

Unlocking CER benefits through flexible trading.

Collecting the dividend of underutilised rooftop solar, and the use of flexible loads.

Chris Lehmann 10th February 2023

Introduction

Master Electricians Australia (MEA) is the trade association representing electrical contractors recognised by industry, government and the community as the electrical industry's leading business partner, knowledge source and advocate. Our website is www.masterelectricians.com.au

MEA understands the reasons behind the change in terminology from *Distributed* Energy Resources to *Consumer* Energy Resources, to emphasise the reality of the assets to be utilised and controlled being under the control and ownership of consumers. However, the resilience that the *distributed* aspect brings to the network when discussing diverse energy resources being spread across the network, making responses to fluctuations in load more organic and greatly reducing the possibility of “single points of failure”.

MEA have long been advocates of unlocking the value of CER for both residential and business consumers, through incentives to actively reduce power usage and shift patterns of consumption.

MEA support constructive and transparent rule changes in the Australian energy market that provide choice to consumers and fuel the innovation of new services that unlock the unrealised value of the Australian community's investment in rooftop solar PV.

MEA believe that whilst examples of CER energy trading from other jurisdictions may prove useful as a reference, introduction of the proposed rule changes to allow for secondary settlements points, new FRMP's, and minor energy flow metering, will mean that hitherto unrealised products and services will appear rapidly to take advantage of the flexibility that these rule changes will bring. Especially in the area of trading platforms, driven by the use of block chain technology and rapid data transfer, and with the inspected increase in Electric Vehicle (EV) sales and t bi-directional charging.



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?*

Allowing for flexibility in treating consumption and generation separately could unlock value in currently installed assets (solar PV, batteries, flexible loads, EV's, etc) that are currently effectively "stranded" and the prices paid for their use are dictated by the retailers behind a single settlement point. Using peer-to-peer trading platforms to aggregate and control these assets, the stranded and disconnected nature of their capacity could be overcome and put to more efficient use.

Incentives from government to offset the cost of installing home batteries to create a critical mass in the market and drive down prices, in a similar way that was achieved with solar PV may be necessary.

- *Would flexible trading enable consumers to optimise their CER in ways that align with their motivations and preferences?*

Yes. Flexible trading could be the equivalent of Uber for motor vehicles, and Air BnB for real estate, in terms of unlocking the underutilised productivity of privately owned assets.

- *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?*

Giving control over CER assets and especially the ability for domestic and C&I customers to enter into trading arrangements that could "shift" load, using power (soaking) when it is cheapest for flexible loads (hot water, ovens, EV charging, etc) and delivering power back (sourcing) from storage sources (batteries, bi-directional EV's) when energy prices are higher, would give households and businesses the ability to pro-actively reduce their overall power costs.

C&I consumers that operate during the day, and residential consumers that use little power during daylight hours and have invested in storage, could also gain a secondary income stream from trading excess stored energy during the evening peak.

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?*

There are current market participants¹ that are preparing for this and case studies² have been done that have trialled innovative products using CER and peer-to-peer trading platforms that have been promising. Admittedly, some of the current models being trialled are using carbon credits as the trading

¹ <https://www.powerledger.io/>

² <https://www.powerledger.io/media/a-win-win-local-energy-market-for-participants-retailers-and-the-network-operator-a-peer-to-peer-trading-driven-case-study>

commodity, but the models being used would seem to be readily transferable to trading spot prices of power for both usage and generation.

It is MEA's view, that the introduction of these proposed rule changes have the ability to produce innovative products that are currently not on the market or are currently adopted for another purpose.

QUESTION 3: BARRIERS TO ACCESSING CER VALUE

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

MEA believe that one connection point is not a barrier to CER innovation, however the restriction on one settlement point definitively is. The ability to treat flexible loads, generation, and storage assets as a separate settlement point is crucial to the unlocking of CER value already in place in the community.

In fact, CER assets like EVs and home batteries could be all three (flexible load, generation, and storage) in a single day, requiring different pricing to incentivise the most efficient use of the asset. This could be difficult to achieve with one settlement point, and only one FRMP, without acting in a way that is against their own financial interest.

QUESTION 4: OPPORTUNITIES FOR MULTIPLE SETTLEMENT POINTS WITH ONE FRMP

- *Could retailers provide greater value to consumers by adding extra settlement points at premises?*

As it currently stands there is little incentive for the legacy FRMP/retailers to offer innovative products and services that involve the use of secondary settlement points. If these rules are introduced and there is a real possibility for competition for the use of secondary settlement points, existing legacy retailers would have the correct incentives to offer these services to their existing customers (possibly partnering with new FRMPs) or risk losing existing customers.

