC, *Decision adopting plug-in electric vehicle submetering protocol and electric vehicle supply equipment communication protocols*, 4 August 2022. https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M496/K405/496405751.PDF 3) NACS, *California Approves Submetering Technology,* 10 August 2022. https://www.convenience.org/Media/Daily/2022/Aug/10/4-California-Approves-Submetering-Technology_EV

QUESTION 4: OPPORTUNITIES FOR MULTIPLE SETTLEMENT POINTS WITH ONE FRMP

- Could retailers could provide greater value to consumers by adding extra settlement points at premises?
- Are there other regulatory barriers preventing these offers?

3.3 What are the benefits and challenges of having multiple FRMPs at a consumer's premises?

AEMO's proposal puts forward that allowing for multiple FRMPs at one site (through multiple settlement points) would create significant opportunities for consumers. As noted, we would like stakeholder input on the potential opportunities for consumers of having multiple FRMPs, in addition to the challenges that may be presented.[79]

3.3.1 Potential benefits of multiple FRMPs

In addition to the potential benefits of more flexibility when trading with one FRMP set out in section 3.2, there may be additional benefits achievable by allowing multiple FRMPs at one site. The ESB's recommendation and AEMO's proposal consider potential use cases for allowing multiple FRMPs.[80] We highlight some potential examples below.

Benefits for all consumers from a more efficient energy system transition

By addressing the barriers for entry to market for CER aggregators set out in section 3.1.2, multiple settlement points could translate into increased opportunities for the growing base of CER to be aggregated and used flexibly across the NEM, with consumers receiving value for their CER use to be more responsive to system needs. This would have flow-through positive effects for the wholesale price and grid security, benefiting all consumers as the system transitions to net zero.

This proposal may also make it easier for distributors to contract with CER aggregators for network services, which may benefit all consumers by putting downward pressure on network costs, a significant part of consumer energy bills. For example, as EVs become more common, if EV owners are incentivised to charge and discharge in ways that help the system reduce peak load, then overall consumer costs will reduce - conversely, if most consumers charge their EVs at the same time it could significantly increase peak load, potentially requiring network augmentation and increasing network costs for all consumers.

Taking up offers from a new market entrant

As discussed in section 3.2, multiple settlement points would allow consumers to take up different contracts for different parts of their resources. Some of these offers may include a control aspect or pricing aspects a consumer may consider a risk if applied to their whole energy consumption. Allowing a consumer to take up a contract for a specific part of their resources with a different FRMP while keeping the remainder of their resources with a traditional retailer lowers the trust barrier and increases the opportunity for new entrants to the market.

79 The implementation questions and challenges considered in this section are what may arise regardless of the model used to have multiple settlement points at consumer premises. Specific questions about AEMO's secondary settlement points proposal are set out in the chapters in Part B of this paper.

80 AEMO, *Rule change request,* Appendix B, p. 9.

Bundled electricity packages, for example EV charging packages

In this use case, a consumer may purchase or rent a device such as an electric vehicle that comes with a package including or discounting the electricity for a certain period of time. Adding a new settlement point would enable the provider of that device to become the FRMP for the EV charger and directly manage the energy flows and billing for the EV (for example, energy charges could be bundled with lease payments or loan repayments). At the end of the agreed period, the consumer would be able to select a new EV specific charging contract or have their charger become part of their main electrical connection with their primary FRMP.

Vulnerable customer support

Allowing for a separate FRMP for a specific device could support the provision of subsidised or free services for vulnerable consumers, such as electricity specifically for hot water or heating. A party such as a non-profit organisation or local council would be able to negotiate and contract with a single FRMP for all relevant households, while the consumers could keep their existing retailer and flexibility for their other energy use.

Small business resource management

Adding new market settlement points could also present small businesses with opportunities to have more flexibility in how they manage their electrical resources. The ESB set out the below example during its consultation on the post-2025 market design.

BOX 2: SMALL BUSINESS EXAMPLE

"Sam runs a warehousing business in the country. Sam has decided to shift his fleet of delivery vans to electric vehicles through a leasing company. Sam already has a retail electricity contract for the warehouse.

Under the new Flexible Trading arrangements, the leasing company is able to support Sam to install charging stations to meet the fleet's charging needs [either with all of the charging stations connected through one additional settlement point, or individual settlement points for each charging station that are then bundled at a contract level]. To keep the costs down, the leasing company orchestrates charging in response to wholesale and ancillary market prices, as well as network tariff prices.

This keeps all the motor vehicle costs in one place for accounting purposes and helps Sam know where the energy is going. Sam is able to obtain a preferable price for his charging stations from a specialist retailer, which is not a product offered by his current retailer."

Source: ESB, *Post 2025 market design options - a paper for consultation Part A*, 30 April 2021, p. 69.https://esb-post2025-market-design.aemc.gov.au/32572/1619564199-part-a-p2025-march-paper-esb-final-for-publication-30-april-2021.pdf

3.3.2 Potential issues and disadvantages of multiple FRMPs - overview

Multiple FRMPs at a customer site may add complexities that need to be considered, or that could impact the costs and benefits of flexible trading. We have identified some specific concerns or potential issues that fall into three broad categories, outlined below and

discussed in more detail in the following sections. We request feedback on whether there are any additional considerations, and if any of these areas would benefit from a regulatory solution.

Market and competition issues: Having multiple FRMPs at one site introduces potential competition issues, whereby one FRMP's behaviour may impact another's business. Additionally, there may be larger market impact issues when the ability to switch tariffs becomes easier. The following are discussed in section 3.3.3:

- differences in cost to serve for retailers and FRMPs
- potential 'hollowing out' concern
- a FRMP blocking additional settlement points
- tariff arbitrage
- access to data.

Network relationship challenges: Traditionally, there is a relationship between the distributor and the FRMP/retailer at a connection point, with clearly delineated roles and responsibilities. As potential options for flexible trading may introduce multiple FRMPs at one premises, there may be operational changes required. These issues are discussed in section 3.3.4:

- allocation of network charges
- implementation of network capacity limits.

Consumer risks and protections: Having multiple FRMPs may introduce new risks for consumers and thus a need to consider the following, addressed in section 3.3.5:

- potential dilution of incentive to serve consumers
- existing and required consumer protection provisions.

3.3.3 Market and competition issues

Different FRMPs at one site may have different costs to serve, depending on the services they provide

Under current arrangements, some services provided at additional settlement points may not be considered the 'sale of energy,' and would therefore only fall under protections offered by the Australian Consumer Law (ACL) - the NECF requirements would not apply.[81] The AER's Review of consumer protections for future energy services is considering if the scope of the NECF should be expanded for future energy services.[82]

Under the current framework, allowing multiple FRMPs may result in having a FRMP that is an authorised retailer providing services to a customer that fall under the sale of energy, incurring the costs of complying with NECF, while a FRMP that is not an authorised retailer could be providing services on a separate settlement point (such as managing the customer's

81 The application of the NECF to the 'sale of energy' is set out in the National Electricity Retail Law, and therefore the AEMC is not able to alter it.

82 https://www.aer.gov.au/retail-markets/guidelines-reviews/review-of-consumer-protections-for-future-energy-services

export of PV generated power and using the customer's battery to provide ancillary services) without needing to comply with NECF.

The differences in customer protection requirements, along with other potential differences in obligations to parties such as the network, could create differences in the cost to serve the same customer between different parties. However, as the differences in obligations relate to differences in the services they provide (rather than relating to the fact there are multiple FRMPs), this may not be an issue in practice. The Commission will however consider the potential of the different regulatory costs for parties and how this may impact pricing and service offerings to consumers.

Potential for FRMPs offering CER services to 'hollow out' revenue of other FRMPs

The arrangement in the NEM is that FRMPs at connection points offer consumers a pricing product and consumers must use the switching process provided in the rules and AEMO's procedures to shift their electricity supply to another retailer. However, if there are multiple settlement points at a consumer's premises, the consumer could switch their major appliances to a new settlement point with a different FRMP and retain the original FRMP for only a small part of their remaining electrical flows. Both FRMPs need to recover their costs from a combination of fixed (e.g. $ per day) and volumetric (c/kWh) charges. It is not clear to the Commission whether this situation could be seen as unfair competition, or whether in fact it would promote fair competition. This issue relates to the tariff arbitrage issue, below, and the issues with network relationships in section 3.3.4.

Tariff arbitrage

Retail energy market switching is encouraged to ensure consumers are accessing the best offer for their needs, but having multiple settlement points with separate contracts and tariffs could make the practice more immediate, becoming a form of arbitrage.

FRMPs face volatile wholesale prices for all the electricity flows of their customers into and out of the grid. One of the services that most (but not all) FRMPs provide to customers is a relatively stable price for their consumption and generation, which removes the consumer's exposure to volatile five-minute wholesale prices. Wholesale prices are potentially volatile from one trading interval to the next, or even from one day or season to the next. Supply and demand are ever-changing, which means wholesale prices can also move up and down for weeks or even months at a time due to unexpected changes in the supply/demand balance or due to the volatile market for thermal fuels (see recent market conditions, for example).

Consumers can benefit during sustained periods of low wholesale prices by taking up offers from FRMPs offering lower prices (in the short term) than other FRMPs who have taken a longer forward position in the market. However, assuming the FRMPs have similar costs, the reverse is also true. FRMPs with shorter positions may be able to pass on lower prices to their customers during mild market conditions but, when the market turns tight, they are likely to have to increase their prices by more than competitors that have taken longer positions.

Customers can already take advantage of lower tariffs offered by shorter-positioned FRMPs when wholesale prices are low and switch to the tariffs offered by FRMPs taking longer positions when wholesale prices are high (as those tariffs are likely to remain more stable). The most extreme version of this behaviour is switching from FRMPs offering spot prices during mild market conditions to FRMPs with fixed price tariffs when spot prices are higher.

That is, if consumers have an additional settlement point at their premises, they could have a spot price contract at one and a fixed price contract at the other. If that consumer, or their representative, could easily switch their resources between settlement points, they could potentially consume electricity on spot prices when wholesale prices are low and export electricity at the other connection on a fixed price - and reverse that arrangement when spot prices are high (this could happen through wiring configurations that allow for simple fast switching, or remote management methods with apps that allow for turning off the data streams of additional market settlement points in real-time).

The Commission seeks stakeholder input on what, if anything, the rules could or should do to prevent such tariff arbitrage. In the absence of regulatory fixes, FRMPs might choose to alter the terms and conditions of their contracts with customers to discourage such arbitrage.

Potential for primary FRMPs to block the uptake of additional settlement points

If many consumers choose to use new settlement points that carve out major appliances from the electrical load served by their primary FRMP, this may affect the revenue of the primary FRMP. These businesses could try to avoid this, and stifle competition, by adding a provision to their terms and conditions preventing customers from entering into arrangements with other FRMPs at the same premises. There is a question about what, if anything, the rules could or should do to prevent these restrictions.

Access to data

We will consider the requirements to provide metering data between FRMPs for the purposes of both wholesale settlement and network charges. If multiple settlement points are introduced behind one connection point, AEMO has put forward that it is likely that prospective FRMPs would need to see the average daily load for all NMIs at the related connection point, "as this will assist in understanding the nature of the end user's energy usage, the optimum product and service to offer and the likely impacts relating to network charge allocation."[83] This information could be accessed using the MSATS NMI discovery search facility. However, we would be interested in stakeholder views on whether this could introduce competition issues.

3.3.4 Network relationship challenges

Allocating network charges

As noted, consumers typically appoint one retailer/FRMP at their single connection point, who communicates with and passes on network charges from the distributor. Adding an additional

83 AEMO, *Rule change proposal,* Appendix B, p. 33.

settlement point may require the customer and/or their FRMP to negotiate with the distributor about the allocation of the correct network tariff for the additional connection point. The question is whether making it easier to have multiple FRMPs at a site presents unreasonable or costly complications for allocating network tariffs. We discuss this issue in further detail, specifically for circumstances with secondary settlement points behind one connection point per AEMO's proposal, in Chapter Five.

Implementing network connection limits

The current regulatory framework allows for limits to be placed on the size of a consumer's connection. For example, under Chapter 5A of the NER, DNSPs can set limits on the maximum level of exports that are allowed at a consumer's network connection point.[84] Historically, most small customers with CER have a single FRMP, which means that adherence with the connection export or import limits is less complex. Complying with connection export or import limits could be more complex if a customer has multiple CER installations that can be orchestrated by different FRMPs, while the network limits still apply to the whole electrical installation.

As set out in Chapter One**,** DOEs are an emerging tool for DNSPs to dynamically vary the network connection export (and import) limits of customers on their network. Under the initial implementation, it is possible that DNSPs will issue DOEs at the connection point level.

AEMO's rule change request states that the arrangements in its proposal are not sufficiently novel to require unique or problematic consideration in the design of DOEs. AEMO contends that the DOE design will need to accommodate existing arrangements including customers within embedded networks and customers who have more than one network connection point (e.g. an additional connection point operated by an integrated resource provider), and that the progress of this rule change should not be delayed due to the development of DOEs.[85] We are interested in stakeholder input on if any particular consideration needs to be given to implementing network connection limits if a change is made to introduce the ability to have multiple FRMPs at one connection point.

3.3.5 Consumer protection risks

Potential dilution of incentive to serve a customer

The Commission would like to understand if there is the potential for consumers to lose out if multiple FRMPs manage their devices independently when coordination between them would be of greater value. Individual FRMPs may not be incentivised to optimise a customer's consumption and generation in order to minimise a customer's bill. For example, if a customer engages a VPP that operates their PV and battery and provides the customer with a fixed reward over a period, there could be circumstances where a consumer could face a higher bill either from a VPP or their primary retailer than they would receive if their PV and battery were being managed by a party who had visibility over the customer's entire electrical

84 NER Schedule 5A.1.

85 AEMO, *Rule change request*, p. 21 and Appendix B, p. 48.

resources, and could determine when it would be most beneficial for the customer's premises to be powered by their PV or battery as opposed to selling back into the market.[86] We note that even if this is a potential problem, it might not be significant enough to warrant regulatory action, rather, it could merely be a marketing point for a service provider selling a coordinated approach to CER management.

Consumer protections may need to change

The Commission needs to consider consumer protections when we make a rule that amends the NERR. We note that additional market settlement points, with either one or multiple FRMPs, could both exacerbate any existing challenges with those services and introduce unique circumstances for which the current consumer protections framework may not be fit-for-purpose. Detailed consideration of consumer protections in the case of AEMO's secondary settlement point proposal is set out in Chapter Five**.** However, we would be interested to hear from stakeholders whether there would be additional or different concerns if another model were used to allow for multiple FRMPs.[87]

QUESTION 5: ENGAGING MULTIPLE FRMPS AT PREMISES

- Should the rules be changed to make it easier for consumers to engage with multiple FRMPs at premises?
- Are there additional benefits or ways in which consumers could receive value through contracting with multiple FRMPs?
- Of the challenges identified, would any benefit from a regulatory solution? If so, what are the potential options?
- Are there any additional challenges presented by having multiple FRMPs at one site?

