FIVE MINUTE & GLOBAL SETTLEMENT – METERING PROCEDURE CHANGES (PACKAGE 2)

ISSUES PAPER

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EXECUTIVE SUMMARY

On 28 November 2017, the AEMC made a final rule to alter the settlement period for the National Electricity Market (NEM) from 30-minutes to five-minutes, to align with the dispatch period. The substantive amendments commence on 1 July 2021 (5MS Rule).

On 6 December 2018 the AEMC made a final rule that requires a move to a global settlement framework for the demand side of the NEM (GS Rule). The substantive amendments commence on 6 February 2022.

The 5MS and GS Rules both require AEMO to consult and amend its relevant procedures, methodologies and guidelines by 1 December 2019.

For the purposes of industry consultation, AEMO has grouped its 5MS and GS affected metering procedures into three packages, Metering Package 1, 2 and 3.

AEMO has completed its Metering Package 1 consultation and is now commencing its Metering Package 2 consultation. Metering Package 3 does not require formal consultation however AEMO expects to seek industry feedback on these documents during the Metering Package 2 consultation period.

Metering Package 1 focused on:

- Changes to various metering procedures to implement the 5MS Rule.
  - Changes to the current profiling arrangements to allow for the profiling of 15 and 30-minute metering data to five-minute intervals.
- AEMO's position on the delivery, format and content contained in the metering data files sent to AEMO.

At the end of the Metering Package 1 consultation, AEMO concluded that interval metering data should be delivered to AEMO in Meter Data File Format (MDFF), superseding the current Meter Data Management File (MDMF) format.

This change is expected to result in both system and operational efficiencies for MDPs. This position has underpinned the Metering Package 1 final determination and will be implemented as part of Metering Package 2 and Metering Package 3.

Metering Package 2 focuses on implementing:

- The Five-Minute Settlement (5MS) Rule[1] - for procedures not considered in Package 1
- The GS Rule
- Changes to the delivery, format and content of the meter data files sent to AEMO, as identified in the Metering Package 1 consultation.

The publication of this Issues Paper commences the first stage of the Rules consultation process conducted by AEMO to consider amendments to various Metering Procedures under the National Electricity Rules (NER).

AEMO invites stakeholders to suggest alternative options where they do not agree that AEMO's proposals would achieve the effective implementation of the items listed above.

AEMO also asks stakeholders to identify any unintended adverse consequences of the proposed changes.

Stakeholders are invited to submit written responses on the changes, issues and questions identified in this paper by 5.00 pm (Melbourne time) on 24 June 2019, in accordance with the Notice of First Stage of Consultation published with this paper.

CONTENTS

EXECUTIVE SUMMARY 2

1. STAKEHOLDER CONSULTATION PROCESS 4

2. BACKGROUND 6

2.1. NER requirements 6

2.2. Context for this consultation 6

3. IMPLEMENTING AND TRANSITIONING TO THE CHANGES IN DELIVERY OF METERING DATA TO AEMO 12

4. NON-CONTESTABLE UNMETERED LOADS 13

5. SERVICE LEVELS FOR METER DATA PROVIDER SERVICES 15

5.1. Current Arrangements 15

5.2. Proposed Arrangements 15

6. EXEMPTION PROCEDURE: METERING PROVIDER DATA STORAGE REQUIREMENTS 17

7. METERING PROCEDURES 18

7.1. Metrology Procedures: Part A 18

7.2. Metrology Procedures: Part B 18

7.3. New Procedure – Exemption Procedure - Metering Provider Data Storage Requirements 19

7.4. Metering Data Management (MDM) Procedures 19

7.5. MDM File Format and Load Process 20

7.6. Meter Data File Format Specification NEM12 & NEM13 20

7.7. CATS Procedures Principles and Obligations 20

7.8. Procedures for the Management of WIGS NMIS 21

7.9. ROLR procedure: Part A 21

7.10. Service Level Procedure: Metering Data Provider Services 22

7.11. Retail Electricity Market Glossary and Framework 22

7.12. National Metering Identifier Procedure 23

8. SUMMARY OF MATTERS FOR CONSULTATION 24

APPENDIX A - GLOSSARY 25

1. STAKEHOLDER CONSULTATION PROCESS

As required by the NER, AEMO is consulting on various Metering Procedures in accordance with the Rules consultation procedures in rule 8.9.

AEMO's indicative timeline for this consultation is outlined below. Future dates may be adjusted depending on the number and complexity of issues raised in submissions and any meetings with stakeholders.

Deliverable	Indicative date
Issues Paper published	20 May 2019
Submissions due on Issues Paper	24 June 2019
Draft Report published	5 August 2019
Submissions due on Draft Report	19 August 2019
Final Report published	30 September 2019

Prior to the submissions due date, stakeholders can request a meeting with AEMO to discuss the issues and proposed changes raised in this Issues Paper.

AEMO has been consulting and intends to continue to consult through the 5MS program engagement channels.[2] The relevant engagement channels include:

- Program Consultative Forum (PCF)
- Procedures Working Group (PWG)
- Systems Working Group (SWG)
- Metering Focus Group (MFG)

Co-consultation on AEMO's metering procedures

AEMO notes that changes to its metering procedures need to be consulted on in 2019 for a range of issues and activities in addition to 5MS and GS. To streamline these procedure consultations, AEMO is conducting this 5MS/GS metering procedure consultation as a "co-consultation" in tandem with several of those additional changes. The co-consultation will consider the procedural impacts associated with the implementation of:

- Items discussed in this issues paper, namely:
    - Implementation of the GS Rule and residual aspects of the 5MS Rule
    - Changes to the delivery of metering data to AEMO.
- Items discussed in a separate issues paper associated with:
    - Changes to the metering procedures identified and progressed through the AEMO-convened Electricity Retail Consultative Forum (ERCF) and Electricity Retail Metrology Consultative Forum (ERMCF).
    - Updates to various Metering procedures to align the procedures with changed rule references.

