



Service Level Procedure: Metering Data Provider Services

Prepared by: AEMO Markets

Document ref:

Version: 2.5

Effective date: 1 July 2025

Status: Final

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Date: 25/03/2025

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Current version release details

Version	Effective date	Summary of changes
.01	Aug 2012	Initial draft
1.0	June 2013	Updated with comments from 2 nd stage consultation and MSWG
1.2	Sept 2014	Including meter churn, comms network approval and other minor amendments
1.4	Dec 2014	Updated with feedback from participants and MSWG after second stage consultation
1.5	Dec 2017	Updated to incorporate: <ul style="list-style-type: none"> National Electricity Amendment (Expanding competition in metering and related services) Rule 2015. No.12; National Electricity Amendment (Embedded Networks) Rule 2015 No. 15; and National Electricity Amendment (Meter Replacement Processes) Rule 2016 No. 2.
1.6	Dec 2017	Updated to incorporate a number of clarifications and corrections.
1.7	1 Dec 2017	Work Package 3 – Final Determination.
1.8	20 May 2020	Updated to amend outdated NER reference; and defining an obligation to deliver metering data while the NMI status is not Active.
2.0	1 July 2021	Updated to incorporate: <ul style="list-style-type: none"> National Electricity Amendment (Five Minute Settlement) Rule 2017 No.15 and National Electricity Amendment (Global settlement and market reconciliation) Rule 2018 No. 14
2.1	1 October 2021	v1.8 and v2.0 consolidation
2.2	1 May 2022	Updated to include changes for the Retail Electricity Market Procedures March 2021 Consultation, the changes are for the following Information Change Requests (ICFs): <ul style="list-style-type: none"> ICF_M001 Process to detect energy data ICF_023 Process when remote collection of metering data fails ICF_030 Configuration of data channels and meter data obligations.

2.3	30 May 2023	Updated to incorporate National Electricity Amendment (Regulated stand-alone power systems) Rule 2022
2.4	2 June 2024	Updated for National Electricity Amendment (Integrating energy storage systems into the NEM) Rule 2021
2.5	1 July 2025	Removal of SA controlled load profile and SA metering installation reversion provisions

1. Introduction

1.1. Purpose and scope

This Service Level Procedure is made in accordance with clause 7.16.6 of the National Electricity Rules (NER) (**Procedure**).

This Procedure has effect only for the purposes set out in the NER. The NER and the *National Electricity Law* prevail over this Procedure to the extent of any inconsistency.

1.2. Definitions and interpretation

Terms defined in the National Electricity Law and the NER have the same meanings in these Procedures unless otherwise specified in this clause.

Terms defined in the NER are intended to be identified in these Procedures by italicising them, but failure to italicise a defined term does not affect its meaning.

The Retail Electricity Market Procedures – Glossary and Framework:

- (a) Is incorporated into and forms part of this document; and
- (b) Should be read in conjunction with this Procedure.

1.3. Related AEMO documents

Title	Location
B2B Procedures	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Business-to-business-procedures
Data Delivery Calendar	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Metering-procedures-guidelines-and-processes
Default and Deregistration Procedure	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Accreditation-and-Registration
MDM Procedures	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Market-Settlement-and-Transfer-Solutions
MDM File Format and Load Process	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Metering-procedures-guidelines-and-processes
Metering Data File Format Specification NEM12 & NEM13 (MDFF)	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Metering-procedures-guidelines-and-processes
Metrology Procedure: Part A	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Metrology-Procedures-and-Unmetered-Loads
Metrology Procedure: Part B	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Metrology-Procedures-and-Unmetered-Loads
MSATS Procedures	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Market-Settlement-and-Transfer-Solutions
NMI Procedures	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Metering-procedures-guidelines-and-processes

Title	Location
Qualification Procedure	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Accreditation-and-Registration
Retail Market Procedures – Glossary and Framework	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering
Special Sites and Technology Related Conditions within the National Electricity Market	http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Retail-and-metering/Metering-procedures-guidelines-and-processes

2. Obligations

2.1. Metering data services

Each MDP must:

- (a) provide *metering data services* in accordance with the NER, procedures under the NER and relevant Jurisdictional codes and policies;
- (b) establish, maintain and operate a *metering data services database*;
- (c) ensure that *metering data* and relevant CATS Standing Data is kept confidential and secure in accordance with NER obligations and only provided to persons entitled to have such access;
- (d) undertake the collection, processing and delivery of *metering data* and Meter Alarm occurrences;
- (e) comply with all directions from AEMO to fulfil any obligation under this Procedure;
- (f) co-operate in good faith with AEMO, all *Registered Participants*, MPs, MDPs and ENMs; and
- (g) in regard to *connection points* that are affected by a RoLR Event, or where a Jurisdiction has requested AEMO to undertake End User transfers, the MDP must:
 - (i) assist AEMO and *Registered Participants* with the management of transfers;
 - (ii) process and deliver *metering data*; and
 - (iii) update the *metering register* and relevant CATS Standing Data.

2.2. Insurance

The MDP must:

- (a) hold public liability insurance for an amount not less than \$10,000,000 per occurrence;
- (b) hold professional indemnity insurance for an amount of not less than \$1,000,000 per occurrence, which must be maintained for a period of seven years after termination of the MDP's registration; and
- (c) provide AEMO with certified certificates of currency upon request.¹

¹ If an MDP and MP or MC (as applicable) are the same legal entity, a single insurance policy for public liability insurance for an amount not less than \$10,000,000 per occurrence and professional indemnity insurance for an amount of not less than \$1,000,000 per occurrence that covers the operations of the MDP, MP and MC Roles (as applicable) will satisfy the insurance requirements under this Procedure, the Service Level Procedure (MP) and eligibility requirements for registration as an MC.

2.3. Use of sub-contractors

Where an MDP engages a sub-contractor to perform any of the MDP's obligations specified in the NER or this Procedure, the MDP:

- (a) must have policies and procedures for assessing the sub-contractor's capability, competency, processes, procedures and systems, to ensure that the sub-contractor complies with the NER and this Procedure;
- (b) must ensure that auditable processes are in place to certify that all work performed by the sub-contractor complies with the NER and this Procedure;
- (c) remains liable for all acts and omissions of its sub-contractor;
- (d) must authorise the sub-contractor to provide any specific opinion or interpretation of technical information where an MDP so engages a sub-contractor;
- (e) must provide AEMO, upon request, with any information pertaining to the sub-contractor that AEMO reasonably considers necessary for the discharge of the MDP's responsibilities under the NER and this Procedure;
- (f) must notify AEMO immediately if the MDP elects to engage or change a sub-contractor for the delivery of any part of the services for which the MDP is accredited; and
- (g) may be required to undertake an accreditation review to approve the engagement or change of a sub-contractor.