3.4 What models could be used to enable flexible trading?

AEMO's rule change request puts forward a specific model to introduce flexible trading using secondary settlement points. The Commission understands that there are other options to introduce flexible trading, and would like stakeholder input on the model or models which would create outcomes in line with our assessment criteria, set out in Chapter Four**.** In light of that, we have set out the models we are aware of below, for stakeholder feedback.

As noted above, we are particularly interested in how each model could impact pricing products and costs for consumers, given the regulatory costs that may be faced by different parties under each option.

We are also interested in stakeholder feedback on the comparative implementation costs for parties who might not be receiving direct benefits. For example, as flexible trading would be

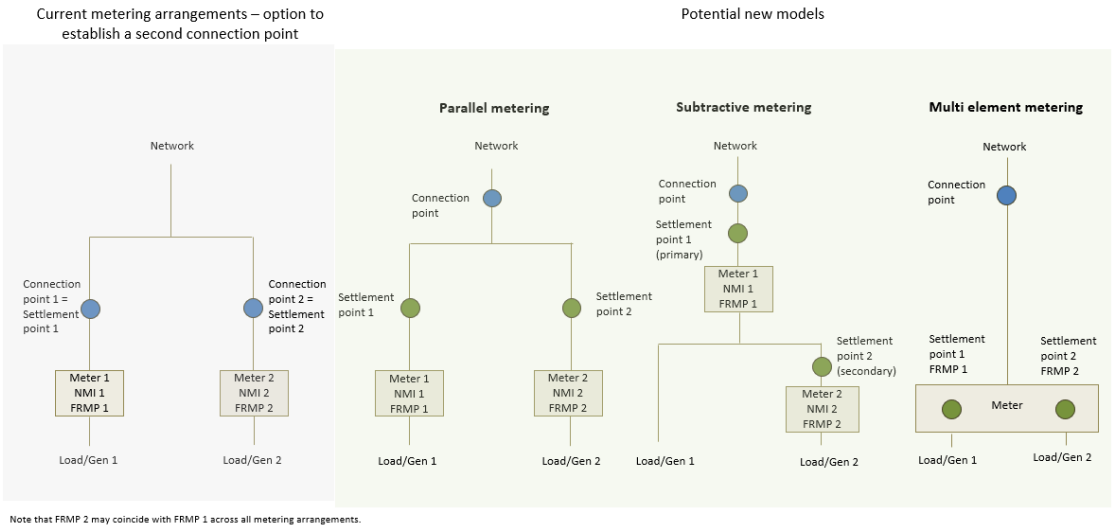
86 Such issues have been raised by ombudsmen through their submission to the AER's Review of Consumer Protections. EWON submission: https://www.aer.gov.au/system/files/EWON%20Submission.pdf, EWOQ and EWOSA submission: https://www.aer.gov.au/system/files/EWOQ%20and%20%20EWOSA%20Submission.pdf

87 Potential models are set out in the following section.

optional, we anticipate that a business deciding to offer these services would make its own cost-benefit analysis. However, retailers or networks may be required to make changes to billing, settlement, communication or other systems regardless of whether they directly engage in offering flexible trading.

The below image sets out an overview of the models.

Figure 3.1: Options to enable flexible trading



Source: AEMC

3.4.1 An additional connection point

Currently, consumers can establish an additional connection point at their premises to separately trade their electricity exports in the market (under the small generation aggregator model).[88] The Integrating Storage rule change expands this model to include two-way flows and ancillary services. This was termed the Flexible Trader Model 1 (FTM-1) by the ESB; this term is also used in AEMO's rule change request.

However, AEMO's rule change request considers that for many users, this approach remains impractical and costly to implement due to the costs and challenges involved:[89]

- consumers would need to pay multiple network charges
- premises may need to be rewired
- consumers would need to pay the standard metering costs again (typically these are rolled into retailer tariffs, for small customers)
- network policy may not allow it under some circumstances

88 See NER rule 2.3A and associated provisions.

89 AEMO, *Rule change request*, p. 5. and p. 8. Requirements applicable to a customer's electrical installation and its connection to the distribution network are also set through jurisdictional instruments.

- where a secondary connection is allowed, the process to obtain a second connection can be protracted
- there may be practical issues including the size and location of fusing, metering and other equipment to support the additional connection point.

As establishing a second, fully independent connection point at consumer premises appears to avoid many of the challenges laid out in previous sections, it would be helpful to understand the significance of these challenges and if there are regulatory changes that could be made to overcome them.

3.4.2 Parallel settlement points - the MTR rule change

In the MTR rule change, the Commission considered an arrangement with one connection point in front of parallel settlement points.[90] The proposal was developed with reference to the AEMC's review of Electric Vehicles in parallel with the Power of Choice review.[91] It proposed separating the concept of the connection point from the point or points at which energy was metered for market settlement. The term 'connection point' would remain in relation to the physical connection but a new term, settlement point, would be introduced and refer to the point at which energy metering and financial settlement occurred.

The Commission decided not to make a rule change on the basis that:[92]

- the final determination included another expert report that demonstrated it was "far more economical for customers to engage multiple retailers through a second connection point than initially thought"
- implementing the rule change may deliver some costs savings to a small number of consumers but would not reduce costs in general, being unlikely to drive demand for new energy service providers or stimulate service innovation and competition
- the costs to retailers and distributors to modify their IT systems and operational processes would be significant and these costs would pass to consumers in higher electricity prices
- it was likely consumer protection mechanisms would need to be reviewed and significantly amended if the proposal was implemented.

However, as noted in the introduction to this chapter, both the costs and potential opportunities may have changed significantly since the Commission considered the MTR rule change request. We are interested to hear from stakeholders if this would now be an efficient option for flexible trading.

90 Further information availabe at: https://www.aemc.gov.au/rule-changes/multiple-trading-relationships

91 AEMC, *Energy market arrangements for electric and natural gas vehicles*, Final Advice, 11 December 2012. https://www.aemc.gov.au/markets-reviews-advice/energy-market-arrangements-for-electric-and-natura

92 AEMC, *Multiple Trading Relationships, Final Rule Determination*, 25 February 2016, pp. 2-3. https://www.aemc.gov.au/sites/default/files/content/d37688a5-d16d-442b-80f5-e7fa51d64ab7/Multiple-Trading-Relationships-Final-Rule-Determination.pdf

3.4.3 Multi-element metering for multiple FRMPs

A multi-element meter model was discussed in the final determination of the MTR rule change,[93] and we understand that there may be similar models that could provide an option for multiple settlement points, similar to the above parallel settlement points proposal but with a slightly different structure. In this case, multi-element metering could separate different parts of a consumer's resources to provide independent control, data monitoring and consumer device level information and open up the option to have multiple FRMPs. The Commission would be interested to hear more from stakeholders on the feasibility of this model, how it could be implemented, and what the costs and benefits would be.

3.4.4 AEMO's proposal for secondary settlement points

AEMO's proposal is to allow energy resources to be separately metered within a consumer's electrical installation, 'behind' their current meter/primary connection point by installing secondary settlement points.[94] The electrical flows in and out of secondary settlement points would also flow through the primary settlement point, but would be the responsibility of the FRMP at the relevant secondary settlement point and independently traded in wholesale settlement. AEMO's proposal is discussed in detail in Part B of this paper.

QUESTION 6: MODELS FOR FLEXIBLE TRADING

- How significant are the challenges to establishing an additional connection point, and are there regulatory changes that could be made to overcome them?
- Would parallel settlement points behind a single connection point be an efficient option? If so, what factors have changed since the Commission's decision on this in 2016?
- What changes would be required to allow multi-element metering for multiple FRMPs, and what would be the benefits?
- How does AEMO's secondary settlement point proposal compare to the other potential options?
- Are there any other models for the Commission to consider?
- What implementation costs need to be considered when examining these models?

BOX 3: FLEXIBLE TRADING IN THE UK

The UK has introduced sub-metering to enable aggregators to provide ancillary services

In 2019, the UK adopted a new rule (P344) that allowed aggregators to provide flexibility

93 AEMC, *Multiple trading relationships, Final rule determination,* Appendix A, February 2016. https://www.aemc.gov.au/sites/default/files/content/d37688a5-d16d-442b-80f5-e7fa51d64ab7/Multiple-Trading-Relationships-Final-Rule-Determination.pdf

94 As set out in Section 1.4.

(ancillary) services. However, the settlement of these services occurred at the Distribution Boundary Point (equivalent to connection point in the NEM). This was seen as problematic as the meter at the Boundary Point measures electricity flows for the site as a whole, which could result in the delivered volumes from a specific controllable asset being masked by other independent activity on site - leading to inaccuracies in settlement.

Consequently, another rule change (P375) was adopted allowing aggregators to employ sub-metering behind distribution boundary points to demonstrate delivery of the flexibility service. They also expanded the list of approved meters to include metering devices embedded within a product if they meet certain criteria. This is similar to AEMO's proposal to allow metering standards for minor energy flow meters to differ from traditional type 4 meters.

The UK decided not to introduce arrangements allowing customers to engage multiple service providers

A subsequent proposed code modification (P379) that would have allowed customers to engage multiple suppliers at premises was not adopted in the UK.

The change was proposed with the intention of enhancing competition by making it easier for multiple suppliers to supply energy volumes at a single metering point. Under the proposal, electricity customers would be able to choose to have a proportion of their electricity (up to 100%) provided by a 'secondary supplier'. The secondary supplier would be able to supply pre-agreed fixed volumes or percentages of a customer's demand, or provide electricity volumes which are recorded by asset-level meters, located behind the connection point.

The proposed modification failed to progress after an independent consultant's report estimated the costs would outweigh the benefits.

Source: Summary of material from: P344 https://www.elexon.co.uk/mod-proposal/p344/, P375 'Settlement of Secondary BM Units using metering behind the site Boundary Point', https://www.elexon.co.uk/documents/change/releases/2022/06-june-release-2022/p375-slides-for-emex-conference-november-2021-iain-nicoll/, P379 'Multiple Suppliers through Meter Splitting', https://www.elexon.co.uk/mod-proposal/p379/, CEPA, P379 Impact Assessment, March 2020, p. 10, https://www.elexon.co.uk/documents/change/modifications/p351-p400/p379-final-cost-benefit-analysis-report/

4 PART A: MAKING OUR DECISION

When considering a rule change proposal, the Commission considers a range of factors. This chapter outlines:

- issues the Commission must take into account
- the proposed assessment framework
- decisions the Commission can make.

We would like your feedback on the proposed assessment framework.

4.1 The Commission must act in the long-term interest of consumers

The Commission is bound by the National Electricity Law (NEL) and National Energy Retail Law (NERL) to:

- only make a rule amending the NER if it is satisfied that the rule will, or is likely to, contribute to the achievement of the national electricity objective (NEO), and
- only make a rule amending the NERR if it is satisfied that the rule will, or is likely to, contribute to the achievement of the national energy retail objective (NERO).

The NEO is:[95]

> to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to -
>
> (a) price, quality, safety, reliability and security of supply of electricity; and
>
> (b) the reliability, safety and security of the national electricity system.

The NERO is:[96]

> to promote efficient investment in, and efficient operation and use of, energy services for the long term interests of consumers of energy with respect to price, quality, safety, reliability and security of supply of energy.

The Commission must also, where relevant, satisfy itself that the rule is "compatible with the development and application of consumer protections for small customers, including (but not limited to) protections relating to hardship customers" (the "consumer protections test").[97]

Therefore, in respect of a rule amending the NERR, the Commission will need to be satisfied that both the NERO test and the consumer protections test have been met.[98] If the Commission is satisfied that one test, but not the other, has been met, it cannot make the rule. There may be some overlap in the application of the two tests. For example, a rule that

95 Section 7 of the NEL.
96 Section 13 of the NERL.
97 Section 236(2)(b) of the NERL.
98 That is, the legal tests set out in s. 236(1) and (2)(b) of the NERL.

provides a new protection for small customers may also, but will not necessarily, promote the NERO.

4.2 We propose to assess the rule change using six key criteria

Considering the NEO and NERO and the issues raised in the rule change request, the Commission proposes to assess this rule change request using the following focus areas - noting that these are not exclusive, and we will consider all relevant matters when making our decision.

4.2.1 Outcomes for consumers

The rule change request sets out opportunities presented for consumers from flexible trading. We will examine if these opportunities are likely to be realised, and the size of such benefits, in addition to balancing those considerations with any risks identified.

Specifically, for consumers who can use, and choose to use, flexible trading, we will examine:

- Will consumers be appropriately protected when dealing with multiple FRMPs?
- Will the change give consumers a more direct connection to price incentives in a way that allows them to get more value out of their CER?

We will also consider the benefits that might be created for all consumers including those without CER, such as increased security and reliability, more innovative services or lower prices.

4.2.2 Security and reliability of the electricity system

In a world moving towards net-zero and additional renewable energy resources, new and innovative ways to provide security and reliability to the NEM are important. One of the potential benefits of the proposal is to create increased options for flexible demand and ancillary services. In making our decision, we will consider if this is a likely outcome - if by making it possible for resources to be independently treated in market settlement, the rule change will make it more likely for companies and consumers to use and invest in CER in a way that efficiently promotes system reliability and security.

4.2.3 Principles of market efficiency

As discussed in Chapter Three, this proposal could potentially increase competition while simultaneously increasing risks to certain businesses and possibly the market as a whole. The Commission will consider the overall impacts on market efficiency, with a key focus on if the proposal will create greater retail competition through disaggregating existing energy services and encouraging new energy services.

4.2.4 Innovation and flexibility

AEMO puts forward that the proposal would lead to the development of new types of services "enabling end users to benefit from their controllable resources in new ways," encouraging innovation across a broad range of companies. Additionally, it notes the metering changes

would specifically reduce barriers to entry for new technologies, such as meters incorporated directly into devices.[99] We will consider if, over the longer term, the rule change is likely to increase the potential for innovation in services or service types being developed across these markets:

- retail market – i.e., new offerings for consumers
- wholesale electricity market
- ancillary services markets
- markets for network services.