[2] See : http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement for details on forums and groups specific to the 5MS program.

This approach aligns the consultation periods for both metering procedures consultations, allowing stakeholders to consider these matters as a whole in a more efficient and effective manner. However, as the proposed ERCF and ERMCF changes are intended to take effect significantly earlier than the 5MS and GS changes, the proposed amendments have been published in separate sets of draft procedures for each consultation.

2. BACKGROUND

2.1. NER requirements

AEMO is responsible for the establishment and maintenance of metering procedures specified in Chapter 7 of the NER except for procedures established and maintained under rule 7.17.

The procedures authorised by AEMO under Chapter 7 must be established and maintained by AEMO in accordance with the Rules consultation procedures.

2.2. Context for this consultation

2.2.1. Five Minute Settlement

On 28 November 2017 the AEMC made a final rule to align operational dispatch and financial settlement at five minutes, starting 1 July 2021. This will reduce the time interval for financial settlement in the National Electricity Market (NEM) from 30 minutes to five minutes.

Price signals that align with physical operations lead to more efficient bidding, operational decisions and investment. Over time, this is expected to lower wholesale costs, which should lead to lower electricity prices than in a market with 30-minute settlement. Wholesale costs make up around one third of a typical electricity bill.

2.2.2. Implementing Five Minute Settlement

The 5MS Rule requires the collection, storage and delivery of revenue metering data based on five-minute intervals for use in energy settlement, network and retail billing.

From a metering installation capability perspective, the rule requires:

- Types 1, 2 and 3 meters to record and store five-minute data from the commencement date of the rule.
- Type 4 meters at a transmission network connection point or distribution network connection point where the relevant financially responsible Market Participant is a Market Generator or Small Generation Aggregator to record and store five-minute data from the commencement date of the rule.
- All other types 4, 4A, 5 and 6 meters that are already installed do not need to provide five-minute data at the commencement date. The data from these meters will be profiled to five-minute trading intervals by AEMO using load profiles.
- All new and replacement metering installations, other than type 4A, installed from 1 December 2018 must provide five-minute data from 1 December 2022 at the latest.
- All type 4A new and replacement metering installations installed from 1 December 2019 must provide five-minute data from 1 December 2022 at the latest.

There are several matters determined in AEMO metering procedures that require updating so that 5MS can be implemented, including:

- Metering data management
- Profiling
- Settlements load data aggregations
- Reconciliation reporting
- Service level agreements

- Metering installation provisioning.

2.2.3. Global settlement

On 6 December 2018, the AEMC made a final rule to introduce a 'global settlement' framework for settlement of the demand side of the wholesale electricity market.

The introduction of global settlements is intended to deliver three key benefits:[3]

1. Improved transparency, leading to fewer settlement disputes between retailers and lower levels of Unaccounted for Energy (UFE) over time
2. Competition on equal terms
3. Improved risk allocation driving enhanced incentives.

The AEMC stated that the largest benefits of global settlement were to come from a reduction in UFE in the market, and from avoiding settlement disputes. Other possible benefits that could be material, include retail prices being more cost-reflective, contributing to the dynamic efficiency of the market over time.

Further, with the introduction of 5MS, the AEMC considered that there would be an increase in the estimation of consumption from the 6 million accumulation meters installed in the NEM, in addition to the 3.6 million installed interval meters that will also need to be profiled for the first time. This is expected to increase the likelihood of errors in estimating when consumption occurred, and the incentives to reduce UFE. As such, the AEMC expected the annual benefit of a move to global settlements to be significant in the long term.[4]

What are 'settlements by difference' and 'global settlements'?

The NEM is a gross electricity pool market operated by AEMO. All electricity supplied to the market and consumed by end users is transacted at the spot price for each trading interval in each region. The market settlement process requires that for each trading interval market generators are paid for the energy they provide to the NEM and market customers pay for the energy they use. Market customers are mainly electricity retailers who purchase wholesale electricity to on-sell to their retail customers, but also include some large industrial customers.

Under the current market settlement framework, known as 'settlement by difference', electricity supplied to a distribution area is billed by AEMO to the incumbent retailer, known as the local retailer, except for the loss-adjusted metered electricity that is consumed by the customers of independent retailers within the area. This means that the local retailer for an area bears the risk of all residual electricity losses in that area, known as unaccounted for energy (UFE). UFE includes unaccounted for technical losses, commercial losses and errors in estimating the half-hourly, soon to be five-minute, consumption of basic metering installations that do not keep track of how electricity usage varies throughout the day.

Under a global settlement framework, every retailer is billed for the loss-adjusted metered electricity that is consumed by their customers within the area. UFE is then allocated to market customers (mostly retailers) on the basis of a pre-determined methodology. Under the AEMC's methodology, UFE is allocated to all market customers in a distribution network (local area), pro-rated based on their 'accounted-for' energy.

