FIVE MINUTE SETTLEMENT – METERING PROCEDURE CHANGES (PACKAGE 1)

DRAFT REPORT AND DETERMINATION

Published: **January 2019**

NOTICE OF SECOND STAGE CONSULTATION – FIVE MINUTE SETTLEMENT – METERING PROCEDURES CHANGES (PACKAGE 1)

National Electricity Rules – Rule 8.9

Date of Notice: 30 January 2019

This notice informs all Registered Participants, Metering Providers, Metering Data Providers, Embedded Network Managers, Ministers and the AER (Consulted Persons) that AEMO is conducting a consultation on the following Metering Procedures as a result of the Five-Minute Settlement rule change:

- Metrology Procedures: Part A
- Metrology Procedures: Part B
- Retail Electricity Market Glossary and Framework
- Meter Data File Format Specification NEM12 & NEM13
- Meter Data Provision Procedure.

This consultation is being conducted under clauses 7.16.7 of the National Electricity Rules (NER), in accordance with the Rules consultation requirements detailed in rule 8.9 of the NER.

Invitation to make Submissions

AEMO invites written submissions on this Draft Report and Determination (Draft Report).

Please identify any parts of your submission that you wish to remain confidential, and explain why. AEMO may still publish that information if it does not consider it to be confidential, but will consult with you before doing so.

Consulted Persons should note that material identified as confidential may be given less weight in the decision-making process than material that is published.

Closing Date and Time

Submissions in response to this Notice of Second Stage of Rules Consultation should be sent by email to 5ms@aemo.com.au, to reach AEMO by 5.00pm (Melbourne time) on 15 February 2019.

All submissions must be forwarded in electronic format (both pdf and Word). Please send any queries about this consultation to the same email address.

Submissions received after the closing date and time will not be valid, and AEMO is not obliged to consider them. Any late submissions should explain the reason for lateness and the detriment to you if AEMO does not consider your submission.

Publication

All submissions will be published on AEMO's website, other than confidential content.

EXECUTIVE SUMMARY

The publication of this Draft Report and Determination (Draft Report) commences the second stage of the Rules consultation process conducted by AEMO to consider amendments to various Metering Procedures under the National Electricity Rules (NER) for the implementation of five-minute settlement, referred to as 'Package 1'.

On 31 October 2018, AEMO published the Notice of First Stage Consultation and the Consultation Paper for the Package 1 Procedures.

This Consultation Paper detailed key proposals involving:

- Changes to various Metering procedures to implement the Five-Minute Settlement Rule.
- Changes to the current profiling arrangements to allow for the profiling of 15 and 30-minute meter data to five-minute intervals.
- Changes to the delivery, format and content contained in the meter data files sent to AEMO:

AEMO received 15 submissions (including two late submissions) from Retailers, LNSPs, Meter Providers, Meter Data Providers and intending participants.

From these submissions and its own analysis, AEMO identified three material issues. These are addressed in this Draft Report, and include:

- The proposed profiling approach for 15 and 30-minute interval meters
- Changes to the delivery of meter data to AEMO
- Industry standard optical port performance and the volume of metering data stored in a metering installation.

After considering the submissions and evaluating comments against the requirements of the NER and the Amending Rules, AEMO's draft determination proposes the following outcomes:

- Maintain the proposed profiling approach regarding the conversion of 15 and 30-minute meter reads to 5-minute resolution.
- Implement changes to several meter data delivery elements which are currently misaligned in the delivery of meter data to AEMO and market participants.
- Changing the performance requirements for downloading interval metering data from manually read metering installations due to optical port limitations

Additionally, this procedure change process incorporates jurisdictional amendments to the Metrology Procedures submitted to AEMO by the COAG Energy Council.

AEMO invites stakeholders to suggest alternative options where they do not agree that AEMO's proposals would achieve the relevant objectives.

CONTENTS

1. STAKEHOLDER CONSULTATION PROCESS

As required by the NER, AEMO is consulting on various Metering Procedures in accordance with clause 7.16.7 of the NER and the Rules consultation process 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.

Deliverable	Indicative date
Notice of first stage consultation [and Issues Paper] published	31 October 2018
First stage submissions closed	28 December 2018
Draft Report & Notice of second stage consultation published	30 January 2019
Submissions due on Draft Report	15 February 2019
Final Report published	22 March 2019

The publication of this Draft Report marks the commencement of the second stage of consultation.

AEMO has been and intends to continue to consult through the Five-Minute Settlement (5MS) program engagement channels.[1] The relevant engagement channels include:

- Procedures Working Group (PWG)
- Systems Working Group (SWG)
- Metering Focus Group (MFG)

Note that there is a glossary of terms used in this Draft Report at Appendix A.

2. BACKGROUND

2.1. NER requirements

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.

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 Australian Energy Market Commission (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 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 flows through 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.

[1] 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.

2.2.2. Implementing Five Minute Settlement

The Rule change 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 meter 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

Because of the Rule change, there are several matters determined in AEMO metering procedures that require review prior to the commencement date, including:

- Meter data management
- Profiling
- Settlements load data aggregations
- Reconciliation reporting
- Service level agreements and
- Meter installation provisioning

2.2.3. Global settlement

In 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 final rule makes provision for a global settlement 'soft start' to commence on 1 July 2021 to coincide with the start date of five-minute settlement. It also requires AEMO to have updated its relevant procedures by 1 December 2019, excluding UFE reporting requirements.

AEMO will consult on additional changes to the metering procedures required by the Global Settlement rule as part of its 'Metering Procedure Changes - Package 2' and 'Metering Procedure Changes - Package 3', which are scheduled for release in early to mid-2019.

2.3. First stage consultation

On 31 October 2018, AEMO issued a Notice of First Stage Consultation, and published an Issues Paper and initial draft procedures for Package 1. This information is available on AEMO's website.

The Issues Paper included details on AEMO's stakeholder engagement in the course of developing the initial draft procedures, including various proposals that were discussed at workshops with industry representatives. The Issues Paper included a summary of the specific amendments proposed in the initial consultation pack.

AEMO received 15 submissions in the first stage of consultation, two of which were late submissions.

Copies of all written submissions[2] and minutes of working group and focus group meetings[3] have been published on AEMO's website.

3. SUMMARY OF MATERIAL ISSUES

This section details the material issues AEMO identified during the review process. It also provides AEMO's assessment of the issues and how AEMO proposes to address them.

The key material issues arising from the proposal and raised by Consulted Persons are summarised in the following table:

No.	Issue	Raised by
1.	Profiling of 15 and 30-minute interval meters	Multiple Respondents
2.	Changes to the delivery of meter data to AEMO	Multiple Respondents
3.	Optical port and the volume of meter data storage	Multiple Respondents

A detailed summary of issues raised by Consulted Persons in submissions, together with AEMO's responses, is contained in Appendix B.

4. DISCUSSION OF MATERIAL ISSUES

4.1.1. Profiling of 15 and 30-minute interval meters

4.1.2. Issue summary and submissions

To support the introduction of 5MS, the profiling arrangements will need to be amended to provide for:

- Preparation of a load profile with five-minute granularity for the profiling of non-controlled load accumulation meters
- Preparation of a load profile with five-minute granularity for profiling of controlled load accumulation meters
- Preparation of a load profile with five-minute granularity for profiling of 15 and 30-minute interval meters.

AEMO proposed a process of profiling 15 and 30-minute meters by applying the following steps:

1. For each profile area, the energy for the wholesale boundary (each TNI) is determined based on five-minute metering data.
2. The energy associated with all non-wholesale boundary meters that have five-minute metering data is summated, both for first-tier and second-tier connection points. This includes metering data associated with contestable unmetered loads with Type 7 metering.
3. The '15 and 30-minute load profile' is determined by subtracting the sum of all five-minute metering data (calculated in Step 2) from the profile area's wholesale boundary five-minute energy volume (calculated in Step 1).

[2] See: AEMO website - http://aemo.com.au/Stakeholder-Consultation/Consultations/Five-Minute-Settlement---Metering-Procedure-Changes-Package-1

[3] See: AEMO website - http://aemo.com.au/Electricity/National-Electricity-Market-NEM/Five-Minute-Settlement/Procedures-Workstream/Procedures-Working-Group

4. The energy associated with all meters that have 15 or 30-minute metering data is summated, both for first-tier and second-tier connection points.
5. The total 15 and 30-minute energy is profiled using the '15 and 30-minute load profile' shape, which provides a five-minute representation of 15 and 30-minute metering data.
6. The five-minute representation of 15 and 30-minute metering data is subtracted off the 5-minute load profile (calculated in Step 1), to derive an accumulation load profile.

There was broad support for AEMO's proposed profiling approaches, however, AGL questioned how 30-minute small customer generation (e.g. solar) should be profiled to five-minute levels and how this profiling would ultimately impact the net system load profile (NSLP).[4] AGL had undertaken some initial analysis of five-minute and 30-minute solar data and determined that there could be at least a 10% error rate. Its analysis also suggested that the error rate would be greater during the dusk and dawn periods, coinciding with increased consumer usage.

Momentum Energy noted that the profiling of 15 and 30-minute meter data to five-minute trading intervals (TI) was an interim and partial solution that introduced operational risks for every registered or accredited participant.[5] They stated that the industry was expected to adopt the proposed solution to manage numerous 'business critical' processes until such time all existing meters across the NEM are either replaced or reconfigured to provide five-minute data.

Red Energy and Lumo Energy noted the efforts undertaken by AEMO in determining a proposed profiling solution for five-minute settlement that in theory, what had been proposed seemed to be the most viable solution. However, they believed that AEMO, alongside industry participants, required further analysis and consideration into whether in practice it was fit for purpose.[6]

4.1.3. AEMO's assessment

Stakeholder feedback strongly supported the proposed profiling approach for controlled load sample meters. The proposed approach was deemed appropriate as the associated loads were very predictable and were typically in an 'on' or 'off' position.

Broad support was also received for AEMO's proposed profiling approach for 15 and 30-mintute meter reads. No alternative profiling approach was suggested by stakeholders.

AEMO notes that AGL intends to perform and share additional analysis in early 2019 on the NSLP impact of profiling small customer generation (e.g. solar) to five-minute levels. AEMO will consider any additional data and insights provided.

The process of profiling is a calculation to estimate energy volumes suitable for settlement where the metering data does not support the required level of granularity. An existing process of profiling has been in place since Full Retail Contestability in 2002 to facilitate the settlement of accumulation metering. AEMO's proposed NSLP approach is to extend the existing profiling arrangements to also cater for 15 and 30-minute meter reads, and is expected to have some impact to the imbalances that result from profiling. However the magnitude of imbalance that occurs within a 15 or 30-minute period is likely to be small in comparison to imbalances that occur across a 3-month accumulation read, and so any increase in imbalance is not expected to be significant. AEMO also notes that under Global Settlement any imbalance arising from profiling will be included as part of the calculation of Unaccounted-for Energy, and so AEMO will be able to report on the impact of the imbalance.

[4] AGL, Submission to first stage consultation, p.15
[5] Momentum Energy, Submission to first stage consultation, p.11
[6] Red Energy and Lumo Energy, Submission to first stage consultation, p.9

4.1.4. AEMO's conclusion

Stakeholders broadly supported AEMO's proposed profiling approach and have not identified a preferred alternative. Therefore, AEMO will maintain its proposed profiling approach, for converting 15 and 30-minute meter reads to 5-minute resolution. This is reflected in the draft Metrology Procedure Part B, published with this Draft Report.

4.2. Changes to the delivery of meter data to AEMO

4.2.1. Issue summary and submissions

In the consultation paper, AEMO proposed an arrangement that seeks to align the delivery of meter data for market settlement with existing formats used for B2B, specifically:

- Register level meter data, if provided by MDPs
    - The objective of this change was to eliminate the need for MDPs to net meter data values for settlement purposes. This would reduce, or if universally adopted avoid, different meter data being sent for retail/network billing and market settlement.
- Non-energy meter data, if provided by MDPs
    - The objective of this change was to allow MDPs the option of sending the same meter data to AEMO as they would other market participants.

AEMO believes that these changes would result in both system and operational efficiencies for MDPs by creating more uniformity between AEMO and other market participants.

File Format for Metering Data

There was broad support for AEMO to transition to MDFF for interval metering data.

Endeavour Energy stated that this would reduce the number of meter data formats required to be supported and could help to simplify business processes for the delivery and management of exceptions.[7]

Jemena stated that transitioning to MDFF would reduce complexity and would standardise the file format across B2B and B2M. They also stated that the decommissioning of MDMF should result in operational efficiencies.[8]

Intellihub noted that they would experience minimal system changes to accommodate AEMO as a recipient of standard MDFF files instead of the current MDMF files.[9]

Energy Queensland supported the transition to register level MDFF for NEM12/Interval meter data. However, they stated that the five-minute settlement rule did not justify any change to the current method of delivery for BASIC (Type 6) meter data (MDM format).[10]

PLUS ES was fully supportive of the transition to MDFF for the delivery of interval metering data to AEMO in support of the settlement process. They saw significant benefits in consolidating the meter data format for this increasing segment of the market. However, PLUS ES strongly opposed any proposal to transition to MDFF for non-interval/Basic metering data. PLUS ES questioned what benefit such a change would deliver considering the diminishing volume of Basic meters.[11]

[7] Endeavour Energy, Submission to first stage consultation, p.7
[8] Jemena, Submission to first stage consultation, p.9
[9] Intellihub, Submission to first stage consultation, p.9
[10] Energy Queensland, Submission to first stage consultation, p.12
[11] PLUS ES, Submission to first stage consultation, p.12

Register level Data Streams

AGL was supportive of AEMO transitioning to register level meter data so that the same data sets could be sent to all market participants, including AEMO. [12]

AusNet Services noted that the richness of this data would be helpful in wholesale forecasting but were concerned by the potential impact and cost on participants should the existing Net data streams in the CNDS table need to be replaced by register level data streams for every NMI in MSATS. AusNet Services suggested that AEMO could potentially receive both Net and Register level meter data to avoid this issue.[13]

Jemena had no objection to AEMO supporting the reception of register level meter data. They stated that access to granular register level data would allow AEMO to better perform analytics to identify patterns and predict market trends.[14]

PLUS ES opposed any requirement for MDPs to update the CATS NMI Datastream Table with register level data[15], this view was shared by Intellihub.

Red and Lumo Energy did not support AEMO receiving register level meter data and firmly believed that this would be very expensive to implement and that it would be outside the scope of five-minute settlement rule.[16]

Same MDFFs to AEMO

There was broad support for AEMO to receive the same files as other market participants.

AGL noted that more consistent data being provided and used by all parties would result in less errors and variances in the settlement and reconciliation processes.[17]

Energy Queensland supported AEMO receiving the same MDFFs, including non-energy interval data to support the transition of customer data provision.[18]

PLUS ES noted, that in practice, the delivery of the same MDFF files to AEMO would not work as delivery requirements vary significantly between recipients of metering data. They stated that there were many scenarios where the file being sent to a client may not be compatible with AEMO's requirements to support the settlement process.[19]

PLUS ES also noted that MDPs can have a metering service agreement directly with a customer to supply volts, harmonics or similar measures for the customer to analyse. The customer pays for this service and uses this data to improve their efficiency. This data is a service between our two parties and is not necessary for settlement and should not need to be distributed to a wider audience than the party paying for the contestable service.

4.2.2. AEMO's assessment

Stakeholder feedback has been very strong in supporting AEMO's objective to more closely align the MDP's meter data delivery processes to AEMO and market participants. AEMO is confident that this alignment would result in material reductions in settlement errors and create operational efficiencies for both AEMO and market participants.