However based on past practices of FRMP we see that feed in tariffs and consumption prices when combined over a period of time closely reflect the reference price set by the AEMO. Whilst setting rules to encourage competition should have a direct relationship in the market for competition and result in a lowering of cost actual results may not reflect any net benefit to consumers but introduce further complexity in which AEMO will not be able to simply explain to consumers how to reduce costs.

- *Are there other regulatory barriers preventing these offers?*

The questions of metering standards for installation, monitoring, and accuracy for minor energy flow metering would need to be resolved. Also the question of an equitable split for the gathering of network charges between multiple providers, less one gain a price advantage over the other.

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?*

Yes.

- *Are there additional benefits or ways in which consumers could receive value through contracting with multiple FRMPs?*

Enhancing competition and consumer choice would be an obvious benefit. However, if a critical mass of consumers engaged in energy trading using multiple FRMPs to reduce the evening peak demand/price, and also make the most efficient use of current stocks of rooftop solar PV, flexible loads and battery storage, the resulting reduction in electricity price and network charges that would follow would reduce power prices overall for consumers who did not have access to CER assets (rental tenants, low income, etc).

- *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?*

Depending on the way minor energy flow meters are treated, having space to install subsequent meters could be a challenge. The ability to have minor energy flow meters as more compact and possibly embedded in assets (such as inverters, batteries, EV's) would alleviate this and allow for flexibility.

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?*

An additional connection point would incur extra physical installation costs, over and above those for extra/changed metering and possibly pose safety concerns for multiple supplies at a premises for positive electrical isolation, with the possibility also of cross-feeding of supplies.

- *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?*

Yes. Parallel settlement points would be more efficient, especially with the addition of the new "minor energy flow" meter classification. Since 2016 new technologies and financial products have emerged on the market that make the management of multiple settlement points for premises viable.

- *What changes would be required to allow multi-element metering for multiple FRMPs, and what would be the benefits?*

Currently retailers "own" the metering asset, making multiple elements in the same meter for different FRMPs difficult. Unless there was either an ability for a third party (metering aggregator/provider) to own the asset of the meter and make separate arrangements with FRMPs, or FRMPs to enter into collaborations, this would prove difficult operationally.

- *How does AEMO's secondary settlement point proposal compare to the other potential options?*

MEA support the proposal, where a secondary settlement point sits behind the primary/current metering point, that measures all current inflows/outflows.

- *Are there any other models for the Commission to consider?*

Parallel metering could be considered as an alternative, especially in C&I premises.

- *What implementation costs need to be considered when examining these models?*

Changes to metering infrastructure, and circuit protection.

QUESTION 7: ASSESSMENT CRITERIA

- *Do you agree with the proposed assessment framework?*

Yes.

- *Are there additional principles that the Commission should consider as we make our decision, or principles included here that are less relevant.*

With the acronym name change from DER to CER, replacing distributed with consumer in the wording, there is a danger that the emphasis on making the generation/storage assets of the grid more distributed/resilient has been lost when considering assessment criteria. MEA believe that resilience of the grid as a result of rule changes should be considered as an assessment criterion.

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?*

Regulatory costs should be split as equitably as possible between FRMPs, to ensure that one is not gaining a price advantage over the other. However, the focus of these rule changes should be on the savings to consumers, and the improvements in efficiency and resilience of the grid.

- *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?*

With regards to the splitting of network charges between the Primary FRMP and the Secondary FRMP, MEA support option 1 (status-quo where all network charges are billed to primary FRMP) as outlined in 5.3 of the consultation paper.

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?*

There should be transparency between primary and secondary settlement points on energy flows, to facilitate accurate calculations for subtractive metering from the secondary point. There should also be transparency with the DNSP to ensure that flexible loads, generation, and storage are being utilized in a way that enhances the stability of the Grid. A common communication protocol for this would be essential.

QUESTION 11: POTENTIAL FOR LIMITATIONS APPLIED AT SECONDARY SETTLEMENT POINTS

- *Is there a need for limitations at the secondary settlement point?*

MEA are in agreement with AEMOs limitation for secondary settlement points only being available for controllable loads, and specifying loads such as lighting, general power circuits, emergency and critical supplies, pumps, etc being unsuitable.