[3] Australian Energy Market Commission: https://www.aemc.gov.au/sites/default/files/2018-12/Global%20Settlement%20and%20Market%20Reconciliation%20-%20For%20publication.pdf, P. ii

[4] Australian Energy Market Commission: https://www.aemc.gov.au/sites/default/files/2018-12/Global%20Settlement%20and%20Market%20Reconciliation%20-%20For%20publication.pdf, P. iii

2.2.4. Implementing Global Settlement

From a metering perspective, the GS Rule requires:

- AEMO to receive meter data for ALL connection points in the NEM, including first tier connection points.
- AEMO to include in its metrology procedures guidance for the inclusion of non-market unmetered load in settlement, including:[5]
  - The creation of NMIs for non-market unmetered load
  - The assignment of connection points relating to non-market unmetered load to the appropriate TNI or VTN
  - The provision of data on the estimated consumption of non-market unmetered load to AEMO
  - The methodology for calculating load and a load profile for non-market unmetered load.
- AEMO to publish a UFE Reconciliation Report to enable each Market Customer in a local area to verify the UFE amounts allocated to that Market Customer's market connection points in that local area.
- AEMO, in accordance with the UFE reporting guidelines, to prepare and publish on its website a UFE trends report setting out:
  - AEMO's summary and analysis of the total UFE amounts in each local area over the reporting period
  - AEMO's analysis of the UFE amounts in each local area in the reporting period against benchmarks determined by AEMO acting reasonably
  - AEMO's analysis of the sources of UFE in each local area
  - AEMO's recommendations to improve visibility of UFE in each local area
  - AEMO's recommended actions to reduce the amounts of UFE in each local area, including without limitation any actions that AEMO recommends ought to be taken by Market Participants, Network Service Providers, the AER or AEMO.

It should be noted that AEMO has recently submitted a proposal to the AEMC that, among other things, suggests that the 'non-market unmetered loads' in the GS Rule be renamed 'non-contestable unmetered loads', as this more accurately reflects how these loads will be treated in the market. For consultation purposes, AEMO has used this preferred name subject to the AEMC's determination on AEMO's proposed rule change.

2.2.5. Changes to the Delivery of Metering Data to AEMO

The Metering Package 1 consultation focused on proposed changes to AEMO's profiling methodologies, including the profiling of 15 and 30-minute interval meter reads, and proposed changes to the delivery of metering data to AEMO.[6]

AEMO concluded that the delivery of interval metering data should be in the form of Meter Data File Format (MDFF), superseding the current Meter Data Management File (MDMF) format.

Additionally, to fulfil its obligations under the GS Rule (in particular new clause 3.15.5B relating to the analysis and reporting of UFE trends), AEMO needed to understand the potential causes of UFE. It is likely that a key contributor to UFE will be technical losses through transformers and electrical conductors.

[5] Australian Energy Market Commission: https://www.aemc.gov.au/sites/default/files/2018-12/Global%20Settlement%20and%20Market%20Reconciliation%20-%20For%20publication.pdf, P. 48

[6] Australian Energy Market Operator: http://aemo.com.au/Stakeholder-Consultation/Consultations/Five-Minute-Settlement---Metering-Procedure-Changes-Package-1

Technical losses are influenced by power factor and by the flows of energy within the distribution network as a consequence of distributed energy resources e.g. solar PV. AEMO concluded that access to active and reactive register level metering data was necessary to understand the changes in technical losses when preparing the UFE Trend reports that are mandated by the NER.

The requirements for transitioning to MDFF and the delivery of register level active and reactive energy to AEMO were consulted on as part of Metering Package 1 and are detailed in the associated final determination. These conclusions are the basis for the metering procedure changes consulted on in this package (Metering Package 2) and in Metering Package 3.

The following table summarises the determinations from Metering Package 1 on changes to the delivery of metering data to AEMO.[7]

Metering Package 1 Item	AEMO determination on changes to the delivery of metering data
Meter data file format	From 1 July 2021: • MDFF NEM12 files to be the required file format for all interval metering data being delivered to AEMO • MDFF NEM13 files to be supported by AEMO – AEMO to continue to support and accept MDMF files for basic meter reads
Metering data resolution	From 1 July 2021: • NEM12 interval metering data to be: – Delivered at the register level – As per the meter's configuration i.e. 5, 15 or 30-minute intervals
Metering data frequency	From 1 July 2021: • Metering data to be delivered to AEMO on a daily basis – Note, AEMO is not seeking to amend any obligations regarding the current B2B Provide Meter Data or Verify Meter Data processes
Metering data granularity	From 1 July 2021: • Import and Export Active energy (kWh) and Import and Export Reactive energy (kVarh) will be required to be sent to AEMO, where applicable – All other forms of measurement (such as volts and amps) are not required to be delivered to AEMO but will be processed if they are provided. • All new records created in the CNDS table are to be created at the register level e.g. E and B. – Existing net datastream records can remain active post 1 July 2021, until an update to the datastream record is required e.g. meter replacement. Where an update is required to a CNDS record, the net datastream record is to be inactivated and any new active datastreams records are to be created at the register level. – Datastreams associated with import and export reactive energy e.g. Q and K do not need to be created in the CNDS table. If created, the datastreams must be established in a manner that ensures they are not included in market settlements.
Metering data exception handling	AEMO to retain the existing MDM validation/response process (MDMR notification and RM11 reports), however, where any party identifies a metering data issue, that requires a new version or resend of metering data to be delivered, all recipients are to receive this information.