2.4. Specific obligations for MDP - Category D

2.4.1. Generally

- (a) Each MDP - Category D must:
 - (i) undertake Validation, Substitution and Estimation of *metering data* in accordance with Metrology Procedure: Part B;
 - (ii) provide *metering data services*;
 - (iii) manage the relevant CATS Standing Data for all *connection points* for the entire period for which they have responsibility in MSATS;
 - (iv) manage the registration of *connection point* Datastreams in accordance with the timeframes specified in the MSATS Procedures;
 - (v) for Datastream Suffix(s) corresponding to *interval metered connection points*, update the Datastream Suffix value from 'N' to Register level (E1, B1) when:
 - (A) a new *metering installation* is installed at a *connection point*; or
 - (B) a configuration within an existing *meter* or metering equipment is updated.
 - (vi) ensure registered details of the *connection point* are fully recorded in the MDP's *metering data services database*;
 - (vii) ensure *metering* details and parameters within the *metering data services database* are correct such that the *metering data* in the *metering data services database* is accurate;
 - (viii) facilitate the timely commissioning and registration of the *metering installation*;
 - (ix) ensure that systems and processes are in place to detect *energy data*, at least every 20 business days, when the datastream is not active for a *metering installation with remote acquisition*.

- (x) establish and maintain a *metering register* in its *metering data services database* in support of AEMO's obligation under clause 7.12.1 of the NER and in accordance with this Procedure;
- (xi) where the MDP becomes aware *energy* is being recorded from a *metering installation* update the metering Datastreams in MSATS within 2 *business days* in accordance with clause 2.4(e) of the MSATS Procedures and deliver Validated *metering data* to AEMO regardless of the *NMI* status;
- (xii) deliver Validated *metering data* within 2 *business days* to all Participants with responsibilities for a *NMI* regardless of the *NMI* status or Datastream status;
- (xiii) deliver Validated *metering data* to AEMO in accordance with the requirements of the MDM File Format and Load Process; and
- (xiv) de-activate Datastreams in MSATS only:
 - (A) where the *NMI* has been abolished and there is no continued *metering data* being recorded for the *connection point*;
 - (B) where the *connection point* has moved within an *embedded network* and is not a *child connection point*;
 - (C) where the supply of electricity has been *disconnected* at the service fuse and the MDP has elected not to send zero *substituted metering data*; or
 - (D) in accordance with section 5.

2.4.2. Metering register

The MDP must ensure that information in the *metering register* is:

- () registered in co-operation with the MC, MP and, where necessary, any other MDP or MP associated with the transfer of a *connection point*;
- (a) provided on request to persons entitled to have access to that information in accordance with clause 7.15.5(c) of the NER;
- (b) communicated to other MDPs having the right of access as a result of the transfer of a *connection point*; and
- (c) populated with the applicable details listed in clause S7.1 of the NER with the exception of:
 - (i) Clause S7.1.2(b)(5), (6) & (7) of the NER; and
 - (ii) Clause S7.1.2(c) of the NER for *metering installation* types 4A, 5, 6 and 7.

2.4.3. Reactive energy

Where the *metering installation* is configured to measure *reactive energy*, the MDP must store this *metering data* with the *metering data* in respect of *active energy* in the *metering data services database*.

- (a) Subject to paragraph (b), where the *metering installation* is configured to measure *reactive energy*, the MDP must store this *metering data* with the *metering data* in respect of *active energy* in the *metering data services database*.
- (b) The MDP is not subject to the storage requirement in paragraph (a), if the metering data in respect of *reactive energy* as measured by a Type 4 *small customer*, type 5 or VICAMI *metering installation* is not required for the current purposes of either:

- (i) provision to a requesting party, as may be required for the purposes of additional services under NER 7.4.3; or
- (ii) application of a *reactive energy*-based network tariff or if required by the FRMP in order to calculate the *energy* user's bill.

2.4.4. Special Sites

Where there is a change of MDP Role for a wholesale or *generation connection point*, the MDP must determine whether the *connection point* Transmission Node Identifier (TNI) is a Special Site. If it is, the MDP must first seek AEMO's approval to provide *metering data services* for that Special Site.

2.5. Specific obligations for MDP - Category C

Each MDP - Category C must:

- (a) establish and administer a *metering data* collection services system;
- (b) undertake Validation in accordance with sections 8.1 and 8.2 of the Metrology Procedure: Part B; and
- (c) provide *metering data services* for all *connection points* for the entire period for which they have responsibility in MSATS.

3. Service requirements for MDPs – Category D

3.1. System requirements

Each MDP must maintain and operate a *metering data services database* to facilitate the:

- (a) collection of *metering data*;
- (b) processing, calculation, Validation, Substitution and Estimation of *metering data*;
- (c) delivery of *metering data* and *metering register* data to AEMO and *Registered Participants*;
- (d) assignment and version control of Roles for *connection points* and the ongoing synchronisation with MSATS;
- (e) commissioning of each *metering installation* into the MDP's *metering data services database*;
- (f) loading of *metering data* provided in MDFF files relating to Meter Churn; and
- (g) storage and archiving of *metering data* and Validated *metering data* from each *metering installation*.

3.2. Metering data services database

Each MDP must maintain and operate a *metering data services database* that provides a full audit trail and version control capability. This functionality must be applied to:

- (a) *metering data*;
- (b) relevant CATS Standing Data;

- (c) assigned data quality flags;
- (d) Substitution and Estimation types;
- (e) Meter Alarms;
- (f) *metering register* information;
- (g) the delivery of *metering data* to *Registered Participants*, AEMO, ENMs and other MDPs; and
- (h) the mapping of all *metering* Datastreams (including logical *metering* Datastreams).

3.3. Exception reports

Each MDP must maintain, operate and monitor a system that supports the detection of system or process errors. These exception reports must include, but not be limited to:

- (a) missed reads and missing intervals of *metering data* within the *metering data services database*;
- (b) long term Substitutions and Estimations;
- (c) *metering data* errors and data overlaps;
- (d) Validation, relevant CATS Standing Data or *metering register* errors;
- (e) failed batch processing, database errors and hardware failures;
- (f) the capture of file syntax errors, failed and rejected *metering data* deliveries;
- (g) status management of collection interfaces;
- (h) status management of *B2B e-Hub* and MSATS interfaces; and
- (i) status management of *metering installation malfunctions*.

3.4. Collection process requirements

- (a) Each MDP must use reasonable endeavours to ensure Actual Meter Readings and occurrences of Meter Alarms are collected for all *connection points* for which they have responsibility for in MSATS.
- (b) Each MDP must operate a process that:
 - (i) records and logs faults and problems associated with the reading function of *meters*. The process must record and log, but is not limited to, any:
 - (A) access problems;
 - (B) *metering installation* security problems;
 - (C) *metering installation* faults;
 - (D) read failures; and
 - (E) *metering installation* time synchronisation errors.
 - (ii) supports the MC, the MP, or both, in the rectification of any *metering installation malfunctions* or problems associated with the reading function of *meters*.
- (c) On request by the FRMP, an MDP must use reasonable endeavours to carry out a Special Meter Reading or Final Reading within three *business days* of the receipt of the request unless an alternative timeframe has been agreed.