4.2.5 Implementation

As discussed in Chapter Three, the Commission previously considered a similar rule change, Multiple Trading Relationships.[100] The Commission did not make the proposed rule, partially due to the potentially high costs of implementation of the specific proposal. AEMO has suggested this rule change proposal could provide similar benefits while avoiding the costs of implementation, putting forward "that other than its own costs to implement...the proposals do not impose material costs on participants other than those that wish to provide services in offering [secondary settlement point] arrangements and minor energy flow metering services (i.e. new business opportunity cost)."[101]

We will carefully consider if this is the case, and the impact of any costs on all parties. We will additionally consider the interaction of this rule change with other reforms already underway.

4.2.6 Decarbonisation

One of the values of CER to consumers is the opportunity to reduce their electricity emissions by generating, using, storing and exporting clean solar power. The Commission also recognises, as part of the broader context to our work, that Australian governments (both state and federal) have set emission reduction targets, which will require the transformation of the energy system towards net-zero emissions. In considering this rule change request, the Commission will consider whether it would efficiently enable the timely decarbonisation of the energy market and facilitate consumers using their CER in ways that reduce their emissions.

QUESTION 7: ASSESSMENT CRITERIA

- Do you agree with the proposed assessment framework?
- Are there additional principles that the Commission should consider as we make our decision, or principles included here that are less relevant?

99 AEMO, *Rule change request*, p. 15.
100 https://www.aemc.gov.au/rule-changes/multiple-trading-relationships
101 AEMO, *Rule change request*, p. 18.

4.3 We have three options when making our decision

After using the assessment framework to consider the rule change request, the Commission may decide:

- to make the rule as proposed by the proponent,
- to make a rule that is different to the proposed rule (a more preferable rule), as discussed below, or
- not to make a rule.

The Commission may make a more preferable rule (which may be materially different to the proposed rule) if it is satisfied that, having regard to the issue or issues raised in the rule change request, the more preferable rule is likely to better contribute to the achievement of the NEO or NERO (as applicable).[102]

4.4 We may make a different rule to apply in the Northern Territory

Parts of the NER, as amended from time to time, apply in the Northern Territory, subject to modifications set out in regulations made under the Northern Territory legislation adopting the NEL.[103]

Parts of the proposed rule would apply in the Northern Territory, as it amends provisions in NER chapter 10 that apply in the Northern Territory.[104]

The Commission will therefore assess the proposed rule against additional elements required by Northern Territory legislation:

- *Should the NEO test include the Northern Territory electricity systems?* For this rule change request, the Commission will determine whether the reference to the "national electricity system" in the NEO includes the local electricity systems in the Northern Territory, or just the national electricity system, having regard to the nature, scope or operation of the proposed rule.[105]
- *Should the rule be different in the Northern Territory?* The Commission will consider whether a uniform or differential rule should apply to the Northern Territory, taking into account whether the different physical characteristics of the Northern Territory's network would affect the operation of the rule in such a way that a differential rule would better contribute to the NEO.[106]

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102 Section 91A of the NEL. Section 244 of the NERL.

103 *National Electricity (Northern Territory) (National Uniform Legislation) Act 2015* (NT Act). The regulations under the NT Act are the National Electricity (Northern Territory) (National Uniform Legislation) (Modification) Regulations 2016. The NERR do not apply in the Northern Territory.

104 Under the NT Act and its regulations, only certain parts of the NER have been adopted in the Northern Territory. The version of the NER that applies in the Northern Territory is available on the AEMC website at: https://energy-rules.aemc.gov.au/ntner.

105 Clause 14A of Schedule 1 to the NT Act, inserting section 88(2a) into the NEL as it applies in the Northern Territory.

106 Clause 14B of Schedule 1 to the NT Act, inserting section 88AA into the NEL as it applies in the Northern Territory.

5 PART B: AEMO'S PROPOSAL TO INTRODUCE SECONDARY SETTLEMENT POINTS

This chapter sets out AEMO's proposed implementation model and high-level design to allow consumers to obtain more value from their CER and support flexible trading in the NEM.

5.1 Overview

AEMO's model sets out and proposes that a consumer's CER is separately metered (within a consumer's electrical installation) and allows for a metering arrangement 'behind' their primary connection point, using secondary settlement points.

This proposed model would mean that:

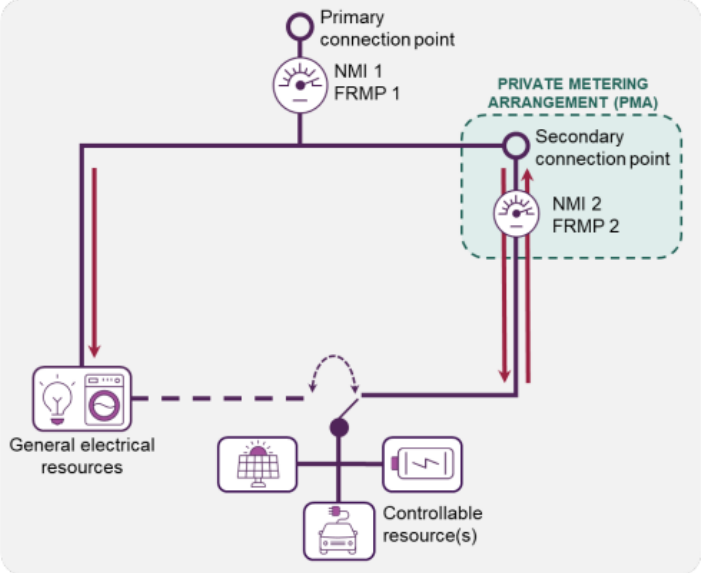
- The energy flows for resources on a secondary settlement point would flow through the primary connection point, but those resources would be the responsibility of the FRMP at the relevant secondary settlement point and independently recognised in wholesale settlement. Under this arrangement, there would be a 'primary' FRMP and a 'secondary' FRMP.
- If introduced, a secondary settlement point would be identified in MSATS with a NMI. The secondary NMI would be linked to the NMI of the premises' primary settlement point in MSATS to show the relationship between the two NMIs and allow for subtractive settlement.

AEMO proposes that for these secondary settlement points, many of the existing requirements and processes for connection points would apply. For example, the secondary settlement points would be treated in the same manner as primary connection points in market systems, except, as noted, they would be identified in AEMO's systems in a way that shows the relationship to a specific primary settlement point/NMI. For a consumer, this would simply mean that their resources are separately measured, and allow them to take up different energy service offerings and enter into individual contracts if they choose to do so.

AEMO notes that under the model, provision could be made to allow for any number of secondary settlement points at a consumer's premises. For example, a consumer could have all the devices a consumer considers to be flexible loads (e.g. EV, battery, pool pump and water heating) as well as exports (e.g. solar PV) on one settlement point, with the rest of their resources remaining on their primary connection point (e.g. general lighting). The image below is AEMO's overview of what this setup could look like, with only one additional FRMP (noting that AEMO has not specifically proposed limiting the number of additional FRMPs).

An alternative setup could see individual devices (such as an EV) with their own secondary settlement point, treated separately in wholesale markets. In this case, a consumer could choose to have contracts with different FRMPs for each device, or a single FRMP could contract with the consumer for those devices (on separate contracts or a single, lower-priced contract) as well as the rest of their load, but still manage the devices separately with respect to the energy markets.

Figure 5.1: AEMO's Flexible Trader Model 2



Source: AEMO, *Rule change request*, p. 6.

As noted in Chapter Three, AEMO's proposal is one specific model and there are likely to be a number of options that could be considered for implementing flexible trading. For AEMO's proposed model there are a number of key issues and questions, some of which were identified in the rule change request. The issues can be grouped into the broad themes as identified in Chapter Three, and include but are not limited to:

- retail energy market competition issues due to the relationship between the FRMP at the primary connection/settlement point and the FRMP at the secondary settlement point
- how network costs might or should be allocated
- operational considerations, such as arrangements for communication, information, and data flows between parties including DNSPs
- consumer issues and protection provisions that may or should need to apply (outlined separately in Chapter Six)
- limitations on what can be connected at secondary settlement points.

In addition to these issues for consideration, this chapter also considers a number of other specific implementation questions which were also set out in AEMO's rule change request. These relate to creation of the NMI, settlement for secondary settlement points, use of the embedded network framework and physical metering requirements and changes.

The Commission is seeking feedback on both the broader considerations and more technical questions of AEMO's proposal.

5.2 What retail energy market competition issues might emerge under the model of secondary settlement points?

Given that AEMO's proposal provides for two or more FRMPs and/or retailers at a consumer's premises, the Commission will consider the potential competition issues that may arise. For example, is there an imbalance of costs between parties or a competitive advantage to one party over the other, e.g if retailers (primary FRMP) were required to support subtractive settlement, could this impose costs for them to update their billing and customer information systems? Other issues to consider include:

- would a retailer at the secondary settlement point face those same costs
- if the NERR obligations are ultimately differentiated between primary and secondary FRMPs (e.g. through changes to the AER's exemption guidelines), would this lead to competition issues
- how would any potential cost differential impact consumers, including via different types of contracts offered.

The Commission is also keen to consider whether there would need to be a relationship between the FRMP at the primary connection/settlement point and the FRMP at the secondary settlement point and if so, the key considerations for such an arrangement. Further discussion of the communication, information, and data flow arrangements are provided below.

QUESTION 8: COMPETITION ISSUES WITH SECONDARY SETTLEMENT POINTS

- What are stakeholders' views on whether the proposal would positively or negatively affect competition between FRMPs in this model (for example through a difference in regulatory costs), and could it cause anti-competitive behaviour?
- Are there regulatory solutions that we should consider to minimise those risks?

5.3 How should network costs be allocated under AEMO's proposed model?

Currently, consumers pay network charges via their retailer. AEMO's proposal explains how network charges are currently determined and allocated, and how it proposes each of these would be impacted by the introduction of secondary settlement points.[107] There are currently three types of commonly-used connection charges:

- **Daily connection charges** are calculated at the connection to the network. AEMO notes that one of the benefits of the proposal is that secondary settlement points would not need a new connection to the distribution network, so would not attract additional network connection charges. Existing connection charges would continue being charged via the retailer at the primary connection point.

107 AEMO, *Rule change request,* Appendix B, pp. 28-29.

- **Energy flow charges** are charged to the FRMP at the primary connection point, and are based on energy flows to and from the network. AEMO noted that if secondary settlement points were introduced, under the current arrangements, the FRMP at the primary NMI would be responsible for network charges based on the net energy flows at their connection point rather than only the energy flows attributable to them in wholesale energy settlement. That is unless the relevant rules were changed as part of this rule change, the primary FRMP would continue to pay all network charges relating to energy flows at the premises, whether or not that FRMP is responsible for those flows in the wholesale market.
- **Maximum demand charges** are based on the peak energy flow over a connection point during a certain interval. With secondary settlement points, the calculation of the peak energy flow would remain relevant, as the 'net' peak is the accurate representation of the demand placed by the end-user on the network at the primary connection point.

The rule change request identifies five options for allocating these network charges if secondary settlement points are introduced:[108]

1. **Retain the status quo:** This is where all network charges apply at the primary connection point and are payable by the consumer via their FRMP at the primary connection point.
2. **DNSP to allocate network fees or develop a new network tariff that can be shared between FRMPs:** This would be where DNSPs could either play a role in separating network charges across two or more FRMPs, mimicking the charge that would apply if the end user had additional physical connections to the network, or develop a new network tariff that can be shared between FRMPs with components that can be spread across different end-user devices.
3. **Requiring the FRMP at the primary connection point to pass on charges and credits:** Where wholesale energy volumes match the energy flows used to calculate network energy charges at each respective primary connection point and NMI.
4. **An independent third party (e.g., AEMO) to perform a 'wash-up' service:** The costs could then be divided between FRMPs at premises following network billing.
5. **A hybrid capacity-based tier system:** Secondary settlement points below a pre-determined capacity limit would be treated as outlined in option 1 (status quo arrangements), with a bespoke network fee allocation method (e.g. option 2, 3 or 4) only being applied for secondary settlement points that exceed that limit.

5.3.1 AEMO's preferred option

In analysing the options, AEMO considers that:[109]

- Dividing network charges is generally unnecessary because network charges relate to services provided to, and ultimately payable by, the same end user.

108 AEMO, *Rule change request,* Appendix B, pp. 28-33.
109 AEMO, *Rule change request,* Appendix B, p.32.

- Options 2-5 would, to varying degrees, would require new layers of data sharing, and administrative, process and system changes, and would incur costs to implement.
- A lack of robustness in Options 2-5 could lead to double counting or overcharging, and thus disputes amongst participants (in particular with options 2 and 3).

AEMO proposes that existing processes for network charge application should continue (option 1), with network charges invoiced in their entirety to the retailer at the primary connection point (and be based on the net flows of energy at that connection point).

In addition to overcoming the complexities presented by the other options, AEMO also raises that in principle "as the end user's relationship with the LNSP is not materially changed due to the establishment of a private metering arrangement"..."the principles determining the end user's network charges should be unchanged on the establishment of a [secondary settlement point]."[110]

AEMO also states that small customer retail bills rarely, if ever, separately identify the pass-through of the network energy charges allocated to the retailer at the connection point. This means that network charges can change without directly impacting a retailer's agreement with its customers. AEMO continues on to state:

> "...the competitive retail market should be similarly capable of adapting to discrepancies in network fee allocation when compared to wholesale energy allocation providing that the market arrangements for network fee allocation are transparent to all parties and appropriate consumer protections are established".[111]

AEMO puts forward that the relevant consumer protections could include limiting the FRMP at the primary connection point from over-recovering or otherwise unreasonably penalising the customer for establishing secondary settlement points.[112]

Additionally, to protect the primary FRMP from being 'hollowed out,' and thus responsible for network charges for the primary connection point without being responsible for all the energy flows, AEMO proposes limiting what can be connected to a secondary settlement point, as discussed in section 5.5. If such limits are likely to be overly restrictive, then AEMO suggests the hybrid option 5 may be suitable, enabling small-scale CER to access flexible trading while limiting the need for reallocation of network fees to larger CER resources (such as very high capacity fast electric vehicle charging systems, the connection of which may require bespoke arrangements with the network service provider regardless of whether there is a secondary settlement point).

QUESTION 9: ALLOCATING NETWORK COSTS

- How should network costs be allocated for premises with secondary settlement points?

110 AEMO, *Rule change request,* Appendix B, p.30.
111 AEMO, *Rule change request,* Appendix B, p. 32.
112 AEMO, *Rule change request*, Appendix B, p. 33.

5.4 What are the operational considerations, including communication, information, and data flows between parties?

Under the NER and NERR, there is a range of requirements in terms of notifications, information sharing between parties, metering data flows, and also customer enquiry referrals between retailers and the DNSP at a consumer's premises. There is also a suite of AEMO procedures[113] that support communication protocols and the flow of data between appropriate parties.

