

18 February 2020

Mr John Pierce
Chairman
Australian Energy Market Commission
Sydney South NSW 1235

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By online submission

Dear Mr Pierce

Submission to the AEMC's Draft Report on Updating the Regulatory Frameworks for Distributor Led Stand-Alone Power Systems (SAPS) (EMO0038)

AEMO welcomes the opportunity to contribute to the design of the new regulatory framework for stand-alone power systems (SAPS) provided by distributors in the National Electricity Market (NEM) as described in the AEMC's Draft Report. The introduction of this new national regulatory framework is an important addition to Australia's national energy laws and rules which would enable NEM distribution network service providers (DNSPs) to use SAPS where it would be economically efficient to do so.

AEMO supports the objectives and arrangements provided by the reform, which enable customers receiving SAPS to retain all of their current consumer protections, including access to retail competition and existing reliability standards, such that they would not be disadvantaged where a distributor determined that it would be more cost-effective to supply them on a stand-alone basis.

In conjunction with ongoing discussions with the AEMC about the design presented in the Draft Report, AEMO proposes a number of changes for the AEMC's consideration. AEMO considers that these changes will result in a clearer application of the proposed reforms within the rules framework, and will decrease implementation and operational complexity.

We welcome the opportunity to provide further input as the AEMC considers submissions to the Draft Report and progresses the final design and recommendations. Should you wish to discuss any of the matters raised in this submission, please contact Kevin Ly, Group Manager Regulation on kevin.ly@aemo.com.au.

Yours sincerely



Peter Geers
Chief Strategy and Markets Officer

ATTACHMENT 1:

UPDATING THE REGULATORY FRAMEWORKS FOR DISTRIBUTOR LED STAND-ALONE POWER SYSTEMS (EMO0038) – AEMO SUBMISSION

AEMO welcomes the opportunity to contribute to the design of the new regulatory framework for stand-alone power systems (SAPS) to be provided by distribution network service providers (DNSPs) in the National Electricity Market (NEM) as described in the AEMC's Draft Report.

AEMO supports the objectives and arrangements provided by the reform, which enable customers receiving SAPS to retain all of their current consumer protections, including access to retail competition and existing reliability standards, such that they would not be disadvantaged where a distributor determined that it would be more cost-effective to supply them on a stand-alone basis.

In conjunction with ongoing discussions with the AEMC, AEMO proposes a number of changes for the Commission's consideration. AEMO considers that these changes will result in a clearer application of the proposed reforms within the rules framework, and will decrease implementation and operational complexity.

AEMO's proposed changes and comments are presented in five sections:

- Updates to the national energy law and rules (section 1)
- Metering installation and metering data requirements (section 2)
- Energy settlement requirements (section 3)
- Registration of the financially responsible market participant (section 4)
- Implementation considerations (section 5).

1. Approach to updating the national energy laws and rules to incorporate a framework for SAPS

The Draft Report proposes amendments to the National Electricity Law (NEL) and National Energy Retail Law (NERL) to allow the National Electricity Rules (NER) to appropriately regulate the provision of SAPS by DNSPs. Drafting of the National Electricity Rules (NER) provisions which would give effect to distributor-led SAPS has been published for stakeholder feedback.

As the system and market operator of the interconnected system forming the NEM, AEMO operates systems and performs essential processes which ensure that market operations run smoothly. In particular, this involves the operation of the Metering Settlement and Transfer Solution (MSATS) and energy settlement of the NEM for which it is critical that existing processes for participant registration, metering obligations and settlement can continue to occur. AEMO considers that there is an opportunity to refine how SAPS are included in the NER that accommodates the unique characteristics of SAPS and does not distract or complicate the market management arrangements of the interconnected system (the System).

SAPS are, by concept and design, a virtual market connection point, created primarily to enable a settlement process which avoids, or minimises to the largest extent possible, negative impacts to customers and retailers. As a result, some of the design elements for the System in the NER directly cross over, or might otherwise be leveraged, for SAPS. This includes role appointments at a connection point, establishing metering installations and management of metering data (NER Chapter 7).

There are other design elements which must be considered for the System, but do not apply in principle and are unnecessary in practice for SAPS. These factors include the:

- establishment of operating standards for generating systems (requirements critical to support reliability and security of supply in the System, which are not relevant to SAPS);
- calculation of energy losses such as line losses and unaccounted for energy (UFE) in settlement (the calculation of losses is unnecessary and unwieldy within the scope of SAPS – see section 3 of this paper for an extended explanation); and
- application of non-energy charges (e.g. fees relating to the procurement of ancillary services, which are irrelevant in the context of SAPS).

2. Metering Installation and Metering Data requirements

The requirements for metering in SAPS are at the hub of the design. The principles and specifications established in the NER will determine the complexity required of market systems to support SAPS.