3.5. Specific collection process requirements for metering installations with remote acquisition of metering data

- (a) Each MDP must be capable of initiating a *remote acquisition* where *metering data* is missing, erroneous or has failed Validation.
- (b) Each MDP must operate and maintain a process that:
 - (i) initiates an alternative method to collect *metering data* where *remote acquisition* becomes unavailable; and
 - (ii) provides a log detailing successful reading events for each *metering installation*, or alternatively an exception report of failed Meter Readings.
- (c) Each MDP must operate and maintain a process so that on the next *business day* after which a period of, at most, five consecutive *business days* where *remote acquisition* is unavailable, the MDP must notify the MC that *remote acquisition* is unavailable.

3.6. Specific collection process requirements for Manually Read metering installations

Each MDP must:

- (a) develop and maintain a reading schedule in accordance with Metrology Procedure: Part A;
- (b) maintain reading routes with particular attention to any specific access requirements and hazard information;
- (c) use reasonable endeavours to ensure that *metering data* is collected at least once every three months;
- (d) ensure that Scheduled Reading Date lists and programmed reading equipment is provisioned, updated and maintained;
- (e) use reasonable endeavours to ensure that *metering data* is collected within two *business days* prior to or two *business days* subsequent to a Scheduled Reading Date; and
- (f) ensure that all *metering data* collected and any fault reason codes associated with a reading failure are transferred to the *metering data services database* within one *business day* of the data being collected or attempted to be collected from the *metering installation*.

3.7. Metering data processing requirements

3.7.1. Generally

Each MDP must have a process to:

- (a) confirm and utilise the Roles for *connection points*;
- (b) assign and store the date/time stamp of when the *metering data* was entered into the MDP's *metering data services database*;
- (c) ensure that, in accordance with Metrology Procedure: Part B all *metering data* is stored in the *metering data services database* with the correct:
 - (i) quality flag;
 - (ii) applicable Substitution or Estimation type code; and

- (iii) applicable Substitution or Estimation reason code.
- (d) check the *metering data services database* for missing *metering data* and overlaps;
- (e) aggregate *interval metering data* for a *connection point* into a 30-minute interval net Datastream prior to delivery to AEMO, as required by the MSATS Procedures, MDM Procedures and NMI Procedures, when *interval metering data* is delivered to AEMO in the MDM Format under the MDMT Transaction Group;
- (f) Ensure standing data contained in the 200 record of the MDFF file reflects CATS Standing Data.
Note: Where the MSATS Datastream table reflects a Net Level Data Stream Suffix, the standing data provided in the 200 line of an MTRD MDFF NEM12 200 line will be used by AEMO to identify the individual Register Level DataStream Suffix(s) that constitute the 'Net'.
- (g) Load *metering data* in an alternative format provided by an MP where there is a communications error, failed reading or *metering installation malfunction* that prevents the normal collection of *metering data* from a *metering installation*; and
- (h) notify AEMO and *Registered Participants* for the *connection point* whenever any Substitutions or Estimations are carried out.

3.7.2. Erroneous data

Where a Metering Coordinator (MC) or MP informs an MDP of a situation that may cause *metering data* to be erroneous, the MDP must identify and Substitute any erroneous *metering data*.

Where any *Registered Participant* or ENM for the *connection point* disputes *metering data*, the relevant MDP must investigate, and, if necessary correct the *metering data* in accordance with Metrology Procedure: Part B.

3.7.3. Meter alarms

Where a Meter Alarm has occurred, the MDP must process the occurrence of the Meter Alarm along with the *metering data* as part of the Validation process in accordance with Metrology Procedure: Part B.

3.8. Specific metering data processing requirements for metering installation types 1, 2, 3 and 4

Each MDP must be able to undertake simple cumulative or subtractive processes to manage complex metering configurations. Typically, the system must support:

- (a) A+B+C or A-B-C aggregation configuration;
- (b) Validation capability for standard partial or *check meter connection points* that incorporate a simple comparison of single Datastream of *metering data* to a single Datastream of *check metering data* within an acceptable tolerance; and
- (c) the calculation of the average of the two Validated data sets for *metering installations* where the *check metering installation* duplicates the *metering installation* and accuracy level. The average of the two Validated data sets must be delivered to AEMO and *Registered Participants*.

3.9. Specific metering data processing requirements for Special Sites

Subject to an MDP's level of accreditation and system capability to manage *interconnectors*, *transmission connection points*, *generation connection points* and cross boundary/border supply points between *distribution networks* or *Local Retailer regions*, each MDP must:

- (a) perform *transformer* or line loss compensation algorithms, or both, to compensate for losses between the *metering point* and the *connection point*;
- (b) perform calculations of Datastreams for the requirements of each Special Site;
- (c) perform nodal *check metering data* Validation and Substitution;
- (d) undertake SCADA data Validation and Substitution for *generation connection points*;
- (e) manage logical *meters* and nested logical *metering data* calculations;
- (f) handle threshold test variances to equations such as the use of 'If Then Else' statements; and
- (g) any combination of the above.

Each MDP must ensure that any algorithm in support of a logical NMI is accepted by the MC, AEMO, FRMP and LNSP before being used.

3.10. Specific metering data processing requirements for metering installation type 7 and non-contestable unmetered loads

3.10.1. Inventory Tables, Load Tables and On/Off Tables

- (a) Each MDP must store Inventory Tables, Load Tables and On/Off Tables in the *metering data services database*.
- (b) Each MDP must ensure:
 - (i) Inventory Tables are complete, correct and updated with any changes provided by the LNSP or MC;
 - (ii) On/Off Tables are complete, correct and comply with Metrology Procedure Part B; and
 - (iii) Load Tables are complete, correct and correlate with the Load Tables for Unmetered Devices, as published by AEMO.
- (c) Each MDP must ensure the Inventory Table, Load Table and On/Off Table are versioned for *metering data* calculations.

3.10.2. Non-contestable unmetered load calculation methodologies and Agreed Loads

- (a) Each MDP must store *non-contestable unmetered load* calculation methodologies and Agreed Loads in the *metering data services database*.
- (b) Each MDP must ensure that:
 - (i) *non-contestable unmetered load* calculation methodologies and Agreed Loads are complete, correct and updated with any changes provided by the LNSP or MC; and

- (ii) *non-contestable unmetered load* calculation methodologies and Agreed Loads comply with Metrology Procedure: Part B.
- (c) Each MDP must ensure the *non-contestable unmetered load* calculation methodologies and Agreed Loads are versioned for *metering data* calculations.

3.10.3. Processing of calculated metering data

Each MDP must ensure that all *calculated metering data* is Validated and processed into TIs.

3.11. Specific metering data Estimation requirements for Manually Read metering installations and calculated metering data

- (a) Each MDP must have a process for the creation of *estimated metering data* for *metering installation* types 4A, 5, 6 and 7 and for *non-contestable unmetered loads*.
- (b) To meet *metering data* delivery requirements, this process must either:
 - (i) create individual blocks of *estimated metering data* on a daily basis; or
 - (ii) create a single block of *estimated metering data*:
 - A. from the date of the last Meter Reading to a period beyond the NSRD for types 4A, 5 and 6;
 - B. from the date of the last calculation to a period beyond the next scheduled calculation for type 7; or
 - C. from the date of the last calculation to a period beyond the next scheduled calculation for *non-contestable unmetered loads*.