As noted above AEMO considers that many of the existing requirements and processes for connection points would apply to secondary settlement points. AEMO also states that regardless of the approach taken, the following must be part of the proposed model:

- Metering Data Providers (MDPs) at secondary settlement points must provide metering data to the FRMP at the primary connection point for the purposes of both wholesale settlement and network charges, noting that this is currently the case for all subtractive settlement arrangements in the NEM.
- Prospective FRMPs must be able to see the average daily load for related NMIs (primary connection points and secondary settlement points), as this will assist in understanding the nature of the consumer's energy usage, the optimum product and service to offer, and the likely impacts relating to network charge allocation.[114]

The Commission seeks stakeholder feedback on any potential issues with these arrangements, in particular the need for prospective FRMPs to see the average daily load for related NMIs, and what other requirements might be needed in the context of business-to-business communications, information including standing data needs, metering data flows etc.

QUESTION 10: INFORMATION AND COMMUNICATION REQUIREMENTS FOR SECONDARY SETTLEMENT POINTS

- What are stakeholders' views on the need to include provisions in the rules regarding explicit information or communication requirements for secondary settlement points? For example requirements for communication and information between the:
  - DNSP and the FRMP for the secondary settlement points (e.g about network support or safety requirements, including those related to jurisdictional network safety), and/or
  - 'primary' and 'secondary' FRMPs?

113 MSATS procedures, metrology procedures, business to business (B2B) procedures and IEC, NMI procedures, NMI standing data document, and service level procedures.

114 This information would be accessed via the MSATS NMI discovery search facility. AEMO, *Rule change proposal,* Appendix B, p. 33.

5.5 Should there be limits on what can be connected at secondary settlement points?

AEMO has flagged specific challenges raised by the introduction of secondary settlement points and proposes limiting the types of resources that could be connected to these points for the following reasons:[115]

- As this type of model has not been used or extensively trialled (elsewhere or in Australia), limitations could manage risks and prevent misapplication by providing clarity on roles and obligations to market participants, end users, ombudsman and regulators alike, and the boundaries within which each party must operate.
- Limits would help manage the prospect of increased complexity by simplifying the model, reducing the potential for consumer confusion.
- Limits would reduce the need to make material amendments to consumer protections, and
- Limits would help to manage competition risks, including the potential for retailers at the primary connection point to be 'hollowed out,' as discussed in Chapter Three.

There is a broader question on whether secondary settlement points should be limited in some other way, for example by load type or total allowable capacity, and therefore differ from primary connection points.

AEMO highlights that, with certain limits in place, any difference in consumer behaviour or consumption due to installing a secondary settlement point may, from the primary retailers' perspective, not be any different from the existing pattern of energy variability across the retailer's portfolio:

> "At residential connection points in particular, retailers do not typically limit, control, or have any guarantees regarding the volume of energy flows at a connection point. End users may materially increase or decrease energy use over time (e.g. by installing new appliances, replacing gas heating with electric or vice versa) without approval or any other involvement by their retailer. Flexible trading arrangements introduce a new dynamic, enabling end users to separate resources from their established retail arrangement... [But] If limitations are applied...the impact of establishing flexible trading arrangements on the retailer at the primary connection point is likely to resemble the typical variability of small end user energy use."[116]

5.5.1 AEMO's proposed limitations

AEMO suggests that while there are benefits to applying limitations, they should "be flexible to accommodate new technologies and services."[117]

It proposes that resources connected to a secondary settlement point should be controllable, and that "electrical circuits and equipment required by the end user on-demand, and

115 AEMO, *Rule change request,* Appendix B, p. 22.
116 AEMO, *Rule change proposal,* Appendix B, p. 23.
117 AEMO, *Rule change request,* Appendix B, p. 23.

therefore not typically suitable for third party control" should be excluded.[118] Examples set out by AEMO of each of these include:

- Controllable: electric vehicles, pool pumps, hot water heating elements, battery storage systems, and solar PV systems, and
- Unsuitable: typical lighting and general power circuits, other critical resources such as the supply to emergency lighting and bilge pump installations.

AEMO also suggests the Commission consider limits on the kW capacity of the equipment connected at a secondary settlement point.

5.5.2 AEMO's proposal to implement limits

The rule change request proposes that the NER be amended to establish specific exclusions, with the FRMP for a secondary settlement point responsible to comply with those restrictions.

AEMO suggests that "requirements could be related to the capacity of the electrical equipment...the nature of the resources connected (e.g., no life support equipment, or general light and power circuits that life support equipment could connect to in the future), or a combination of these."[119]

AEMO proposes that more specific considerations be addressed when metering coordinators seek authorisation from AEMO regarding the resources they intend to connect, providing additional assurance. This could be implemented "as an authorisation step and ongoing condition...related to [metering coordinator] registration" for secondary settlement point provision. AEMO suggests the benefit of such an arrangement is that it could be easily updated as technology develops, instead of requiring a rule change as, for example, new types of technology become controllable.[120]

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?

5.6 What other implementation issues are there?

5.6.1 Initial creation of a NMI

In order for a metered connection point to interface with the market, it must have a National Metering Identifier (NMI), which is a unique identifier for each connection point within the National Electricity Market (NEM). A NMI provides an index against which essential data and

118 AEMO, *Rule change request,* Appendix B, p. 23.
119 AEMO, *Rule change proposal,* Appendix B, p. 23.
120 AEMO *Rule Change request* p. 10 and Appendix B p. 23.

processes such as market settlement and customer registration and transfers can be managed.[121]

Is the current arrangement to establish a NMI appropriate for secondary settlement points?

Under the current framework, for a new connection point, the FRMP applies to the local network service provider (LNSP) for a NMI. The LNSP must create the NMI in MSATS before it can be issued to the FRMP and subsequently passed onto the metering coordinator.[122] The LNSP is required to issue a unique NMI for each metering installation on its network to the relevant FRMP, and register the NMI with AEMO.[123]

Establishing a NMI will require processes for the establishment and maintenance of a new NMI. AEMO's rule change request raises concerns that the current processes for establishing a NMI would not be suitable for secondary settlement points as they are not directly connected to either the transmission or distribution network.[124]

AEMO's proposed solution

AEMO proposes:

- a new role be established in the NER for the creation and maintenance of secondary settlement points beyond the boundary of the transmission and distribution network, based on the design of the existing embedded network manager (ENM) role.[125]
- that this 'National Metering Identifier Service Provider' (NMI Service Provider) role could also in principle be used for any future NMI creation and maintenance requirements that do not require the involvement of LNSPs.[126] According to AEMO, its accreditation requirements would be designed to simplify and where appropriate consolidate accreditation applications for ENMs and NMI service providers.[127]

AEMO notes it has considered whether the existing roles of metering provider or ENM could be expanded to encompass the new role of establishing secondary settlement points. It sets out that this could be problematic because of numerous reasons, including:

- the amendment or expansion of the ENM role could add further complexity to the Embedded Networks framework, and
- using the metering provider role would limit competition in NMI creation to parties also capable of providing metering services.[128]

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121 AEMO, *MSATS Procedures, Procedures for the management of wholesale, interconnector, generator and sample (WIGS) NMIs*, 7 November 2022, pp.15-22. https://aemo.com.au/-/media/files/electricity/nem/retail_and_metering/market_settlement_and_transfer_solutions/2022/msats-procedures—wigs-v531.pdf?la=en .

122 NER clause 7.8.2(c).

123 NER clause 7.8.2(d).

124 AEMO, *Rule change request*, Appendix B, p. 20.

125 An ENM can apply to AEMO for a NMI at a child connection point within its embedded network, per NER clause 7.8.2(ea).

126 AEMO, *Rule change request*, p. 9.

127 AEMO, *Rule change request*, p. 20.

128 AEMO, *Rule change request,* Appendix B, p. 20.

5.6.2 Settlement for secondary settlement points

Are the current arrangements fit-for-purpose?

Chapter 3 of the NER establishes the detailed rules for financial settlement of the NEM, requiring AEMO to operate a settlement process, which includes the calculation of financial liabilities of, and credits to, market participants and settling of all trade in the NEM. The market settlement process ensures that market generators are paid for the energy they provide to the NEM, and market customers including FRMPs pay for the energy used at their connection points. This means that a retail customer's energy use or generation in a given trading interval needs to be settled in the market by their FRMP.

The settlement process requires the energy flows at each NMI to be determined and allocated to the relevant FRMP. For a small customer with a single NMI, their metered energy flows at the NMI can be directly allocated to their FRMP. However, if a customer has a primary and a secondary NMI, their primary NMI metering data would also include flows of energy for which the primary retailer is not responsible in the market.

AEMO's proposal

AEMO proposes to use a subtractive settlement approach similar to that used for embedded networks. Under this approach energy flows measured at the NMI would be assigned to the FRMP at that NMI, and the value would be subtracted from the energy flows at the primary NMI to calculate the allocation for the primary FRMP.[129] AEMO's rule change request suggests this can be achieved without changes to the rules framework for settlements and proposes that AEMO can make amendments to the metrology procedure to specify process requirements supporting energy settlement.[130]

AEMO highlights that the accurate linking of primary and secondary settlement points in Market Settlement and Transfer Solutions (MSATS) standing data is critical as it establishes the NMI relationship to enable subtractive settlement. According to AEMO the embedded networks NMI linking processes that rely on linking code creation would not be suitable for flexible trading arrangements, and an alternative approach is required.

AEMO suggests an option for linking NMIs within the scope of AEMO's procedures would be creating a new field within MSATS for flexible trading arrangements. According to AEMO, this field could be populated by the NMI service providers, would require no new or amended processes to be adopted by the LNSP, would avoid double handing, minimise points of failure, and support scalability.[131]

Settlement issues for grid isolation period raised by AEMO

CER such as batteries and solar panels can act as a back-up source of supply if there is a grid outage (depending on how they are installed). AEMO raises concerns that the use of CER as a back-up source of supply during periods of grid isolation could give rise to settlement

129 A subtractive settlement approach would require customers with secondary settlement points to have a smart meter installed at their primary connection.

130 AEMO, *Rule change request,* Appendix B, pp. 23-25.

131 AEMO, *Rule change request*, Appendix B, p. 24.

anomalies resulting in the settlement process accounting for energy that was not, in reality, traded on the market. AEMO explains that anomalies could occur as follows:[132]

- following a grid supply failure, a customer's CER (e.g. a battery installation) can inject back-up power into a customer's premises which can flow through the secondary NMI and be recorded by the secondary meter
- in the absence of explicit arrangements for this scenario, the metering data providers may be unaware of the outage and provide metering data recording backup energy flows to AEMO for settlement
- this would lead to AEMO using the metering data for settlement, unaware that it relates to an off-market period
- this would result in FRMPs being incorrectly credited and charged for energy that was supplied off-market.

According to AEMO, such off-market energy flows should be addressed in the NER.

AEMO's proposal to support settlement for periods of grid isolation

AEMO proposes that the accreditation process for the new metering party categories could be used to mitigate these potential settlement anomalies. AEMO explains that metering provider configuration designs must be approved by AEMO prior to deployment. According to AEMO, the requirements for metering installations at secondary settlement points could include configuration requirements for measures to ensure any back-up energy flows in the customer's electrical installation during a grid outage are not able to flow through the secondary settlement point. AEMO states the approval of metering provider designs and installation configurations is a standard practice today which is not onerous for metering providers or AEMO.[133]

In addition to mitigation of anomalies through physical connection arrangements, AEMO proposes that MDPs for secondary NMI metering installations should be enabled to identify loss of power and ensure that recorded energy flows (if physical mitigation fails) are treated and that only on-market energy flow metering data is sent to AEMO for settlement. AEMO suggests that such arrangements can be established via AEMO procedures for accreditation and operation of metering data provision and Metrology Procedures requirements for validation and substitution of data.[134]

5.6.3 Limiting use of the embedded network framework

In the rule change proposal, AEMO states that some consumers have attempted to establish a similar arrangement to the proposal using an embedded network approach. AEMO notes that there is a current misapplication of the embedded network framework to establish flexible trading, that this presents problems in NEM settlement processes, and that there are broader risks of this being used on a larger scale and over the long term, such as application of NECF. AEMO considers that it is critical for the rules to have a clear mechanism for

132 AEMO, *Rule change request,* Appendix B, p. 25.
133 AEMO, *Rule change request,* Appendix B, p. 26.
134 AEMO, *Rule change request,* Appendix B, p. 28.

connection point establishment and that use of the embedded network framework in this fashion should be explicitly disallowed to avoid confusion for market participants and users.[135] [136] It notes that embedded networks differ from a single customer's premises in the ways set out in the below table.

Table 5.1: Comparison between an embedded network and end-user electrical installation

EMBEDDED NETWORK	END USER'S ELECTRICAL INSTALLATION
Embedded networks are private electricity networks that are owned, controlled, or operated by exempt network service providers. The embedded network forms part of the national grid.[1]	The end user's electrical installation typically comprises a fuseboard, household wiring, electrical outlets (plug sockets, etc.), switches, lights, electrical appliances, and other electrical equipment. It often includes short lengths of powerline, from the distribution fuse or switch to the metering position, but is not a network and does not form part of the national grid.
Embedded networks are connected to a distribution or transmission network through a parent connection point and serve multiple end users at child connection points (e.g. shopping centres, retirement villages, apartment complexes and caravan parks).	The end user's electrical installations are for the use of the end user themselves or provided by a property owner or their agent for the end user.
Service providers for embedded networks must gain an exemption from the AER from the requirement to register as a network service provider. If on-selling energy to end users within the embedded network, it must also hold a retailer authorisation from the AER or be exempted from this requirement.	A single Market Customer is currently responsible for all flows of energy to and from an end user's electrical installation. Energy is not on-sold via any formal or recognised mechanism in the NER.

Source: AEMO, *Rule change proposal,* Appendix B, p. 14.
Note: [1] NER Chapter 10 definition: The sum of all connected transmission systems and distribution systems within the participating jurisdictions.

135 AEMO, *Rule change request*, Appendix B, pp.14-15.

136 There are a number of current issues occurring for consumers in embedded networks. This is being considered by the AER separately from its review of future energy services: more information at https://www.aer.gov.au/retail-markets/guidelines-reviews/review-of-consumer-protections-for-future-energy-services

5.6.4 Different metering requirements for secondary settlement points

The Commission notes that there are extensive requirements and frameworks currently in place for metering. These include a number of requirements for metering installations so that they can accurately record, store and communicate energy consumption information.[137] AEMO proposes two material changes to the physical meter, that are related to the physical display and the requirement for the minimum specification to be removed.