All customer connection points within SAPS should have the same metering and role appointment structure provided for connection points to the System. This will continue to support retail competition, retailer and network billing for the customer, and any other services provided by the retailer that require capabilities of the metering installation.

SAPS generation connection points are a new feature of the design being established in the NER and therefore, need not follow the same metering arrangements which are provided for the System. In order to accurately perform settlements, AEMO requires a set of metering data to determine the quantity of energy over time that the financially responsible market participant (FRMP) representing the SAPS generator(s) is responsible for. If SAPS generation connection points are independently metered and settled on the associated metering data, two issues arise.

1. Discrepancies between the energy withdrawn by customers within the SAPS and the amount generated (however small) will exist (i.e. losses). An approach is required to account for these in some manner.
2. There might also be cause for the calculation of settlement residues should a customer within a SAPS install their own generation system such as a rooftop photovoltaic system.

A simpler settlement approach to the use of actual metered data from SAPS generation, which avoids the need to consider energy losses and settlement residue described above, is for a 'virtual' metering arrangement to be established.

In simple terms, a virtual metering arrangement enables a calculation of energy flow at a connection point(s), using pre-determined data sources and other relevant factors. The mechanism is provided for in NER 7.8.12 (Special site or technology related conditions). A simplified approach to enable such a mechanism in SAPS is as follows:

1. DNSP obtains approval from the AER to convert a connection point to a SAPS;
2. DNSP manages the conversion, which would necessitate a replacement of the customer's metering installation in accordance with NER 7.8.3 (installing a new remotely read interval metering installation);
3. The National Metering Identifier (NMI) for the connection point is moved to a SAPS specific Transmission Network Identified (TNI) and is identified in market systems as being a SAPS connection point;
4. A NMI is created for the generating system connection point with all necessary roles appointed in accordance with the requirements of NER Chapter 7;
5. The Metering Data Provider (MDP) appointed at the generator NMI receives the metering data for the customer connection point(s) within the SAPS and inverts the energy flow to create metering data for the generator(s), which is provided to AEMO for settlement.

This process has the effect of ensuring that the energy flows within a SAPS always net to zero in settlement. This arrangement allows for:

- AEMO to directly apply the administered settlement price to the energy flows within a SAPS – there would be no need for SAPS connection points to be assigned the prevailing spot price and be subsequently adjusted (note that settlement statements could include the SAPS connection points for all parties as per normal, as a separate line item);
- Small customers connected within SAPS to install generating systems such as a rooftop photovoltaic system or similar, without creating settlement residues;
- More than one generation connection point within a SAPS if required – an algorithm could be applied which inverts the total energy value withdrawn in the SAPS to establish a total injected energy volume. The total injected volume could then be assigned to each SAPS generator based on the ratio of energy generated as measured by actual metering at the generation connection points.

For example, if there are two generators – A and B – which generate in a given period at a ratio of 2:8, and in that period the total withdrawn energy flow is measured at 10kWh, generator A is imbursed for 2kWh and generator B is imbursed for 8kWh); and

- Calculation of energy for settlement without loss adjustment (including technical and commercial losses) – any losses would be contained within each SAPS and not included in the settlement of energy for the System. Similarly, losses in the System would not be apportioned to SAPS.

Avoiding the need to adjust for losses in the settlement process for SAPS is made practical by the unique design and incentives that apply to isolated systems. However small they might be, it is likely that there will be both technical and commercial losses within SAPS, however the application of complex calculations to include loss allocation aligned to standard practice for the System appears unwieldy and unnecessary. The party most incentivised to reduce all losses in a SAPS is the FRMP for the SAPS generation connection point(s) as losses will impact their revenue. Technical losses will be the responsibility of the DNSP who will be aligned, through contract, with the FRMP for SAPS generation and can consider the management of losses in their contractual agreement if necessary. Commercial losses will also be able to be identified directly by the FRMP for SAPS generation as their appointed MDP will be in receipt of all the connection point data for the SAPS and will be able to identify discrepancies between the injected and withdrawn energy flows within the SAPS.

In order to enable the calculation of the virtual metering arrangement, the MDP acting on behalf of the FRMP for the SAPS generation connection point(s) must be in receipt of all data within the SAPS. This could be facilitated by requiring a single MDP to be selected for all connection points within a SAPS, perhaps as considered in NER 7.8.12(c)(3), however this is unlikely to be a practical solution for SAPS that comprise of two or more customer connection points, due to the competitive nature of energy retailers and provision of metering services. An alternative is for the FRMP at the SAPS generator connection points to be provided with a right to access metering data for all customer connection points within the SAPS that it supports, similar to the provisions in NER 7.15.5(d)(5) regarding data access rights for child connection points within embedded networks.

AEMO is keen to continue discussions with the AEMC on this topic.

3. Energy settlement requirements

This virtual metering arrangement enables simple principles to be applied in the NER to accommodate SAPS and removes any confusion and additional calculations for the allocation of losses. This also allows a simpler approach to be taken to accommodate SAPS within Chapter 3 of the NER which specify the arrangements for energy settlement in the NEM.