- *If so, how could these be applied? What are your views on doing so using requirements for the metering coordinator as proposed by AEMO?*

The metering installation rules for each jurisdiction will need to be updated to reflect these types of permissible loads on secondary settlement points.

QUESTION 12: IMPLEMENTATION ISSUES FOR SECONDARY SETTLEMENT POINTS

- *How should the NMI for a secondary settlement point be established?*

MEA do not agree with the AEMO proposal to create a separate class of provider (being a National Metering Identifier Service Provider) and believe that this would add in even more complexity and bureaucracy in the market. MEA believe that this function could be performed by existing metering providers.

Most solar PV/battery installations are currently grid connected only and are unable to island. For those systems that are installed to be able to provide islanded power in the event of a grid outage, the use of an isolation, changeover switch/contactors to operate when a premises is running on off grid supply would be necessary, ensuring this is done in a way that isolates the meter should be a simple solution.

- *Should the rules forbid the use of embedded networks to establish secondary settlement points within an end user's electrical installation?*

Embedded networks in strata living arrangements such as apartment complexes, town house developments, retirement villages should be able to utilize secondary settlement points, as these are a large and growing sector of consumers that would otherwise be excluded from the expanded use of CER facilitated by these rule changes.

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?*

MEA believe the proposed approach is adequate, utilising already existing regulation and practices.

Move-in and move-out, and how it applies to dealing with Secondary Settlement Points seems to provide the most potential problems if not handled well.

MEA believes that that as long as the Primary Settlement Point, that covers lights, power, and the necessities of habitation is ensured, then all "Child" Secondary Settlement Points and their associated NMIs can simply be deactivated when a tenancy changes hands. It would be incumbent on the consumer to make Secondary Settlement Point arrangements with an FRMP that are fit for their purposes.

- *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?*

Yes

- *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*

No

- *Minimum service specifications*

No

- *Remote communications*

Yes

- *Accuracy and data requirements*

Yes



- *Are there any other service or technical requirements that need to be specified for metering installations at secondary settlement points in the NER?*

MEA believe that the technical requirements proposed in consultation are adequate.

- *Should changes be made to the accreditation and registration of metering providers and metering data providers for secondary settlement points?*

MEA do not believe that there needs to be any more metering provider categories but do support the requirement for existing metering providers to train technicians to be competent to install minor energy flow meters if they are undertaking this work.

As there is a possibility that some of these minor energy flow meters may be embedded in CER assets (inverters, EV chargers, home battery controllers, EV's etc) being installed and commissioned by private businesses, then serious consideration should be given to empowering Electrical Contractors and their workers to be accredited under existing and expanded Authorised Service Provider (ASP) schemes

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?*

Yes

- *Are there other changes to requirements for type 4 metering installations that should also be considered for a minor energy flow metering installation?*

Yes, MEA believe that the trained workforce available across the country employed by private electrical contractors should be enabled under a national ASP scheme to install/commission type 4 meters more widely, especially those embedded in CER assets.

- *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?*

Yes

- *What would be an appropriate inspection and testing regime for minor energy flow metering installations?*

Training for accredited installers, certificates of installation, photographic evidence, and sampling inspection auditing should be undertaken, similar to current requirements.

QUESTION 16: MINOR ENERGY FLOW METERS FOR STREET FURNITURE

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

Yes. More accurate tracking, and the subsequent decisions that could be made of energy used on flexible “deemed” loads could result in more energy efficient products being used (such as street lighting), and therefore more efficient, and better management of the grid.

- *If so, should DNSPs be allowed to act as metering coordinator, metering provider, and metering data provider for street furniture under certain circumstances?*

Yes



Conclusion

Consumers gaining real choice over the use of their underutilised CER assets and given the right incentives and platforms to load shift the daytime oversupply to the evening peak could rapidly reduce the evening peak demand curve.