A key question for the rule change is if the current metering arrangements and requirements would present a barrier to the uptake of flexible trading, and if so, what are the minimum functional requirements and arrangements required to enable market participation at secondary settlement points? Lower requirements may allow lower-cost metering solutions to be used, which could be a factor in the uptake of flexible trading (if the Commission makes the rule as proposed).

AEMO has proposed a number of changes to the requirements for metering. Generally, AEMO's proposed method for implementation is that a new kind of metering installation is established for use at secondary settlement points which would not have all the same obligations (a minor energy flow metering installation). The detail of these metering requirements and requests for stakeholder input are in Chapter Seven.

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?

137 Background of the current metering frameworks is provided in Chapter Seven.

6 PART B: CONSUMER PROTECTIONS FOR SERVICES AT SECONDARY SETTLEMENT POINTS

The Commission will consider how consumer protections might apply, and what consumer protections should apply, in the context of all options for flexible trading and specifically for the proposed AEMO model. As noted, we will also consider the interactions and outcomes of the AER's existing and ongoing work on the Review of consumer protections for future energy services.[138]

AEMO identified in its proposal a number of NECF protections and provisions that may need further consideration for its proposed model.[139] These include, but are not limited to:

- what types of contracts consumers would enter into under AEMO's proposed model for secondary settlement points
- how a consumer would identify what secondary settlement points are established at their premises
- move-in, move-out, and change in service provider provisions
- re-energisation and de-energisation requirements
- life support provisions
- Retailer of Last Resort (ROLR) arrangements
- non-NECF consumer protections, such as the default market offer.

6.1 The relevant consumer protections framework

Consumers in NEM jurisdictions are protected through two complementary consumer frameworks, the Australian Consumer Law as the general consumer framework and the NECF, which is specific to the sale of energy. The NECF, which includes the NERL and NERR, provides a framework for consumer protections in addition to those general protections provided under the ACL.[140]

If the service provided at the secondary settlement point involves the sale of energy to consumers for use at premises, the FRMP would be required to become an authorised retailer - and thus would need to abide by the NECF consumer protections. The FRMP may alternatively meet the AER's criteria to be an exempt seller (who sells energy to customers but is not required to become an authorised retailer), in which case the AER might apply only certain provisions of the NECF through its Retail Exempt Selling Guideline.[141]

As the Commission currently is unable to make consumer protection rules for services that fall outside of the NECF (energy services that do not involve the sale of energy to consumers

138 https://www.aer.gov.au/retail-markets/guidelines-reviews/review-of-consumer-protections-for-future-energy-services.

139 AEMO, *Rule change request*, p. 12.

140 The NECF applies in each participating jurisdiction through state and territory laws, to different degrees. The Commission also notes that the NECF does not apply in Victoria; separate protections apply in that jurisdiction. For further information: https://www.aemc.gov.au/regulation/energy-rules/national-energy-retail-rules/regulation.

141 For more information, see www.aer.gov.au/retail-markets/retail-exemptions and www.aer.gov.au/retail-markets/authorisations

for use at premises), in this section we specifically examine if any NECF protections may not currently be fit for purpose for secondary settlement points.

However, we continue referring to FRMPs in this chapter (as opposed to retailers), as we want to focus our consideration on the consumer protection needs based on the services provided, instead of the authorisation status of the provider themselves.

6.1.1 Consumer protections for services provided over secondary settlement points that fall outside of the NECF

It is possible that a service provided at a secondary settlement point would not be considered a 'sale of energy' - for example, if that service was solely selling power from PV back into the market, or providing ancillary services using a consumer's battery (but that battery was being charged from on-premises PV). In this case, under the current frameworks that service would only fall under ACL obligations; the NECF would not apply.

The AER's Review of consumer protections for future energy services is examining if the NECF needs to be expanded beyond the sale of energy, and the Commission will work closely with the AER to consider if introducing secondary settlement points would create a need for broader reform. This includes identifying risks for each of the below topics if a service provided over a secondary settlement point fell outside of the NECF.[142]

6.2 What consumer contract type(s) should apply under AEMO's proposed model for secondary settlement points?

The NECF includes protections for small customers on market and standard contracts, setting out minimum requirements for both types of contracts, though with greater prescription for standard contracts.[143]

AEMO has proposed that secondary settlement points be "entirely optional for end users," and therefore services would be established by an opt-in arrangement.[144] This would require a consumer to contact a FRMP (or, more likely, a FRMP to offer and a consumer to agree) to establish services at a secondary settlement point. Given the voluntary nature of these agreements, and the potential for a variety of flexible services, standard retail contracts may be less appropriate than market retail contracts, as there are some circumstances when a customer's explicit informed consent is not needed to establish a standard retail contract.[145]

We will consider whether new rules should require or allow these settlement points to have a new form of standard contract associated with them, which for example, could be used if a consumer moves into premises with secondary settlement points without contacting a FRMP for their primary connection point needs. AEMO suggested that market retail contract provisions in the NERR might also require changes, depending on the services provided at these settlement points.[146] AEMO specifically highlighted the notification provisions relating to

142 https://www.aer.gov.au/retail-markets/guidelines-reviews/review-of-consumer-protections-for-future-energy-services
143 https://www.aer.gov.au/consumers/choosing-an-energy-retailer/energy-contracts.
144 AEMO, *Rule change request*, Appendix B, p. 9.
145 NERL section 38(b).
146 AEMO, *Rule change request*, Appendix B, p. 44.

market contracts as an example of provisions that may not be fit for the purpose of secondary settlement points.

6.3 How will consumers identify existing secondary settlement points at their new premises?

As a secondary settlement point may not be clearly visible (for example, it may be a chip in an existing device), a consumer may not be able to easily identify them when they move into a new home. This could be an issue at move-in, or if a consumer decides to change their type of electricity contract after living in a location for a period of time.

AEMO proposes that if a consumer moves into or is living in premises with existing secondary settlement points, they could ask their primary FRMP to identify those points. The FRMP will be able to identify the secondary settlement point through AEMO's MSATS NMI discovery and would then be obligated to inform the consumer.[147]

AEMO also notes that when a consumer transfers to a new primary FRMP (without moving premises), this could present an opportunity for a consumer to be informed of any secondary settlement points in their premises, as there are existing requirements for notifications during retail transfers.[148] Changes to the NERR would be required to establish a right for consumers to ask their primary FRMP to identify any secondary settlement points or to be notified during a retail transfer process.

6.4 Do there need to be changes to move-in and move-out provisions?

The NECF provides protections for consumers when they are transferring retailers or moving into or out of premises. Currently, when a consumer moves into premises they are encouraged to engage a retailer before their move-in date. Many consumers will then enter a market retail contract for energy services. However, some consumers may not engage with a retailer prior to moving in and might be placed on a standard retail contract under a deemed customer retail arrangement.[149]

AEMO notes that move-in processes under its proposed model may generally be able to operate in the same way as current move-in processes. However, new processes may be needed when there is little awareness of or communication at the time of the move.

6.4.1 Consumer appoints a primary FRMP prior to moving into premises

AEMO proposes that where a consumer appoints a primary FRMP prior to moving in, the FRMP would identify and notify the consumer of all secondary settlement points via AEMO's MSATS NMI discovery. Consumers would then have the option to engage a retailer for the entire premises as though there were no secondary settlement points, or to activate the

147 AEMO, *Rule change request*, Appendix B, pp. 42-43.
148 NERR rules 57-59.
149 See NERL Part 2, Division 9, and NERR Part 2, Division 8.

existing secondary settlement points by entering into contracts either with a single or multiple FRMPs, in addition to the contract at their primary settlement point.[150]

6.4.2 Consumer does not appoint a primary FRMP prior to moving into premises, but former customer did notify on move-out

Where a consumer has not appointed a primary FRMP prior to moving into premises, the consumer may be placed on a standard retail contract for their primary settlement point until they contact a FRMP. If the previous resident had contracts for secondary settlement points and cancelled those contracts when they moved out, all secondary settlement points would be deactivated and all resources would be on the primary settlement point, therefore the process would be as it is today for move-ins.

6.4.3 Consumer does not appoint a FRMP on move-in, and former customer did not notify upon move-out

There may be circumstances where the consumer who moved out did not notify the FRMPs they held contracts with for services at secondary settlement points, and the customer moving in does not immediately (or prior to move-in) contact a primary FRMP. In these cases, market contracts at these settlement points would not automatically transfer to the new resident without that person's explicit informed consent.[151] We will consider the existing arrangements and how these may apply to secondary settlement points, including how contracts are applied in these circumstances.

The NER could be amended to specify that FRMPs for secondary settlement points would only be responsible in the wholesale market for the energy used at the relevant secondary settlement point if that FRMP has the consent (via contract) of the consumer who owns the relevant CER.

This may be managed by the FRMP for the secondary settlement point communicating with the former customer or current consumer at the premises and (if necessary) de-activating the secondary settlement point's NMI so those resources are supplied through the premises' primary settlement point.[152]

6.5 Do there need to be changes to re-energisation and de-energisation requirements?

6.5.1 Re-energisation and de-energisation, compared to deactivation

The deactivation of a secondary settlement point means that its NMI would become inactive in AEMO's systems. Then, the device(s) connected to the secondary settlement point would instead be counted by the meter at the primary settlement point, and the load (or generation) of those resources would be part of the contract the consumer holds with their

150 AEMO, *Rule change request*, Appendix B, p. 42.

151 NERL section 38(b) sets out the requirements for explicit informed consent for market retail contracts. Additionally, contracts for services delivered outside of NECF (where the service is not for the sale of energy) would also not automatically transfer to the new resident.

152 AEMO notes that any issues may be mitigated by the availability of data from smart meters and the ability to appoint a FRMP retrospectively. *Rule change request*, Appendix B, p. 43.

primary FRMP. The device(s) would continue to use or generate electricity as before (but without any controls that may have previously been applied by the secondary FRMP).

De-energisation, by contrast, is where the settlement point (in this case, the secondary settlement point) would no longer have electricity flowing to it, so the consumer could no longer use their CER at that settlement point. There are a number of protections in the NERL and NERR relating to de-energisation. Today, a retailer can only de-energise or disconnect a consumer's premises under specific circumstances (for example for non-payment for services),[153] it must follow specific steps for notifications and warning notices, and there are additional limits on de-energising the premises of hardship customers and life-support customers under the NERL and NERR.

AEMO considers that current provisions for de-energisation in the NECF are sufficient for secondary settlement points where there is a sale of energy, as long as appropriate notifications are provided to interested parties within the NER framework.[154] The Commission notes that today, these de-energisation provisions would not apply to secondary FRMPs that are not retailers (see section 6.1).

6.5.2 Should FRMPs be able to de-energise their secondary settlement point NMIs?

The rule change request proposes that metering installations at secondary settlement points would not be required to have the ability to be de-energised, but instead would be de-activated in MSATs - as de-energisation would not be needed in most circumstances.[155]

However, the request does not specifically propose disallowing the de-energisation of a secondary settlement point NMI, if a meter is used at that point which would enable doing so. We are interested in stakeholder views on whether the FRMP at the secondary settlement point should be able to de-energise that point.

6.5.3 Do de-energisation protections need to be amended for a secondary settlement point?

If de-energisation of a secondary settlement point is allowed, AEMO proposes that no additional protections regarding de-energisation are required in the NERR, as sufficient protections already apply to de-energisation (disconnections) for retailers.[156] However, it is possible that amendments to the rules would be necessary in order for de-energisation protections to apply in an appropriate way to retailer actions at secondary settlement points.

Additionally, we note that de-energisation protections (if de-energisation is permitted) would only apply to services covered by the NECF (that is, services relating to the sale of energy).

6.5.4 What notifications are required if a primary settlement point is de-energised or disconnected?

In AEMO's proposal, secondary settlement points are only available if a consumer has a primary settlement point for energy services.

153 NERR Part 6.
154 AEMO, *Rule change request,* p. 12.
155 AEMO, *Rule change request*, Appendix B, p. 40.
156 AEMO, *Rule change request,* Appendix B, pp. 43-44.

If the primary connection point is disconnected from the distribution network for any reason, any downstream secondary settlement points would also be disconnected by default. AEMO has raised that this needs to be made clear in the establishment of agreements between FRMPs offering services at the secondary settlement point and their customers.[157]

In light of this, AEMO proposes that FRMPs at secondary settlement points should not have a responsibility to inform consumers of de-energisations or disconnections resulting from the de-energisation of the primary connection point, as one notification by the primary FRMP (under the assumption that the FRMP at the primary connection point is an authorised retailer, subject to all current consumer protection obligations) or distributor is sufficient.

AEMO suggests that notifications to the interested parties who are not consumers (e.g. primary FRMPs notifying secondary FRMPs) could be considered as a part of AEMO's consultation on updating MSATS, if the proposed rule change is implemented.[158] However, we would be interested in stakeholder views on whether changes to the rules would also be required.

6.6 How should consumers on life support be protected?

AEMO has specifically proposed life support equipment not be allowed to be connected to a secondary settlement point. It sets out that this exclusion would avoid amendments to NERR provisions relating to life support, and that customers requiring life support need a greater level of protection than could be provided at a secondary settlement point.[159]

6.7 How should Retailer of Last Resort (ROLR) provisions apply?

It is possible that a secondary FRMP that is a retailer could fail. At a primary settlement point, this would be handled through the ROLR scheme.[160] The Commission is seeking stakeholder views on the issues around FRMP insolvency at a secondary settlement point, whether any regulatory arrangements need to be put in place, and if so, what arrangements. These issues will also be considered in the context of the AER consumer protections review noted above.

6.7.1 Current approach

The NERL contains provisions for a ROLR scheme for NECF jurisdictions. The ROLR scheme makes sure that, if a retailer fails, consumers will continue to receive electricity and/or gas supply without disruption. The AER appoints a new retailer to the consumer and the consumer will receive notifications allowing them to choose an updated contract following the event.[161]

AEMO proposes that if secondary FRMP that is a retailer fails, the ROLR scheme should apply.[162] This would mean that, as with primary settlement points, sale of energy services

157 AEMO, *Rule change request*, Appendix B, p. 43.
158 AEMO, *Rule change request*, Appendix B, p. 44.
159 AEMO *Rule Change request*, p. 10, Appendix B pp. 23, 45.
160 NERL Part 6.
161 NERL Part 6.
162 AEMO, *Rule change request*, Appendix B, p. 45

provided at a secondary settlement point would automatically be transferred to a new retailer appointed by the AER.