[12] AGL, Submission to first stage consultation, p.15
[13] AusNet Services, Submission to first stage consultation, p.7
[14] Jemena, Submission to first stage consultation, p.9
[15] PLUS ES, Submission to first stage consultation, p.9.
[16] Red and Lumo Energy, Submission to first stage consultation, p.10,
[17] AGL, Submission to first stage consultation, p.15
[18] Energy Queensland, Submission to first stage consultation, p.12
[19] PLUS ES, Submission to first stage consultation, p.13

Since the First Stage consultation, the AEMC has finalised consultation on the Global Settlement rule change. This final rule involves specific requirements for AEMO to analyse and report on trends on Unallocated-for-Energy (UFE), and as a consequence the meter data provided to AEMO needs to be adequately granular to allow this function to be carried out.

AEMO is also cognisant of the fact that the granularity of meter data, being provided to AEMO, is becoming more important in supporting its core functions, as well as supporting emerging initiatives such as Distributed Energy Resources and Consumer Data Rights.

Whilst the benefits of unifying the processes supporting the delivery of interval meter data is consistently supported by stakeholder feedback, AEMO recognises the potential challenges certain stakeholders may have in fully aligning meter data delivery processes for Basic meter data reads. While many respondents have supported uniformity across both forms of meter data, AEMO believes that certain alignments may be best implemented progressively over an appropriate period of time.

With that in mind, AEMO has identified several meter data delivery elements which are currently misaligned between AEMO and other market participants. These elements include:

- Meter data format
    - AEMO - Meter Data Management Format (MDMF)
    - Market Participants - Meter Data File Format (MDFF)
- Meter data delivery frequency
    - AEMO – As per the AEMO Data Delivery calendar
    - Market participants – Daily
- Meter data resolution
    - AEMO – 30-minute
    - Market participants – As per the meter's configuration e.g. 15 or 30-minute
- Meter data granularity
    - AEMO – Net meter data
    - Market participants – Register level meter data

4.2.3. AEMO's conclusion

As stated in the First Stage consultation paper, AEMO supports the alignment and uniformity of meter data delivery by MDPs to AEMO and other market participants.

With that in mind and taking into consideration stakeholder feedback, AEMO proposes the following changes.

- Meter data file format –
    - MDFF NEM12 files to be the required file format for all interval meter data being delivered to AEMO from 1 July 2021
    - MDFF NEM13 files to be supported by AEMO from 1 July 2021 however AEMO to continue to support and accept MDMF files for Basic meter reads
- Meter data Resolution
    - NEM12 Meter data to be delivered as per the meter's configuration i.e. 5, 15 or 30-minute meter data intervals from 1 July 2021
- Meter data frequency –

- Meter data to be delivered consistently by MDPs to both AEMO and market participants i.e. MDPs must put in place processes to ensure meter data version alignment between AEMO and other market participants

- Meter data granularity –
  - Transition to kWh and kVarh register-level meter data
    - AEMO will support the reception of energy and non-energy register level meter data from 1 July 2021, even where the CATS NMI Data Stream records are at the Net level
    - Net data stream records to be progressively replaced by Register level data stream records in the CATS NMI Data Stream (CNDS) table, with the aim of having a sunset period for this transition to occur.
- Meter Data Exception Handling –
  - AEMO to retain the existing MDM validation/response process (MDMR notification and RM11 reports), however, where any party identifies a meter data issue, that requires a new version or resend of meter data to be delivered, all recipients are to receive this information.

4.3. Optical port and the volume of meter data storage

4.3.1. Issue summary and submissions

The requirements outlined in Metrology Procedure Part A clause 3.2, section C, are incompatible with the industry standard optical port performance and the volume of metering data stored in a metering installation.

Landis+Gyr noted that the requirements outlined in Metrology Procedure Part A clause 3.2, section C, were incompatible with the industry standard optical port and the volume of metering data stored in a metering installation. They stated that the optical speed is determined by the ANSI / IEC Optical Port Standard design which is currently used by all manufacturers. The software used to download the data via the optical port can be configured to communicate at variety of Baud rates, ranging from 9600 to 38400 (Bits per second).[20]

Landis+Gyr also stated that it would not be feasible to change the industry standard optical port performance.

Intellihub noted that the current standard of 35 seconds does not take into account five-minute intervals or multi-element four quadrant metering.[21]

Vector Advanced Meter Services noted that the volume of data under 5MS, downloaded via the optical port, would increase by a factor of 6. Physical constraints (baud rate) of this interface limits the speed at which this data can be downloaded.[22]

Vector recommended that this performance requirement is removed for type 4A metering as commercial incentives will drive an appropriate performance outcome.

4.3.2. AEMO's assessment

AEMO agrees that the timeframe to download 90 days of interval metering data, currently stated in Metrology Procedure: Part A clause 3.2(c), may not be achievable for 5-minute metering data.

[20] Landis+Gyr, Submission to first stage consultation, p.1
[21] Intellihub, Submission to first stage consultation, p.8
[22] Vector Advanced Meter Services, Submission to first stage consultation, p.3

4.3.3. AEMO's conclusion

AEMO proposes to change the download to 90 seconds or less per Datastream.

5. DRAFT DETERMINATION

Having considered the matters raised in submissions, AEMO's draft determination is to amend various metering procedures in the form of Attachments 1 to 10, in accordance with the NER:

- Attachment 1 - MDFF Specification NEM12 NEM13 v2.0 Draft Determination Change Marked
- Attachment 2 - MDFF Specification NEM12 NEM13 v2.0 Draft Determination Clean
- Attachment 3 - MDPP v2.0 Draft Determination Change Marked
- Attachment 4 - MDPP v2.0 Draft Determination Clean
- Attachment 5 - Metrology Procedure Part A v7.0 Draft Determination Change Marked
- Attachment 6 - Metrology Procedure Part A v7.0 Draft Determination Clean
- Attachment 7 - Metrology Procedure Part B v7.0 Draft Determination Change Marked
- Attachment 8 - Metrology Procedure Part B v7.0 Draft Determination Clean
- Attachment 9 - Retail Electricity Market Procedures - Glossary and Framework v3.0 Draft Determination Change Marked
- Attachment 10 - Retail Electricity Market Procedures - Glossary and Framework v3.0 Draft Determination Clean

APPENDIX A. GLOSSARY

Term or acronym	Meaning
5MS	Five-Minute Settlement
AEMC	Australian Energy Market Commission
B2B	Business to business
B2M	Business to market
CLP	Controlled load profile
GS	Global Settlement
MDP	Metering Data Provider
MSATS	Market Settlements and Transfer Solution
NER	The National Electricity Rules made under Part 7 of the National Electricity Law.
NSLP	Net System Load Profile
Profile Area	A geographical area comprising a group of one or more TNIs for which a single NSLP is calculated. If part of an LNSP local area is located within the local area of another LNSP, that part of the local area of the first LNSP is considered to be part of the profile area of the second LNSP.
TNI	Transmission Node Identifier
UFE	Unaccounted-for Energy

APPENDIX B. SUMMARY OF SUBMISSIONS AND AEMO RESPONSES

Table 1 – Metrology Procedure: Part A

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
1.	Evoenergy	3.1 (a) (i) & (ii)		Section 3.1 (a)(i) & (ii) - Reword sentence so that AS clauses stand out, clearly visible and overall paragraph is easily understood. (i) AS 62052.11, AS 62053.21 and AS 62053.22 for type 1, 2, 3, 4, 4A, and 5 metering installation measurement elements (ii) AS 1284.1, AS 62053.21 and AS 62052.11 for type 6 metering installation measurement elements.	Colons separating text from Standards were not transferred into new document template. Colons will be reinstated to provide visual separation.
2.	Evoenergy	3.1 (e)		Section 3.1 (e) - "grandfatherered" change to "grandfathered".	Corrected.
3.	Landis+Gyr	3.2(c)		We would like to bring to your attention, a necessary amendment required to ***Metrology Procedure Part A clause 3.2, section C*** to support 5-minute Load Profile (LP) intervals. ***3.2 Use of Optical Ports and Pulse Outputs*** *(C) A type 4A or 5 metering installation must have an optical port that meets the AS 1284.10.2 or AS 62056.21 or a computer serial port to facilitate downloading of 90 days of interval energy data for each meter associated with the metering installation in 35 seconds or less.* Landis+Gyr wishes to point out if more data is required to be stored locally then the time required for it to be downloaded is directly proportional. The amount of data derives from the number of channels required and the interval length. The type of metering application dictates the required number of LP channels.	AEMO agrees that the timeframe currently stated in 3.2(c) may not be achievable for 5-minute metering data. Proposed change to be: A type 4A or 5 *metering installation* must have an optical port that meets the AS 1284.10.2 or AS 62056.21 or a computer serial port to facilitate downloading of 90 days of *interval energy data* for each Datastream associated with the metering installation in 90 seconds or less.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				On the other hand, the optical speed is determined by the ANSI / IEC Optical Port Standard design which is currently used by all manufacturers. The software used to download the data via the optical port can be configured to communicate at variety of Baud rates, ranging from 9600 to 38400 (Bits per second). This means the requirements outlined in Metrology Procedure Part A clause 3.2, section C, are incompatible with the industry standard optical port and the meter data storage requirements. Landis+Gyr would also like to note that it would not be feasible to change the industry standard optical port performance. Based on the above reasons, we recommend the following changes to the **Metrology Procedure Part A clause 3.2, section C**: ***3.2 Use of Optical Ports and Pulse Outputs*** *(C) A type 4A or 5 metering installation must have an optical port that meets the AS 1284.10.2 or AS 62056.21 or a computer serial port to facilitate downloading of 90 days of interval energy data per Load Profile Channel in 90 seconds or less.*	
4.	intellihub	3.2 (c)		Section 3.2 (c) - Optical port performance requirement - Current standard of 35 seconds does not take into account 5-minute intervals or multi-element four quadrant metering.	Refer to response to Item 3 above.
5.	Vector	3.2(c)		This clause should be looked at. Under 5MS the volume of data downloaded via the optical port will increase by a factor of 6. Physical constraints (baud rate) of this interface limits the speed at which this data can be downloaded.	Refer to response to Item 3 above.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				Vector recommends that this performance requirement is removed for type 4A metering as commercial incentives will drive an appropriate performance outcome.	
6.	Evoenergy	3.4 (f)		Section 3.4 (f) - [Victoria New South Wales Queensland] change 2 times in this paragraph and one is correct "12 month" to "12-month".	Corrected.
7.	AGL	3.8 (a)		Section 3.8(a) - AGL suggests that the issue of meter clock accuracy should be further reviewed as it has a much greater impact on load allocations within 5-minute intervals. A ± 20 seconds error in a 30-minute interval is a 1.1% error, while in a 5-minute interval is a 7.7% error. A drift of ± 300 seconds is a 5-minute interval, which is particularly critical in a type 4A and 5 (AMI) meter collecting interval data. Time Control Clocks and settings. AGL also queries what requirements there are for correctly setting and maintaining time control devices and the accuracy of these time control devices in a 5-minute market.	Metering installation clock error is checked when the metering installation is accessed (i.e. when meter reading is undertaken) by the MDP - ref Metrology Procedure Part A 3.8(a) and NER 7.10.6(d). The maximum permissible clock error is related to the period between meter readings, not per trading interval.
8.	Red Energy & Lumo Energy	3.8		Section 3.8 - Red Energy and Lumo Energy (Red and Lumo) question why AEMO did not propose updates to clause 3.8(a) of this Procedure. Clause 3.8(a) (highlighted below) allows for a type 4A or type 5 metering installation clock to be out by a maximum of +300 seconds. However, 300 seconds is equivalent to 5 minutes, therefore permitting the loss of data for that full interval. We request that AEMO review this clause in light of the updates required for 5-minute settlement of metering data. Metering Installation Clock	Refer to response for Item 7 above.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				A type 4A, 5 or 6 metering installation clock is to be reset to within ± 20 seconds of Eastern Standard Time on each occasion that the metering installation is accessed in the circumstances referred to in paragraphs (a) and (b), and the maximum drift in the type 4A or 5 metering installation clock permitted between successive Meter Readings is ± 300 seconds .	
9.	Aurora Energy	3.9		Section 3.9 - AE unsure if the "Where a metering installation records interval energy data the interval periods are based on TIs, or parts of a TI, 15-minute intervals or 30-minute intervals:" makes sense ? Aurora Energy agrees with the addition.	Add the following text to the end of the lead-in sentence: …or 30-minute intervals as defined in paragraphs (a) to (d).
10.	AGL	3.9		First sentence can be refined to cover a meter interval which is now a part of a TI (e.g. 1 minute), a TI which is now 5-minutes and 15/30 minutes which are multiples of a TI: Suggest: Where a metering installation records *interval energy data* the interval periods are based on parts of a TI, a TI, 15-minute or 30-minute intervals: A TI is set to 5-minutes and the end of which must be on the on the hour (*EST*) and each continuous period of 5 minutes thereafter…..	Clause 3.9(d) requires AEMO and industry participants to agree on the definition of sub-multiple intervals. Clause 3.9 can be modified through BAU Procedure change processes when an appropriate sub-multiple interval definition is developed in the future.
11.	Endeavour Energy	3.9		This clause should make it clear that 15- and 30-minute intervals are only allowed for existing metering installations. We suggest that the lead-in paragraph be updated to: Where a metering installation records interval energy data the interval periods must be based on a TI or sub-part of a TI. Existing type 5 and 4 metering installations installed prior to 1 December 2018, and existing type 4A metering installations installed prior to	This section defines interval length, the NER prescribes when new or existing metering installations must produce 5-minute metering data.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				1 December 2019 may continue to be 15-minute intervals or 30-minute interval periods:	
12.	Energy Queensland	3.9		Energy Queensland supports the proposed change.	Noted
13.	Evoenergy	3.9		Agree.	Noted
14.	intelliHub	3.9		No issue.	Noted
15.	Momentum Energy	3.9		Section 3.9 - Suggests including 5- minute intervals to the following statement: Where a metering installation records interval energy data the interval periods are based on TIs, parts of a TI 5-minute intervals, 15-minute intervals or 30-minute intervals.	NER defines a trading interval to be a 5-minute period, therefore there is no need to add "5-minute intervals" to this provision.
16.	PlusES	3.9		OK.	Noted
17.	Red Energy & Lumo Energy	3.9		Section 3.9 - Red and Lumo support the proposed inclusions to clause 3.9 however note that TI is a defined term in the Glossary and Framework as trading interval (as defined in the NER). We recommend the use of the term trading interval instead of TI throughout the Procedures to highlight that it is defined in the NER - consistent with the other terms e.g. metering installation and interval energy data.	Section 3 of the Power of Choice Information Paper, published in April 2016, stated that drafting principles for procedures would include abbreviated terms. TI was added to the Retail Electricity Market Procedures Glossary and Framework document during the Power of Choice program.
18.	Vector	3.9		Agree	Noted
19.	AGL	4.1		Section 4.1 - AGL notes that this section details completion rates for services but recognises that some services – particularly remote reconnection services (which may depend on other parameters e.g. no load), can not necessarily be completed in the specified timeframe but rather should be responded to in a time frame. We believe that these timeframes would be are more	Completion timeframes related to the time a request is received by the metering installation and the time of notification of completion of the relevant service by the metering installation. Refer to Metrology Procedure Part A 4(a), 4.1.2 and Completion Timeframe descriptions in Table 5.1.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				correctly seen as a time frame to respond to a service request rather than complete such a request.	
20.	Red Energy & Lumo Energy	4.1		Section 4.1 - Under rule 7.8.3(b), AEMO must outline a Procedure for minimum services specification which it includes in this Procedure (Metrology Part A). AEMO have only covered half of its obligation in rule 7.8.3(b) as this Procedure outlines the minimum service levels - service availability and completion timeframes - however, it does not have a section regarding both of the minimum standards as required in rule 7.8.3(b)(2), namely accuracy requirements. We recommend that AEMO include the accuracy requirements for the minimum services specification as obligated to in rule 7.8.3(b)(2).	AEMO's Minimum Services Specification does not vary the metering installation accuracy requirement, therefore metering installation accuracy stated in NER S7.4 applies.
21.	AGL	6		Section 6 - AGL agrees with the goal of this section to ensure that parent and child meters are recording load at the same intervals but notes that it seems to incorrectly place obligations on MCs and impact other retailers. e.g. Vic / SA This section requires a metering coordinator to install an interval meter to the child connection point and change a parent meter to an interval meter if needed. AGL queries how the child Metering Coordinator can change a meter belonging to the retailer of the parent, where the parent has appointed a different MC. Even if the MC is the same, the parent retailer is responsible for initiating mete changes, not the child retailer. AGL seeks clarification on the scenario that once a 5-minute market has commenced, if a child meter is installed (5-minute recording) does the parent need to be upgraded to a 5-minute meter as well? AGL would assume that this would be the case	Section 6 requires the MC to ensure that interval metering is in place for child and parent connection points, the section does not require the MC to change a meter at a connection point where it is not responsible.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				and both meters would need to be updated. If this is the case, then the procedures and processes will need to be updated to reflect this requirement.	
22.	AGL	6		Section 6 - AGL notes that the NSW Jurisdictional requirements for embedded networks still refers to type 6 meters, which can no longer be installed.	The NSW requirement does not require a new child meter to be type 6, it allows for the settlements process to be based on accumulated energy data. This can be achieved with an interval meter as stated in the NSW provision.
23.	AGL	6		Section 6 - It is not clear what the requirements for the ACT are. These could be written more clearly.	As this is Jurisdictional metrology material, only the Jurisdictions and the COAG Energy Council can approve changes to these provisions.
24.	Energy Queensland	6		Energy Queensland notes that specific provisions governing the relationship between parent and child meters in embedded networks apply in Victoria, South Australia and New South Wales, and considers that similar provisions would be useful for Queensland to clarify each party's responsibilities. Energy Queensland will consult with the Queensland Government on the charging of Child Meters or the Parent.	Noted
25.	AGL	7		Removal of South Australia requirement (2) – Noted	The South Australian Jurisdiction is reviewing these provisions. Changes will be made when jurisdictional approval is obtained.
26.	AGL	7		Section 7 - There are still clauses allowing for type 5-meter reversion for NSW, although no party is now allowed to install a type 5 meter. For Qld, the NER does not allow a conversion of a type 4 to 4A for load reduction, so if QLD allows for such a reduction, the AEMO procedures need amending to allow for this outcome.	Table 7 of this document provides details of changes to Jurisdictional metrology material currently approved by COAG Energy Council.
27.	Aurora Energy	7		Aurora Energy agrees with the removal of point 2.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
28.	Energy Queensland	7		Energy Queensland has no comments on this proposal change as it does not apply in Queensland.	Noted
29.	Evoenergy	7		If removing, then need to update [SA](1) as now don't need "Subject to [SA](2)". Do we really need Tasmania, Victoria and ACT jurisdictional differences as a type 5 or 6 meter can no longer replace any meter. Could also drop [Qld](1) for same reason.	The South Australian Jurisdiction is reviewing these provisions. Changes will be made when jurisdictional approval is obtained. Table 7 of this document provides details of changes to Jurisdictional metrology material currently approved by COAG Energy Council.
30.	intelliHub	7		No issue.	Noted
31.	Momentum Energy	7		Section 7 - Supports the proposal to remove the current statement identified as (2) under the South Australian jurisdiction and item (3) should be identified as the new clause (2) for completeness. Supports the proposal to remove the current statement identified as (2) under the Tasmanian jurisdiction.	Table 7 of this document provides details of changes to Jurisdictional metrology material currently approved by COAG Energy Council.
32.	Plus ES	7		Section 7 - South Australia The leading sentence still references the deleted clause. Delete leading sentence.i.e remove the words: Subject to [SA](2), <u>Tasmania</u> OK General: Recommend consistent reference throughout the table for metering coordinator: either go with the whole word or MC.	The South Australian Jurisdiction is reviewing these provisions. Changes will be made when jurisdictional approval is obtained. Table 7 of this document provides details of changes to Jurisdictional metrology material currently approved by COAG Energy Council.
33.	Red Energy & Lumo Energy	7		Section 7 - Red and Lumo provide qualified support, on the basis that the relevant distributors support the removal of these requirements.	Table 7 of this document provides details of changes to Jurisdictional metrology material currently approved by COAG Energy Council.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
34.	Vector	7		Agree.	Noted
35.	AGL	9.2		Section 9.2 - Typo – 'checked such that it has'	Corrected.
36.	Evoenergy	9.2		Section 9.2 - "thatit" change to "that it".	Corrected.
37.	Evoenergy	12.2 (b)		Section 12.2 (b) - [South Australia](2) remove double space between "The" and "metering". [South Australia](2) " a a " remove one a. [South Australia](2) Replace "on the basis of" to "based on" [ACT](2) remove double space between "be" and "read"	Corrected first, second and fourth items. Third item wording cannot be change without jurisdictional approval.
38.	Evoenergy	12.2 ©		Section 12.2 © – [Queensland](3) Replace "had an customer" to "had a customer".	Corrected.
39.	AGL	12.2(f)		Change to clause reference – Noted	Noted
40.	Aurora Energy	12.2(f)		Aurora Energy agrees with the change.	Noted
41.	Energy Queensland	12.2(f)		Energy Queensland supports the proposed change.	Noted
42.	Evoenergy	12.2(f)		Agree.	Noted
43.	intelliHub	12.2(f)		No issue.	Noted
44.	Momentum Energy	12.2(f)		Agree to the correction to clause 12.2(f).	Noted
45.	PlusES	12.2(f)		OK.	Noted
46.	Red Energy & Lumo Energy	12.2(f)		Red and Lumo support proposed amendment to correct reference clause.	Noted
47.	Vector	12.2(f)		Agree.	Noted
48.	United Energy	12.5 (a)		Section 12.5 (a) – There are various interpretations of this clause and UE seeks greater clarity be included in the procedure to	Not in scope for 5MS.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				specify whether annual sample testing is undertaken on the entire meter population, or just on the population of new connections 23occurring in that year.	
49.	Evoenergy	12.5 (b)		Section 12.5 (b) – Reword sentence so that AS clauses stand out, clearly visible and overall paragraph is easily understood. Suggested wording To Validate that all metering data stored in the metering data services database is consistent with the energy data stored in the metering installation or the Physical Inventory (as applicable), each MC must ensure that a Sample Test Plan is established and maintained in accordance with Australian Standards; (i) AS 1199: Sampling procedures for inspection by attributes – Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection or (ii) AS 2490: Sampling Procedures and Charts for Inspection by Variables for Percent Nonconforming.	12.5(a) corrected.
50.	Evoenergy	12.6 (f)		Section 12.6 (f) – Is this a question or a statement. New wording to start sentence (f) If the results…	Corrected.
51.	Evoenergy	12.8.2 (a)		Section 12.8.2 (a) – Change “SecondTier” to “Second-Tier”	Corrected.
52.	AGL	12.8.2(b)		Change in section references – Noted	Noted
53.	Aurora Energy	12.8.2(b)		Aurora Energy agrees with the change.	Noted
54.	Energy Queensland	12.8.2(b)		Energy Queensland supports the proposed change.	Noted
55.	Evoenergy	12.8.2(b)		Agree.	Noted
56.	intelliHub	12.8.2(b)		No issue.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
57.	Momentum Energy	12.8.2(b)		Agree to tidying up the section reference.	Noted
58.	PlusES	12.8.2(b)		OK.	Noted
59.	Red Emery & Lumo Energy	12.8.2(b)		Red and Lumo support proposed amendment to correct reference clause.	Noted
60.	Endeavour Energy	12.8.2(f)		Agree.	Noted
61.	Evoenergy	12.8.2 ©		Section 12.8.2 © – remove double space between “calculation” and “of” remove double space between “estimated” and “data” change “load scaling” to “load-scaling”	Corrected. “weekly load scaling factor” is jurisdictional wording.