3.12. Delivery performance requirements for metering data

3.12.1. Validated metering data to be delivered

Each MDP must ensure only Validated *metering data* is delivered to AEMO, New MDPs, *Registered Participants* and ENMs.

3.12.2. Delivery timing requirements

Subject to any agreement to the contrary as contemplated by section 8.1, each MDP must:

- (a) deliver to AEMO, the New MDP when there has been a Meter Churn, the SAPS Generator MDP for *connection points* within a *stand-alone power system*, and *Registered Participants* all Actual Meter Readings that passed Validation within two *business days* of the Actual Meter Readings being received into the *metering data services database*;
- (b) Substitute, Validate and deliver to AEMO, the New MDP when there has been a Meter Churn, the SAPS Generator MDP for *connection points* within a *stand-alone power system*, and *Registered Participants* the *substituted metering data* within two *business days* of the Actual Meter Readings being received into the *metering data services database* and failing Validation;
- (c) Substitute, Validate and deliver to AEMO, the New MDP when there has been a Meter Churn, the SAPS Generator MDP for *connection points* within a *stand-alone power system*, and *Registered Participants* the *substituted metering data* within two *business days* of the receipt of any fault reason codes associated with a reading failure or failed interrogation event, into the *metering data services database*;

- (d) Validate and deliver to AEMO, the New MDP when there has been a Meter Churn, the SAPS Generator MDP for *connection points* within a *stand-alone power system*, and *Registered Participants* all *substituted metering data* within two *business days* of the *metering data* being Substituted;
- (e) ensure that all *metering data* is delivered to AEMO, the New MDP when there has been a Meter Churn, the SAPS Generator MDP for *connection points* within a *stand-alone power system*, and *Registered Participants* for the full period of any retrospectively created Datastreams within two *business days* of that Datastream becoming active in MSATS; and
- (f) for type 4A, 5, 6 and 7 *metering installations* and *non-contestable unmetered loads*, Validate and deliver to AEMO and *Registered Participants* all *estimated metering data* within two *business days* of the *metering data* being Estimated.

Each MDP must provide *metering data* to the relevant FRMP within two *business days* of receiving a Completed notification of a change of FRMP, including *estimated metering data*, for a type 4A, 5, 6 or 7 *metering installation*.

3.12.3. Review of failed Validations

Each MDP must ensure that all failed Validations are reviewed promptly such that:

- (a) where the initial review of the failed Validation identifies that the Actual Meter Readings are valid, deliver the Actual Meter Readings to AEMO, the New MDP when there has been a Meter Churn, the SAPS Generator MDP for *connection points* within a *stand-alone power system*, and *Registered Participants* within two *business days* of the *metering data* being received into the *metering data services database*; and
- (b) where further information is required to Validate the Actual Meter Readings, and the receipt of such information identifies that the Actual Meter Readings are valid, deliver the Actual Meter Readings to AEMO, the New MDP when there has been a Meter Churn, the SAPS Generator MDP for *connection points* within a *stand-alone power system*, and *Registered Participants* within two *business days* of the *metering data* passing Validation.

3.12.4. Delivery of settlements ready data

- (a) Each MDP must deliver to AEMO all Datastreams related to *settlements ready data* and any other *metering data* configured in the *metering installation* to support UFE calculations for all *connection points* the MDP is responsible for, by the dates and for the periods, specified in the Data Delivery Calendar.
- (b) The *settlements ready data* and any other *metering data* configured in the *metering installation* to support UFE calculations applicable to a specified *billing period* must be delivered to AEMO to the quantity and quality specified in the following Table:

Metering Data Type	Service	Preliminary ²	Final	R1 or 4 month	R2 or 6 month
Remotely Read Metering Data	Quantity of Settlements Ready Metering Data	98%	99%	99.5%	99.9%
	Quality of Settlements Ready Metering	95%	98%	99.5%	99.9%

² See the Data Delivery Calendar for the meanings of each of these periods.

Metering Data Type	Service	Preliminary ²	Final	R1 or 4 month	R2 or 6 month
	Data with “A” or “F” quality flag				
Manually Read and Calculated (type 7 and NCONUML) Metering Data	Quantity of Settlements Ready Metering Data	99%	99%	99.5%	99.9%
	Quality of Settlements Ready Metering Data with “A” or “F” quality flag	-	-	98%	99.9%

- (c) *Settlements ready data* must be received by AEMO by 5pm on each *day* specified in the Data Delivery Calendar.
- (d) Provided AEMO receives all *settlements ready data* for a *billing period* by the date specified in the Data Delivery Calendar, there is no restriction on whether MDPs deliver it on a daily or other basis.

3.12.5. Method of delivery of data

Subject to any agreement to the contrary as contemplated by section 8.1, each MDP must deliver *metering data* to:

- (a) the New MDP when there has been a Meter Churn in accordance with this Procedure by delivering the *metering data* to the *B2B e-Hub* in the MDFF or via a method and in the format agreed;
- (b) *Registered Participants* in accordance with this Procedure by delivering the *metering data* to the *B2B e-Hub* in the MDFF or via a method and in the format agreed;
- (c) SAPS Generator MDPs for *connection points* within a *stand-alone power system* in accordance with this Procedure by delivering the *metering data* to the *B2B e-Hub* via a method and in the format agreed; and
- (d) AEMO in accordance with this Procedure by delivering the *metering data* to the MDP’s MSATS inbox in the MDM Data File, for FTP file exchange, or via an internet connection for API file exchange.

Note: MDPs may send AEMO *metering data* in either MDMT/MDMF or MTRD/MDFF formats:

- (i) MTRD/MDFF
 - AEMO will accept all *interval metering data* in MDFF (5, 15 or 30 minute interval lengths) for any IntervalRead date (including an IntervalRead dates prior to 1 October 2021)
 - AEMO will accept all *accumulated metering data* via MDFF
- (ii) MDMT/MDMF
 - AEMO will accept 30 minute ‘Net’ data where IntervalRead Date is prior to 1 October 2021
 - AEMO will accept *accumulated meter data*

3.12.6. Operational delays

The MDP must notify AEMO and affected *Registered Participants* immediately upon the identification of any operational delays impacting on normal *metering data* delivery.

3.13. Delivery of metering data for prudential purposes

AEMO may request an MDP to provide *metering data* for the purposes of assessing one or more *Market Participant's* ability to meet its *prudential requirements*. If AEMO sends a request to an MDP by 10am the *day* before the *metering data* is required, the MDP must deliver the requested *metering data* to AEMO by 8am on the *day(s)* specified, as follows:

- (a) for Type 1, 2, 3 and 4 *metering installations* for the *days* nominated by AEMO:
 - (i) 90% complete set of Actual Metering Data for *connection points* that relate to wholesale market boundary, *generating unit connection points*, *bidirectional units* and cross boundary *connection points* (these relate to *connection points* identified in MSATS as WHOLESAL, BULK, GENERATR, DGENRATR, DIRS, TIRS, XBOUNDRY and INTERCON); and 80% complete set of Actual Metering Data for all other *connection points*.
- (b) for Type 4A, 5, 6 and 7 *metering installations* for the *days* nominated by AEMO, 80% complete data set of Validated *metering data* for all *connection points*, consisting of *interval metering data*, *accumulated metering data*, *substituted metering data* or *estimated metering data*.

