

## Metering Data Provider Services Categories D and C for Metering Installation Types 1, 2, 3, 4, 5, 6 and 7

# SERVICE LEVEL PROCEDURE:

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## GLOSSARY

- (a) In this document, a word or phrase *in this style* has the same meaning as given to that term in the *Rules* or, if they are not specified in the *Rules*, they have the meaning set out opposite those words, phrases, or acronyms in the table below.
- (b) A reference in this *service level procedure* to a provision in the *Rules* is taken to be a reference to that provision as renumbered from time to time.
- (c) In this *service level procedure*, words in the singular include the plural and words in the plural include the singular.
- (d) In this *service level procedure*, diagrams are provided as an overview. If there are ambiguities between a diagram and the text, the text shall take precedence.
- (e) Unless the context otherwise requires, this document will be interpreted in accordance with Schedule 2 of the *National Electricity Law*.

TERM	MEANING
<b>CATS Standing Data</b>	<p><b>CATS Standing Data</b> means those data items that are held in the following database tables:</p> <ul style="list-style-type: none"> <li>• CATS_NMI_Data_Stream</li> <li>• CATS_NMI_Data</li> <li>• CATS_Meter_Register</li> <li>• CATS_NMI_Participants_Relationships</li> <li>• CATS_Register_Identifier</li> </ul> <p><i>NMI Standing Data</i> is a sub-set of CATS Standing Data</p>
<b><del>Collection</del>, collect, <u>collection</u>, collected</b>	A process undertaken by the <i>Metering Data Provider</i> to obtain <i>metering data</i> from a meter or <i>metering installation</i> .
<b>data stream</b>	<b>data stream</b> means a stream of <i>energy data</i> or <i>metering data</i> associated with a <i>metering point</i> , as represented by a <i>NMI</i> . For example, a <i>NMI</i> will have multiple <i>data streams</i> where one or more <i>meters</i> or one or more channels or registers comprise a single <i>meter</i> . Each <i>data stream</i> is identified by a suffix, which is associated with the <i>NMI</i> to which it belongs.
<b><del>estimation</del>, estimate, <u>estimation</u>, estimated</b>	A process undertaken by a <i>Metering Data Provider</i> , for the forward <i>estimation</i> of <i>metering data</i> where the <i>scheduled meter reading cycle</i> does not support the delivery time frames of <i>metering data</i> to AEMO and other <i>Registered Participants</i> .
<b><del>substitution</del>, substitute, <u>substitution</u>, substituted</b>	A process undertaken by a <i>Metering Data Provider</i> for the substitution of missing (null) or erroneous <i>metering data</i> or where the <i>metering data</i> has failed the <i>validation</i> process.
<b><u>validate</u>, validation, <u>validate</u>, validated</b>	A process undertaken by the <i>Metering Data Provider</i> to test the veracity and integrity of <i>metering data</i> prior to transfer to AEMO and other <i>Registered Participants</i> .

## 1 Introduction

- (a) This *service level procedure* is made in accordance with clause 7.14.1A of the *Rules* and details the requirements that the *Metering Data Provider* must comply with for the provision of *metering data services* for all *metering installation types* in accordance with the *Rules*.
- (b) In accordance with clauses 7.1.3, 7.1.4 and 7.14.1A of the *Rules*, AEMO is responsible for preparing, revising and publishing this *service level procedure* in accordance with *Rules consultation procedure*.
- (c) Where a proposed amendment to this *service level procedure* is of a minor or administrative nature, AEMO is not required to undertake consultation in accordance with the *Rules consultation procedures* but must comply with the requirements of clause 7.1.4 (e) of the *Rules*.
- (d) If there is any inconsistency between this Procedure and the *Rules* the *Rules* will prevail to the extent of that inconsistency.