6.7.2 Alternative approaches

Appoint primary FRMP as default ROLR: An alternative arrangement AEMO identified is for the primary FRMP (where it is a retailer) to become the default ROLR. The AER can appoint a retailer as a default ROLR after considering various criteria, but must first consult with the retailer.[163] If a secondary FRMP that is a retailer fails, its NMI would be deactivated and the resources connected at those secondary settlement points would become part of the load at the primary settlement point if the AER has appointed the primary FRMP as the ROLR for the relevant settlement points.

Deactivate NMI: We note that if a secondary FRMP that is not a retailer fails, it is likely that the NMI would be deactivated and the resources at the secondary settlement point would become part of the load at the primary settlement point, without any involvement of the ROLR scheme. We are interested in whether this approach could or should also be taken when the secondary FRMP that fails is a retailer.

6.8 How should non-NECF consumer protections such as the DMO apply?

The Default Market Offer (DMO), established under Commonwealth regulations rather than as part of NECF, acts as a price cap for standard retail contracts for small business and residential customers in South Australia, NSW, and south-east Queensland. There is a separate mechanism in Victoria, the Victorian Default Offer.[164] The DMO is determined by the AER each year and acts as a 'reference price' for residential and small business offers in that area and can be used to compare energy offers.[165]

The DMO is a pricing protection for consumers on standard retail contracts. We are interested in whether a pricing protection, such as the DMO, should be considered to protect consumers with secondary settlement points if standard contracts are applicable (see section 6.2 for contract types).

QUESTION 13: CONSUMER PROTECTIONS

- What are the potential consumer risks and protections required under AEMO's proposal for secondary settlement points, and should they be handled as proposed by AEMO?
- Are there any other issues the Commission should consider in relation to protections under flexible trading?

163 NERL section 125.

164 https://www.esc.vic.gov.au/electricity-and-gas/prices-tariffs-and-benchmarks/victorian-default-offer

165 The DMO came into effect on 1 July 2019, and the legislative framework is set out in the Competition and Consumer (Industry Code – Electricity Retail) Regulations 2019).

7 PART B: METERING OF SECONDARY SETTLEMENT POINTS

What metering requirements are relevant for additional settlement points?

For a customer's resources to be settled in the market, the current arrangements require that they be metered in specific ways to ensure accurate measurement.[166]

This chapter examines if existing metering requirements are a barrier to the take up of additional settlement points at a customer's premises and, if so, what the minimum functional requirements for metering of secondary settlement points should be to enable market participation.

The chapter explores whether for meters installed at secondary settlement points:

- a display is needed
- the requirements set out in minimum services specifications (such as remote disconnection/reconnection and reconfiguration services) are relevant
- remote communications are needed
- accuracy requirements should remain the same as for existing connection points
- data requirements need to change
- roles and responsibilities need to be updated.

We then consider AEMO's proposals for changes to responsibilities and metering roles specifically for secondary settlement point metering installations, regardless of whether the meter used is a minor energy flow meter or a typical Type 4 meter (as discussed in the following section).

AEMO's proposed solution is new requirements for a minor energy flow meter

AEMO's proposal to address metering for secondary settlement points is for the NER to establish a new kind of metering installation - 'minor energy flow meters'.[167] These would need to meet the relevant requirements, which AEMO proposes should be fewer than those applying to existing residential meters. For clarity, we note that AEMO's rule change request does not seek to prevent the use of a traditional NEM-compliant metering installation at a secondary settlement point, but rather seeks to create the flexibility to use minor energy flow metering installations if suitable.

To implement minor energy flow meters, AEMO also proposes some changes to roles and responsibilities. This is separate to the consideration in section 7.2.5 of new categories for metering providers and Metering Data Providers (MDPs) at secondary settlement points - regardless of the kind of meter used.

166 Metering requirements are set out in multiple places including Chapter 7 of the NER, through AEMO procedures, and in the *National Measurement Act 1960* (Cth).

167 In this paper, and in the rule change request, 'minor energy flow' means substantially less than the typical flow of energy at an occupied residential premises.

We invite stakeholder input on AEMO's proposed approach as well as whether there is an alternative regulatory approach. This chapter also seeks feedback on other potential uses (beyond secondary settlement points) for any new kind of metering installations established for use at secondary settlement points.

7.1 Does any action need to be taken to support metering for secondary settlement points?

There is no limitation proposed in the rule change request that would prevent the use of current meters at secondary settlement points.

However, AEMO stated in the rule change request that current NER metering requirements for residential customers will be "impractical and costly to implement within the FTM2 design and the mandatory features of a typical type 4 small customer metering installation are unlikely to provide any material benefit to the end-user or market participants."[168] Specifically, some of the current requirements for meters create limitations including "physical size, complexity of installation and maintenance" that would prevent uptake, as explored in an Energeia report on the cost of establishing a second connection point.[169] In its recommendation for flexible trading, the ESB also agreed "that the potential to adopt non-traditional types of metering installation and meter location at a secondary settlement point is critical to the take up of flexible trading."[170] Stakeholders have raised concerns that the costs and complexity involved in establishing additional metering at their premises is likely to have a major influence on the take-up of flexible trading by consumers.

7.2 What minimum requirements need to be set in the NER for market participation and settlement at secondary settlement points?

There are extensive requirements and frameworks currently in place for metering. These include a number of requirements for metering installations so that they can accurately record, store and communicate energy consumption information. AEMO proposes that many of these would not be needed at secondary settlement points.

As previously noted, AEMO's proposed method for implementation is that a new kind of meter is established for use at secondary settlement points which does not have all of the same obligations (a minor energy flow meter). However, we have framed this section to more broadly seek stakeholder input on what the practical minimum energy flow measurement and communications requirements would be to enable secondary settlement points to provide services to the market (energy, ancillary services, and network services), and participate in settlement for those services. Specifically, we are considering what needs to be set out in the NER, noting that AEMO specifies many relevant requirements through various procedures and specifications.

168 AEMO, *Rule change request*, p. 8.

169 AEMO, *Rule change request,* Appendix B, p 15, and Energeia, *Expert advice on the cost of establishing a second connection point,* October 2020. https://esb-post2025-market-design.aemc.gov.au/32572/1608712682-enegeia-expert-advice-on-the-cost-of-establishing-a-second-connection-point.pdf

170 Energy Security Board, *Post 2025 Market Design Final advice to Energy Ministers*, Part C, p. 40.

Understanding the minimum operational requirements will allow the Commission to consider how the rules could best support innovation in this space. For example, while measurement of energy flows is necessary for settlement processes (FRMPs, AEMO, and consumers must be able to identify the quantity of energy flows for payment), we understand that there are some technologies being developed that allow for 'non-intrusive load monitoring,' which would not necessarily use a measurement device at a connection point. Additionally, some stakeholders have raised that existing inverters may provide sufficient measurement.

7.2.1 Is a display needed at a secondary settlement point?

Current requirements and provision of data to end-users

Currently, all meters are required to have a visible or equivalently accessible display of the cumulative total energy measured by that metering installation (at a minimum).[171] All current meter types have a meter display that allows consumers to access their cumulative, real-time or close to real-time, usage information from the meter.

Additionally, consumers can access their usage information through other rules in the NER and NERR, and proposed new energy protections such as the Consumer Data Right:

- In the NERR, consumers may request historical billing information from their retailer,[172] and may request their consumption and/or export information from their retailer or distributor.[173] These rules provide consumers with two years of historical information but have limits on how often customers can request this data, and the customer may incur charges. Rules 56A and 86A require retailers or distributors to provide the data according to the metering data provision procedures, which is a relatively technical procedure and might result in information being provided in a format that is difficult for consumers to understand. (If a customer requests information in a different form, the retailer or distributor may charge for it.)
- Consumers are also allowed to request and access energy data recorded by a metering installation under NER clause 7.15.5 (d).
- The Consumer Data Right is also exploring ways that consumers can benefit from secure and easy sharing of data about their own energy use and connection, for example through authorising third parties to access their historic usage data.[174]

However, each of these requires consumers to request their information and the data provided is not real-time or close to real-time.

171 NER clause 7.8.2(a)(1).

172 NERR rule 28.

173 NERR rules 56A, 86A.

174 Senator the Hon Jane Hume, *Media release 12 November 2021 - Consumer Data Right rolled out to the energy sector*, available at: https://ministers.treasury.gov.au/ministers/jane-hume-2020/media-releases/consumer-data-right-rolled-out-energy-sector

AEMO proposes that a display on the meter is unnecessary

According to AEMO, the display component of a metering installation is a key area where requirements can be adjusted to accommodate new technologies and metering systems, and support remote access to information.[175] AEMO explains:[176]

> Physical 'real-estate' available for metering installations in the scenarios considered in this proposal will, in many cases, be too small to accommodate a readable display, and the location of installed devices might make the viewing of a physical display impractical in any case ... At a residential level, modern technologies are supplanting the need for end users to read physical metering device displays, as demonstrated by the Victorian DELWP-supported rollout of in-home displays for smart metering data.

AEMO notes that allowing the information traditionally displayed on the meter to be accessed via an alternative source (e.g. a laptop, in-home display unit, smart-phone app, or similar) could be easier for consumers to read and understand compared with the information displayed on their meter. Furthermore, it could provide information at equal or superior levels than a physical display compliant with the existing rules can, such as more detailed information.[177]

AEMO also states that customer access to their energy data as provided under NER clause 7.15.5(d) far exceeds the information visible on a metering display for small customers, and the pending changes for the introduction of the Consumer Data Right for energy would further extend consumer access to that energy data.

AEMO considers that there is "no compelling reason for the NER or NERR to require the ability for a small customer to access a reading locally for a secondary settlement point, or any other minor energy flow metering installation."[178]

In the consumer risk assessment tool developed by the ESB,[179] "access to information" is one of the identified consumer protection principles. The Commission is interested in stakeholder feedback on consumer access to their data if meters for secondary settlement points are not required to display data.

AEMO's proposed regulatory approach

The rule change request notes that although the current display requirements do not explicitly prevent the establishment of a remote display, the concept has not previously been considered to any extent within the NER and has no established framework to support its application.

175 AEMO, *Rule change request*, p. 11.
176 AEMO, *Rule change request,* Appendix B, p. 17.
177 The physical display requirement is set out in NER cl 7.8.2(a)(1).
178 AEMO, *Rule change request,* p. 11.
179 ESB, *Post-2025 Market design final advice to Energy Ministers Part C*, p. 26.

AEMO suggests that the accreditation and procedures framework for a proposed new Metering Provider category specific to minor energy flow meters could provide a mechanism to enable the assessment and application of an equivalently accessible display.[180] AEMO's proposal for a new Metering Provider category is further discussed in section 7.2.5.

According to AEMO, the initial validation process could include the provision of a verifiable link to the physical device(s) - e.g. a readable unique identifier on the physical device such as the meter device serial number or a bar code.

AEMO stresses that, following the initial validation process, the physical metering installation must continue to have a unique, visible identifier (e.g. the meter device serial number) that acts as a point of verification between the measured energy within the metering system, the remote display capability and the end user's energy bill.[181]

7.2.2 Are minimum service specifications relevant for secondary settlement point meters?

Current arrangements

Under the NER, new metering installations for small customers must be capable of providing certain minimum services specified in the NER and be connected to a telecommunications network that enables the meter to be accessed remotely.[182] The minimum service specifications (MSS) include:[183]

- remote disconnection service
- remote reconnection service
- remote on-demand meter read service
- remote scheduled meter read service
- meter installation inquiry service, inclusive of supply status, voltage, current, power, frequency, average voltage and current, and events that have been recorded in the meter log like information on alarms
- smart meter reconfiguration service.

AEMO is required to establish, maintain and publish procedures that set out the minimum service levels and standards for the minimum services and may include technical requirements for those services.

AEMO proposes that the MSS are not relevant for meters at secondary settlement points

AEMO considers that metering installations at secondary settlement points should not be required to comply with the MSS.[184]

180 AEMO, *Rule change request,* p. 11.

181 AEMO, *Rule change request,* Appendix B, p. 39.

182 With the exception of type 4A meters which do not need to be enabled for remote access, where customers have requested these.

183 NER schedule 7.5

184 AEMO proposes amending NER clause 7.8.3(a) to include reference to a new clause 7.8.4A as outlined in section 7.1 of the rule change request. AEMO, *Rule change request,* p. 11.

AEMO assesses the relevance of the broad categories of required service specifications as follows:

- **Information provision**
  - AEMO contends that while metering and NMI standing data from the secondary settlement point will likely be of interest to parties wishing to offer competitive retail offers for bespoke services at secondary settlement points, this data will be accessible to those parties without reference to the MSS. NER clause 7.15.5 provides current and prospective market participants with access rights to metering and standing data and AEMO expects the Consumer Data Right legislation to make this data more accessible to customers and their agents in due course.[185]
  - AEMO considers that power quality data required under the metering installation inquiry service is unnecessary for metering installations at secondary settlement points as the LNSP will not have a direct connection to the secondary settlement point.[186]
- **Connection services**
  - AEMO proposes that to the extent that a secondary settlement point needs to be de-activated, this could be achieved without needing remote de-energisation as this could be achieved via the de-activation of the NMI data streams in MSATS. The consumer's resource would default to a connection via their primary connection point.
  - Remote disconnection functionality creates the need for a physically larger meter, which could restrict the types of devices that could be developed to provide metering at secondary settlement points.
- **Reconfiguration services**
  - AEMO suggested that LNSPs are unlikely to use reconfiguration services for minor energy flow metering. Display reconfiguration requirements would be unnecessary as meters would not need displays, and time varying tariffs can be applied in metering data management systems if needed without requiring reconfiguration.[187]

7.2.3 Are remote communications necessary for secondary settlement point meters?

Current arrangements

Small customer meters typically require remote communications. However, exemptions are allowed in the NER for installations where there is no telecommunications network or a small customer has refused installation of a remotely accessible meter.[188]

185 AEMO, *Rule change request,* Appendix B, p. 39.
186 AEMO, *Rule change request,* Appendix B, p. 40.
187 AEMO, *Rule change request,* Appendix B, p. 40.
188 NER clause 7.8.4 enables exemptions to the requirements for small customer metering installations, including the application of the minimum services specification, and provides the ability for the MC to install a type 4A metering installation in these circumstances.

AEMO proposes that remote communications are necessary for secondary settlement point meters

The rule change request suggests metering installations at secondary settlement points will require remote communications to allow for the types of settlement intended. AEMO specifically proposes that they should have the same connection requirements as a traditional type 4 metering installation, and that the concessions provided in clause 7.8.4 should not be extended to minor energy flow metering installations.[189]

Subtractive settlement would also require the metering installations at the primary settlement point and secondary settlement points to have the same metering data granularity - e.g. produce 5-minute metering data.