Table 2 – Metrology Procedure Part B

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
1.	Evoenergy	2.4		Section 2.4 Quality Flag [F] - Reword sentence so intended use of F is clearer suggested wording: For Substitutions that are of a permanent or final nature and, subject to section 2.4(b) & (e), Actual Metering Data would not replace the Final substituted metering data at any time.	Clause reference corrected to 2.5(b) and (e) and final substituted metering data clarified as follows: Quality Flag "F" For Substitutions that are of a permanent or final nature, and subject to sections 2.5(b) and (e), the final Substituted *metering data* would not be replaced by Actual Metering Data at any time.
2.	Evoenergy	2.5 (b)		Section 2.5 (b) - remove double space between "Data" and "and" near end of sentence.	Corrected.
3.	AGL	2.6		Section 2.6 - Suggest that rather than page reference, the table references the relevant section, as there is less likelihood of another change due to final editing. Update to page references – Noted	Links to be changed to relevant sections.
4.	Aurora Energy	2.6		Aurora Energy agrees with the change.	Noted
5.	Energy Queensland	2.6		Energy Queensland supports the proposed change.	Noted
6.	Evoenergy	2.6		Agree.	Noted
7.	intelliHub	2.6		No issue.	Noted
8.	Momentum Energy	2.6		Agree to update to page references.	Noted
9.	PlusES	2.6		OK.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
10.	Red Energy & Lumo Energy	2.6		Red and Lumo support the amendment as proposed.	Noted
11.	Vector	2.6		Agree.	Noted
12.	Evoenergy	3.3.8		Section 3.3.8 - Reword sentence so that it is clearer to understand Suggested wording To perform a type 18 Substitution, the MDP may use an alternative method of Substitution subject to agreement with the FRMP, the LR and the LNSP for the connection point. The specifics of this Substitution type may involve; (a) a globally applied method, or (b) a method where an adjusted profile is used to take into account local conditions that affect consumption (e.g. local holiday or End User shutdown), or (c) where alternative metering data may be available for quality checks and minor adjustments of an estimated profile, such as using metering register data.	Proposed change: To perform a type 18 Substitution, the MDP may use an alternative method of Substitution subject to agreement with the FRMP, the LR and the LNSP for the connection point. The specifics of this Substitution type may involve; (a) a globally applied method, or (b) a method where an adjusted profile is used to take into account local conditions that affect consumption (e.g. local holiday or End User shutdown), or (c) where alternative metering data may be available for quality checks and minor adjustments of an estimated profile, such as using metering register data.
13.	CitiPower and Powercor	4.3		Section 4.3 - CP/PAL seeks clarification on how to treat estimations and substitutions during the interval length change.	New substitution methods added to Metrology Procedure: Part B – refer to response to Item 236.
14.	United Energy	4.3		Section 4.3 - UE seeks clarification on how to treat estimations and substitutions during the interval length change.	Refer to response to Item 13 above.
15.	Evoenergy	4.3.3		Section 4.3.3 - Reword sentence so that it is clearer to understand, as in 4.2 you must replace S with A when it becomes available. Exclude duplication here Suggested wording To perform a type 53 Substitution, the MDP must re-Substitute substituted metering data prior to the date referred to as R2 in the Data Delivery Calendar where the FRMP, the LR and the LNSP have agreed, on the basis of Site or End User information that the original substituted metering data is in error and a	Reword for clarity.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				correction is required. Does not apply where the MDP may now obtain Actual Metering Data.	
16.	Evoenergy	4.3.7		Section 4.3.7 - remove double space between "MC" and "for" near end of paragraph.	Corrected.
17.	Evoenergy	5.2.1 (b) (i)		Section 5.2.1 (b) (i) - remove double space between "Substitution;" and "or" at end of point (i).	Corrected.
18.	Evoenergy	5.2.5 (c)		Section 5.2.5 (c) - remove double space between "Datastream;" and "or" at end of point (c).	Corrected.
19.	Evoenergy	5.3.6		Section 5.3.6 - Reword sentence so that it is clearer to understand, as in 4.2 you must replace S with A when it becomes available. Exclude duplication here Suggested wording To perform a type 66 Substitution, the MDP must re-Substitute substituted metering data prior to the date referred to as R2 in the Data Delivery Calendar, where the FRMP, the LR and the LNSP have agreed, on the basis of Site or End User information that the original substituted metering data is in error and a correction is required. Does not apply where the MDP may now obtain Actual Metering Data.	Wording is consistent with revised 4.3.3,
20.	Evoenergy	10.2		Section 10.2 - Reword sentence so that it is clearer to read and understand Suggested wording As a minimum, an MDPs metering data services database, must undertake the following Validations for metering installation types with remote acquisition of metering data:	This proposal places the obligation to undertake validations on the metering data services database. The current Procedure wording correctly places the obligation on the MDP to undertake validations.
21.	Evoenergy	10.2 (b) (ii)		Section 10.2 (b) (ii) - Reword sentence so that it is clearer to read and understand Suggested wording (adding a comma in the same way it is in point (i))	Corrected.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				For whole current metering installations, the maximum rating of the meter is to be used.	
22.	Evoenergy	10.4		Section 10.4 - Reword sentence so that it is clearer to read and understand Suggested wording under heading As a minimum, an MDPs metering data services database, must undertake the following Validations on metering data from manually read interval metering installation with CTs:	Refer to response to Item20 above.
23.	Evoenergy	10.5		Section 10.5 - Reword sentence so that it is clearer to read and understand Suggested wording under heading As a minimum, an MDPs metering data services database, must undertake the following Validations on metering data from whole current manually read interval metering installations:	Refer to response to Item 20 above.
24.	Evoenergy	11 and 13		Section 11 and 13 - As part of all the formulas, you have the word “where”. For consistency, please make them all the same, so that they are “where:”, and not a mishmash of many variations.	Corrected consistently.
25.	AGL	11.2.1		Update to section reference to Metrology Procedure: Part A – Noted	Noted
26.	Aurora Energy	11.2.1		Aurora Energy agrees with the change.	Noted
27.	Energy Queensland	11.2.1		Energy Queensland considers that the governance arrangements for the manual reading of interval meters can be strengthened (particularly for data collection for Type 4A metering installations).	Noted
28.	Evoenergy	11.2.1		Agree.	Noted
29.	intelliHub	11.2.1		No issue.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
30.	Momentum Energy	11.2.1		Agree to the update to section reference to Metrology Procedure: Part A.	Noted
31.	PlusES	11.2.1		OK.	Noted
32.	Red Energy & Lumo Energy	11.2.1		Red and Lumo support the amendment as proposed.	Noted
33.	Vector	11.2.1		Agree.	Noted
34.	Evoenergy	11.2.1 (c)(ii)		Section 11.2.1 (c)(ii) - Sentence is too long Add comma after LR …in MSATS is not the LR, a second…	Corrected.
35.	AGL	11.2.2		Update to section reference to Metrology Procedure: Part A – Noted	Noted
36.	Aurora Energy	11.2.2		Aurora Energy agrees with the change.	Noted
37.	Energy Queensland	11.2.2		Energy Queensland has no comment on this proposed change as it does not apply in Queensland.	Noted
38.	Evoenergy	11.2.2		Concur.	Noted
39.	intelliHub	11.2.2		No issue.	Noted
40.	Momentum Energy	11.2.2		Refer to 11.2.1.	Noted
41.	PlusES	11.2.2		OK.	Noted
42.	Red Energy & Lumo Energy	11.2.2		Red and Lumo support the amendment as proposed.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
43.	Vector	11.2.2		Agree.	Noted
44.	AGL	11.2.3		Update to section reference to Metrology Procedure: Part A – Noted	Noted
45.	Aurora Energy	11.2.3		Aurora Energy agrees with the change.	Noted
46.	Energy Queensland	11.2.3		Energy Queensland supports the proposed change.	Noted
47.	Evoenergy	11.2.3		Agree.	Noted
48.	intelliHub	11.2.3		No issue.	Noted
49.	PlusES	11.2.3		OK.	Noted
50.	Red Energy & Lumo Energy	11.2.3		Red and Lumo support the amendment as proposed.	Noted
51.	Vector	11.2.3		Agree.	Noted
52.	AGL	11.3.1		Update to section reference to Metrology Procedure: Part A – Noted "Half hourly" reference updated to "Interval" – Noted	Noted
53.	Aurora Energy	11.3.1		Aurora Energy agrees with the change.	Noted
54.	Energy Queensland	11.3.1		Energy Queensland has no comment on this proposed change as it does not apply in Queensland.	Noted
55.	Evoenergy	11.3.1		Agree.	Noted
56.	intelliHub	11.3.1		No issue.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
57.	Momentum Energy	11.3.1		Refer to 11.2.1.	Noted
58.	PlusES	11.3.1		OK.	Noted
59.	Red Energy & Lumo Energy	11.3.1		Red and Lumo support the amendment as proposed.	Noted
60.	Vector	11.3.1		Agree.	Noted
61.	Momentum Energy	11.3.1 (a)		Section 11.3.1(a) - Valid Clause should be referenced as Section 11.3.1(a)	There is no clause 11.3.1(a) in Metrology Procedure: Part A, correct reference is 12.8.2.
62.	Momentum Energy	11.3.1 (b) (i)		Section 11.3.1(b)(i) - Suggests the updates to Section 11.3.1 (a) and 11.3.1(b) are detailed separately to remove ambiguity.	Noted
63.	AGL	11.3.2		Update to section reference to Metrology Procedure: Part A – Noted Change end dates from “23:30” to “23:55” – Noted	Noted
64.	Aurora Energy	11.3.2		Aurora Energy agrees with the change.	Noted
65.	Energy Queensland	11.3.2		Energy Queensland supports the proposed change.	Noted
66.	Evoenergy	11.3.2		Okay.	Noted
67.	Momentum Energy	11.3.2		Agree to the proposed updates to the following sections: • 11.3.2 (a) [from Section 5.9.2 to Section 12.8.2] • 11.3.2(b) [from Section 5.9.4 to Section 12.8.2] • 11.3.1(c)(ii)(B) [from TI commencing 23:30 to TI commencing 23:55]	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				11.3.1©(iii)(B) [from TI commencing 23:30 to TI commencing 23:55]	
68.	PlusES	11.3.2		OK.	Noted
69.	Red Energy & Lumo Energy	11.3.2		Red and Lumo support the amendment as proposed.	Noted
70.	Vector	11.3.2		Agree.	Noted
71.	AGL	11.3.2 (c) (i)		Type in 11.3.2(c)(i) formula – 'Accumulati on..'	Corrected.
72.	Red Energy & Lumo Energy	11.3.3		Section 11.3.3 - Red and Lumo query whether AEMO is comfortable with this clause only applying in South Australia. We also recommend the following amendment to clause 11.3.3(b)(v): (v) The LNSP must ensure that a meter which is a sample Interval Meter installed for the purposes of calculating the CLP is not removed without the prior consent of AEMO. Further, we question whether there should be an obligation on the LNSP to publish a list of sample meters to ensure that they are not inadvertently removed by the metering coordinator when they are undertaking a meter exchange on behalf of a retailer (both within SA and outside SA).	Identification of sample meters is a current problem; therefore this item is out of scope for 5MS. Resolution of this issue to be initiated through BAU Procedure change processes.
73.	Evoenergy	11.3.3 (b) (v)		Section 11.3.3 (b) (v) - Reword sentence so that it is clearer to read and understand Suggested wording (adding commas) The LNSP must ensure that a meter, which is a sample Interval Meter installed for the purposes of calculating the CLP, is not removed without the consent of AEMO.	Corrected.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
74.	AGL	11.4		Update to section reference to Metrology Procedure: Part A – Noted 'Half hourly' reference in formulas updated to 'TI' – Noted 'Half hourly' reference updated to 'Five minute' – Noted Updates made to formulas – Noted	Noted
75.	AGL	11.4		Section 11.4 - AGL notes the amended formulas. The formulae assume that metering is set at intervals no smaller than 5-minute intervals, although other sections allow for metering to be set at part of a TI (i.e. less than 5 minutes). It is assumed that part TI metering would need to be aggregated to 5- minute metering prior to this calculation. AGL believes that there should be no barrier to installing meters collecting data at less than 5 minute intervals as was the case with meters collecting data at less than 30 minute intervals. AGL therefore suggest that the procedures recognise intervals of less than 5 minutes and accommodate the summation to 5 minute data. Given the significant levels of small customer generation (e.g. photo voltaic, battery feed-in etc.) which will be recorded at 30-minute intervals, AGL questions how this energy will be included as energy inflows when it is fed into a TNI prior to establishing the NSLP. Typo 11.4(b) 'Profile Area' is italicised once in formulas.	Refer to response to Table 1 Item 10, i.e. Metrology procedure: Part A Clause 3.9(d) requires AEMO and industry participants to agree on the definition of sub-multiple intervals. Clause 3.9 can be modified through BAU Procedure change processes when an appropriate sub-multiple interval definition is developed in the future. Small customer generation will continue to be considered as negative load at the specific connection point and profiled using the 5-minute Profile Area shape produces under Section 12 of Metrology Procedure: Part B. Typo corrected.
76.	Aurora Energy	11.4		Aurora Energy agrees with the change.	Noted
77.	Endeavour Energy	11.4		Type error in clause 11.4.b: The definition of the term Y has the word 'resentation' which should be 'representation'.	Corrected
78.	Energy Queensland	11.4		Energy Queensland supports the proposed change. Energy Queensland also notes: - "Y" should be changed to "y" to accurately reflect the formula	Corrected