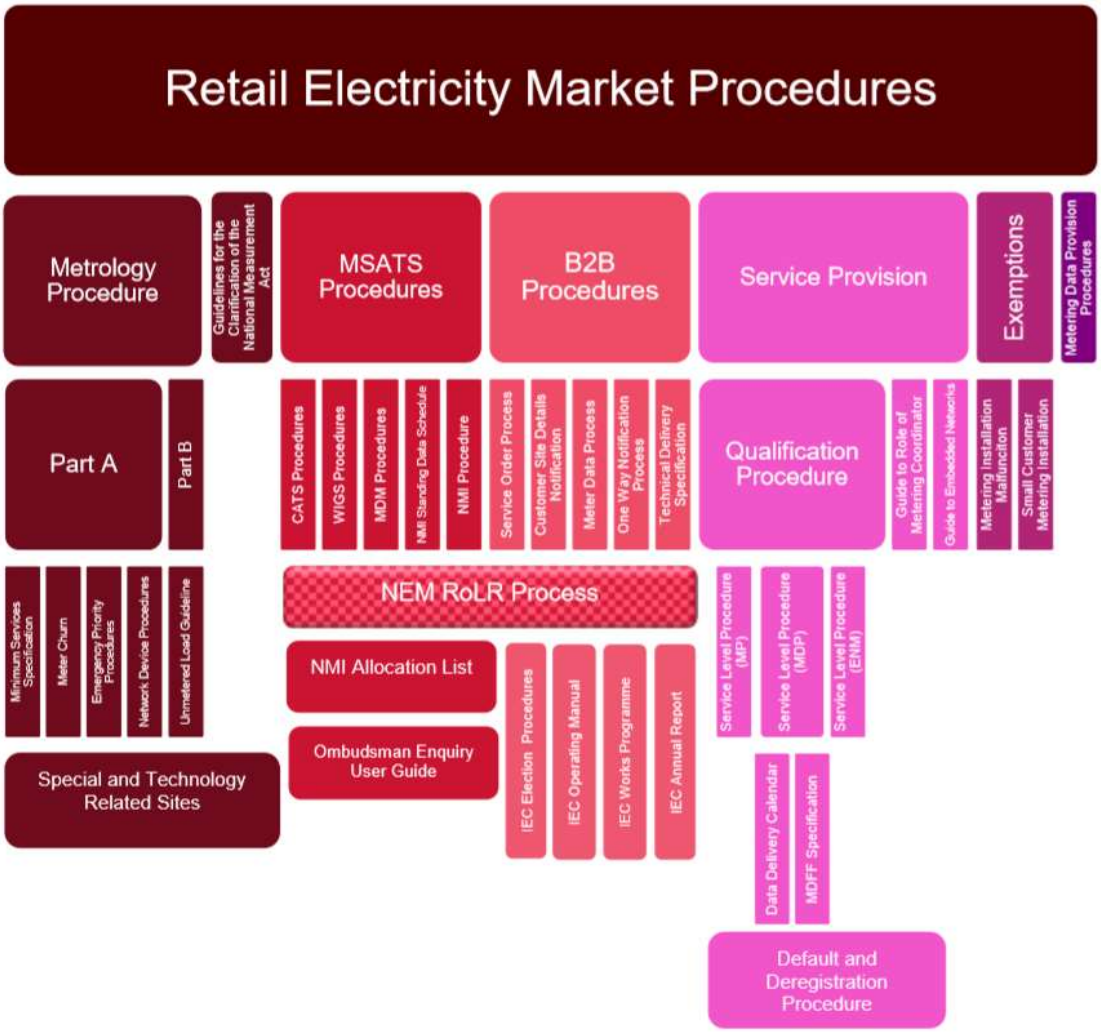
[7] Australian Energy Market Operator: http://aemo.com.au/-/media/Files/Stakeholder_Consultation/Consultations/NEM-Consultations/2019/5MS-Metering/Final/Final-Determination-Report.pdf P. 15

2.2.6. Structure of AEMO's Retail Electricity Market Procedures

AEMO's Retail Electricity Market Procedures comprise several procedures that govern the operation of the retail market.

Figure 2 depicts how the Retail Electricity Market Procedures fit together.

Figure 2 Retail Electricity Market Procedures



2.2.7. Procedures under consultation as part of this Metering Package 2

The procedures under consultation in this Metering Package 2 include:

- Metrology Procedure: Part A
  - Also consulted on in Package 1 to consider 5MS Rule requirements
- Metrology Procedure: Part B
  - Also consulted on in Package 1 to consider 5MS Rule requirements
- Exemption Procedure: Metering Provider Data Storage Requirements
  - New procedure
- Metering Data Management (MDM) Procedures

- Meter Data File Format Specification NEM12 & NEM13
- Meter Data File Format (MDFF) Specification NEM12 & NEM13
  - Also consulted on in Package 1 to consider 5MS Rule requirements
- CATS Procedures Principles and Obligations
- Procedures for the Management of WIGS NMIs
- ROLR Procedure: Part A
- Service Level Procedure: Meter Data Provider Services
- Retail Electricity Market Glossary and Framework
  - Previously consulted on in Package 1 to consider 5MS Rule requirements
- National Metering Identifier Procedure

These procedures, and associated changes, are described in more detail in Section 0 of this document.

Please note that AEMO has not identified any 5MS or GS changes associated with the Service Level Procedure: Meter Provider Services.

3. IMPLEMENTING AND TRANSITIONING TO THE CHANGES IN DELIVERY OF METERING DATA TO AEMO

As noted in section 2.2.5 of this paper, AEMO is consulting on its implementation of a number of changes associated with the delivery of metering data to AEMO by MDPs.