## 2 Purpose

- (a) The purpose of this *service level procedure* is to detail the obligations, technical requirements, measurement processes and performance requirements that are to be performed, administered and maintained by the *Metering Data Provider*.
- (b) This *service level procedure* details the:
  - i. obligations of the *Metering Data Provider* in the provision of *metering data services*;
  - ii. obligations of the *Metering Data Provider* to establish and maintain a *metering data services database*;
  - iii. *metering data collection*, processing, storage and delivery requirements for all *metering installation types*;
  - iv. obligations assigned to the *Metering Data Provider* within any procedures authorised under the *Rules*; and
  - v. obligations assigned to the *Metering Data Provider* in support of the *responsible person*.
- (c) This *service level procedure* consolidates the following *service level procedures* ~~related~~ relating to *Metering Data Provider* activities:
  - i. Service Level Procedure: Metering Data Provider Services Category D for Metering Installation Types 1, 2, 3 and 4;
  - ii. Service Level Procedure: Metering Data Provider Services Category D for Metering Installation Types 5, 6 and 7; and
  - iii. Service Level Requirement: Metering Data Provider Services Category Type 5C and 6C.

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### 3 Legal and Regulatory Framework

- (a) In accordance with clause 7.4.1A of the *Rules*, the provision of *metering data services* must only be carried out by a *Metering Data Provider*.
- (b) In accordance with clause 7.4.2A (e) of the *Rules*, a *Metering Data Provider* must comply with the provisions of the *Rules* and procedures authorised under the *Rules*.
- (c) In accordance with clause 7.4.2A (a) (2) of the *Rules*, *Metering Data Providers* providing *metering data services* in the National Electricity Market must be accredited by and registered with *AEMO*. The accreditation requirements are set out in the accreditation procedures and checklists for each category of registration which include requirements as set out in:
  - i. Chapter 7 of the *Rules*; and
  - ii. authorised procedures under the *Rules*.

### 4 References

In this service level procedure, a reference to:

- (a) '*metrology procedure: Part A*' is a reference to the '*Metrology Procedure: Part A*' National Electricity Market.
- (b) '*metrology procedure: Part B*' is a reference to the "*Metrology Procedure: Part B. Metering Data Validation, Substitution and Estimation Procedure for Metering Types 1-7*".
- (c) '*MSATS Procedures*' is a reference to any one or all of the following documents in accordance with the context of the provision:
  - i. '*CATS Procedure*' is a reference to the *CATS Procedures Principles and Obligations*;
  - ii. '*WIGS Procedure*' is a reference to the *Procedures for the Management of Wholesale, Interconnector, Generator and Sample (WIGS) NMIs*;
  - iii. '*Standing Data*' is a reference to the static data held within *MSATS* as detailed in '*Standing Data for MSATS*'; and
  - iv. '*MDM Procedures*' is a reference to *MSATS Procedures: MDM Procedures*.
- (d) '*B2B Procedures*' is a reference to any one or all of the following documents in accordance with the context of the provision:
  - i. '*Service Order Process*'; and
  - ii. '*Meter Data Process*'.
- (e) '*NMI Procedure*' is a reference to ~~the latest version of~~ the "*National Metering Identifier Procedure*".
- (f) '*Data Delivery Calendar*' is a reference to the applicable version of the '*AEMO Data Delivery Calendar*'.
- (g) '*Meter Churn Data Procedure*' is a reference to the '*Meter Churn Data Management Procedure*' that *Metering Data Providers* must comply with.



- (h) 'MDFF' is a reference to;
  - i. the 'Meter Data File Format Specification' for provision of metering data to Local Retailers, Market Customers, Network Service Providers and other Metering Data Providers. This document is currently the "Meter Data File Format Specification NEM12 & NEM13".
  - ii. an alternative version of the Meter Data File Format Specification which may be used for the provision of metering data to a Generator participant. This is currently the NEM01 format as specified in the "Meter Data File Format – NEM01 specification".
  
- (i) 'MDM data file' is a reference to the aseXML metering data file to be used for sending metering data to AEMO's MSATS system. The ~~latest version of the~~ 'MDM File Format and Load Process' procedure details the process and file format to be complied with by Metering Data Providers.
  
- (j) 'Market Management Systems Access Procedure' is a reference to ~~the latest version of~~ AEMO's Market Management Systems Access Procedure, Policy 02113.
  
- (k) 'Special Sites' is a reference to the ~~latest version of~~ 'Special and Technology Related sites' supporting document and published 'List of Special and Technology Related Sites' within the NEM.
  
- (l) 'Service level procedure' is a reference to this document.