7.2.4 What should accuracy and data requirements be for secondary settlement point meters?

AEMO notes that accuracy requirements for type 4 metering installations (defined in NER clause S7.4.3) apply to all metering installations with a volume per connection point of less than 750 MWh per year. It suggests that data requirements on MDPs should remain unaltered and be consistent with the recent global settlement and five-minute settlement rule changes.[190]

7.2.5 Should there be changes to metering roles and responsibilities for secondary settlement points?

Currently, metering providers and MDPs are required to be accredited by and registered by AEMO for the type of work they are qualified to provide, which, as relevant to this proposal, is divided by types of metering installations.[191] This allows metering providers and MDPs to only need to register - and reflect the capability requirements - for the types of metering installations they choose to work with.[192] AEMO is required to establish a qualification process for metering providers and MDPs that enables registration in accordance with NER Schedules 7.2 and 7.3.

AEMO considers that the metering coordinator role as currently defined is suitable for undertaking its existing responsibilities in the context of secondary settlement points. However, the role requirements for metering providers and MDPs would need adjustment because metering installations at the secondary settlement point are not directly connected to the network (but are instead established within a consumer's premises behind the primary connection and settlement point).

According to AEMO, this would give rise to a new set of considerations not currently contemplated in the existing NER metering framework for metering installations, including:

- Housing, location and accessibility
- Configuration and wiring design

189 AEMO, *Rule change request*, Appendix B, p. 41.

190 AEMO, *Rule change request,* Appendix B, p. 37.

191 NER Schedule 7.2.1(a) and 7.3.1(a).

192 For example, a metering provider may only be accredited to perform work on metering installation types 5 and 6 (manually read metering installations for small customer connections), only types 1, 2 and 3 (e.g. if capable of working on transmission-connected metering installations), or a broad range of metering installation types according to its demonstrated capabilities and competency. AEMO, *Rule change request,* Appendix B, p. 21.

- Application of sealing
- Accurate linking of NMIs for primary and secondary settlement points to ensure accuracy in settlement.[193]

AEMO's proposal

AEMO proposes the creation of accreditation and registration requirements for metering providers and MDPs to demonstrate capability and competency specific to secondary settlement point metering installations (regardless of whether they are using a standard meter or minor energy flow meter, discussed below). AEMO proposes that a new metering provider category (e.g. Category 4P) is created in NER Schedule 7.2. According to AEMO this will provide the framework for AEMO to develop bespoke requirements in supporting procedures for metering providers to demonstrate the capabilities relevant for secondary settlement point metering installations.

AEMO further suggests that analogous requirements should also be established for MDPs seeking to operate in the context of secondary settlement points. AEMO explains that:[194]

> In addition to ensuring accurate linking of primary and secondary NMIs to ensure accuracy in the calculation of energy settlement, an applicant MDP would need to demonstrate that they can identify energy flows within a PMA [at the secondary settlement point] at times when supply to the connection point is down.

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?

193 AEMO, *Rule change request,* Appendix B, p. 21.
194 AEMO, *Rule change request,* Appendix B, p. 21.

7.3 Should minor energy flow metering installations be introduced for use at secondary settlement points?

Introducing minor energy flow metering installations

AEMO has put forward a specific approach to enable market settlement for secondary settlement points based on the current metering requirements framework. It has suggested changes that enable a new category of metering installation, referred to in the rule change request as a 'minor energy flow meter.'

AEMO proposes that most requirements that apply to type 4 metering installations under the current framework should also apply to minor energy flow meters, with some amendments as discussed in the sections above.[195]

AEMO notes establishing requirements for minor energy flow metering would not oblige parties to undertake activities or adopt new roles, responsibilities or obligations (apart from AEMO updating its procedures). Rather, it would enable parties to determine whether to utilise the new framework. For example, the device manufacturers and metering service providers could choose to provide the relevant services, while FRMPs and consumers can consider the potential benefits of using minor energy flow installations.[196]

Flow-on changes to roles and responsibilities

AEMO's proposal also suggests changes to roles and responsibilities of the parties involved in metering to enable arrangements more suitable for minor energy flow metering installations (regardless of whether they are used at a secondary settlement point or elsewhere). It suggests amendments to the rules relating to:

- accreditation and registration of metering providers and MDPs
- inspection and testing requirements.

7.3.1 Accreditation and registration of metering providers and MDPs for minor energy flow metering installations

AEMO states that new responsibilities will be required for minor energy flow metering installations

AEMO considers that metering providers and MDPs will need to take on different or additional functions to those specified in the existing qualification framework for minor energy flow metering installations, including the following:

- demonstrate the processes for the commissioning of a metering installation using an equivalent display
- demonstrate the accurate set up of remote display capability

195 AEMO, *Rule change request,* Appendix B, p. 36.
196 AEMO, *Rule change request,* p. 41.

- potentially develop maintenance access, testing and inspection methods specific to the location and kind of minor energy flow metering installation to which they are appointed.[197]

AEMO proposes introducing new categories of metering providers and MDPs

To resolve this, AEMO proposes the creation of an additional category of metering provider accreditation (e.g. Category 4T) in NER schedule 7.2 to ensure metering providers have the capability and competency specific to the installation and maintenance of minor energy flow metering installations.[198]

AEMO also suggests an equivalent category of MDP accreditation be established under NER schedule 7.3 to accommodate variances in the provision of MDP services.

According to AEMO, adding new categories would ensure that only those metering providers and MDPs who choose to engage in the provision of minor energy flow energy metering services would be required to adapt their systems and processes.[199]

7.3.2 Inspection and testing regime

Inspection and testing regime for minor energy flow metering installations

AEMO's rule change request notes the importance of the meter installation inspection and testing regime in providing assurance to market participants of the reliability of metering data used for billing and market settlement. According to AEMO, it is important that the NER set the baseline expectation for what must be achieved by metering coordinators regarding the inspection and testing of metering installations, while providing a framework that allows for innovation.[200]

The Commission will consider the proposed general changes to the overall inspection and testing regime in the metering review

AEMO proposed changes to the inspection and testing requirements in NER schedule 7.6 to provide further clarity regarding the ability of metering coordinators to propose bespoke arrangements for the testing and inspection of meeting devices, technologies and systems (among other administrative changes). The proposed clarifying changes would be applicable to all types of metering installations, not just minor energy flow meters.[201]

The Commission is considering changes to the inspection and testing regime as part of its *Review of the regulatory framework for metering services*. AEMO previously submitted the amendments to the inspection and testing regime proposed in Appendix C of this rule change request to the Commission for consideration in its metering review. Other stakeholders have also provided feedback on the inspection and testing regime. The Commission will continue to consult on the inspection and testing regime more broadly through the metering review,

197 AEMO, *Rule change request,* Appendix B, p. 37.

198 Schedule 7.2 could also provide further specification - e.g. a new clause S7.2.5A could be added to specify requirements for the provisions of an alternative meter display. AEMO, *Rule change request,* pp. 11 and 20.

199 AEMO, *Rule change request,* Appendix A, p. 2.

200 AEMO, *Rule change request,* Appendix B, p. 41.

201 AEMO has set these changes out in Appendix C of the *Rule change proposal.*

and does not ask for stakeholder comments on the changes proposed in Appendix C of the request as part of submissions to this consultation paper.

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?

7.4 Should minor energy flow meters be able to be used for street furniture?

In the rule change proposal, AEMO recommends that minor energy flow meters developed for use at secondary settlement points should also be allowed to be used for other connection arrangements that are currently unmetered. These include:[202]

- street lighting, traffic lighting, advertising lighting and bus shelter lighting
- publicly provided park hotplates/barbecues
- telecommunications equipment kiosks
- in the future, potentially electric vehicle charging points
- legacy connections for some end users within embedded networks.

The Commission's powers to address issues with embedded networks are limited, and jurisdictional regulators are currently considering broader issues with embedded networks. For these reasons, we will focus our consideration on the resources in the first 4 dot points, which AEMO broadly refers to as 'street furniture.'

7.4.1 Current arrangements

There are currently standalone unmetered loads connected to the NEM, which fall into two main categories:

- Non-contestable unmetered loads (referred to as NCONUML in energy settlement processes)

202 AEMO, *Rule change request*, Appendix B, pp. 11-12, 15.

- These are currently settled in the market using algorithms agreed between the customer, the LNSP and the former local retailer.
- Examples include public BBQs, cable TV hubs, NBN cabinets, bus shelters and CCTV cameras.

- Unmetered contestable loads (type 7 in energy settlement processes)
  - Type 7 loads are currently billed on a 'deemed basis' in that they are calculated based on the assumption of a constant load - for example, that street lights will be operating between sunset and sunrise. As of 2018, this included street lights across all NEM jurisdictions and traffic lights in New South Wales and South Australia.[203]
  - This means they must remain predictable to be contestable, and therefore can't access energy efficiency products and services, such as smart streetlighting dimming.[204]

For further information on these types of loads, see Chapter 4 of the AEMC's Global Settlement and Market Reconciliation Final Determination.[205]

7.4.2 Benefits of allowing minor energy flow meters for street furniture

AEMO sets out that allowing street furniture to use minor energy flow meters would have the following benefits:[206]

- **Introduce access to competition:** AEMO proposes that many non-contestable unmetered loads are only in this category "due to the inability to physically fit a NEM compliant metering installation at their connection to the network."
- **Reduce barriers to entry to new technology:** Allowing more flexibility in the type of meter required would allow the introduction of "metering technology being developed for smart streetlighting, within the control unit of each light or combination of lights."
- **Provide incentives for energy efficiency:** Metering currently unmetered connections would:
  - "provid[e] an incentive for the end user to optimise energy use, as for the first time it will directly influence the size of their electricity bill."
  - allow "unmetered connections that are required to be predictable in order that they may be contestable, such as type 7 metering installations, to become unpredictable whilst retaining contestable status and access energy savings as a result (e.g. streetlighting dimming technology at times of no footfall or traffic flow)."
- **Improve accuracy of energy settlement:** Metering these flows would reduce the volume of calculated energy flows, improving the accuracy of settlement in the NEM overall.

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203 AEMC, *Global settlement and market reconciliation, Final Determination Global Settlements*, p. 48. Available at: https://www.aemc.gov.au/sites/default/files/2018-12/Global%20Settlement%20and%20Market%20Reconciliation%20-%20For%20publication.pdf

204 AEMO, *Rule Change Request,* Appendix A, p. 15 and https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/market-operations/retail-and-metering/metrology-procedures-and-unmetered-loads

205 AEMC, *Global settlement and market reconciliation final determination,* 6 December 2018, pp. 48-56.

206 AEMO, *Rule change request,* p. 15.

7.4.3 Potential changes required if enabled

In the rule change request, AEMO states that the changes proposed to enable minor energy flow meters at secondary connections would largely fulfil all considerations for using these new meters for street furniture.

AEMO set out one exception, that DNSPs should be able to act in the roles of metering coordinator, metering provider and MDP for street furniture if minor energy flow metering is permitted for these installations. This is "due to the location, authorisation and safety requirements that might apply, as it will be common for these connections to be located within DNSP's infrastructure."[207] AEMO raised the following specific concerns:[208]

- **Safety:** "These items of street furniture are often maintained by DNSPs, with various connection assets being fixed to, or housed within, DNSP infrastructure and access to the DNSP's infrastructure by parties other than DNSP personnel may introduce a safety risk."
- **Efficiency:** "These connections are either currently managed by DNSPs...or are non-contestable unmetered...with energy volumes calculated by DNSPs. It might also be most efficient for DNSPs to control the movement of currently unmetered type 7 loads from their inventory tables to being metered via a minor energy flow metering installation."

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?

207 AEMO, *Rule change request*, Appendix A, table 1.4.
208 AEMO, *Rule change request*, Appendix B, p. 37.

ABBREVIATIONS

ACL	Australian Consumer Law
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
CER	Consumer energy resource(s) - see Appendix B
Commission	See AEMC
DMO	Default market offer
ESB	Energy Security Board
FRMP	Financially responsible market participant - see Appendix B
MSATS	AEMO's Market Settlements and Transfer Solutions
NECF	National Energy Customer Framework
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National Electricity Objective
NER	National Electricity Rules
NERL	National Energy Retail Law
NERO	National Energy Retail Objective
NERR	National Energy Retail Rules
NMI	National metering identifier - see Appendix B
Proponent	The proponent of the rule change request, AEMO
ROLR	Retailer of Last Resort

FULL LIST OF CONSULTATION QUESTIONS

QUESTION 1: OPTIMISING AND OBTAINING VALUE FROM CER FOR CONSUMERS

- What are stakeholders' views on the value that consumers could obtain from their CER, and what incentives may be needed for consumers to take up opportunities that are or may become available?
- Would flexible trading enable consumers to optimise their CER in ways that align with their motivations and preferences?
- Is there additional value for residential, small businesses, and C&I consumers that could be optimised by the introduction of some form of flexible trading, including the model proposed by AEMO?

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?

QUESTION 3: BARRIERS TO ACCESSING CER VALUE

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

QUESTION 4: OPPORTUNITIES FOR MULTIPLE SETTLEMENT POINTS WITH ONE FRMP

- Could retailers could provide greater value to consumers by adding extra settlement points at premises?
- Are there other regulatory barriers preventing these offers?

QUESTION 5: ENGAGING MULTIPLE FRMPS AT PREMISES

- Should the rules be changed to make it easier for consumers to engage with multiple FRMPs at premises?
- Are there additional benefits or ways in which consumers could receive value through contracting with multiple FRMPs?
- Of the challenges identified, would any benefit from a regulatory solution? If so, what are the potential options?
- Are there any additional challenges presented by having multiple FRMPs at one site?

QUESTION 6: MODELS FOR FLEXIBLE TRADING

- How significant are the challenges to establishing an additional connection point, and are there regulatory changes that could be made to overcome them?
- Would parallel settlement points behind a single connection point be an efficient option? If so, what factors have changed since the Commission's decision on this in 2016?
- What changes would be required to allow multi-element metering for multiple FRMPs, and what would be the benefits?
- How does AEMO's secondary settlement point proposal compare to the other potential options?
- Are there any other models for the Commission to consider?
- What implementation costs need to be considered when examining these models?

QUESTION 7: ASSESSMENT CRITERIA

- Do you agree with the proposed assessment framework?
- Are there additional principles that the Commission should consider as we make our decision, or principles included here that are less relevant?

QUESTION 8: COMPETITION ISSUES WITH SECONDARY SETTLEMENT POINTS

- What are stakeholders' views on whether the proposal would positively or negatively affect competition between FRMPs in this model (for example through a difference in regulatory costs), and could it cause anti-competitive behaviour?
- Are there regulatory solutions that we should consider to minimise those risks?