The key procedures that enable the implementation of these changes are:

- Service Level Procedure: Metering Data Provider Services
    - Includes details regarding MDP's having to deliver to AEMO all Datastreams related to settlements ready data and any other metering data configured in the metering installation to support UFE calculations for all connection points the MDP is responsible for
- Meter Data File Format Specification NEM12 & NEM13
    - Enables AEMO as being a recipient of MDFF files
- MDM File Format and Load Process
    - Specifies the:
        - Processing, loading and validation of MDFF files
        - Removal of references to Net values and Net datastreams
        - Removal of requirements for MDPs to aggregate metering data to 30-minute intervals
        - Removal of the option to send MDMF to AEMO for interval metering data from 1 July 2021
- National Metering Identifier Procedure
    - Removes references to Net data

Although the new delivery requirements will not come into effect until 1 July 2021, AEMO is proposing to include transitional arrangements in the relevant procedures, to allow MDPs to move to the new arrangements prior to that date.

This approach is proposed to assist affected participants to manage the implementation of these changes, and mitigate the risks associated with a hard cutover on 1 July 2021.

Questions

- Do the proposed changes in the applicable initial draft change-marked procedures implement the required changes in section 2.2.5 in an effective manner?
- Will the proposed transitional arrangements assist MDPs and other market participants in transitioning to the new procedural requirements?
- Is including transitional arrangements in the relevant procedures the most effective way of implementing transitional arrangements? If not, what would be the preferred alternative approach?

4. NON-CONTESTABLE UNMETERED LOADS

There are many standalone loads that connect to the NEM which are unmetered, generally due to very low consumption levels that are not cost effective to meter. For example, it would be impractical to meter every individual streetlight.

Unmetered loads that are reliable, predictable and able to be calculated can be classified as type 7 metering installations. The defining characteristics of type 7 loads are that the metering data produced is by a calculation rather than being physically metered. They are also contestable (so any retailer can service these loads). To maintain the integrity of energy settlement in the NEM the calculation must be sufficiently accurate to enable each load to be settled in the market for each trading interval. For example, across all jurisdictions street lights, and in New South Wales and South Australia, traffic lights are classified as type 7 metering installations. Each category of type 7 metering installation is registered with AEMO and the calculated load is processed through MSATS.

Where an unmetered load does not fall into an established type 7 metering installation category, it is currently settled out of the market and can only be supplied by the local retailer as a non-contestable (franchise) load. The LNSP and the local retailer are remunerated for the energy and network provision associated with these loads by the franchise customers. Franchise customers have typically been local councils, road authorities and telecommunications companies.

Examples of these types of unmetered loads include:

- Sports ground flood lights
- Public BBQs
- Cable TV hubs
- NBN cabinets
- Public telephones
- Public sprinklers/irrigation
- Parking ticket machines
- Bus shelters
- CCTV cameras
- Parking sensors.

Currently, as they do not enter NEM settlements and are served by the local retailer, they are effectively part of UFE. This is not a problem in terms of UFE allocation in a settlement by difference regime (other than the lack of transparency it creates), because UFE is charged to the local retailer and the local retailer charges franchise customers for the non-market unmetered load. However under global settlement, these non-contestable unmetered loads need to be accounted for in settlements and removed from UFE to avoid all retailers being charged for loads that the local retailer is already being paid for.

The AEMC's final rule requires: [8]

- Non-contestable unmetered loads to be processed through MSATS
- The load profile and size of these loads to be agreed upon by the customer, DNSP, retailer and AEMO in accordance with AEMO's updated metrology procedures and unmetered load guidelines

[8] Australian Energy Market Commission: https://www.aemc.gov.au/sites/default/files/2018-12/Global%20Settlement%20and%20Market%20Reconciliation%20-%20For%20publication.pdf, P.56

- AEMO to update the unmetered load guidelines and metrology procedures in accordance with the rule's consultation procedures.

Questions

- How should non-contestable unmetered loads be processed and maintained in MSATS?
  - Should non-contestable unmetered loads with photoelectric (PE) cells be treated in a similar manner to Type 7 unmetered loads and why?
  - Should non-contestable unmetered loads which do not have photoelectric (PE) cells be treated differently to those that do? If yes, how should these loads be treated?
- What should be considered in creating and assigning non-contestable unmetered NMIs in MSATS e.g. introducing a new Metering Installation Type Code (NCONUML) and why?
- What would be the most accurate methodology for calculating and applying a load profile to non-contestable unmetered loads and why?

5. SERVICE LEVELS FOR METER DATA PROVIDER SERVICES

Energy settlement is reliant on the delivery of settlements ready data by MDPs. The timelier and more accurate the data that is provided, the more accurate the energy settlement process becomes, and the changes determined through revision are reduced. Similarly, in the context of the global settlement rule, the more accurate the metering data received by AEMO, the better AEMO can calculate and allocate unaccounted for energy.

Current delivery requirements for both quality and quantity of settlements ready data is specified in section 3.12.4 (b) of the MDP Service Level Procedure. These delivery requirements were established at a time when the vast majority of small customer connection points were serviced by metering installations requiring manual data collection.

As a result of the introduction of competition in metering services via the Power of Choice package of reforms and the Victorian AMI rollout, remotely read interval metering systems now provide data for over a quarter of all small customers in the NEM, and this number is increasing daily. In addition to these changes, MDPs have progressively upgraded systems for the collection, processing and delivery of metering data.