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				In the explanation of "Y" there is a spelling mistake in the word "representation".	
79.	Evoenergy	11.4		Update to section reference to Metrology Procedure: Part A, "Half hourly" updated to TI and "Half hourly" updated to "Five-minute" – Concur. Section 11.4 - Wrong word used in sentence, should be as below Y = Five-minute metering data representation for	Noted Corrected.
80.	intelliHub	11.4		No issue.	Noted
81.	Momentum Energy	11.4		Agree to section reference update for Section 11.4(a). Section 11.4 - Recommend a typographical error fix for indicator Y: Y= Five-minute metering data representation for metering installations with 30-minute metering data except interval metering data in respect to loads at child connection points in an embedded network	Corrected.
82.	PlusES	11.4		OK.	Noted
83.	Red Energy & Lumo Energy	11.4		Section 11.4 - Red and Lumo support the proposed amendments to formulas and calculations at this stage. However, we note that further investigation is required on the impacts this may have to embedded generation, in particular where small customer generation is recorded at 30-minute intervals. We consider that we are unlikely to be the only retailer with concerns regarding how this calculation will work for energy inflows when it is fed into a TNI prior to establishing a NSLP. We request that AEMO considers the impact of this and confirms the outcome of its considerations in terms of amendments required to the methodology for formula amendments.	Refer to response to Item 75.
84.	Vector	11.4		Agree.	Noted
85.	Evoenergy	11.5(b) (i) & (ii)		Section 11.5(b)(i) & (ii) - Remove extra space before "or" and "and" at end of each dot point.	Corrected.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
86.	AGL	11.5		Update to section reference to Metrology Procedure: Part A – Noted Change end dates from "23:30" to "23:55" – Noted	Noted
87.	Aurora Energy	11.5		Aurora Energy agrees with the change.	Noted
88.	Energy Queensland	11.5		Energy Queensland supports the proposed change.	Noted
89.	Evoenergy	11.5		Agree.	Noted
90.	intelliHub	11.5		No issue.	Noted
91.	Momentum Energy	11.5		Agree to the proposed updates to the following sections: • 11.5(a) [from Section 5.9.2 to Section 12.8.2] • 11.5(b)(i) [from TI commencing 23:30 to TI commencing 23:55] 11.5(b)(ii) [from TI commencing 23:30 to TI commencing 23:55]	Noted
92.	PlusES	11.5		OK.	Noted
93.	Red Energy & Lumo Energy	11.5		Red and Lumo support the amendment as proposed.	Noted
94.	Vector	11.5		Agree.	Noted
95.	AGL	11.6		Change end dates from "23:30" to "23:55" – Noted	Noted
96.	Aurora Energy	11.6		Aurora Energy agrees with the change.	Noted
97.	Energy Queensland	11.6		Energy Queensland supports the proposed change.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
98.	Evoenergy	11.6		Concur.	Noted
99.	intelliHub	11.6		No issue.	Noted
100.	PlusES	11.6		OK	Noted
101.	Red Energy & Lumo Energy	11.6		Red and Lumo support the amendment as proposed.	Noted
102.	Vector	11.6		Agree.	Noted
103.	AGL	12		Section 12 - AGL again seeks to understand how substantial levels of consumer generation recorded at 30-minute intervals will be included as energy inflows. There is also the question of how 30-minute generation (e.g. Solar) can be profiled to 5-minute levels and how this impacts the NSLP? AGL has undertaken some initial analysis and is concerned at the likely error in this process.	Refer to response to Item 75.
104.	Aurora Energy	12		Aurora Energy agrees with the change.	Noted
105.	Endeavour Energy	12		Clause 12.1.c and 12.2.c: For consistency the title of clause 11.2 should be used. We suggest this clause be updated to: The TI *metering data* produced in (b) will be used in the Profile Preparation Service – Controlled Load Profile Process. Clause 12.3.c: For the avoidance of any doubt it should be made clear that this step is applicable for metering installations with accumulation metering data. We suggest this clause be updated to: The *energy* associated with non-sample Controlled Load *metering installations* with *accumulated metering data* is summed, both for First-Tier and Second-	Corrected.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				Tier Controlled Loads and then profiled by applying the controlled load profile (CLP) calculated in accordance with section 11.3.	
106.	Energy Queensland	12		Energy Queensland supports the proposed change.	Noted
107.	Evoenergy	12		Okay.	Noted
108.	Momentum Energy	12		Section 12 - Refer to the proposed changes detailed above in Section 3.9 - Metrology Procedure: Part A Suggestion: Section 12.1(a) of Metrology Procedure: Part B should be revised to state the following: For each sample metering installation 15-minute period described in clause 3.9(b) of Metrology Procedure: Part A, divide the 15-minute energy value by three to produce a 5-minute energy value. Otherwise it will create a conflict with section12.2(a)	Corrected to 3.9(b).
109.	Plus ES	12		Metrology Part B Section 12 clauses are difficult to discern the exact meaning as worded. Suggest re-wording for clarity. Propose the below amendments, if that is actually the intent: Clause 12.3 (a) – Re-word For each Profile Area, the energy inflows are the sum of energy flows for all wholesale metering installations plus the sum of energy generated from any embedded generation. Clause 12.3 (b) – Re-word For each profile area, the sum of all metering installations that have five-minute metering data (excluding those specified in clause 12.3 (a). This includes metering data associated with market type 7 metering installations. Metering data for child connection points is ignored.	Embedded generation is incorrect as it is related to Market Generators only. SGAs do not register as Generators but are to be included in the energy inflow calculation. 12.3(a) to be reworded as follows to reflect the intent of NER 7.8.2(b1)(2). For each Profile Area, the energy inflows are the sum of energy flows for all wholesale metering installations plus the sum of energy generated from distribution connection points where the FRPM is a Market Generator or MSGA. Use proposed wording for 12.3(b).
110.	Plus ES	12		Section 12 - This clause implies SAMPLE metering data can continue to be measured and collected in either 15 minute of 30 minute intervals and will be	Metrology Procedures Part A section 12.8.2 and Part B section 11 already state that AEMO is to perform profiling preparation.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				converted to 5-minute intervals in accordance with clauses 12.1 and 12.2. Who performs this calculation? Can we assume AEMO?	
111.	Red Energy & Lumo Energy	12		Section 12 - Red and Lumo support the proposed amendment, however, as detailed in comments to section 11.4, we wish to clarify that AEMO has considered impacts to embedded generation (30 minute interval data) as part of this and any potential implications this may have.	Refer to response to Item 75 above.
112.	Vector	12		Agree.	Noted
113.	Evoenergy	12.3(c)		Reword sentence so that it is clearer to read and understand Suggested wording (adding commas) (c) The energy associated with non-sample Controlled Load metering installations is summed for both First-Tier and Second-Tier Controlled Loads, and then profiled by applying the controlled load profile (CLP) calculated in accordance with section 11.3.	Refer to response to Item 105.
114.	Evoenergy	12.3 (d)		Section 12.3(d) - Reword sentence so that it is clearer and easy to read and understand (too long) Same wording (adding commas and breaking down to dot points) (a) The five-minute load profile is then determined by; i. subtracting the sum of all non-wholesale metering data (calculated in (b)), and ii. the sum of all Controlled Load five-minute metering data (calculated in (c)) from the Profile Area's wholesale boundary, and iii. embedded generation five-minute metering data (calculated in (a)).	Propose the following simpler wording for 12.3(d). The five-minute load profile is then determined by subtracting the metering data calculated in (b) and (c) from the metering data calculated in (a).
115.	AGL	13.1.4		Update to section references – Noted	Noted
116.	Energy Queensland	13.1.4		Energy Queensland supports the proposed change.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
117.	Evoenergy	13.1.4		Agree.	Noted
118.	intelliHub	13.1.4		No issue.	Noted
119.	Momentum Energy	13.1.4		Agree to the update for sections: • 13.1.4(a)(i) 13.1.4(a)(ii)	Noted
120.	PlusES	13.1.4		OK.	Noted
121.	Red Energy & Lumo Energy	13.1.4		Red and Lumo support the amendment as proposed.	Noted
122.	Vector	13.1.4		Agree.	Noted
123.	Aurora Energy	13.1.1		Aurora Energy agrees with the change.	Noted
124.	AGL	13.2.2		Update to section reference to Metrology Procedure: Part A – Noted	Noted
125.	Aurora Energy	13.2.2		Aurora Energy agrees with the change.	Noted
126.	Energy Queensland	13.2.2		Energy Queensland supports the proposed change.	Noted
127.	Evoenergy	13.2.2		Agree.	Noted
128.	intelliHub	13.2.2		No issue.	Noted
129.	Momentum Energy	13.2.2		Agree to the update to section 13.2.2(d)	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				Each MC must update the Inventory Table for the NMIs for which it is responsible on at least a monthly basis to ensure that the accuracy requirements in section 12.5 of Metrology Procedure Part A are met.	
130.	PlusES	13.2.2		OK.	Noted
131.	Red Energy & Lumo Energy	13.2.2		Red and Lumo support the amendment as proposed.	Noted
132.	Vector	13.2.2		Agree.	Noted
133.	AGL	13.2.4		Update to section references – Noted Update to formulas – Noted	Noted
134.	Aurora Energy	13.2.4		Aurora Energy agrees with the change.	Noted
135.	Energy Queensland	13.2.4		Energy Queensland supports the proposed change.	Noted
136.	Evoenergy	13.2.4		Agree.	Noted
137.	intelliHub	13.2.4		No issue.	Noted
138.	Momentum Energy	13.2.4		Agree to the update to section 13.2.4(a). No comments to the proposed update to Section 13.2.4©.	Noted
139.	PlusES	13.2.4		OK.	Noted
140.	Red Energy & Lumo Energy	13.2.4		Red and Lumo support the amendment as proposed.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
141.	Vector	13.2.4		Agree.	Noted
142.	AGL	13.2.5		Update to formulas – Noted	Noted
143.	Aurora Energy	13.2.5		Aurora Energy agrees with the change.	Noted
144.	Endeavour Energy	13.2.5		Clause 13.2.5.b: The formula for the TI during which the off time occurs is incorrect. It should be: (Period load is switched on) = (Off time) – (Start time of TI)/5	The current formula is correct as the result produced is a fraction of a TI.
145.	Energy Queensland	13.2.5		Energy Queensland supports the proposed change.	Noted
146.	Evoenergy	13.2.5		Okay.	Noted
147.	intelliHub	13.2.5		No issue.	Noted
148.	Momentum Energy	13.2.5		No comments to the proposed update to Section 13.2.5(b).	Noted
149.	PlusES	13.2.5		OK.	Noted
150.	Red Energy & Lumo Energy	13.2.5		Red and Lumo support the amendment as proposed.	Noted
151.	Vector	13.2.5		Agree.	Noted
152.	AGL	13.2.6		Update to section references – Noted Update to formulas – Noted	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
153.	Aurora Energy	13.2.6		Aurora Energy agrees with the change.	Noted
154.	Energy Queensland	13.2.6		Energy Queensland supports the proposed change.	Noted
155.	Evoenergy	13.2.6		Okay.	Noted
156.	intelliHub	13.2.6		No issue.	Noted
157.	Momentum Energy	13.2.6		Agree to the update to section 13.2.6(a) & 13.2.6(b). No comments to the proposed update to formulas in section 13.2.6©.	Noted
158.	PlusES	13.2.6		OK.	Noted
159.	Red Energy & Lumo Energy	13.2.6		Red and Lumo support the amendment as proposed.	Noted
160.	Vector	13.2.6		Agree.	Noted
161.	AGL	13.3		Update to section references – Noted	Noted
162.	Aurora Energy	13.3		Aurora Energy agrees with the change.	Noted
163.	Energy Queensland	13.3		Energy Queensland supports the proposed change.	Noted
164.	Evoenergy	13.3		Agree.	Noted
165.	intelliHub	13.3		No issue.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
166.	Momentum Energy	13.3		Agree to the proposed update to section reference for Uncontrolled Unmetered Devices.	Noted
167.	PlusES	13.3		OK.	Noted
168.	Red Energy & Lumo Energy	13.3		Red and Lumo support the amendment as proposed.	Noted
169.	Vector	13.3		Agree.	Noted
170.	AGL	13.3.2		Update to section reference to Metrology Procedure: Part A – Noted	Noted
171.	Aurora Energy	13.3.2		Aurora Energy agrees with the change.	Noted
172.	Energy Queensland	13.3.2		Energy Queensland supports the proposed change.	Noted
173.	Evoenergy	13.3.2		Agree.	Noted
174.	intelliHub	13.3.2		No issue.	Noted
175.	Momentum Energy	13.3.2		Agree to the proposed update to section 13.3.2(d).	Noted
176.	PlusES	13.3.2		OK.	Noted
177.	Red Energy & Lumo Energy	13.3.2		Red and Lumo support the amendment as proposed.	Noted
178.	Vector	13.3.2		Agree.	Noted
179.	AGL	13.4		Update to section reference – Noted	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
180.	AGL	13.4		Section 13.4 - AGL notes the On Delay/Off Delays are set at between 13 and 21 minutes, which is now equal to between 3 and 5 Trading Intervals and queries whether that is satisfactory within a 5-minute market and how that load is dispersed across these trading intervals.	On delay times and off delay times are discrete periods, not variable periods, and added to sunset and sunrise times for a particular day (ref clause 12.2.4(a)). The calculated load energy occurs between "sunset time + on delay" and "sunrise time + off delay".
181.	Aurora Energy	13.4		Aurora Energy agrees with the change.	Noted
182.	Energy Queensland	13.4		Energy Queensland supports the proposed change.	Noted
183.	Evoenergy	13.4		Agree.	Noted
184.	intelliHub	13.4		No issue.	Noted
185.	Momentum Energy	13.4		Agree to the proposed update to section reference for 13.4(b).	Noted
186.	PlusES	13.4		OK.	Noted
187.	Red Energy & Lumo Energy	13.4		Red and Lumo support the amendment as proposed.	Noted
188.	Vector	13.4		Agree.	Noted
189.	AGL	13.5		Section 13.5 - AGL notes that the traffic signal dimming also incorporates the ON/OFF delays and seeks to understand the impact on a 5-minute market and how load would be dispersed across the 5-minute intervals.	Traffic signal dimming does not include on/off delays.
190.	Momentum Energy	13.5		Agree to the proposed update to section 13.5.	Noted
191.	Aurora Energy	13.5.2		Aurora Energy agrees with the change.	Noted
192.	Energy Queensland	13.5.2		Energy Queensland supports the proposed change.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
193.	Evoenergy	13.5.2		Agree.	Noted
194.	intelliHub	13.5.2		No issue.	Noted
195.	Momentum Energy	13.5.2		Agree to the proposed update to section 13.5.2(d).	Noted
196.	PlusES	13.5.2		OK.	Noted
197.	Red Energy & Lumo Energy	13.5.2		Red and Lumo support the amendment as proposed.	Noted
198.	Vector	13.5.2		Agree.	Noted
199.	Aurora Energy	13.5.4		Aurora Energy agrees with the change.	Noted
200.	Energy Queensland	13.5.4		Energy Queensland supports the proposed change.	Noted
201.	Evoenergy	13.5.4		Agree.	Noted
202.	intelliHub	13.5.4		No issue.	Noted
203.	Momentum Energy	13.5.4		Agree to the proposed update to section 13.5.4(b). No comments to the proposed change to formula in section 13.5.4©.	Noted
204.	PlusES	13.5.4		OK.	Noted
205.	Red Energy & Lumo Energy	13.5.4		Red and Lumo support the amendment as proposed.	Noted
206.	Vector	13.5.4		Agree.	Noted
207.	AGL	13.5.5		Update to formulas – Noted	Noted
208.	Aurora Energy	13.5.5		Aurora Energy agrees with the change.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
209.	Energy Queensland	13.5.5		Energy Queensland supports the proposed change.	Noted
210.	Evoenergy	13.5.5		Agree.	Noted
211.	intelliHub	13.5.5		No issue.	Noted
212.	Momentum Energy	13.5.5		No comments to the proposed change to formula in section 13.5.5(b).	Noted
213.	PlusES	13.5.5		OK.	Noted
214.	Red Energy & Lumo Energy	13.5.5		Red and Lumo support the amendment as proposed.	Noted
215.	Vector	13.5.5		Agree.	Noted
216.	AGL	14.1		Update to section reference – Noted	Noted
217.	Aurora Energy	14.1		Aurora Energy agrees with the change.	Noted
218.	Energy Queensland	14.1		Energy Queensland supports the proposed change.	Noted
219.	Evoenergy	14.1		Agree.	Noted
220.	intelliHub	14.1		No issue.	Noted
221.	Momentum Energy	14.1		Agree to the proposed update to section 14.1.	Noted
222.	PlusES	14.1		OK.	Noted
223.	Red Energy & Lumo Energy	14.1		Red and Lumo support the amendment as proposed.	Noted
224.	Vector	14.1		Agree	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
225.	AGL	14.3		Update to section reference – Noted	Noted
226.	Aurora Energy	14.3		Aurora Energy agrees with the change.	Noted
227.	Energy Queensland	14.3		Energy Queensland supports the proposed change.	Noted
228.	Evoenergy	14.3		Agree.	Noted
229.	intelliHub	14.3		No issue.	Noted
230.	Momentum Energy	14.3		Agree to the proposed update to section 14.3(h)(ii).	Noted
231.	PlusES	14.3		OK.	Noted
232.	Red Energy & Lumo Energy	14.3		Red and Lumo support the amendment as proposed.	Noted
233.	Vector	14.3		Agree.	Noted
234.	CitiPower and Powercor	N/A		General Comment CP/PAL seeks clarification on how to treat churn of interval length on a meter, for example, first part of day is in 30 minute, the remainder in 5-minute interval. Our preference would be to aggregate to 30 minute intervals for that day.	Will be included in MDP SLP section 5 in Package 2 procedure consultation.
235.	Evoenergy	N/A		General Comment There are inconsistencies with spaces after a colon or semi-colon. Some instances have one space, some two.	Corrected.
236.	Plus ES	N/A		General comment Provisions need to be made to support the substitution of 5-minute interval metering data where historic data is not recorded in 5 minutes intervals. For example, what substitution method would be used for a communications fault on the day(s) immediately following the conversion from	Add new Substitution methods. Type 21/59 – Five-Minute Conversion