QUESTION 9: ALLOCATING NETWORK COSTS

- How should network costs be allocated for premises with secondary settlement points?

QUESTION 10: INFORMATION AND COMMUNICATION REQUIREMENTS FOR SECONDARY SETTLEMENT POINTS

- What are stakeholders' views on the need to include provisions in the rules regarding explicit information or communication requirements for secondary settlement points? For example requirements for communication and information between the:
  - DNSP and the FRMP for the secondary settlement points (e.g about network support or safety requirements, including those related to jurisdictional network safety), and/or
  - 'primary' and 'secondary' FRMPs?

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?

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?

QUESTION 13: CONSUMER PROTECTIONS

- What are the potential consumer risks and protections required under AEMO's proposal for secondary settlement points, and should they be handled as proposed by AEMO?
- Are there any other issues the Commission should consider in relation to protections under flexible trading?

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?
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- Would any other changes to the rules be required in relation to metering for street furniture?

A CURRENT AND EMERGING CER PRODUCTS AND SERVICES

There is a range of CER products and services that are available in the market and being offered to consumers for both households and businesses to access value from their CER. These include home energy management systems, VPPs and innovative trials to explore new value streams.

As discussed in Chapter Two, in order to understand the breadth of innovative offers available today and how much of a potential barrier the single connection point model presents, the Commission has reviewed some of the offers available or being trialled. We outline some of these energy products and service offerings in the below table, for information.

Table A.1: **Flexible offers and trials available to consumers in the NEM**

PRODUCT	OVERVIEW	CONSUMER PROPOSITION/VALUE
AGL Smart Charging (trial)	AGL smart charging allows AGL to manage the charging times of the car to avoid adding to peak demand and/or to stabilise the grid.	Consumers are rewarded with bonus credits that can be used on their electricity bill.
Ausgrid Battery VPP (trial)	Test the ability of VPPs to provide network support including short-term demand reduction, and voltage support and better understand the typical battery charge and discharge profile.	Participants get paid for energy they supply, i.e. a bill reduction in addition to their normal use of the battery.
Ausgrid - Project Edith (trial)	Project Edith aims to test how tools such as DOEs and dynamic network prices can work together to manage the network and allow consumers to get more value out of their CER. (through pricing differences or having a higher export limit than they would be allowed statically).	Some consumers are able to use more energy or export larger amounts of solar than they would be able to under traditional arrangements, and consumers may be able to access cheaper energy prices at different times. The project is partnered with Reposit, so many customers will also be benefiting from any Reposit-based offers.
Discover Energy VPP	Through cloud-based software, Discover Energy creates opportunities for consumers to become part of a VPP that sells back to the grid and can be monitored through a mobile app.	Feed-in-tariff of up to 30c/kWh and profit sharing from energy trading.

PRODUCT	OVERVIEW	CONSUMER PROPOSITION/VALUE
Endeavour Energy in partnership with Intellihub - Off-Peak Plus	Off-Peak Plus dynamically controls hot water systems, allowing them to be switched on during the day when surplus power is being generated from household solar systems.	Consumers pay less for their hot water to be charged and have a smart meter installed at their premises.
Energex - PeakSmart	PeakSmart is a demand response program where Energex can alter the operation of a participating consumer's air conditioner during a peak demand event.	A financial reward of up to $400 is offered.
Evoenergy - Project Converge (trial)	This project will orchestrate CER through 'Shaped Operating Envelopes' which will allow for DNSPs to improve network congestion management, minimise network expenditure and improve CER market bidding into energy and ancillary service markets.	In the first phase of the project, Evoenergy will be working with project partners and existing battery aggregators in the ACT, and there will be a $200 incentive for participants.
NSW Peak Demand Reduction (PDRS)	The PDRS aims to reduce energy usage across NSW during hours of peak demand, by 10% by 2030, through a certificate scheme.	PDRS offers financial rewards to households and businesses for installing energy-efficient appliances and smarter equipment that reduce energy consumption when demand on the grid is high.
Origin Loop VPP	Customers are offered a 5-year battery and energy supply contract, and install an approved battery system.	Customers can get discounts on the upfront cost of select battery models or a sign-up bonus and credits on their electricity bill when their battery is used.
Project EDGE (trial)	Project EDGE seeks to test a proof-of-concept CER marketplace, including to: • demonstrate data Exchange between participants • demonstrate wholesale integration of CER – progressively sophisticated participation of CER in the NEM wholesale dispatch process while operating within distribution limits • demonstrate the delivery of local network services	Aggregators in trial will provide payments to consumers based on how their DER is used in the marketplace.

PRODUCT	OVERVIEW	CONSUMER PROPOSITION/VALUE
	• understand customer value proposition that market aggregators can offer between participants.	
Reposit No bill	Reposit Power installs rooftop PV, a battery and a smart control system installed with a 5-year contract, which participates in a VPP.	The customer will receive no electricity bill over the 5-year period, within certain usage parameters.
Rheem - Active Hot Water Control (trial)	The Rheem Active Hot Water Control project aims to introduce new and flexible options for grid management by testing ways to manage when hot water heaters. Participation was limited to 2,400 residential hot water systems (with or without solar PV) within South Australia.	Rheem is trialing different consumer rewards as part of this trial, in addition to the general benefits that come from home management systems such as reduced bills.
Simply Energy VPP	A VPP offer for customers with, or who will install, a solar system and Tesla Powerwall.	Customers receive a sign-up and monthly credits off their bill.
SonnenFlat VPP	Sonnen batteries participate in a VPP.	Customers pay a lower flat fee for energy use.
Tesla Energy Plan	Customers are offered a 12-month contract, installation of a Tesla Powerwall, and a PV system less than 15 kW. The Powerwall then participates in a VPP, providing demand response and frequency support.	New and existing Tesla Powerwall owners receive an initial payment on joining and ongoing 'grid support credits' when their battery is used.

Source: Rheem Active Hot Water Control, 2022, https://arena.gov.au/projects/rheem-active-hot-water-control/; Rexergy, 2022, https://rexergy.com.au/; AGL Smart Charging, 2022, https://www.agl.com.au/residential/energy/electric-vehicles/smart-charging-trial; Energex - PeakSmart, 2022, https://www.energex.com.au/home/control-your-energy/cashback-rewards-program/air-conditioning-rewards; Intellihub, 2022,https://www.intellihub.com.au/wp-content/uploads/2021/07/Fact-Sheet-Endeavour-Energy-Off-Peak-Plus.pdf; AEMO, NEM Virtual Power Plant Demonstrations Knowledge Sharing Report #4, pp. 5-10; Ausgrid, 2021, https://www.ausgrid.com.au/Industry/Demand-Management/Power2U-Progam/Battery-VPP-Trial; AEMO, 2022,https://aemo.com.au/en/initiatives/major-programs/nem-distributed-energy-resources-der-program/der-demonstrations/project-edge; Discover Energy, 2022, https://www.discoverenergy.com.au/blogs/de_en/439; Sonnen, 2022, https://sonnen.com.au/sonnenflat/; Origin, 2022, https://www.originenergy.com.au/solar/panels-batteries/virtual-power-plant/;Reposit Power, 2022, https://www.repositpower.com/; Tesla Energy, 2022, https://save.energylocals.com.au/TeslaEnergyPlan-TOU/ Sonnen offers additional VPP products to those listed above.

A.1 Emerging energy services

There are additional types of energy services or trading models that might emerge in the coming years, in which flexible trading could support consumer participation. These include the following.

Peer-to-peer trading contributing to community sharing

Peer-to-peer (P2P) energy trading is emerging globally as an innovative business model that empowers consumers to actively participate in virtually selling and purchasing local renewable electricity. There are an increasing number of service providers testing or providing P2P services. P2P energy trading is a platform-based business model which developed out of the growing uptake of CER. It is a virtual market that enables excess energy from one consumer to be sold through an online platform to other users connected to the electricity grid.[209] P2P energy trading is another development in the new sharing economy, and has been likened to AirBnB, Uber or CarNextDoor.[210]

Unlike a VPP program, where prices are set centrally, P2P trading prices are set by consumers in a decentralised model. Consumers are able to participate in P2P trading regardless of CER ownership, as it can allow consumers without CER to virtually buy energy from another consumer with CER at a settlement price determined by the P2P facilitator or based on personalised offers and bids.

Community-owned batteries

Community batteries are being introduced across the NEM. Most community batteries in Australia are owned and operated by network operators to stabilise supply in areas where there is congestion or frequent disruption to services.

The ECA study on the community battery trial in Mallacoota in Victoria showed that consumers were often receptive to the idea of a community battery but do not necessarily understand the capacity of current batteries.[211] There is evidence that consumers have an appetite for batteries that can serve the community in more targeted ways such as by being directed to power specific buildings or businesses.[212]

Mobile billing for EVs

Mobile billing for EVs is intended to be a more flexible end-to-end billing arrangement for EV owners.[213] Mobile billing generally allows EV owners to charge their cars at any charging station for a fee. This is often serviced through an app.

Smart charging providers, such as Tridens technology, are entering the market to offer packages for mobile billing that can include monthly fees, loyalty rewards, and family or business plans.[214] These services offer more flexible access to energy outside of an individual's household or business premise.

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209 The trade is of a financial nature as opposed to a physical trade because physical electrons do not flow directly from the specific generator to the specific consumer involved in a peer-to-peer relationship.

210 Energy Matters, Peer-to-peer solar energy trading: A guide.

211 ECA *Connections that matter*, August 2021, p. 9, available at: https://energyconsumersaustralia.com.au/publications/resilient-system-resilient-communities-the-connections-that-matter

212 Community Microgrids and Sustainable Energy Program, *Community Engagement Outcomes - Mallacoota*, August 2022 update, available at: https://engage.vic.gov.au/project/community-microgrids/page/community-microgrids-mallacoota

213 driivz, *What is EV Billing*, 14 August 2022, available at: https://driivz.com/glossary/ev-billing/

214 Tridens technology, *EV billing - it's not that simple!,* 6 April 2022, available at: https://tridenstechnology.com/ev-billing/#h-what-is-ev-billing

B TERMINOLOGY AND LANGUAGE USED IN THE PAPER

B.1 Consumer Energy Resources (CER)

Behind-the-meter energy resources owned or leased by consumers, who may be households or businesses. This includes devices that can generate or store electricity such as solar PV, home batteries, and electric vehicles; energy-consuming devices that could be used at different times or in different ways such as air conditioning, water heating, or pool pumps; and, depending on the context, can also include any consumer-owned electrical device.

B.2 Connection point

A term used throughout the rules (and in the electricity sector) to refer to a point of physical connection and where energy is measured for settlement.

1 Chapter 10: Glossary - Connection Point

In relation to a declared shared network and a distribution network (other than an embedded network), the agreed point of supply established between Network Service Provider(s) and another Registered Participant, Non-Registered Customer or franchise customer and includes a parent connection point.

In relation to other transmission networks, the point at which power flows to or from a person connected to the transmission network can be isolated from the transmission network. If there is more than one such point, the Network Service Provider and that person will agree which point is the connection point in their connection agreement.

In relation to an embedded network, the child connection point, unless otherwise specified.

However, for the purposes of this paper, we will only be referring to the physical connection of premises to the network when discussing a connection point, capturing any requirements **not** related to market settlement.

B.3 Settlement point

Currently, the settlement functions (with a consumer and with the wholesale market) are part of the overall function of a connection point. However, for this paper, a 'settlement point' will be any point of interaction with the wholesale market. In other words, we will use the new term 'settlement point' to indicate the point at which energy is measured for market settlement. A settlement point may coincide with a connection point, or be behind a connection point, and for the purposes of this paper, there may be one or multiple settlement points at a consumer's premises.

All obligations relating to settlement apply at the settlement point. Examples of settlement-related obligations include metering requirements[215], wholesale payment requirements [216] , and customer billing requirements.[217]

B.4 Secondary settlement point

AEMO has proposed additional settlement points at a consumer's premises that would be *behind* the existing connection and settlement point (referred to as the primary settlement point). In AEMO's proposal, these additional settlement points are secondary settlement points, as they would be traded entirely independently in the market, but they would be subordinate to the primary settlement point in terms of energy flows at the premises. In other words, electricity from the grid would flow through the primary settlement point to the secondary settlement point.

When settled in the AEMO's MSATS portal, secondary settlement points would be settled through a subtractive process with the associated primary settlement point.

B.5 Financially responsible market participant (FRMP)

In this paper, we use the term Financially Responsible Market Participant (FRMP) to refer to the entities that a consumer would contract with for services provided at various settlement points, where those services are traded in the wholesale markets.

A FRMP does not have to be an authorised energy retailer, but must be registered by AEMO as a business able to participate in the wholesale market. Specifically, a FRMP is financially responsible in the wholesale market for a specific connection point(s), or, for the purposes of this paper, for a specific settlement point. There are a number of regulatory obligations on a FRMP, spanning both responsibilities at connection point(s) and its participation in the market.

Consumers typically buy electricity from FRMPs who are authorised retailers (or exempt sellers, in some cases). However, the term 'retailer' specifically refers to a person or company authorised by the AER for the sale of energy under the NERL. For clarity - all retailers are FRMPs, but not all FRMPs are retailers.

It is possible that some companies a consumer could contract with for services at a settlement or secondary settlement point- would not be a 'retailer' of electricity to the customer. For example, a company that was only selling the energy produced by solar panels to the wholesale market would not necessarily be a retailer, as it is not selling energy to the customer. Therefore, it would not be accurate to use the term 'retailer' to discuss all the companies consumers could contract with at settlement points.

On the other hand, there are companies consumers can contract with today to manage their home energy usage, for example by optimising the time of use of various flexible devices to

215 National Electricity Rules, Chapter Seven
216 National Electricity Rules, Chapter Three
217 National Energy Retail Rules

save the customer money. However, under the current rules, these service providers and the energy services they provide have no connection to the wholesale market, and therefore they are not FRMPs. It is important to clarify that, under the proposed rule, the providers at secondary settlement points would need to be FRMPs. If we make the proposed rule, existing service providers that are not FRMPs could continue to operate as they currently do, or choose to establish secondary settlement points and become FRMPs, with their customer's consent.

While we understand FRMP is not a self-explanatory or easily accessible term, due to the factors laid out above, it is the most accurate term for these discussions.

B.6 National Metering Identifier (NMI)

Each metering installation associated with a connection point (or in the case of this paper, settlement point) is identified in MSATS with a unique NMI. If AEMO's proposed rule is introduced, a metering installation for a secondary settlement point would be identified in MSATS with its own NMI that would be linked in MSATS to the NMI of the metering installation for the premises' primary settlement point, to allow for subtractive settlement.