AEMO considers that it is important for the requirements for delivery of settlement ready data to reflect these changes in the metering landscape and ensure that the settlements process is enhanced as a result.

Having reviewed the requirements for delivery of settlements ready data, and considering the requirements of the 5MS and GS Rules and the increase of remotely read advanced metering installations at small customer connection points, AEMO proposes that the requirements should be updated.

5.1. Current Arrangements

Section 3.12.4 of the Service Level Procedure: Meter Data Provider Services document states that:

(a) Each MDP must deliver to AEMO settlements ready data for all connection points the MDP is responsible for, by the dates and for the periods, specified in the Data Delivery Calendar.

(b) The settlements ready data applicable to a specified billing period must be delivered to AEMO to the quantity and quality specified in the following Table:

Aspect	Preliminary	Final	Revision 1 (R1) or 4 month	Revision 2 (R2) or 6 month
Quantity of Settlements Ready Data	98%	98%	98%	98%
Quantity of Settlements Ready Data with 'A' or 'F' quality flag	-	-	98%	98%

5.2. Proposed Arrangements

In reviewing the current requirements, and taking into consideration that all connection points will be delivered to AEMO as of the commencement of the GS Rule, AEMO does not believe that the current arrangements are adequate to achieve the required level of accuracy in the NEM settlement process.

Further, the current requirements do not delineate between remotely read meters and manually read meters nor do they reflect an expected level of improvement in both the quantity and quality of settlement ready data delivered during the settlement cycle e.g. Final vs Revision 1 (R1) vs Revision 2 (R2). Therefore, AEMO is proposing to change the existing service level requirements to the following:

Metering Data Type	Aspect	Preliminary	Final	Revision 1 (R1)	Revision 2 (R2)
Remotely Read Metering Data	Quantity of Settlements Ready Data	98%	100%	100%	100%
	Quality of Settlements Ready Data with 'A' or 'F' quality flag	95%	98%	100%	100%
Manually Read Metering Data	Quantity of Settlements Ready Data	99%	99%	100%	100%
	Quality of Settlements Ready Data with 'A' or 'F' quality flag	-	-	95%	100%

The proposed changes reflect the greater regularity of data collection and the processing, validation and substitution processes established by MDPs and MCs for remotely read metering installations and improvements in general in the management of metering data by MDPs across the NEM.

AEMO considers that these requirements are reflective of market expectations generally, be that as specified in the requirements for VIC AMI (Ref. Vic AMI Minimum AMI Functional Specification Release 1.2 and Minimum AMI Service Levels Specification Release 1.1) or through commercial agreement.

Questions

- Will AEMO's proposed arrangements likely result in more accurate market settlements and why?
- What other data quality mechanisms should AEMO consider to supporting improved accuracy in market settlements?

6. EXEMPTION PROCEDURE: METERING PROVIDER DATA STORAGE REQUIREMENTS

In accordance with the NER and procedures authorised by the NER, a Metering Provider must ensure that a metering installation includes facilities for storing interval energy data for a period of:

- At least 35 days if the metering installation is registered as a type 1, 2, 3 or 4 metering installation
- At least 200 days or such other period as specified in the metrology procedure if the metering installation is registered as a type 4A or type 5 metering installation.[9]

Under the 5MS rule AEMO must publish a procedure for applying for an exemption from these storage requirements. AEMO may only exempt metering installations installed prior to 1 July 2021 that are types 1, 2 and 3, type 4 installed at transmission connection points, or type 4 installed at distribution connection points where the relevant financially responsible Market Participant is a Market Generator or Small Generation Aggregator.[10]

In relation to other type 4, 4A and 5 meters, the AEMC stated that:

> *"Some submissions to the draft determination requested this metering storage exemption clause be extended to include type 4A and type 5 meters. However this exemption is focussed on existing meters that are required to comply with the five-minute obligation from the commencement date. There are no obligations on other existing type 4, 4A or 5 meters to provide five-minute data. Further, it is expected that new and replacement meters that are installed after 1 December 2018 should be able to comply with the storage requirements as specified in the Rules.*
>
> *As most new type 4 meters are capable of recording and providing five-minute data already, the final rule requires that all new and replacement meters that are installed will need to be capable of recording and providing five-minute data from 1 December 2018."*[11]

To fulfil its obligation under the 5MS Rule, this consultation includes the proposed new exemption procedure for Metering Provider data storage requirements procedure, for the metering installations set out in clause 7.8.2(a2).

Questions

- Do you believe that AEMO's proposed exemption procedure clearly articulates the conditions and process for applying for a data storage exemption?
- Are there any other aspects of the exemption process and criteria that need to be reflected in the procedure?

[9] Australian Energy Market Commission: https://www.aemc.gov.au/sites/default/files/2019-02/NER%20-%20v119%20-%20Chapter%207_0.PDF – Page 1053

[10] Australian Energy Market Commission: https://www.aemc.gov.au/sites/default/files/content/97d09813-a07c-49c3-9c55-288baf8936af/ERC0201-Five-Minute-Settlement-Final-Determination.PDF - Page 11

[11] Australian Energy Market Commission: https://www.aemc.gov.au/sites/default/files/content/97d09813-a07c-49c3-9c55-288baf8936af/ERC0201-Five-Minute-Settlement-Final-Determination.PDF - Page 119

7. METERING PROCEDURES

As detailed in section 2.1, AEMO is responsible for the establishment and maintenance of metering procedures specified in Chapter 7 except for procedures established and maintained under rule 7.17.