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				either 15 minute or 30-minute metering? There are no historic like-for-like intervals from which to base a substitution.	Where no Historical Data exists for a five-minute metering installation, the MDP must provide a Substitute for the interval metering data as follows: • For 15-minute Historical Data, divide the 15-minute energy values by three to produce 5-minute energy values. • For 30-minute Historical Data, divide the 30-minute energy values by six to produce 5-minute energy values.
237.	Red Energy & Lumo Energy	N/A		General Comment As per the comment above in relation to the Metrology Procedures: Part A, we recommend the use of the term trading interval instead of TI throughout the Procedures to highlight that it is defined in the NER - consistent with the other terms e.g. metering installation and interval metering data.	Refer to response to Metrology Procedure Part A Item 10.
238.	United Energy	N/A		General Comment UE seeks clarification on how to treat churn of interval length on a meter, for example, first part of day is in 30 minute, the remainder in 5-minute interval. Our preference would be to aggregate to 30-minute intervals for that day.	Refer to response to Item 234 above.

Table 3 – Meter Data File Format Specification NEM12 & NEM13

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
1.	Evoenergy	2 (b)		Section 2(b) - Remove extra space between “the” and “information”.	Corrected.
2.	AGL	3.3.3		Section 3.3.3 - AGL notes there is no definition of interval data for Sub-TI periods, but understands how they would be defined.	The only IntervalLength values contemplated at this stage are 5, 15 and 30 minutes. Also refer to Table 1 Item 10.
3.	Aurora Energy	3.3.3		Aurora Energy agrees with the addition.	Noted
4.	Energy Queensland	3.3.3		Energy Queensland supports the proposed change.	Noted
5.	Evoenergy	3.3.3		Agree.	Noted
6.	intelliHub	3.3.3		No issue.	Noted
7.	Momentum Energy	3.3.3		Agree to the statement inserted and identified as Section 3.3.3(b).	Noted
8.	PlusES	3.3.3		OK.	Noted
9.	Red Energy & Lumo Energy	3.3.3		Red and Lumo support the amendment as proposed.	Noted
10.	Vector	3.3.3		Agree.	Noted
11.	AGL	3.3.4		Section 3.3.4 - AGL notes that the procedure requires index reads for type 4A and 5 meters, although they are generally provided by MDPs for type 4 meters. However, there are small customer billing obligations which require index reads from any meter. AGL therefore suggests that this obligation should be extended to type 4 metering, not just 4A/5 metering.	Out of scope for 5MS, initiate change through BAU forums.
12.	AGL	4.3		Section 4.3. - Noted, although doesn’t explicitly allow for sub-TI metering. Per previous comments this should now accommodate sub-5-minute intervals.	The only IntervalLength values contemplated at this stage are 5, 15 and 30 minutes.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
13.	Aurora Energy	4.3		Aurora Energy agrees with the addition.	Noted
14.	Energy Queensland	4.3		Energy Queensland supports the proposed change.	Noted
15.	Evoenergy	4.3		Agree.	Noted
16.	CitiPower and Powercor	4.3		Section 4.3 - CP/PAL seeks clarification on field MDMDataStreamIdentifier as it still makes reference to N1 and N2 etc. We suggest this be updated to i.e. E1, B1, etc.	Noted
17.	intelliHub	4.3		No issue.	Noted
18.	Momentum Energy	4.3		Agree to the insertion of the value 5 in the definition column for the field value labelled 'IntervalLength'.	Noted
19.	United Energy	4.3		Section 4.3 - UE seeks clarification on field MDMDataStreamIdentifier as it still makes reference to N1 and N2 etc. We suggest this be updated to i.e. E1, B1, etc.	Refer to response to Item 16.
20.	PlusES	4.3		OK.	Noted
21.	Red Energy & Lumo Energy	4.3		Red and Lumo support the amendment as proposed.	Noted
22.	Vector	4.3		Agree.	Noted
23.	Plus ES	Appendix B		Was there a proposal to increase the order of accuracy of the metering data? If so, the character lengths specified in Appendix B need to be amended to include the additional decimal places (e.g. kWH = 15.4).	Appendix B corrected as follows: UOM Type — Format M… mega (Million) — Numeric k… kilo (Thousand) — Numeric pf Power Factor — Numeric Wh, VArh, VAh, VAr, VA, V, A, W — Numeric
24.	AGL	Appendix H		Section added to include five-minute meter data file example – Noted	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
25.	Aurora Energy	Appendix H		Appendix H - Aurora Energy – with the interval length moving to 4 decimal places as part of 5ms – is it worth showing this in this example?	Example H1 values expressed to four decimal places.
26.	CitiPower and Powercor	Appendix H		Appendix H - H.9 5-Minute Interval Metering Data - Metering Installations with Remote Acquisition The example in the below line still includes N1, is this still applicable? '200,VABD000163,E1Q1,1,E1,N1,METSER123,kWh,5,'	Refer to response to Item 16.
27.	Energy Queensland	Appendix H		Energy Queensland supports the proposed change.	Noted
28.	Evoenergy	Appendix H		Agree.	Noted
29.	intelliHub	Appendix H		No issue.	Noted
30.	Momentum Energy	Appendix H		Agree to the addition of the 5-Minute Interval Metering Data - Metering Installations with remote acquisition.	Noted
31.	PlusES	Appendix H		OK.	Noted
32.	Red Energy & Lumo Energy	Appendix H		Red and Lumo support the amendment as proposed.	Noted
33.	United Energy	Appendix H		Appendix H - H.9 5-Minute Interval Metering Data - Metering Installations with Remote Acquisition The example in the below line still includes N1, is this still applicable? '200,VABD000163,E1Q1,1,E1,N1,METSER123,kWh,5,'	Refer to response to Item 9 above.
34.	Vector	Appendix H		Agree.	Noted

Table 4 – Retail Electricity Market Procedures – Glossary and Framework

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
1.	PlusES	2.6.2		OK.	Noted
2.	Momentum Energy	2.6.3		Section 2.6.3 - Was not identified as one of the updates to the REM Glossary & Framework Agree to proposed update to wards the improvement of processes to include the conversion of Meter Readings to Trading Interval data for settlement purposes.	This change was identified in High Level Impact Assessment for this document and was included in presentation to 5MS Procedures Working Group Meeting #1 on 3 August 2018.
3.	AGL	2.11		Section 2.11 - This section provides a definition for a 'new' role but does not specify a common usage term for an 'incoming' or 'prospective' role which would be a useful addition.	Not related to 5MS, initiate change to Glossary and Framework through appropriate BAU forum.
4.	AGL	4.4.4		Removal of NEM12 & NEM13 File Clarifications – Noted	Noted
5.	Aurora Energy	4.4.4		Aurora Energy agrees with the change.	Noted
6.	Energy Queensland	4.4.4		Energy Queensland supports the proposed change. Energy Queensland also suggests that paragraph (a) should be changed from "MDM File Format and Load Process" to "MDFF File Format and Load Process" or "MD File Format and Load Process".	Noted A change of name for the document will be contemplated during Package 2 procedure development and consultation.
7.	Evoenergy	4.4.4		Agree.	Noted
8.	intelliHub	4.4.4		No issue.	Noted
9.	Momentum Energy	4.4.4		Agree to the deletion of Section 4.4.4(b) to remove duplication of the same information in 2 separate documents. Suggest the following updates for completeness:	Corrected