## 5 Obligations

### 5.1 Metering data services

#### 5.1.1 The *Metering Data Provider* must:

- (a) provide compliant *metering data services* in accordance with the *Rules*, procedures under the *Rules* and relevant jurisdictional codes and policies;
- (b) establish, maintain and operate a *metering data services database*;
- (c) ensure that the *metering data services data base* including all distributed systems, personal computers and equipment used for *collection* ~~must be~~ synchronised to *Eastern Standard Time* in accordance with the accuracy requirements of clause 7.12 (e) of the *Rules*;
- (d) ensure that all *metering installations* are synchronised to *Eastern Standard Time* through the *collection* process in accordance with the accuracy requirements of clause 7.12 (f) of the *Rules*, for the relevant *metering installation* type;
- (e) maintain the security and confidentiality of any *metering installation* passwords;
- (f) ensure that *metering data* and relevant *CATS Standing Data* is kept confidential and secure in accordance with *Rule* obligations and only provided to persons entitled to have access in accordance with the *Rules*;
- (g) undertake the *collection*, processing and delivery of *metering data* and significant *meter* alarms, through the processes for which the *Metering Data Provider* has been accredited and engaged;
- (h) be accredited by *AEMO* to provide *metering data services*;
- (i) comply with all directions from *AEMO* to fulfil any obligation under this *service level procedure*; and
- (j) make all reasonable endeavours to co-operate in good faith with *AEMO*, all *Registered Participants*, accredited *Metering Providers* and accredited *Metering Data Providers* within the *National Electricity Market*.

#### 5.1.2 The *Metering Data Provider* must maintain compliance with:

- (a) *NMI Procedure*;
- (b) *MSATS & B2B Procedures*;
- (c) *Metering Data File Format*;
- (d) *MDM File Format and Load Process Procedure*;
- (e) *Meter Churn Data Procedure*; [and](#)
- (f) *Metrology Procedure Part A & B*

#### 5.1.3 In regard to connection points that are part of a *Retailer of Last Resort* (RoLR) event, or where the participating jurisdiction has requested *AEMO* to undertake customer transfers, the *Metering Data Provider* must:

- (a) assist *AEMO* and *Registered Participants* with the management of transfers;
- (b) process and deliver *metering data*; and
- (c) update the *metering register* and relevant *CATS Standing Data* information.

## 5.2 Use of sub-contractors

5.2.1 Where a *Metering Data Provider* engages a sub-contractor to perform any of the obligations specified within the *Rules* or this *service level procedure*, the *Metering Data Provider* must ensure that auditable processes are in place to certify that all work performed by the sub-contractor is compliant with the *Rules* and this *service level procedure*.

5.2.2 The *Metering Data Provider* is responsible and liable for all acts and omissions of any engaged sub-contractor.

5.2.3 In the event a *Metering Data Provider* elects to engage or change a subcontractor for the delivery of any part of the *metering data services* the *Metering Data Provider* must notify AEMO immediately.

5.2.3 **no less than 30 business days prior to implementing the change.**

5.2.4 Subject to AEMO's assessment of the notification:

- (a) the *Meter Data Provider* may be required to undertake an accreditation review to approve the new systems or processes;
- (b) where practicable the accreditation review will take place as part of the next scheduled *Metering Data Provider* audit; and
- (c) the scope and timing of the accreditation review will be assessed on a case by case basis between AEMO and the *Metering Data Provider*.

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## 5.3 Specific obligations for Metering Data Provider - Category D

5.3.1 The *Metering Data Provider* - Category D must:

- (a) undertake *validation*, *substitution* and *estimation* of *metering data* in accordance with the *metrology procedure*: Part B;
- (b) provide *metering data services* which relate to the *collection*, calculation, processing and delivery of *metering data*;
- (c) manage the relevant *CATS Standing Data* for all *connection points* for the entire period for which they have responsibility in MSATS;
- (d) manage the registration of *connection point data streams* in accordance with the timeframes specified in the MSATS Procedures;
- (e) ensure registered details of the *connection point* are fully recorded in the *Metering Data Provider's metering data services database*;
- (f) ensure *metering* details and parameters within the *metering data services database* are correct such that the *metering data* is accurate;
- (g) facilitate the timely commissioning and registration of the *metering installation*;
- (h) ensure that there is no continued *metering data* being recorded for the *connection point* before deactivating the *data stream(s)* in MSATS or discontinuing the *collection* process from the *metering installation*; and

- (i) establish and maintain a *metering register* in their *metering data services database* in support of AEMO's obligation under clause 7.5.1 of the *Rules* and in accordance with this *service level procedure*.