This section provides an overview of the changes that AEMO proposes for each procedure under consultation.

7.1. Metrology Procedures: Part A

7.1.1. Description of procedure

The metrology procedure is made in accordance with clauses 7.16.3, 7.16.4 and 7.16.5 of the NER and it is published in two parts, namely:

- Metrology Procedure: Part A - National Electricity Market; and
- Metrology Procedure: Part B - Metering Data Validation, Substitution and Estimation Procedure.

Metrology Procedure Part A includes:

- Requirements for the provision, installation and maintenance of metering installations
- Obligations on various market participants, including: Metering Coordinators, Financially Responsible Market Participants and Local Network Service Providers
- Responsibilities for metering data services
- Minimum services specification procedures
- Meter churn procedures
- Network devices procedures
- Emergency priority procedures.

7.1.2. Proposed changes

At a high level, the proposed changes to this procedure are as follows:

- Additional access to metering data in section 12.4
- Removal of references to first-tier and second-tier as required
- Inclusion of provisions for non-contestable unmetered loads e.g. sections 12.3, 12.4 and 12.7.

7.2. Metrology Procedures: Part B

7.2.1. Description of procedure

Metrology Procedure Part B includes:

- The validation and substitution of metering data
- The estimation of metering data
- The method by which accumulated metering data is converted by AEMO into trading interval metering data
- Method by which calculated metering data is produced for unmetered market loads
- Requirements regarding sample meters for controlled loads.

7.2.2. Proposed changes

At a high level, the proposed changes to this procedure are as follows:

- Inclusion of references to Embedded Network Local Retailers (ENLR)
- Removal of references to Local Retailer (LR), first-tier and second-tier as required
- Replacement of references of "wholesale boundary" with "bulk supply" to better delineate between distribution bulk supply points and directly connected customers to the transmission network
- Changes in formulas and tables in section 11.4 and 12.4
- Inclusion of provisions for non-contestable unmetered loads.

7.3. New Procedure – Exemption Procedure - Metering Provider Data Storage Requirements

Description of procedure

This new procedure has been developed to meet AEMO's new obligation under the 5MS Rule (NER clause 7.8.2(a2)), as discussed in section 0.

7.4. Metering Data Management (MDM) Procedures

7.4.1. Description of procedure

The MDM Procedure details the management of metering data within MSATS to facilitate:

- The implementation of the metrology procedure into AEMO's operational procedures
- Efficient processes for:
  - Transfer of data for market purposes
  - Calculation and management of profiles
  - Conversion of meter readings for settlements
  - Reconciliation of participant data.

7.4.2. Proposed changes

At a high level, the proposed changes to this procedure are as follows:

- Changes to MDM RM reports to accommodate five-minute trading intervals and GS requirements e.g. section 9.
- Removal of references to Local Retailer (LR), first-tier and second-tier as required.
- Replacement of references of "wholesale boundary" with "bulk supply".
- Inclusion of references to Embedded Network Local Retailers (ENLR).
- Removal of MDM RM14 - MDP Data version Comparison Report, MDM RM15 - Multiple Versions Report, MDM RM18 - Electricity Interval Data Report due to a lack of use
- Inclusion of references to the new Application Programming Interface (API) delivery method.

7.5. MDM File Format and Load Process

7.5.1. Description of procedure

The MDM File Format and Load Process document specifies the MDM Format to be used by MDPs for the provision of metering data to AEMO. It also details the process for uploading MDM and MDFF files and the validations that occur when a file is submitted.

7.5.2. Proposed changes

At a high level, the proposed changes to this procedure are as follows:

- Changes associated with the delivery, format and content contained in the meter data files sent to AEMO, including:
  - Processing, loading and validation of MDFF files
  - Removal of references to Net values and Net datastreams
  - Removal of requirements for MDPs to aggregate metering data to 30-minute intervals
  - Removal of the option to send MDMF to AEMO for interval metering data from 1 July 2021
- Changes to the MDP version date time validations
- Inclusion of the e-Hub API delivery method.
- Changes to the MDMT process steps.

7.6. Meter Data File Format Specification NEM12 & NEM13

7.6.1. Description of procedure

The Meter Data File Format Specification specifies the file format requirements for interval metering data (NEM12) and accumulated metering data (NEM13), including:

- Technical information
- File validations
- Transaction codes.

7.6.2. Proposed changes

At a high level, the proposed changes to this procedure are as follows:

- Inclusion of AEMO as a recipient of MDFF files.

7.7. CATS Procedures Principles and Obligations

7.7.1. Description of procedure

The CATS Procedures Principles and Obligations document specifies the change request process associated with required changes to MSATS NMI standing data.

The procedure details a number of key elements including:

- Obligations by role
- CATS functionality

  - Principles
  - Transaction types
  - Change requests
  - Transaction validations
- CATS codes and rules
- MSATS reports.

7.7.2. Proposed changes

At a high level, the proposed changes to this procedure are as follows:

- Modification and/or removal of references to Local Retailer (LR), first-tier and second-tier, including notification and objection rule requirements
- Inclusion of Embedded Network Local Retailer (ENLR) references
- Inclusion of Unaccounted for Energy (UFE) references
- Removal of Change Reason Code 6400 and 6401 relating to the change of a LR
- Inclusion of five new NMI Classification Codes – "BULK", "DHYBRID", "NCONUML", "THYBRID" and "XBOUNDARY" to accommodate various settlement calculations in a GS environment
- Inclusion of a new Metering Installation Type Code – "NCONUML" to accommodate the appropriate allocation of non-contestable unmetered loads.