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				• 4.4.4© to be identified as the new 4.4.4(b) 4.4.4(d) to be identified as the new 4.4.4©.	
10.	PlusES	4.4.4		OK – Needs to be removed from AEMO web site.	Noted
11.	Red Energy & Lumo Energy	4.4.4		Red and Lumo support the amendment as proposed.	Noted
12.	Vector	4.4.4		Agree.	Noted
13.	AGL	5		Section 5 - Definition UOM This definition was transferred from the MDPP. However, a definition of UOM also exists within the MDFF procedures. The reference in the glossary to 4.1 is to clause 4.1 of the MDPP but AGL suggest that it would be better to refer to the MDFF – Appendix B.	Agree. Glossary definition changed.
14.	Aurora Energy	5		Aurora Energy agrees with the change.	Noted
15.	AusNet	5		Section 5 - The alteration of the definition of Maximum Demand has a material impact on the obligations in the MDPP. The definition of demand has changed to 5 minute. AusNet Services considers that the most relevant maximum demand is the demand measured over a 30-minute period. Generally, the over-heating impacts on network assets are smoothed over by the thermal mass of equipment. Our AER approved revenue is based on maximum demand calculated over a 30 minute. Hence, we recommend changes that establish, where the customer is being billed on 30-minute demand, only 30-minute demand data needs to be provided.	Change definition to recognise demand charge period basis for calculating maximum demand, e.g. "Where Maximum Demand is based on 30-minute intervals, the highest…".
16.	CitiPower and Powercor	5		Section 5 - CP/PAL recommends, for clarity, the term/s 'MRIM / MRIM RWD meter' be added with an explanation of 'A meter installed in Victoria as part of the Advanced Metering Infrastructure mandate in Victoria'. At least 3 of	CATS Procedure Table 4L to be updated in Package 2. B2B transactions are not included in the Glossary and

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				the 5 Distributors use this instead of 'VICAMI Meter'. CP/PAL recommends the Glossary be updated to include the new Life Support transactions and their definitions - 'Life Support Notification' and 'Life Support Request'.	Framework document, they are defined in each B2B Procedure. Life Support transactions are included in B2B Procedure: Customer and Site Details Notification Process v3.2.
17.	Endeavour energy	5		General: for consistency all defined terms should have all words start with an upper case. Accumulated metering data - summary data: This term is not used in the any document. We suggest that this term be removed from the glossary. If there is any value in maintaining the definition, then it should be moved to clause 4.2 of the Metering Data Provision Procedures. Interval metering data - summary data: This term is not used in the any document. We suggest that this term be removed from the glossary. If there is any value in maintaining the definition, then it should be moved to clause 4.3 of the Metering Data Provision Procedures. Interval metering data – detailed data: This term is not used in the any document. We suggest that this term be removed from the glossary. If there is any value in maintaining the definition, then it should be moved to clause 4.4 of the Metering Data Provision Procedures. Nature: Having a term reference another defined term adds complexities with little value. We suggest that this term not be defined in the glossary and replace this term with 'Energy Flow Type' where is used in the Procedure. UOM: This term is used in more than one procedure, however the definition provided is too restrictive and it references a clause in an unnamed procedure. We suggest that the definition for this term be more general and if there is a need to restrict the definition then this is done in the appropriate procedure	Noted. "Accumulated metering data – summary data" "Interval metering data – summary data", "Interval metering data – detailed data", and "Nature" Have been returned to MDPP as these terms are only used in that Procedure. UOM definition changed – refer to response to Item 13.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
18.	Energy Queensland	5		Energy Queensland notes that some of the additional glossary terms have been taken directly from the Metering Data Provision Procedure and the wording should be amended to make better sense in this context. For example: - Interval Metering Data: From and To Date. - UOM – refers to a clause in another document References to "the period of the request".	Refer to response to Item 17.
19.	Evoenergy	5		Agree.	Noted
20.	intelliHub	5		No issue.	Noted
21.	Momentum Energy	5		Agree to the consolidation of the various glossary items into a central document for ease of reference.	Noted
22.	PlusES	5		OK.	Noted
23.	Red Energy & Lumo Energy	5		Red and Lumo support the amendment as proposed.	Noted
24.	United Energy	5		Section 5 - UE recommends, for clarity, the term/s 'MRIM / MRIM RWD meter' be added with an explanation of 'A meter installed in Victoria as part of the Advanced Metering Infrastructure mandate in Victoria'. At least 3 of the 5 Distributors use this instead of 'VICAMI Meter'. UE recommends the Glossary be updated to include the new Life Support transactions and their definitions - 'Life Support Notification' and 'Life Support Request'.	Refer to response to Item 16 above.
25.	Vector	5		Agree.	Noted

Table 5 – Metering Data Provision Procedures

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
1.	AGL	1.1		Changes to NER clause references and minor administrative updates – Noted	Noted
2.	Aurora Energy	1.1		Aurora Energy agrees with the change.	Noted
3.	Energy Queensland	1.1		Energy Queensland supports the proposed change. However, in addition to the proposed changes to section 1.1, Energy Queensland requests that these procedures make it clear whether a DNSP must provide data to customers in the interval length as metered. For example, if a meter was recording data in 5-minute intervals, would the DNSP be obligated to provide data in 5-minute intervals or could they provide data in 30-minute intervals?	MDPP clause 4.4 requires interval metering data to be, at a minimum, the 200 and 300 records of a NEM12 file, therefore five-minute metering data would be provided.
4.	Evoenergy	1.1		Agree.	Noted
5.	intelliHub	1.1		No issue.	Noted
6.	PlusES	1.1		OK.	Noted
7.	Red Energy & Lumo Energy	1.1		Section 1.1 - Red and Lumo seek clarification why AEMO considered the removal of defined term Distribution Network Service Provider and replaced this with the abbreviation (DNSP)? Noting the changes requested to trading interval above, we support the other amendments as proposed.	The original MDPP identified DNSP as an abbreviation for Distribution Network Service Provider. Since then, the Glossary and Framework document also included DNSP as the abbreviated term, therefore it is unnecessary state in the MDPP that DNSP is an abbreviation for Distribution Network Service Provider.
8.	Vector	1.1		Agree.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
9.	Momentum Energy	1.2		Section 1.2 - Addition of information about the inter-relationship between the Retail Electricity Market Procedures and the Metering Data Provision Procedures. Added as not initially identified in the consultation.	Reference to Glossary and Framework document added to 1.2 and 1.3.
10	AGL	1.2.1		Glossary removed and now included in the Retail Electricity Market Procedures – Glossary and Framework document – Noted, see comments in Retail Glossary	Noted
11	Aurora Energy	1.2.1		Aurora Energy agrees with the change.	Noted
12	AusNet	1.2.1		Section 1.2.1 - The alteration of the definition of Maximum Demand has a material impact on the obligations in the MDPP. The definition of demand has changed to 5 minute. AusNet Services considers that the most relevant maximum demand is the demand measured over a 30-minute period. Generally, the over-heating impacts on network assets are smoothed over by the thermal mass of equipment. Our AER approved revenue is based on maximum demand calculated over a 30 minute. Hence, we recommend changes that establish, where the customer is being billed on 30-minute demand, only 30-minute demand data needs to be provided.	Revised definition now in Glossary and Framework document.
13	Energy Queensland	1.2.1		Energy Queensland notes that by moving this text to the Retail Electricity Market Procedures, some of the terms no longer make sense in their new context. Therefore, Energy Queensland suggests that this text be revised to ensure suitability.	Refer to response to Table 5 Item 17.
14	Evoenergy	1.2.1		Good move.	Noted
15	intelliHub	1.2.1		No issue.	Noted
16	Momentum Energy	1.2.1		Section 1.2.1 - Glossary removed and now included in the Retail Electricity Market Procedures – Glossary and Framework document. Refer comments in Section 5 for the Retail Electricity Market Glossary and Framework.	Noted
17	Plus ES	1.2.1		Retail Electricity Market Procedures – Glossary and Framework document does not have the MDPP referenced in Table 1.3 Related AEMO Documents	Added to document.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
18	Red Energy & Lumo Energy	1.2.1		Red and Lumo support the amendment as proposed.	Noted
19	Vector	1.2.1		Agree.	Noted
20	AGL	1.2.2		Interpretation section removed from the document – Noted	Noted
21	Aurora Energy	1.2.2		Aurora Energy agrees with the change.	Noted
22	Energy Queensland	1.2.2		Energy Queensland supports the proposed change.	Noted
23	Evoenergy	1.2.2		Okay.	Noted
24	intelliHub	1.2.2		No issue.	Noted
25	PlusES	1.2.2		OK.	Noted
26	Red Energy & Lumo Energy	1.2.2		Red and Lumo support the amendment as proposed.	Noted
27	Vector	1.2.2		Agree.	Noted
28	AGL	1.3		Retail Electricity Market Procedures – Glossary and Framework added as a related document – Noted	Noted
29	Aurora Energy	1.3		Aurora Energy agrees with the change.	Noted
30	Energy Queensland	1.3		Energy Queensland supports the proposed change.	Noted
31	intelliHub	1.3		No issue.	Noted
32	Momentum Energy	1.3		Agree.	Noted
33	PlusES	1.3		OK.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
34	Red Energy & Lumo Energy	1.3		Red and Lumo support the amendment as proposed.	Noted
35	Evoenergy	2.3 (d) (i) & (ii)		Section 2.3(d)(i) & (ii) - Reword sentence so that it is clearer to read and understand Suggested wording i. Within the timeframes specified in clauses 2.3(b) and 2.3(c), provide all metering data for those retail customers for which all verification information has been supplied. ii. Comply with clause 2.1(e) in relation to those retail customers for which not all verification information was supplied.	Corrected.
36	Energy Queensland	3.4		Energy Queensland notes that 5-minute reads will significantly increase the size of data files. This presents challenges for the provision of the requested data in the mandated "single" file, especially where delivery is by electronic means. As such, Energy Queensland recommends the following small modification to the proposed new text: (a) Subject to clause 3.4(b), retailers and DNSPs must provide a ~~single~~ metering data file in relation to a retail customer's metering installation for the requested period.	"Single" removed.
37	AGL	4.1		Section 4.1 - AGL suggest that the MDPP should refer to Appendix B – MDFF.	Clause 4.1(a) already states that data file field detail format and units of measure are a subset of units of measure detailed in MDFF Specification.
38	AGL	4.3		Section 4.3 - AGL suggests that clause 4.3 (d)(iv) may need updating to include kVAr to accommodate changes in tariffs being discussed.	Clause 4.3(d)(iv) is related to providing information about data quality. Revise clause references in MDPP 4.3(d)(viii).
39	Plus ES	N/A		Was there a proposal to increase the order of accuracy of the metering data? If so, the character lengths specified in clause 4.1 need to be amended to include the additional decimal places (e.g. kWH = 15.4).	UoM accuracy to reflect values stated in revised MDFF Specification Appendix B.

Table 6 – Other Issues

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
1.			What is your view on the proposed profiling approach for 15 and 30-minute non-controlled load meter reads and why?		
2.	AGL			AGL notes the complexity involved in profiling processes, but it has undertaken some initial analysis of 5 minute solar data and 30 minute data and has determined that there can be at least a 10% error level, which is greater during the dusk and dawn periods, which would coincide with increased consumer usage. AGL is planning to undertake another level of data assessment early in 2019 and would be more than happy to work with AEMO on the impact of this data. Nevertheless, this initial analysis indicates a sufficient error level that AGL believes that further analysis and consideration is needed of the profiling approach proposed by AEMO.	AEMO would welcome the opportunity to work with AGL to analyse this data.
3.	Aurora Energy			At this stage, Aurora Energy is happy with the approach.	Noted
4.	Ausnet			We submit no feedback in relation to controlled load meter reads, that are not profiled in Victoria.	Noted
5.	Energy Queensland			Energy Queensland broadly supports the proposal to profile 15- and 30-minute meter reads to 5-minute trading intervals to enable a consistent approach to pool settlements (01/07/2021 – 01/07/2023) including	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				provision to FRMP of extrapolated 5-minute reads for BASIC (type 6) meters.	
6.	Evoenergy			Seems reasonable.	Noted
7.	intelliHub			No issue.	Noted
8.	Momentum Energy			Profiling meter data to 5-minute trading interval (TI) is an interim and partial solution that introduces operational risks for every registered or accredited participant. The industry is expected to adopt the proposed solution to manage numerous 'business critical' processes until such time all existing meters across the NEM are either replaced or re-configured to provide 5 minute data. I July 2021 to 1 December 2022, is a lengthy transitional period for relying on an interim solution where AEMO is responsible for profiling meter data to 5m TI for the large volume of meter types 4, 5 and 6 across the NEM. The 5m program risks and issues log does not provide visibility of the risks & issues identified as part of the AEMO's internal project and in fairness, we should be updated. Stakeholders such as generators, aggregators, LNSPs, MCs, MPs, MDPs and a wide cross-section of retailers should have been engaged at an earlier timeframe to effectively discuss and come up with options for 5ms. Momentum's view and preference is for AEMO to provide two sets of meter data feeds to the retailers; one which has been profiled and the other feed the original data set as uploaded by the Meter Data Providers or Local Network Service Providers to AEMO.	AEMO is currently considering the proposal to provide profiled data for 30-minute connection points and will be discussing this through the Metering Focus Group.
9.	Plus ES			Neither the descriptions in the Consultation Paper or the new clause 12 of Metrology Procedure Part B define the process for converting 15/30-minute metering data to 5-minute trading intervals for the purpose of	Profiling detail to be added to Metrology Procedure: Part B Section 12.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				settlements – Other than how it is aggregated for the purposes of calculating the NSLP.	
10.	Red Energy & Lumo Energy			Red and Lumo Energy note the efforts undertaken by AEMO in determining a proposed profiling solution for 5-minute settlement. In theory, what has been proposed seems to be the most viable solution. However, we believe that AEMO alongside industry participants require further analysis and consideration into whether in practice it is fit for purpose. We also question what would be the process AEMO would undertake, should the profiling approach be found to require amendment?	More specific profiles discussed at PWG/Focus Group but require critical mass.
11.	Vector			No comment on this section as profiling will not impact Vector.	Noted
12.			What is your view on the proposed profiling approach for 30-minute controlled load meter reads and why?		
13.	AGL			AGL considers that the profiling of the controlled loads should be more efficient as controlled loads are generally far less variable and the profiling should provide a more accurate outcome.	Noted
14.	Aurora Energy			Tasmania has very few Controlled load meters and therefore Aurora Energy has no view on this point.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
15.	AusNet			We submit no feedback in relation to controlled load meter reads, that are not profiled in Victoria.	Noted
16.	Energy Queensland			Energy Queensland broadly supports the proposal to profile 15- and 30-minute meter reads to 5-minute trading intervals to enable a consistent approach to pool settlements (01/07/2021 – 01/07/2023) including provision to FRMP of extrapolated 5-minute reads for BASIC (type 6) meters.	Noted
17.	Evoenergy			Appears reasonable.	Noted
18.	intelliHub			No issue.	Noted
19.	Plus ES			No view – The proposed approach seems reasonable.	Noted.
20.	Red Energy & Lumo Energy			As above, we consider that what has been proposed seems viable in theory, and welcome AEMO working with industry to undertake further analysis and ensure that it is fit for purpose in practice.	Noted.
21.	Vector			No comment on this section as profiling will not impact Vector.	Noted
22.			Are there better profiling options to accommodate 5MS, that better achieve the required objectives? What are the pros and cons of these options? How would they be implemented?		