5.3.2 The *Metering Data Provider* must ensure that information in the *metering register* is:

- (a) registered in cooperation with the responsible person, the *Metering Provider* and, where necessary, any other *Metering Data Provider* or *Metering Provider* associated with the transfer of a *connection point*;
- (b) provided on request to respective persons entitled to have access to the data in accordance with clause 7.7(a) of the *Rules*;
- (c) communicated to other respective *Metering Data Providers* having the right of access as a result of the transfer of a *connection point*; and
- (d) populated with the applicable details listed in the clause S7.5 of the *Rules* with the exception of:
  - i. S7.5.2(b) of the *Rules* sub clauses 5, 6 and 7; and
  - ii. S7.5.2 (c) of the *Rules* for *metering installation* types 5 (including AMI), 6 and 7.

5.3.3 Where the *metering installation* includes the measurement of reactive energy, the *Metering Data Provider* must store this *metering data* with the active *metering data* in the *metering data services database*.

5.3.4 The *Metering Data Provider* must ensure that where there is a change of *Metering Data Provider* role for a wholesale or generator *connection point* the Special Site list is referenced. If the *connection point* TNI is included in the Special Site list, the *Metering Data Provider* must first seek AEMO approval, to provide *metering data services* for these sites.

## 5.4 Specific obligations for Metering Data Provider - Category C

5.4.1 The *Metering Data Provider* - Category C must:

- (a) establish and administer a *metering data collection services* system;
- (b) undertake *validation* of *metering data* relevant to the *collection* process in accordance with section 7.2 and 7.3 of the *metrology procedure*: Part B; and
- (c) provide *metering data services* which relate to the *collection* and transfer of *metering data* and the management of relevant *CATS Standing Data* for all *connection points* for the entire period for which they have responsibility in MSATS.

## 6 Service requirements for Metering Data Providers – Category D

### 6.1 System requirements

6.1.1 The *Metering Data Provider* 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, Registered Participants and other service providers*;
- (d) assignment and version control of participant roles for connection points and the ongoing synchronisation with MSATS;  
~~(d) to remain synchronised with MSATS;~~
- (e) *commissioning of each metering installation into the Metering Data Provider'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 the metering installation.*

6.1.2 The *Metering Data Provider* 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) *significant metering data alarms*<sup>1</sup>;
- (f) *metering register information*;
- (g) *the delivery of metering data to Registered Participants, AEMO and other Metering Data Providers*; and
- (h) *the mapping of all metering data streams (including logical metering data streams).*

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6.1.3 The *Metering Data Provider* 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*;

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<sup>1</sup> Significant *metering data* alarms are those listed in *metrology procedure*: Part B.

- (e) failed batch processing, database errors and hardware failures;
- (f) the [trapping-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*.

## 6.2 Collection process requirements

6.2.1 The *Metering Data Provider* must use reasonable endeavours to ensure actual *metering data*, including significant meter and *metering data* alarms, is *collected* for all *connection points* for which they have responsibility for *metering data services* in MSATS.

6.2.2 The *Metering Data Provider* must:

- (a) operate a process for the notification of any *metering installation* malfunction, to the responsible person and the *Metering Provider*, in accordance with clause 7.3.7 of the *Rules*, so that repairs can be affected in a timely manner; ~~and~~
- (b) [ensure-operate](#) a process for the recording and logging of faults and problems associated with the reading function of *meters* is maintained. The process must log, but is not limited to, any:
  - i. access problems;
  - ii. *metering installation* security issues;
  - iii. *metering installation* faults;
  - iv. read failures; and
  - v. *metering installation* time synchronisations.
- (c) operate and maintain a process which supports the *responsible person, the-and/or Metering Provider, or both* in the rectification of any *metering installation malfunctions or problems associated with the reading function of meters*.
- (d) [notification is to be achieved by the allocation of the appropriate substitution codes to the metering data and delivery of metering data within the MDF file. .](#)
- ~~(e) and the management of metering data substitutions.;~~

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## 6.3 Specific collection process requirements for metering installations type 1, 2, 3 and 4

6.3.1 The *Metering Data Provider* must be capable of initiating a remote reading where *metering data* is missing, erroneous or has failed *validation*.