7.8. Procedures for the Management of WIGS NMIS

7.8.1. Description of procedure

The Procedures for the Management of WIGS NMIs document specifies the change request process associated with required changes to MSATS Wholesale, Interconnector, Generator and Sample NMI standing data.

7.8.2. Proposed changes

At a high level, the proposed changes to this procedure are as follows:

- Modification and/or removal of references to Local Retailer (LR), first-tier and second-tier, including notification and objection rule requirements
- Removal of Change Reason Code 6400 and 6401
- Inclusion of Embedded Network Local Retailer (ENLR) references
- Inclusion of Unaccounted for Energy (UFE) references.

7.9. ROLR procedure: Part A

7.9.1. Description of procedure

The NEM RoLR Processes is a document that combines two separate but related procedures, each of which are constituted under different heads of power. The two procedures are:

1. MSATS Procedure RoLR Procedures

2. B2B Procedure RoLR Process

7.9.2. Proposed changes

At a high level, the proposed changes to this procedure are as follows:

- Inclusion of Average Daily Load (ADL) in the RoLR/FRMP NMI List report to support Retailers being able to appropriately quote and hedge for RoLR related customers
- Modification and/or removal of references to Local Retailer (LR), first-tier and second-tier
- Inclusion of Embedded Network Local Retailer (ENLR) references

7.10. Service Level Procedure: Metering Data Provider Services

7.10.1. Description of procedure

The Service Level Procedure: Metering Data Provider Services document details the obligations, technical requirements, measurement processes and performance requirements to be met by MDPs in the provision of metering data services for all metering installations types and the maintenance of a metering data services database.

7.10.2. Proposed changes

At a high level, the proposed changes to this procedure are as follows:

- Modification of references to Local Retailer (LR) and first-tier as required
- Changes to the quantity and quality requirements in the "Delivery of Settlements Ready Data" section, as discussed in section 5.2
- Changes to the delivery of meter data to AEMO, as discussed in sections 2.2.5 and 3
- Inclusion of provisions to support non-contestable unmetered loads, as discussed in section 4
- Inclusion of API delivery method references
- Inclusion of Unaccounted for Energy (UFE) references
- Changes to Meter Churn scenario requirements to accommodate a change to the recording of metering data from 15 or 30-minute to 5-minute trading intervals

7.11. Retail Electricity Market Glossary and Framework

7.11.1. Description of procedure

The Retail Electricity Market Glossary and Framework document forms part of each of the Retail Electricity Market Procedures.

It contains a dictionary of terms used with the Procedures and a description of each Procedure and supporting documentation, and how they fit together.

7.11.2. Proposed changes

At a high level, the proposed changes to this procedure are as follows:

- Changes to ensure ongoing alignment with associated Procedures
- Inclusion of the Exemption Procedure – Metering Installation Data Storage Requirements

7.12. National Metering Identifier Procedure

7.12.1. Description of procedure

The National Metering Identifier Procedure:

- Sets out the structure for NMIs to be used in the NEM
- Describes the Process under which NMIs are allocated
- Details Datastreams for each category of metering installation.

7.12.2. Proposed changes

At a high level, the proposed changes to this procedure are as follows:

- Changes in Local Retailer field requirements for LNSPs
- Inclusion of NMI allocation and associated requirements for non-contestable unmetered loads
- Removal of Net datastreams and Net energy requirements
- Inclusion of "bulk supply" references
- Removes references to Net data

8. SUMMARY OF MATTERS FOR CONSULTATION

In summary, AEMO seeks comment and feedback on the following matters:

- How non-contestable unmetered loads are included in market settlements
- Changes to the MDP Service Level Procedure regarding the quality and quantity of Settlements Ready Data
- The proposed new Metering Provider Data Storage Requirements Exception procedure
- Changes to various metering procedures to support the implementation of:
  - The 5MS Rule
  - The GS Rule
  - Changes to the delivery, format and content contained in the meter data files sent to AEMO.

To help interested parties respond to this Issues Paper, AEMO has published an initial draft of the procedures included in this consultation incorporating the changes AEMO proposes for consultation. Clean and change-marked versions are available at: http://aemo.com.au/Stakeholder-Consultation.

Submissions on these and any other matter relating to the proposals discussed in this Issues Paper must be made in accordance with the Notice of First Stage of Consultation published with this paper by 5.00 pm (Melbourne time) on 24 June 2019.

APPENDIX A - GLOSSARY

Term or acronym	Meaning
5MS	Five-Minute Settlement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
API	Application Programming Interface
B2B	Business to business
B2M	Business to market
CATS	Customer Administration and Transfer Solution
CLP	Controlled load profile
ENLR	Embedded Network Local Retailer
FRMP	Financially Responsible Market Participant
GS	Global Settlement
LNSP	Local Network Service Provider
LR	Local Retailer
MDFF	Meter Data File Format
MDM	Meter Data Management
MDMF	Meter Data Management Format
MDP	Metering Data Provider
MP	Meter Provider
MSATS	Market Settlements and Transfer Solution
NER	National Electricity Rules
NMI	National Metering Identifier
NSLP	Net System Load Profile
PE cells	Photoelectric cells
TNI	Transmission Node Identifier
UFE	Unaccounted for energy
WIGS	Wholesale, Interconnector, Generator and Sample