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
23.	AGL			At this stage AGL does not have a better profiling proposal, but considers that this should not hamper further investigation and analysis of this issue by AEMO and industry. AGL considers that AEMO is better placed to undertake this analysis as it has access to all data, not sub-sets which retailers and networks have.	Noted.
24.	Aurora Energy			At this stage Aurora Energy has no better profiling suggestions.	Noted.
25.	Energy Queensland			Energy Queensland supports the provision of a 5 minute and 30-minute profile during the transition phase.	Noted
26.	Evoenergy			No comment.	Noted
27.	AusNet			We submit no feedback in relation to controlled load meter reads, that are not profiled in Victoria.	Noted
28.	intelliHub			No issue.	Noted
29.	Plus ES			Assuming the five-minute load profile shape is also used to convert 15/30-minute metering data to 5-minute trading intervals, then AEMO will need to provide this profile to retailers to support settlement reconciliation. Consideration needs to be given to locking this down well in advance of the Rev 1.	The five-minute load profile shape will be included in the current RM profile report (RM20). The five-minute load profile shape would have the same 'lock' provisions as the NSLP.
30.	Red Energy & Lumo Energy			At this stage, we do not have other options to propose. However, it is imperative that AEMO undertake a complete investigation and analysis into any proposed solution to ensure there is no detrimental impacts to market participants.	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
31.	Vector			No comment on this section as profiling will not impact Vector.	Noted
32.			What are your views on AEMO transitioning to MDFF and why?		
33.	AGL			The only issue is where AEMO uses or rejects an MDFF file that a retailer does not and the validation / holding processes AEMO implement on managing these files.	Noted.
34.	Aurora Energy			Aurora Energy supports the Transition for AEMO using MDFF.	Noted.
35.	AusNet			AusNet Services supports a staged transition to MDFF. In relation to this matter, we have previously provided advice to the 5ms High Level Impact Assessment. We note, AEMO is seeking to retire the MDMT files by July 2023 to gain greater insight into embedded generation by receiving metering data at the register level (i.e. b1, e1). The richness of this data would be helpful in wholesale forecasting. However, we are concerned by the impact and cost on participants of this requirement to update register level suffixes every NMI in MSATS to identify this data. There is potential risk to market settlements errors in populating or interpreting this more detailed data. These risks can be circumvented if AEMO decides to receive the net meter data in the MDFF file (as is currently allowed for), along with the register level metering data. This would avoid the need bulk updates to MSATS and transition market settlements from a tried and tested, robust data source at the NMI level. Under the current arrangements nothing prevents AEMO from loading the register level data (i.e. e1 and b1 data streams) in the MDFF files, for example into a “data lake”, for the purpose of DER forecasting. AEMO could then also validate against the	Populate CNDS table with individual data streams for settlements for meters installed from 1 July 2021. For all other cases, AEMO to use NMIConfiguration in 200 record to identify data streams to be used for settlements.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				net data stream. With this approach the retirement of the MDMT files will be non-controversial to participants and participants would not have to needlessly invest in bulk MSATS data conversions and amendments to CATS transaction processing. We note that profiling 30-minute metering data to 5-minute metering data is easier at the net NMI level as compared to at the register level.	
36.	Endeavour Energy			We in-principle support AEMO's proposal to receive metering data using the MDFF format and via the B2B channel. This will reduce the number of meter data formats that is required to be supported and can help to simplify business processes for the delivery and management of exceptions. However more detail is required from AEMO, especially with regards to the technical design, to ensure that the changes on MDPs are minimised and the benefits highlighted above are realised. We request AEMO organise a focus group workshop on this matter with impacted stakeholders.	To be part of Readiness activities.
37.	Energy Queensland			Energy Queensland supports the transition to a register level MDFF used by AEMO for NEM12/Interval data only. The 5-minute settlement changes do not justify any change to the current method of delivery for BASIC (Type 6) data delivery in the MDM format. This would be not cost justified for those MDPs who are only accredited for Type 6 meter installations, as 5-minute settlement should not have any impact on them.	Noted
38.	Evoenergy			AEMO should transition to MDFF for receipt of All metering data. A transition period of 12 months will allow all participants and AEMO opportunity to review validations and make appropriate adjustments to gain efficiencies.	Noted.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
39.	intelliHub			No issue	Noted
40.	Jemena			Jemena have no objection on AEMO transitioning to MDFF format. MDFF is an existing tried and tested format for B2B' transfers. Transitioning to MDFF would reduce complexity and would standardise the file format across B2B and B2M region. Decommissioning of MDMF should result in operational efficiencies. Speed to market - change to one supported schema can be consumed by FRMP, LR and AEMO.	Noted.
41.	Plus ES			PLUS ES is fully supportive of the transition to MDFF for the delivery of interval metering data to AEMO in support of the settlement process. We see significant benefits in consolidating the meter data format for this increasing segment of the market.	Noted.
42.	Plus ES			PLUS ES strongly opposes any proposal to transition to MDFF for non-interval metering data. PLUS ES questions what benefit such a change would deliver considering the diminishing volume of non-interval meters. Further, the implementation of this change for our network clients would be achieved at a significant cost. The reasoning is the inability to align automated processes based on current error codes per line for an MDM file with so far undefined error codes against a Basic MDFF file. Similar logic to that implemented and refined over many years since FRC will need to be redesigned to afford similar efficiencies in the back office for handling error conditions.	MDFF NEM13 files to be supported by AEMO from 1 July 2021 however AEMO to continue to support and accept MDMF files for Basic meter reads
43.	Red Energy & Lumo Energy			Red and Lumo support the transition to MDFF, the only foreseeable issue we have is how AEMO will manage this? What validation processes and issues has AEMO considered? Such as, the rejection processes (who is	Noted.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				notified?) and notification processes (if AEMO rejects a file is the FRMP notified?).	
44.	Vector			This proposed change will transfer the 'netting' calculation currently performed by the MDP to AEMO. This requires changes to both the MDP systems and the AEMO systems, and potentially impacts the current requirements for populating CATS tables. Vector is unclear on why this change is required for 5MS and Global settlement projects and has yet to see a compelling argument for this. Current MDP's already have systems and processes in place to support 'Netting' of meter data and providing this data to AEMO in the current MDN format. Moving from 30 min to 5 min is a relatively small change to these processes. Make the changes proposed to move functionality from the MDP to AEMO requires much larger changes to MDP systems as well as AEMO systems to achieve the same outcome. On the surface, this change appears to fail the cost/benefits test. From an MDP perspective just adopting the MDFF file format without the retiring the MDN process provides little benefit to the MDP. MDP system providers will charge for this change and MDP will still have two distinct processes for data delivery – one to AEMO and a separate one to other participants. If the MDN process was decommissioned and Industry relied on the b2b process as the only method of distributing Meter Data therefore reducing the number of processes to maintain a stronger business case for adopting the MDFF may exist.	Active and Reactive to support AEMO's obligation to monitor and report on UFE.
45.			What are your views on AEMO supporting the reception of register level meter data and why?		

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
46.	AGL			Part of the provision of the same data sets across the industry will require AEMO to accept register level meter data.	Noted.
47.	Aurora Energy			Aurora Energy supports AEMO supporting reception of register level meter data, however, there would need to be a clean-up of Registers and Suffix prior to this being used as part of 5MS. It is well known that there is are many variations in both Register and Suffix and these would need to be corrected before using the register.	Noted.
48.	AusNet			AusNet Services recommends that Registered Participants are able to provide register level meter data and net NMI level data with the MDFF file. AEMO could continue to settle the market with net NMI level data. This avoids risk to market settlements and a costly update of all NMIs within MSATS.	Populate CNDS table with individual data streams for settlements for meters installed from 1 July 2021. For all other cases, AEMO to use NMIConfiguration in 200 record to identify data streams to be used for settlements.
49.	Endeavour Energy			We support AEMO's proposal to accept register level metering data. This would simplify and reduce on-going support cost by having the one format and in addition would provide more transparency of the metering data.	Noted
50.	Energy Queensland			Energy Queensland notes that AEMO already receives register level data for Type 6 meters. Further, Energy Queensland notes the potential for data stream changes in MSATS to accept register level data from interval meters. However, we note that register level meter data does not address the mixed responsibility between MPB and MDP where the reading and delivery of meter data is independent of the publication of registers and data streams. Energy Queensland seeks procedural alignment between MPB/MDP and standing data tables & CATS transactions, noting that MDFF is frequently delivered without supporting CATS transactions/standing data.	Resolving the 'mixed responsibility between MPB and MDP where the reading and delivery of meter data is independent of the publication of registers and data streams' has been deemed outside the scope of the 5MS Program.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
51.	Evoenergy			Strongly support so that the MDP can send same structured file to all required participants. This will reduce settlement disputes, NUOS disputes and may improve MDP system performance	Noted.
52.	intelliHub			As long as no changes are required to data stream standing data as raised at the focus group, no issue.	Net data stream records are to be progressively replaced by Register level data stream records in the CATS NMI Data Stream (CNDS) table from 1 July 2021.
53.	Jemena			Jemena have no objection on AEMO supporting the reception of register level meter data. Retailers already receive the register level meter data. Access to granular register level data should give AEMO detailed breakdown of each register per connection point. AEMO could apply analytics on the data supplied to identify patterns and predict trends.	Noted.
54.	Plus ES			PLUS ES agrees to deliver register level metering data to AEMO providing the obligation to do so is limited to only those registers necessary to support the settlement process (i.e. Import and Export kWH only).	Active and Reactive to support AEMO's obligation to monitor and report on UFE.
55.	Plus ES			PLUS ES opposes any updates to put Register Data in the Datastream Table. The Settlements processes must use the Suffix field in the Meter Register Table to avoid duplication. Industry to insist on data cleansing where appropriate values are not populated in the Meter Register table today.	Noted
56.	Red Energy & Lumo Energy			Red and Lumo do not support the reception of register level meter data and firmly believe that this must not be considered for change. Aside from the fact that this will be very expensive to implement, we consider that this will be messy and cause more confusion. This is outside	Active and Reactive to support AEMO's obligation to monitor and report on UFE.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				the scope of 5-minute settlement, and no further changes should be considered.	
57.	Vector			This requires changes at for both the MDP and AEMO and potentially impacts the current requirements for populating CATS tables. Vector is unclear on why this change is required for 5MS and Global settlement projects. Vector has concerns on the impact to the existing market processes and the requirements on populating the CNDS table. Currently this table is loaded with the 'N' Suffix identifier for interval metering. Should new procedures require register level standing data to be populated into CNDS participants processes and systems will require significate change. This will also introduce issues related to standing data synchronisation as meters transition from the MDN to the MDFF. Vector acknowledge that AEMO are working on a solution to this issue, but we are currently unclear on the impact of any alternative proposal. Any change away from the current process requires careful assessment to understand the impact on participants.	Active and Reactive to support AEMO's obligation to monitor and report on UFE. Refer to response to Table 3 Item 16.
58.			What are your views on MDPs sending the same files to both market participants and AEMO, energy and non-energy, and why?		
59.	AGL			As more consistent data is provided and used by all parties the less error and variance should exist between each step in the settlement and reconciliation processes.	Noted.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
60.	Aurora Energy			Aurora Energy view is that it we see no reason not to send and use the same files to AEMO. Retailers, DNSP's and other participants use these files currently and see no reason why AEMO could not use the same files, in the same way.	Noted.
61.	AusNet			We support this approach, for the above reasons.	Noted.
62.	Endeavour Energy			We support AEMO's proposal to accept energy and non-energy metering data. This would simplify and reduce on-going support cost by having the one format and in addition would provide more transparency of the metering data.	Noted
63.	Energy Queensland			Energy Queensland supports this approach for the NEM12 format only. Energy Queensland supports AEMO receiving non-energy interval data to support the transition of customer data provision.	Noted
64.	Evoenergy			Will provide AEMO with opportunity to use other data for assessment of system stability.	Noted.
65.	intellihub			As long as no changes are required to data stream standing data as raised at the focus group, no issue.	Net data stream records are to be progressively replaced by Register level data stream records in the CATS NMI Data Stream (CNDS) table from 1 July 2021.
66.	Jemena			Retailers already receive energy and non-energy data, no issue in sending that across to AEMO.	Noted.
67.	Plus ES			In practice this will not work. As a contestable service provider servicing many clients, we find the delivery requirements can vary significantly between recipients of metering data. There are many scenarios where the file being sent to a client may not be compatible with AEMO's requirements to support the settlement process.	Meter data to be delivered consistently by MDPs to both AEMO and market participants i.e. MDPs must put in place processes to ensure that kWh and kVarh register meter data is delivered in such a manner

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				Our contestable competitiveness would be compromised if we moved to a one file fits all approach. In a contestable situation, MDPs can have a metering service agreement directly with a customer to supply volts, harmonics or similar measures for the customer to analyse. The customer pays for this service and uses the data to improve their efficiency. This data is a service between our two parties and is not necessary for settlement and should not need to be distributed to a wider audience than the party paying for the contestable service.	which ensures version alignment between AEMO and other market participants.
68.	Red Energy & Lumo Energy			MDPs have obligations to send energy information to retailers, distributors and AEMO. Information that is beyond that scope must be contractually arranged. As above, this is beyond the scope of 5-minute settlements, and should not be considered at this time. While we understand that AEMO has their systems open, this should be discussed and agreed with industry about the extra scope / functionality AEMO wishes to build, and where requested, a cost-benefit be undertaken. Industry are subject to considerable pressures regarding costs, as such, it is difficult to support additional costs for functionality that may never be required. Additionally, have the following questions to AEMO regarding the enhancements: ● What information pertaining to energy or non-energy is being proposed? And for what purpose would AEMO or other market participants require non-energy information? ● What additional functions does AEMO see itself performing with the data (energy and non-energy) it receives? Will these functions be completed on a user-pays basis or will the costs of conducting these functions be paid for by all customers? How will AEMO use the additional data if not to perform additional functions?	Active and Reactive to support AEMO's obligation to monitor and report on UFE.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				● What additional data does AEMO consider useful to acquire? Why can't AEMO enter into contractual arrangements to access that data? ● How would additional data be stored? what confidentiality requirements would be placed on it? who would have access? Will AEMO's legislated indemnity apply to data that isn't covered under the Rules or Procedures?	
69.	Vector			MDP's don't send the same files to all participants, they send meters data to participants including AEMO in separate physical files, up to the file size limit (1 MB). Each file generated will be tailored for the participants market role E.g. FRMP's will get files containing meter data from NMI's that they are the current retailer for. The LR will receive meter data from NMI's from the Network area that the LR is responsible for. Each DB will receive meter data for NMI's that are within their network. AEMO will receive all meter data. It is a misunderstanding that the same file can be sent to all participants. Moving from MDN to MDFF for data delivered to AEMO is not a huge benefit. The only real saving is the netting process currently performed by the MDP is no longer required. Where AEMO refers to 'non-energy' we assume you are referring to the Q and K streams which provide 'reactive energy' measurements. Vector is neutral about whether AEMO should receive this. If AEMO is referring to something other than reactive energy, then Vector would need to understand what is being proposed before we could comment.	Active and Reactive to support AEMO's obligation to monitor and report on UFE.
70.			What are the main challenges in adopting these proposed changes? How should these		

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
			challenges be addressed?		
71.	AGL			The majority of the challenges are for AEMO in accepting these files and the management / interaction with MDPS in this respect. From a retail perspective, disconnects between the data sets provided and used can lead to reconciliation issues between AEMO and retailers.	Noted.
72.	Aurora Energy			Aurora Energy generally does no see an issue adopting the proposed changes. We do believe though that the Register and Suffix issues would need to be fixed before using a register as a single source of truth. This is not a small task and would need to be discussed further as there would be potential for large amount of work to occur.	Noted.
73.	AusNet			Avoiding the need to update MSATS to include meter register level data for every NMI.	Noted.
74.	Endeavour Energy			Changes to MDP's systems are required for providing MDFF, register level metering data and non-energy metering data. More technical information is required to determine the required changes and how the process will be managed. AEMO should organise focus group workshops with impacted stakeholders to design and document in more detail the proposed solution. Initial setup of datastreams is required for providing register level metering data and non-energy metering data. This could be aided by the use of the Bulk Change Tool.	This will be discussed in the next Metering Focus Group workshop, expected to occur in February 2019.
75.	Energy Queensland			Energy Queensland notes that changes to B2B rules and processes will be required to address the additional rejection codes and messages currently found in the MDM process. AEMO will face the same challenges currently experienced by existing recipients of MDFF data where the	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				meter register and data streams may not align, and data may be received out of sync with CATS CRs.	
76.	Evoenergy			As a market participant, with major Rule changes, cost recovery of IT system changes for compliance to the new Rules. Participants will have significant IT and process change costs, with no real benefit to an MC, MDP, MPB or network businesses.	Noted
77.	intellihub			Minimal system changes to accommodate AEMO as a recipient of standard MDFF files instead of current MDFM files.	Noted
78.	Jemena			Increase in file size for interval data sent to AEMO (integration & performance impact: external) Change in xml schema moving away from B2M to B2B schema (current B2B schema version or a new version would be provided) Upstream impact - Accommodate 5 min data for Type 5 meters. Network impact, application impact (UIQ, IEE). (Integration impact: Internal) Transition period queries Resend request post cut off (MDM or MDFF format) Estimated data sent pre-cut off and actuals available post cut off (MDM or MDFF format) Go live date - Is it going to be a set date or on a case by case basis per MDP Change in file validation process at AEMO's end Jemena to send the file at current times, contention issues if any need to be handled at AEMO's end (incl. any AEMO outages) Would there be a window to revert to old process post cut off for P1 incidents if any Volume testing (internal integration and external integration) Increased testing effort as a change to one schema would require E2E	Noted