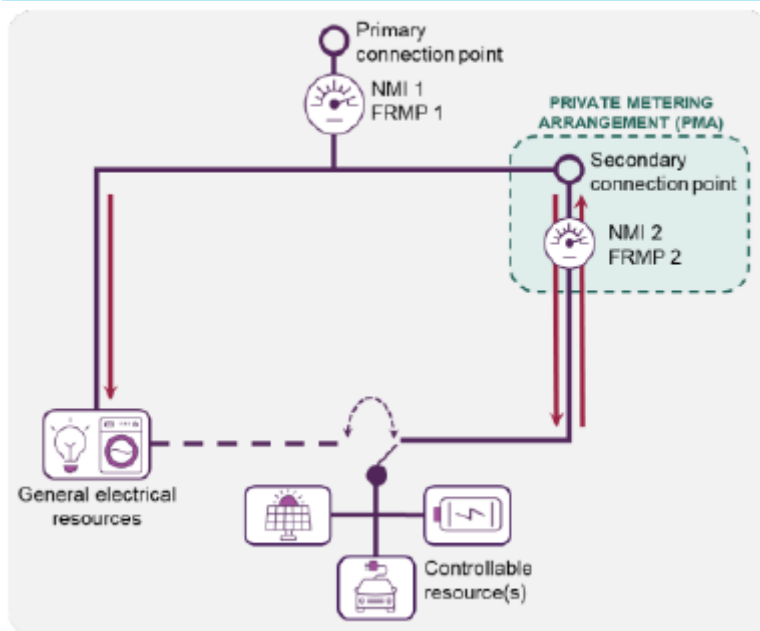
For most consumers, cost reflective time of use consumption tariffs (increasing the price of power in times of scarcity) do send price signals for more efficient use, but on their own provide little incentives to consumers for investment in technologies and equipment that helps the grid and meets public carbon reduction targets.

MEA support the thrust of this consultation, around allowing a model of Secondary Metering Points (or settlement points) in an installation, so that other Financially Responsible Market Participants (FRMP's) can offer services on individual devices or flexible loads, separate to the Primary Metering point (and its associated FRMP) which may measure the majority of the power used in a dwelling or business.

i.e. – Primary Settlement Point NMI1= General Light and Power, (billed by Origin/AGL/Alinta etc).

Secondary Settlement Point NMI2= Solar PV + Battery + EV charger, (billed by Tritium/Tesla/Enphase? Or other new FRMP's).

Figure 5.1: AEMO's Flexible Trader Model 2



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

MEA also support the proposed rule change for a new category of “minor energy flow” meter to be used as the Secondary Settlement Point, providing that the accuracy and reliability of this new category of meter is not less reliable than the current standards, and that consumer protections are in place to redress any errors that may occur.

Changing the current rules to allow for Secondary Settlement Points, and other FRMP's providing competition to the current legacy retailers, could provide the incentive for them to offer more innovative and responsive products. Ones that take into account the opportunities offered by current and emerging technologies, that will drive savings for consumers and efficiencies for the grid.

Currently, there is little incentive for both retailers and generators to sell less power, to make it cheaper for consumers, and give consumers more control over their generation and storage CER options (solar PV, home batteries, EVs), even though this is the stated public policy of both state and federal governments. There is an obvious incentive to sell more power and to charge more for it, that is directly at odds with public policy.

The "Dirty little secret" about the clean energy for rooftop PV, is that there is too much of it during the day and there is a tremendous waste of a publicly available resource. Even though the rooftop solar PV is overwhelmingly privately owned, the taxpayers in both state and federal jurisdictions have invested significant money in the form of rebates and subsidies to help build the critical mass of 3.2 million installations across the country, this resource subsidised by the taxpayer should be available to the grid to help solve the problems of demand that we are currently facing in the NEM.

At the very same time that we are spending many Billions of dollars on new publicly funded solar farms and battery farms, and the HV transmission lines to service them, we are legislating DNSP's in every jurisdiction to "constrain off" rooftop solar during the day. So rather than spending money on capturing the energy currently going to waste, generated from rooftop PV, closer to the source of where it both produced and used, we are investing precious taxpayer dollars on expensive transmission infrastructure being constructed. These rule changes would go a long way towards redressing this current waste of rooftop PV, and prepare the market for the most efficient power use for future home batteries and EV's.

As canvassed in our answer to Q14, MEA believe that a National Authorised Service Provider Scheme (ASP) should be introduced to enable suitably trained Electrical Contractors and their staff to install and swap both Primary meters and the proposed Secondary (minor energy flow) meters on behalf of the Retailers and FRMPs. This would increase the efficiency of the process, reduce site visits, and reduce costs and delays for consumers. Some jurisdictions (such as NSW) already have working ASP schemes, and expanding this to encompass a national footprint would aid in a faster rollout of smart metering and assist in the aims of Unlocking CER benefits.