6.3.2 The *Metering Data Provider* must operate and maintain a process which:

- (a) initiates an alternate method to *collect metering data* where *remote acquisition* becomes unavailable; and
- (b) provides a reading event log detailing successful read events for each *metering installation*, or alternatively an exception report of failed meter reads.

## 6.4 Specific collection process requirements for metering installations type 5 and 6

### 6.4.1 The *Metering Data Provider* must:

- (a) develop and maintain a reading schedule in accordance with the *metrology procedure*: Part A;
- (b) maintain read routes with particular attention to any specific access [requirements and hazard information](#), ~~requirements~~;
- (c) use reasonable endeavours to ensure that *metering data* is *collected* at a frequency which is at least once every three months;
- (d) ensure that scheduled reading lists and programmed reading equipment is provisioned, updated and maintained;
- (e) subject to clause 6.5 of this *service level procedure*, use reasonable endeavours to ensure that the *metering data* is *collected* within two *business days* prior to or two *business days* subsequent to the scheduled reading date;
- (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*;
- (g) ensure that special read requests are managed in accordance with the B2B Procedures; and
- ~~(h) ensure that all access issues are logged and communicated to the responsible person and financially responsible Market Participant. This notification is to be achieved by delivery of the metering data within the MDFF file.~~

## 6.5 Specific collection and delivery process requirements for AMI rollout

### 6.5.1 For *Metering Data Providers* undertaking the provision of *metering data services* in relation to an AMI rollout and clause 9.9B of the *Rules*:

- (a) *metering data* may be remotely *collected* or *substituted* earlier than two *business days* prior to the next scheduled read date.
- (b) *metering data* need not be delivered until 5pm on the second *business day* after the scheduled reading date, despite *metering data* being available in *Metering Data Provider* systems due to more frequent data *collection* or *substitution*.
- (c) the *Metering Data Provider* must maintain and operate a system to undertake data *collection* services. Systems and processes must be in place [to enable](#) ~~which enables~~ the:
  - i. commissioning of each *metering installation* into the *Metering Data Provider's* metering database;
  - ii. remote communication with each *metering installation*;
  - iii. *remote acquisition* of *metering data* from the *metering installation* inclusive of any assigned significant *metering data* alarms; and
  - iv. storage of *metering data* from the *metering installation* in the *Metering Data Provider's* *metering data services database*.

- (d) where *remote acquisition* becomes unavailable, the *Metering Data Provider* must have a process which initiates an alternate method to *collect metering data*.
- (e) the *Metering Data Provider's* system must facilitate:
  - i. the initiation of a remote reading where *metering data* is missing, erroneous or has failed *validation*;<sup>2</sup>
  - ii. the provision of a reading event log that details successful read events for each *metering installation*, or alternatively an exception report of failed *meter* reads; and
  - iii. a process for the notification of any *metering installation* faults to the *responsible person* and the *Metering Provider*, in accordance with clause 7.3.7 of the *Rules*, so that repairs can be affected in a timely manner.
- (f) The *Metering Data Provider* must undertake *validation* of all *metering data* in accordance with this *service level procedure* and the *metrology procedure: Part B* even though the significant ~~meter<sup>2</sup> and metering data~~ alarms<sup>3</sup> and meter register readings may be retrieved from the meter independently from the *metering data*.

## 6.6 Metering data processing requirements

6.6.1 The *Metering Data Provider* must have a process to:

- (a) confirm and utilise the participant roles for *connection points*;
- (b) support the receipt and actioning of Provide and Verify Meter Data Requests in accordance with the B2B Procedures;
- (c) assign and store the date/time stamp of when the *metering data* was entered into the *Metering Data Provider's metering data services database*;
- (d) ensure that in accordance with *metrology procedure: Part B* and MDFF all *metering data* is stored in the *metering data services database* with the correct:
  - i. Quality Flag;
  - ii. *Substitution* or *Estimation* Type Code (where applicable); and
  - iii. *Substitution* or *Estimation* Reason Code (if applicable).
- (e) check the *metering data services database* for missing *metering data* and overlaps; and
- (f) notify AEMO and the *Registered Participants* for the *connection point* whenever any *substitutions* or *estimations* are carried out.