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				testing with all 3 entities (FRMP,LR and AEMO) Internal application report changes if any	
79.	Plus ES			**MDFF (Interval)** The transition to the MDFF format and the integration of any newly created Event Codes associated with the delivery of data to AEMO. **MDFF (Non-Interval)** PLUS ES strongly opposes any proposal to transition to MDFF for non-interval metering.	Noted
80.	Red Energy & Lumo Energy			There are no challenges to overcome in adopting the proposed changes, as the changes are not part of the scope of 5-minute settlements. We firmly object to all changes that are beyond the scope of the 5-minute settlement rule. AEMO must justify any costs associated with an expanded scope of its system build or functionality that goes beyond the scope of the changes that 5-minute settlement have been mandated to apply. AEMO will bear additional costs, which ultimately will be passed onto consumers, resulting from this extra unrequired functionality and enhancements that AEMO states explicitly in its consultation paper that is "not required by the 5MS rule" and would only be used "if provided by MDPs".	Noted
81.	Vector			Vector is primarily concerned with the proposal that AEMO use the MDFF file format to receive register level data and the associated impacts on NMI standing data in CATS tables. Depending on the outcome this has a potential to make the transition from 30 to 5-minute data complex, error prone, costly and should things go wrong impact on market settlements. Vector recommends that a pragmatic, low risk	Active and Reactive to support AEMO's obligation to monitor and report on UFE.

#	RESPONDENT	CLAUSE	HEADING/ DEFINITION	PARTICIPANT COMMENT	AEMO RESPONSE
				approach that recognises these issues and risks and avoids unnecessary change. Vector believes that CATS contains enough standing data today for AEMO to perform settlements calculations - retailers have been successfully reconciling the AEMO invoice using available data since market start. Should AEMO identify standing data quality issues that impact its ability to use the current data set then the industry has the time to address these between now and the start of 5MS in 2021.	

Table 7 – Jurisdictional Metrology Material Change

#	JURISDICTION	CURRENT CLAUSE	UPDATE REQUIRED
1.	Victoria	Clause 3.4. (b) The values of "x" applicable to a Jurisdiction are specified in the following table: Jurisdiction Variation in accordance with Jurisdictional policy Victoria New South Wales South Australia Australian Capital Territory "Value of "x" is 160 MWh per annum"	Note that this material is set by the Minister of each jurisdiction and is not "jurisdictional metrology material" that needs COAGEC concurrence. In any case, it is proposed to inform AEMO that for Victoria: "the "x" value for type 4A meters is 0 MWh per annum and the "x" value for type 5 meters is 160 MWh per annum" [Note: 3.4(b) and 3.4(d) already include these requirements.
2.		Clause 3.4 (d) The volume threshold for a connection point must be determined from the annual consumption for the billing periods over the most recent 12-month period, or prorated over a 12-month period based on the Average Daily load where consumption over the most recent 12-month period is not available. Where no metering data is available, the annual consumption may be calculated based on an engineering report or metering data from the loads of similar customers.	No change required
3.		Clause 3.5. "y" values (a) For connection points with a type 6 metering installation, the volume of electricity flowing through the connection point is to be less than "y" MWh per annum, where "y" varies according to Jurisdiction, except for first-tier load type 6 metering installations that meet the requirements of clause 11.20.3(a) of the NER. (b) The value of "y" applicable to each	No change required

#	JURISDICTION	CURRENT CLAUSE	UPDATE REQUIRED
		Jurisdiction is specified in the following table: "Value of "y" is 160 MWh per annum"	
4.		Clause 3.5 (d) "The manner in which the volumes of electricity referred to in the table above are to be calculated in each Jurisdiction is specified in the following table: Jurisdiction Variation in accordance with Jurisdictional policy Victoria New South Wales Queensland The volume threshold for a connection point must be determined from the annual consumption for the billing periods over the most recent 12 month period, or prorated over a 12-month period based on the Average Daily Load where consumption over the most recent 12 month period is not available. Where no metering data is available, the annual consumption may be calculated based on an engineering report or metering data from the loads of similar customers."	No change required
5.		6. EMBEDDED NETWORKS This requirement only applies in the Jurisdiction specified in the following table: "Should a Child Metering Point in an embedded network elect to purchase electricity from a retailer other than the parent's retailer, the metering coordinator must ensure that: (a) the child has an interval meter installed; and (b) the parent of the embedded network has an Interval Meter installed."	The policy basis of this clause relates to a period when it was not mandatory to have smart metering, while the policy basis is retained this requirement will now be regulated by a combination of the Victorian Orders and the new NER metering competition rules. This clause is obsolete for Victoria and can be removed.
6.		7. REVERSION OF METERING INSTALLATION TYPES This requirement only applies to the Jurisdiction specified in the following table:	The policy for non-reversion to a basic meter is now managed by the Orders and the NER for metering competition.

#	JURISDICTION	CURRENT CLAUSE	UPDATE REQUIRED
		"The metering coordinator must ensure that a type 4 or type 5 metering installation is not replaced by a type 6 metering installation."	This clause is obsolete and can be removed.
7.		12.2 Metering Data Collection (a) For type 1, 2, 3, 4, 4A, 5 and 6 metering installations, an MC or AEMO (where applicable) must ensure that metering data is collected in accordance with the Service Level Procedure (MDP). (b) This requirement only applies to the Jurisdiction specified in the following table: "Subject to section 12.2(c)[Vic], the type 5 accumulation boundary is zero MWh per annum."	The type 5 accumulation boundary (the consumption level above which interval data is mandatorily collected) remains at zero MWh however this is no longer subject to the dates in clause 12.2(c). This clause becomes for Victoria: "The type 5 accumulation boundary is zero MWh per annum."
8.		Clause 12.2(c) This requirement only applies to the Jurisdiction specified in the following table: "Section 12.2(b)[Vic] and 12.2(f) do not apply to type 5 metering installations installed on or after 27 February 2005. For type 5 metering installations installed after 27 February 2005, the type 5 accumulation boundary is 160 MWh per annum."	While the type 5 boundary continues to be zero MWh for all type 5 meters, the dates in this provision are out of date. This clause is obsolete in Victoria and can be removed.
9.		Clause 12.2(d) This requirement only applies to the Jurisdiction specified in the following table: "During the period in which the metering coordinator is not required to collect interval energy data from any type 5 metering installation because of the operation of clause	With the removal of clause 12.2(c), this clause is also obsolete and can be removed.

#	JURISDICTION	CURRENT CLAUSE	UPDATE REQUIRED
		12.2(c)[Vic], if it does not collect interval energy data from the metering installation, it must collect accumulation energy data from that metering installation as if it were a type 6 metering installation."	
10.		Clause 12.2(f) Subject to the dates specified in clause 13.2(c)[Vic], for type 5 metering installations (excluding sample profile meters for the purpose of developing CLPs in accordance with section 13.3 of Metrology Procedure: Part B), the MC must: (i) Ensure that interval metering data is collected from the metering installation in accordance with Service Level Procedure (MDP); and Use reasonable endeavours to ensure that interval metering data is collected from every type 5 metering installation once every three months and that this metering data is transferred to the metering data services database.	Note that the reference to reference to clause 13.2(c) appears to be a mistake and should be 12.2(c). While not strictly jurisdictional metrology material, due to the removal of 12.2(c), this clause can be varied to remove the following reference: The reference to "Subject to the dates specified in clause 13.2(c)[Vic]," in this clause can be removed.
11.		Clause 12.2(i) This requirement only applies to the jurisdiction specified in the following table: "Nothing in section 12.2(h) prevents the metering coordinator from additionally collecting energy data from a type 5 metering installation and transferring that data to the relevant metering data services earlier than 2 business days prior to the scheduled reading date for that metering installation."	This clause ensures that the Victorian AMI service levels, whereby metering data is to be collected and delivered to relevant participants daily, is not in conflict with the metrology procedure for type 5 meters which otherwise would be read {manually} on a quarterly basis. This clause can be brought up to date for Victoria as follows: "Despite 12.2(h), where metering data for a type 5 metering installation is collected by remote acquisition, metering data is to be transferred to the metering data services database in accordance with the AMI Service Levels Specification (Victoria) (published on the Department's website on 18 October 2007) and as amended from time to time. "

#	JURISDICTION	CURRENT CLAUSE	UPDATE REQUIRED
12.		12.4 Access to Metering Data (b) This requirement only applies to the Jurisdiction specified in the following table: "Despite section 12.4(a), where metering data for a type 5 metering installation is collected more frequently than required under clause 12.2(h) (as allowed under section 12.2(i)[Vic]) access to metering data need not be provided until 5pm on the second business day after the next scheduled reading date for that metering installation."	Despite data being collected daily, this clause seems to limit the availability of data "until 5pm on the second business day after the next scheduled reading data" where NSRDs are quarterly date relating to old manual reading and billing schedules. Given that it is intended that data be provided to participants daily and customers generally as well on request under AMI Tariff Orders and NER 7.15.5 when it is available, it is unclear why parties have been provided the ability to restrict access to data to a date in relation to NSRD. This clause is obsolete and can be removed.
13.		Part B, Clause 2.3 Estimation Requirement The MDP must undertake Estimations on behalf of the MC in a manner consistent with this Procedure. Estimations may be required in the following circumstances. (a) Routinely for a period equal to or just greater than the period to the NSRD or another forward period. (b) In response to End User transfers authorised by a Jurisdiction or RoLR Events, as outlined in section 13. (c) Where the current published Scheduled Reading Date has changed due to a revised scheduled reading route and the existing estimated metering data does not extend to or beyond the revised NSRD, the MDP must adjust the estimated metering data for the revised NSRD. "Where metering data for a type 5 metering installation is collected more frequently than required by Metrology Procedure Part A, Estimations need not be provided routinely or as a result of a change to the current published Scheduled Reading Date. Estimations must, however, be provided where necessaryto meet the data requirements of Schedule 8 of the Service Level required for Metering Data Collection, Processing and Delivery Services	Update as follows: "Where metering data for a type 5 metering installation is collected by remote acquisition, Estimations need not be provided routinely or as a result of a change to the current published Scheduled Reading Date." "Estimations must, however, be provided where necessary to meet the data requirements of Schedule 8 of the Service Level required for Metering Data Collection, Processing and Delivery Services for Metering Data Provider Category 5D, 6D and 7D, but are not required to be for a period to the next Scheduled Reading Date."

#	JURISDICTION	CURRENT CLAUSE	UPDATE REQUIRED
		for Metering Provider category 50, 60 and 70, but are not required to be for a period to the next Scheduled Reading Date."	[Note: correct clause references are Service Level Procedure: Metering Data Provider Services clauses 3.12 and 3.13. AEMO to request COAG to approve change to clause references]
14.	Tasmania	7. REVERSION OF METERING INSTALLATION TYPES Tasmania (1) The metering coordinator must ensure that a type 4 or type 5 metering installation is not replaced by a type 6 metering installation. (2) A type 4 or type 5 metering installation may be replaced by a type 6 metering installation in relation to a specified connection point where approved by the Minister and written notice of that approval has been provided to AEMO.	Delete this text for Tasmania.
15.	Queensland	3.5 "y" values – Calculation and Use (b) The value of "y" applicable to each Jurisdiction is specified in the following table: Qld – Value of "y" is:	
16.		aa) For the period 1 July 2012 to 30 June 2013, 750 MWh per annum for end-use customers who cease to be Queensland Non-Market Customers on 1 July 2012 by operation of the Act and/or Queensland Electricity Regulation 2006, and,	Delete.
17.		b) 100 MWh per annum for Queensland Market Customers in accordance with (c), below of this metrology procedure.	Change to "100 MWh per annum for Queensland Market Customers"
18.		c) The metering coordinator must ensure that the meters installed in the type 6 metering installations under (a) and (b), above, are interval meters which must be capable of being upgraded for use in a type 4 metering installation without replacing the meter.	Delete.

#	JURISDICTION	CURRENT CLAUSE	UPDATE REQUIRED
19.		7. REVERSION OF METERING INSTALLATION TYPES This requirement only applies to the Jurisdiction specified in the following table: Qld (2) The metering coordinator may convert a remotely read Interval Meter to a manually read Interval Meter if consumption drops below 100 MWh per annum.	Delete.
20.		9. INSTALLATION OF METERS 9.3 Queensland Only This requirement only applies to the Jurisdiction specified in the following table: Qld – Complies with the Queensland Electricity Connection and Metering Manual, which each LNSP must publish and update from time to time.	Delete.
21.		12. RESPONSIBILITY FOR METERING DATA SERVICES 12.2 Metering Data Collection (b) This requirement only applies to the Jurisdiction specified in the following table: (4) Once interval metering data is transferred to AEMO, the Interval Meter must continue to be read as an Interval Meter unless the NMI is reclassified from a NMI equal to or greater than 100 MWh per annum to a NMI less than 100 MWh per annum, in which case the Interval Meter may be read as an Accumulation Meter.	Delete.
22.	New South Wales	7. REVERSION OF METERING INSTALLATION TYPES This requirement only applies to the Jurisdiction specified in the following table: New South Wales	This clause is to be modified for NSW to allow type 5 meters to be replaced with a type 4A meter: "(1) The metering coordinator must ensure that a meter that meets the requirements of a type 5 metering installation, and is installed

#	JURISDICTION	CURRENT CLAUSE	UPDATE REQUIRED
		"(1) The metering coordinator must ensure that a meter that meets the requirements of a type 5 metering installation, and is installed at a connection point consuming between 100 MWh per annum and 160 MWh is not removed from a metering point, unless: The metering installation is to be replaced by a metering installation type 1, 2, 3, 4, or 5; or The NMI is deregistered"	at a connection point consuming between 100 MWh per annum and 160 MWh is not removed from a metering point, unless: The metering installation is to be replaced by a metering installation type 1, 2, 3, 4, 4A or 5; or The NMI is deregistered" AEMO to request COAG to approve removing reference to type 5 as these can no longer be installed.
23.		12. RESPONSIBILITY FOR METERING DATA SERVICES 12.2 Metering Data Collection (a) For type 1, 2, 3, 4, 4A, 5 and 6 metering installations, an MC or AEMO (where applicable) must ensure that metering data is collected in accordance with the Service Level Procedure (MDP) (b) This requirement only applies to the Jurisdiction specified in the following table: "(1) Subject to section 7[NSW](4), the *type 5 accumulation boundary* is 100 MWh per annum"	This clause becomes for NSW: "(1) Subject to section 7[NSW](4), the *type 5 accumulation boundary* is 100 MWh per annum for type 5 meters installed prior to, or in the process of being installed as at 1 December 2017."