3.14. Interface requirements

3.14.1. Business interfaces

Each MDP must establish and maintain business interfaces to:

- (a) MSATS for the management of *connection point* updates, notifications, Objections, reports, relevant CATS Standing Data, Data Requests and delivery of *metering data* to the *metering database*;
- (b) the B2B e-Hub for the interface with *Registered Participants*, and for the delivery of *metering data* to *Registered Participants*, ENMs and other MDPs;
- (c) a MarketNet connection for the purposes of communication and FTP file transfer with MSATS;
- (d) an internet connection for API file transfer; and
- (e) other technologies, such as email, facsimile, phone and internet for the general management of information and alternative delivery of *metering data* to *Registered Participants*.

3.14.2. MSATS interfaces

- (a) Each MDP will be provided with an inbox and outbox directory on the MSATS file server, which must be used for the transfer of FTP files to and from AEMO via MarketNet and manage the appropriate directories in accordance with the MSATS Procedures.

- (b) Each MDP must interface with MSATS either via the browser or a batch interface, or both, using the market aseXML file format in accordance with the related documentation and schemas.³
- (c) Each MDP must manage any batch file transfers to MSATS in accordance with the MDM Procedures and the MDM File Format and Load Process.

3.14.3. aseXML

Each MDP must ensure:

- (a) all transmitted messages comply with the requirements of the aseXML message format; and
- (b) voice communications with AEMO, *Registered Participants*, MPs and other MDPs are to be undertaken between 9:00am and 5:00pm on *business days* except under exceptional circumstances.

3.14.4. Emergency situations

The MDP must work with AEMO in the provision of *metering data* and CATS Standing Data files to AEMO and *Registered Participants* via alternative means in emergency situations where normal processes cannot be utilised.

4. Service requirements for MDPs - Category C

4.1. System requirements

4.1.1. Metering data collection services system

Each MDP - Category C must maintain and operate a *metering data* collection services system to facilitate:

- (a) the receipt of reading requests and associated information including reading routes, registers, passwords, last read data, Scheduled Reading Date, type of reading required, hazards and other information as agreed from time to time with an MDP - Category D;
- (b) the management of Meter Reading schedules;
- (c) the collection of *metering data* from the *metering installation* and the occurrences of any Meter Alarms as agreed with an MDP - Category D;
- (d) Validation of *metering data* relevant to the collection process in accordance with section 8 of Metrology Procedure: Part B;
- (e) the transfer of *metering data* in a format agreed with the relevant MDP - Category D;
- (f) the storage and archiving of collected *metering data*;
- (g) system monitoring and exception reporting; and
- (h) the prompt notification of a *metering installation malfunction* to the MDP - Category D so that repairs can be effected in a timely manner.

³ See <http://www.aemo.com.au/About-the-Industry/Information-Systems/aseXML-Standards> for details.

4.1.2. Audit trail of metering data collection services system

Each MDP - Category C must ensure the *metering data* collection services system provides a full audit trail.

4.1.3. Fault logs

Each MDP - Category C must maintain a process for the recording and logging of faults and problems associated with the reading function of *meters*. The process must log any:

- (a) access problems;
- (b) *meter* security problems;
- (c) *meter* faults;
- (d) read failures; and
- (e) Other information as agreed with the MDP - Category D.

4.2. Metering data collection and transfer requirements

Each MDP - Category C must:

- (a) use reasonable endeavours to ensure Actual Meter Readings are collected for all *connection points* for which they are responsible;
- (b) use reasonable endeavours to ensure the *metering data* is collected from *metering installations* types 4A, 5 and 6 within two *business days* prior to and two *business days* subsequent to a Scheduled Reading Date;
- (c) ensure that all *metering data* collected and any fault reason codes associated with a reading failure or access problems are transferred to the *metering data services database* within one *business day* of the *metering data* being collected or attempted to be collected from the *metering installation*;
- (d) inform the MDP - Category D immediately upon identification of an inability to collect or transfer *metering data* in accordance with the timeframes specified in paragraph (c);
- (e) ensure that all *meter* access issues are communicated to the MDP - Category D;
- (f) ensure that the *meter* time of all type 4A and 5 *metering installations* is set in accordance with clause 7.10.6 of the NER;
- (g) ensure for type 4A and 5 *metering installations* and time of use type 6 *metering installations*, the MDP – Category D is informed, through an agreed method, where the *meter* time is not synchronised in accordance with clause 7.10.6 of the NER; and
- (i) process and provide details of each Meter Alarm occurrence along with the affected *metering data* to support the Validation process in accordance with Metrology Procedure: Part B and as agreed with the MDP - Category D.

5. Meter churn data management

5.1. Meter Churn scenarios

Meter Churn can result in a change to the configuration of *metering data* recorded by a *metering installation*. This change in *metering data* may result in an alteration to the MDFF or MDM Data File.

Each MDP must comply with the MDFF requirements when constructing the MDFF files, associated with Meter Churn events, for all scenarios, that are sent to AEMO and other relevant Participants.

The sections below detail the requirements that each MDP must comply with for the management of *metering data* when constructing MDM Data Files, to be sent to AEMO, following a Meter Churn when a *metering installation* is changed from:

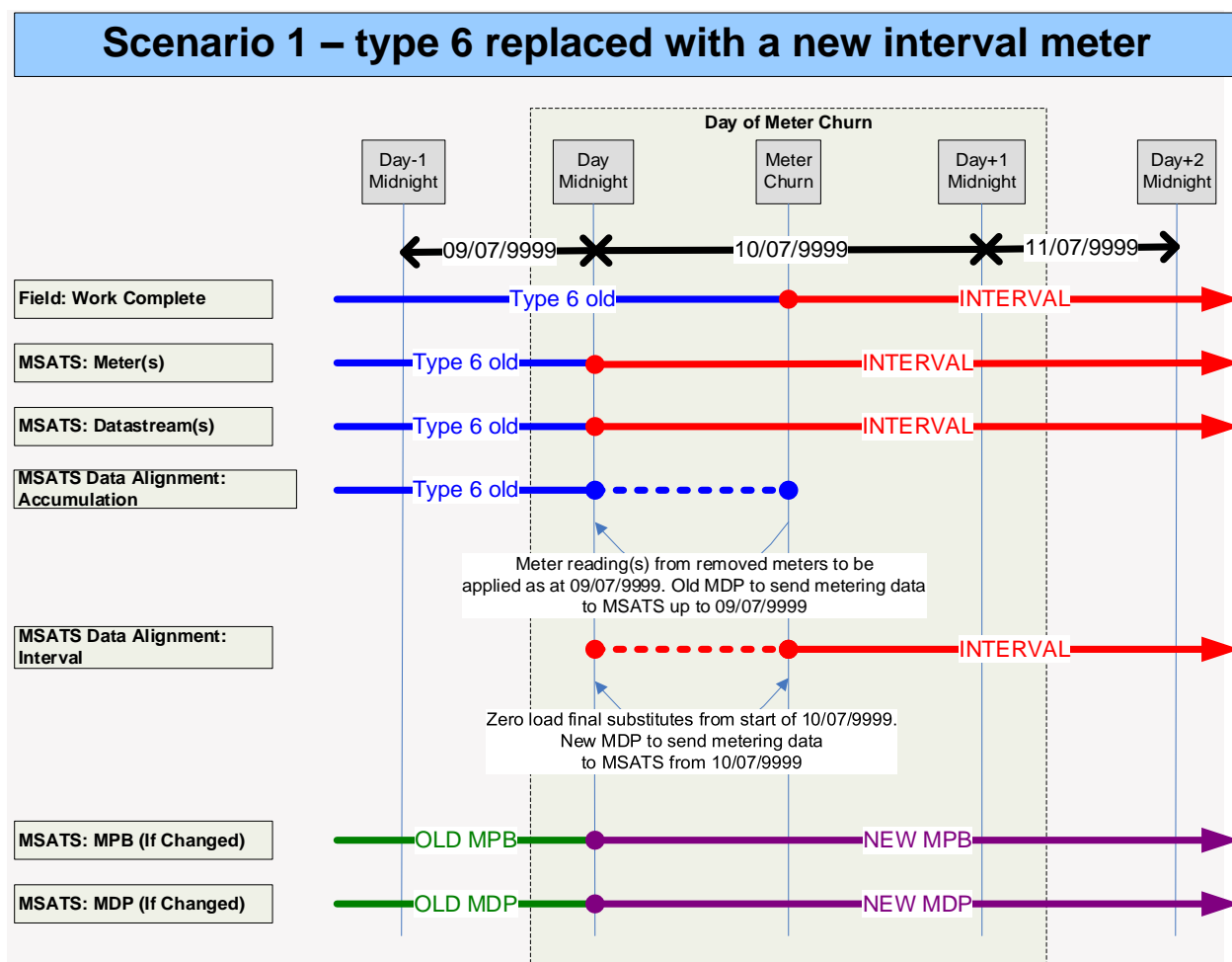
- (a) a type 6 *metering installation* to a type 1, 2, 3, 4, 4A, or VICAMI *metering installation* (Scenario 1);
- (b) a type 1, 2, 3, 4, 4A, or 5 *metering installation* to a new type 1, 2, 3, 4, 4A, or VICAMI *metering installation* (Scenario 2).

Scenario 1:

- (a) The MDP must have a process to ensure that:
 - (i) the final Accumulation Meter reading(s) from the removed type 6 *metering installation* is applied at the end of the *day* prior to the Meter Churn;
 - (ii) the *metering data* for the new type 1, 2, 3, 4, 4A, or VICAMI *metering installation* commences at the start of the *day* of the Meter Churn; and
 - (iii) *Estimated metering data* is provided for any Datastreams made active as a result of the Meter Churn for a new type 4A or manually read VICAMI *metering installation*.
- (b) The MDP related to the new *metering installation* must have a process to ensure that the *metering data* for the period of the Meter Churn *day* between the start of the *day* and the commissioning of the new *metering installation* is provided as zeroes with a quality flag of F.
- (c) The MDP must make the Datastream inactive in MSATS for the removed *metering installation* with an effective Start Date of the Meter Churn *day*.

Figure 1 provides an overview of this scenario:

Figure 1 Scenario 1 – type 6 Metering Installation replaced with a new Interval Meter



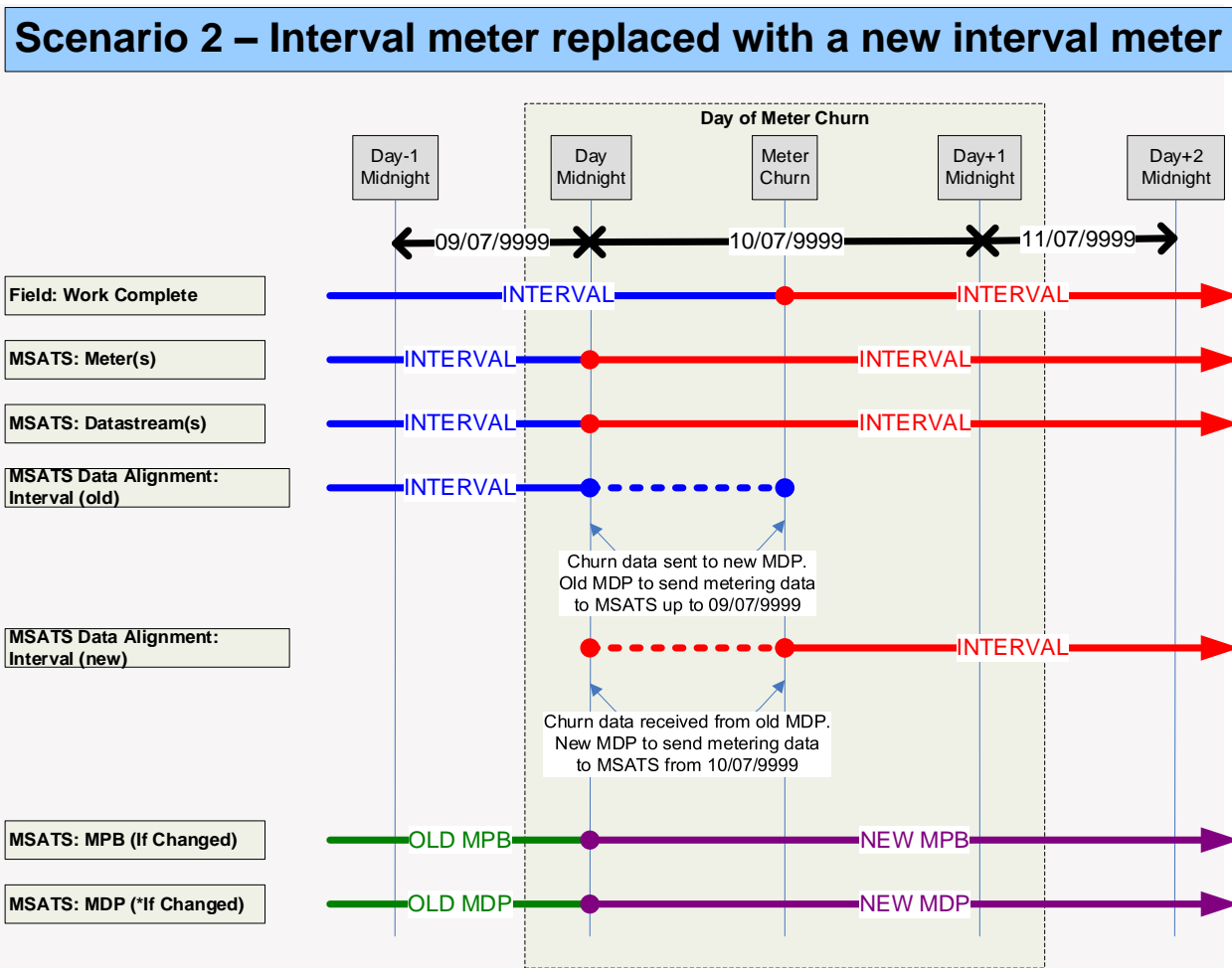
Scenario 2:

- (a) Each MDP must have a process to ensure that:
- (i) the Final Reading(s) from the removed type 1, 2, 3, 4, 4A, or 5 *metering installation* is collected up to the removal of the old *metering installation* on the day of the Meter Churn;
 - (ii) the *metering data* for the new type 1, 2, 3, 4, 4A, or VICAMI *metering installation* commences at the start of the day of the Meter Churn;
 - (iii) the MDP related to the new *metering installation* must obtain *metering data* for the period of the Meter Churn day between the start of the Meter Churn day and the removal of the old *metering installation* from the MDP related to the old *metering installation*;
 - (iv) the MDP related to the new *metering installation* must combine the *metering data* from the old *metering installation* and the new *metering installation* for the day of Meter Churn and deliver *metering data* for the whole day of Meter Churn;
 - (v) where Meter Churn results in a change to the recording of *metering data* from 15-minute to 5-minute TIs, the 5-minute intervals are to be aggregated to form 15-minute *interval metering data* from the commissioning of the new *metering installation* to the end of the Meter Churn day.
 - (vi) where Meter Churn results in a change to the recording of *metering data* from 30-minute to 5-minute TIs, the 5-minute intervals are to be aggregated to form 30-minute *interval metering data* from the commissioning of the new *metering installation* to the end of the Meter Churn day.
 - (vii) where Meter Churn results in a change to the recording of *metering data* from 15-minute to 30-minute intervals, the 15-minute intervals of *metering data* from the start of the Meter Churn day until the commissioning of the new *metering installation* are to be aggregated to form *interval metering data*;
 - (viii) where Meter Churn results in a change to the recording of *metering data* from 30-minute to 15-minute intervals;
 - (A) the 15-minute intervals of *metering data* from the commissioning of the new *metering installation* to the end of the Meter Churn day are to be aggregated to form 30-minute *interval metering data*; or
 - (B) the 30-minute intervals of *metering data* for the start of the Meter Churn day may be disaggregated to form 15-minute *interval metering data*, where agreed with the MC,
 - (ix) *estimated metering data* is provided for any Datastreams made active as a result of the Meter Churn for a new type 4A or manually read VICAMI *metering installation*;
 - (x) where Meter Churn results in a Datastream being made active, the MDP related to the new *metering installation* must provide *metering data* from the start of the day to the commissioning of the new *metering installation* by providing zeroes with a quality flag of F;
 - (xi) where Meter Churn results in a Datastream being made inactive, the MDP related to the new *metering installation* must provide *metering data* from the commissioning of the new *metering installation* to the end of the day by providing zeroes with a quality flag of F; and
 - (xii) the MDP related to the new *metering installation* must create final *substituted metering data* for the period between the existing *metering installation* being removed and the commissioning of the new *metering installation*.

- (b) where the MDP is changing as a result of the Meter Churn, each MDP must have a process to ensure that:
 - (i) for the removal of *metering installations* type 1, 2, 3, or 4, the Current MDP must provide the New MDP with the final *metering data* from the removed *metering installation* in accordance with section 3;
 - (ii) for the removal of type 4A or type 5 *metering installation*, the Current MDP must provide the New MDP with the final *metering data* from the removed *metering installation* within 25 *business days* of receiving the *metering installation* change notification from the MP;
 - (iii) where *metering data* is not available for the whole *day* of Meter Churn, the New MDP must Substitute the *metering data* in accordance with Metrology Procedure: Part B, for the *day* of Meter Churn until Actual Meter Readings become available. This ensures continuity of *metering data* for the *day* of Meter Churn; and
 - (iv) the MDP Role change in MSATS is effective on the *day* of Meter Churn.
- (c) where the MDP is changing as a result of the Meter Churn:
 - (i) the Current MDP must provide *substituted metering data* in accordance with Metrology Procedure: Part B with a quality flag of 'S' and a reason code of 37 (meter under churn) in the MDFF until the New MDP becomes the MDP in MSATS; and
 - (ii) the New MDP, when it becomes the Current MDP, must provide Actual Meter Readings for the period of Substitution in paragraph (c)(i).

Figure 2 provides an overview of this scenario:

Figure 2 Scenario 2 – Interval Meter replaced with a new Interval Meter



6. System Architecture & Administration

6.1. Metering data archival and recovery

Each MDP must have retrieval mechanisms (both online and archived) that allow the *metering data* retained in its *metering data services database* under clause 7.10.2 of the NER to be accessed, recovered, re-evaluated and delivered in agreed timeframes to AEMO and *Registered Participants*.

6.2. Data backup

All *metering data* and *metering register* information must be backed-up, at a minimum, on a daily basis and held in a secure environment.

6.3. Disaster recovery

6.3.1. Requirement for disaster recovery plan

Each MDP must ensure that a disaster recovery plan is established and in place to ensure that in the event of a system failure, its IT systems can be returned to normal operational service within two *business days*.

The MDP must ensure that the disaster recovery plan is:

- (a) up to date with all documentation showing revisions; and
- (b) witnessed and dated at least annually by the MDP as being current for the systems and processes in place.

6.3.2. Fail-over system approach

Where an MDP adopts a disaster recovery plan that has a complete 'fail-over' system approach, the disaster recovery plan must be subjected to a test annually that facilitates a full 'fail-over' to the recovery system.

6.3.3. Segmented system approach

Where the MDP adopts a disaster recovery plan that has a segmented system approach, the disaster recovery plan must:

- (a) detail the interfaces and relationships between system segments;
- (b) be established for each individual system segment;
- (c) be tested annually with evidence retained to show disaster recovery for each individual system segment; and
- (d) have, for each individual system segment, a procedure that clearly details the process to establish a return to full operation.

6.3.4. Testing

Expected evidence to support disaster recovery plan testing should include, but not be limited to:

- (a) a test plan of the fail-over;
- (b) results of the fail-over including timing;
- (c) system logs indicating fail-over and recovery; and
- (d) logs or notations evidencing resumption of MDP operations.

6.3.5. Actions following system failure

If a system failure occurs, the MDP must ensure that within two *business days*:

- (a) its *metering data services database* is restored to operational service; and
- (b) all processing and delivery backlogs of *metering data* to AEMO and *Registered Participants* is completed.

6.3.6. Notice to AEMO of activation

The MDP must, at its earliest opportunity, notify AEMO of any failure where the MDP has a requirement to activate its disaster recovery plan.