As previously highlighted, requirements for SAPS regarding settlement are substantially different from connection points in the System. Differences include:

- The application of an administered settlement price for energy rather than spot price;
- Calculation of technical and commercial losses (if any at all); and
- The applicability of non-energy fees and charges.

AEMO considers that rather than embedding requirements for SAPS within the structure of the requirements for the System, a preferable approach would be to separate SAPS requirements into a stand-alone section of Chapter 3 (e.g. a Chapter 3A). This would provide a clear boundary between requirements for connection points that are physically connected to the System and connection points that are virtually connected (i.e. SAPS). It would also provide clearer guidance

for design and implementation of SAPS and reduce the risk of future changes to either one having an unintended impact on the other.

More generally, AEMO's preference is for the mechanism by which energy settlement is calculated to be determined based on principles established in the NER, with technical details determined by AEMO procedures, guidelines and system design. For example, the mechanism proposed in the Draft Rule for the application of the administered settlement price requires a specific design in AEMO systems; this design might introduce unnecessary complexity to processing settlements or constrain the ability to make improvements to the settlement calculation methodology for SAPS into the future.

4. Registration of the financially responsible market participant for SAPS generating systems

AEMO is aligned with the Commission's position within the Draft Report that all SAPS customer connection points will have a market customer as the FRMP. This enables SAPS customers to seamlessly remain active within market systems and retain access to retail competition, including their current agreement with their selected retailer at the time of transition into a SAPS, meeting one of the core objectives of the reform.

Regarding the FRMP for generators, the Draft Report proposes that SAPS generation connection points will have a market small generation aggregator (MSGA) or a market customer as the FRMP.

AEMO recommends that the registration of SAPS generators can be more efficiently achieved through a new registration category, such as a 'SAPS generator' participant role (which could provide for some level of aggregation of SAPS generating systems), rather than by extending the MSGA role into SAPS.

Whilst the registration and settlement characteristics of the MSGA role are similar to the requirements for a SAPS generator, AEMO considers that providing a separate category of registered party is preferable for reasons including:

- The role of MSGA is, by title and design, a wholesale market participant in the interconnected system. Accommodating SAPS within the MSGA role introduces unnecessary complexities and inconsistencies, such as:
 - The MSGA role structure is predicated on it being responsible for a 'small generating unit' for the purposes of aggregation. The Draft Report introduces a new 'large SAPS generating unit' defined term purely for the purpose of accommodating potential edge-case SAPS designs which are considered unlikely; and has only been introduced as a consequence of looking to leverage off the MSGA design.
 - Amending the terms 'spot market' and 'spot price' to accommodate the SAPS market arrangements, which are by design an isolated market with an administered price. This may present complications or set a precedent for other applications of these defined terms within the NER.

- AEMO is reviewing the MSGA operation within the current market arrangements and how it might develop into the future. There are current challenges regarding way the SGA framework is being deployed in embedded networks and more broadly. Looking to the future, with amendments, the role might provide opportunities in design work being undertaken for two-sided markets. AEMO advises against the proposed expansion of the MSGA role to include SAPS generation, which is likely to complicate the role and any future amendment.

As there are similarities in the requirements for registering in the capacity of an MSGA and a 'SAPS generator', AEMO registration guidelines could allow for parties registered or registering as MSGAs to obtain SAPS generator status via a simplified application process and vice versa (e.g. the extension of registration into either category might be a minor administrative process).

5. Implementation considerations

It is understood that the AEMC intends to submit its final recommendations on the package of rule changes to the COAG Energy Council in May 2020. Pending the passage of law and rule changes by the South Australian Minister in mid-2020 and agreement by the COAG Energy Council to law changes and their passage through the South Australian parliament, it is understood that the full framework could then take effect by mid-2021.

AEMO will need to make a number of changes to market systems and procedures to give effect to these reforms, including potential changes to AEMO's MSATS, registration and settlements systems and procedures, or establishment of new procedures if required. However, the precise nature of these changes, and the extent of change, is dependent on the final design of the regulatory arrangements for SAPS.

While AEMO notes the AEMC's target timeframes, and the likely lead-time between DNSP application to establish a SAPS and its practical implementation, AEMO highlights a number of important concurrent regulatory reforms impacting critical market systems which are also going live mid-2021 (including Five-Minute Settlement; Global Settlements; Embedded Networks; and Customer Switching). Any inter-dependencies between related project will need to be considered for the purposes of staging technology or procedural changes, and moreover, enabling scope for affected participants to consume the volume of changes required across this period.

AEMO welcomes the opportunity work with the Commission and provide further input as the Review progresses. As the design elements are advanced, AEMO will be a better position to provide a more considered view on the system and procedural changes required, and implementation timing implications, to inform the AEMC's Final Report and recommendations.