6.4. System administration and data management

6.4.1. Metering data services database

The *metering data services database* must be operated and administered by an MDP to facilitate:

- (a) controlled access to systems and data using unique identification and passwords for each user;
- (b) the restriction of access to the underlying database tables to nominated system administrators;
- (c) the restriction of *Registered Participant* access to *metering data* and relevant CATS Standing Data provided via reports, based on the relationships defined in the *metering register* and in accordance with clause 7.15.5(c) of the NER; and
- (d) a minimum of 95% system availability (i.e. hardware and systems downtime do not exceed a maximum of 438 hours per annum).

6.4.2. Metering register

Each MDP must maintain full audit trails and version control of *metering register* information, *metering data* and relevant CATS Standing Data for a minimum of seven years so that any data output produced by the system can be re-produced from source data.

6.5. Non-public telecommunications networks

The use of a non-public *telecommunications network* for the collection of *metering data* by an MDP is subject to approval by AEMO. Each MDP must provide, to the reasonable satisfaction of AEMO, information demonstrating that the use of the non-public *telecommunications network* enables the MDP to meet the NER, *metrology procedure* and this Procedure, which must include, but not be limited to:

- (a) obtaining and maintaining compliance with the relevant recognised technical standards and licensing authority requirements;
- (b) obtaining and maintaining appropriate software licences to operate the non-public *telecommunications network*;
- (c) the implementation and nature of security controls for the ongoing operation and management of the non-public *telecommunications network*;
- (d) available bandwidth that supports the collection and management of *metering data*;
- (e) disaster recovery provisions related to:
 - (i) non-public *telecommunications network* redundancy; and
 - (ii) time synchronisation of *metering installations* operated through the non-public *telecommunications network*;

- (f) processes for the commissioning of *metering installations* and provision for commissioning failure management; and
- (g) installation and maintenance of the non-public *telecommunications network*, including:
 - (i) compliance with relevant safety standards and work practices;
 - (ii) compliance with telecommunications technical standards; and
 - (iii) training and skill requirements of installation and maintenance personnel.

7. Quality Control

7.1. Scheduled audits

7.1.1. All services to be auditable

- (a) Each MDP must undertake all services in a manner that is auditable, and must support scheduled reviews of its *metering data service database*, processes, procedures and systems.
- (b) AEMO will undertake periodic certification reviews to a negative assurance level of each MDP's *metering data service database*, processes, procedures and systems to assess the MDP's compliance with the NER, applicable procedures under the NER and this Procedure.
- (c) All scheduled reviews will be through a centralised review process established by AEMO and will be undertaken at the MDP's cost.

7.1.2. MDP to assist

Where a review is conducted under this Procedure, the MDP must, at its cost, provide all reasonable assistance including making databases, equipment and premises available for inspection, making personnel available for questioning, and providing copies of any data or information as requested.

7.1.3. Timing of audits

Scheduled reviews of the MDP's system will be as follows:

- (a) the first audit to be nominally within six months after accreditation;
- (b) subsequent audits will be nominally six monthly; and
- (c) at AEMO's discretion, at twelve-month intervals based on previous satisfactory audit reviews of the MDP.

7.1.4. Notice of audit

AEMO must provide the MDP a minimum of:

- (a) 30 *business days'* notification prior to a scheduled review; and
- (b) 15 *business days'* notification for the provision of any specific data requests as part of the audit.

7.2. Other audits

- (a) Audits may be undertaken at any time by AEMO in accordance with the NER and may be carried out following a request from a *Registered Participant*.
- (b) Where an audit of a *metering installation* is conducted by AEMO under clause 7.9.3(e) of the NER, and *metering data* must be obtained from the MDP in support of this audit, the MDP must provide the *metering data* within two *business days* of AEMO's request.
- (c) Each MDP must assist AEMO with reasonable requests for the provision of *metering data* and relevant CATS Standing Data information relating to *connection points* that are part of the *market* audit process of AEMO, MCs, MPs and MDPs.

7.3. Corrective action

- (a) Each MDP must take corrective action on any reported instances of non-compliance identified by AEMO or through the MDP audit process.
- (b) Where an MDP becomes aware that incorrect *metering data* has been delivered to AEMO and *Registered Participants*, the MDP must provide corrected *metering data* to all affected parties, as required by clause 7.10.2(e) of the NER, within one *business day* of detection.
- (c) AEMO may request corrective action where errors or omissions are found within the *settlements* process and such requests are to be actioned as a priority by the MDP.
- (d) Where the MDP cannot deliver the corrected *metering data* in the timeframe specified above, the MDP must advise AEMO and agree on an alternative delivery time.

7.4. Review of accreditation

AEMO may require an MDP to review its accreditation and subsequently apply for re-accreditation including:

- (a) where an MDP has been de-registered and seeks re-registration;
- (b) where a MDP has been suspended from providing services under certain categories and seeks to have the suspension lifted;
- (c) subsequent to changes to the NER, applicable procedures under the NER, or *service level procedures*. This is likely to apply in instances where changes to the NER have been made or new versions of the *metrology procedure* have been issued that require significant functional system, process or procedural changes to be made by MDPs;
- (d) material changes or upgrades to an MDP's existing systems, *telecommunications network* or a system platform change to any part of the *metering data service database*. The MDP must apply and be re-accredited prior to implementing the changes into its production environment and accepting or transmitting any *market* transactions in accordance with the Qualification Procedure;
- (e) MDP organisational mergers and acquisitions; and
- (f) under circumstances contemplated in section 2.2.

8. Administration

8.1. Bilateral agreements

8.1.1. Provision of data

A *Registered Participant* may request an MDP to:

- (a) provide *metering data* in an alternative format, method or timeframe;
- (b) provide any other *metering data services*; or
- (c) any combination of the above.

8.1.2. No data to be provided

A *Registered Participant* may request an MDP to not provide or deliver any *metering data* to the *Registered Participant* as required by this Procedure.

8.1.3. System changes not required

There is no requirement for an MDP to implement system changes and processes to facilitate bilateral agreements.

8.1.4. Bilateral agreement not to impact metering data delivery to AEMO

Any acceptance by an MDP to deliver *metering data* to a *Registered Participant* in accordance with any agreement contemplated by this section 8.1 or acceptance to not provide any *metering data* in accordance with such an agreement must not impact on *metering data* delivery to AEMO or any other *Registered Participant* for the *connection point(s)* concerned.

8.1.5. Bilateral agreement to be auditable

Any bilateral agreement established between a *Registered Participant* and an MDP must be in writing and made available to AEMO upon request for audit purposes.

8.2. Quality systems

Each MDP must operate and retain a quality system that meets clause S7.3.3 of the NER to the satisfaction of AEMO, which is at least equal to a quality accreditation to the ISO9001 or ISO9002 standards.

8.3. Disputes

If a dispute arises between an MDP and AEMO, a *Registered Participant*, an MP or any other MDP in relation to the provision of *metering data services* or this Procedure, the process detailed clause 8.2 of the NER shall apply.