<sup>2</sup> ~~Significant meter alarms are those listed in metrology procedure: Part B.~~

<sup>3</sup> Significant *metering data* alarms are those listed in *metrology procedures: Part B*

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- 6.6.2 Where the *responsible person* or the *Metering Provider* informs the *Metering Data Provider* of a situation that may cause *metering data* to be erroneous, the *Metering Data Provider* must identify and *substitute* any erroneous *metering data*.
- 6.6.3 Where any *Registered Participant* for the *connection point* disputes ~~a metering data calculation, substitution or estimation~~, the *Metering Data Provider* must investigate, and if necessary ~~re-substitute correct~~ the *metering data* in accordance with the *metrology procedure*: Part B.
- 6.6.4 The *Metering Data Provider* must have a process to aggregate *metering data* to meet Meter Churn Data Procedure requirements.
- 6.6.5 Where the *meter* assigns alarms to the *metering data*, the *Metering Data Provider's* system must process the alarm along with the *metering data* as part of the *validation* process in accordance with the *metrology procedure*: Part B.
- 6.6.6 The *Metering Data Provider* must use reasonable endeavours to load *metering data* in an alternative format provided by the *Metering Provider* where there is a communications, reading or *metering installation malfunction* that prevents the normal *collection* of *metering data* from the *metering installation*.
- 6.6.7 The *Metering Data Provider* must have a process to aggregate *interval metering data* for a *connection point* into a 30 minute interval net data stream prior to delivery to AEMO as per MSATS Procedure, MDM Procedures and National Metering Identifier Procedure.

## 6.7 Specific Metering Data processing requirements for metering installation types 1, 2, 3 and 4

- 6.7.1 The *Metering Data Provider* must have a process to be capable of undertaking simple cumulative or subtractive processes to manage complex metering configurations. Typically the system must support:
- (a) an A+B+C or A-B-C aggregation configuration;
  - (b) *metering data validation* capability for standard partial or *check meter connection points* which incorporate a simple comparison of single *data stream* of *metering data* to a single *data stream* 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*.

## 6.8 Specific Metering Data processing requirements for Special Sites

- 6.8.1 Subject to the *Metering Data Provider's* level of accreditation and system capability to manage *interconnectors, transmission connection points, Generator connection points* and cross boundary/border supply points between *distribution* or *Local Retailer* regions, the *Metering Data Provider's* process must have the ability to:
- (a) perform *transformer* and or line loss compensation algorithms, to compensate for losses between the *metering point* and [the connection point](#);
  - (b) perform calculations of *data streams* for the requirements of each Special Site;
  - (c) perform nodal *check metering data validation* and *substitution*;
  - (d) undertake Supervisory Control and Data Acquisition (SCADA) data *validation* and *substitution* for *Generator 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; ~~or~~ [and](#)
  - (g) perform any combination of the above.
- 6.8.2 The *Metering Data Provider* must ensure that any algorithm in support of a logical NMI is accepted by the *responsible person, AEMO* and *financially responsible Market Participant* before being used.

## 6.9 Specific Metering Data processing requirements for metering installation type 7

- 6.9.1 The *Metering Data Provider* must store inventory tables, load tables and on/off tables, as defined in *metrology procedure: Part B*, in the *metering data services database*.
- 6.9.2 The *Metering Data Provider* must ensure:
- (a) inventory tables are updated with any ~~changed inventory details~~ [changes](#) provided by the *Local Network Service Provider* or *responsible person*;
  - (b) on/off tables are correct and compliant with details specified in the *metrology procedure Part B*; and
  - (c) load tables are correct and in agreement with details in the National Electricity Market Load Tables for Unmetered Connection Points, as published by *AEMO*.
- 6.9.3 The *Metering Data Provider* must *validate* that load tables, inventory tables and on/off tables are complete and correct.
- 6.9.4 The *Metering Data Provider* must ensure the inventory table, load table and on/off table are versioned for *metering data* calculations.
- 6.9.5 The *Metering Data Provider* must ensure that all *calculated metering data* is *validated* and processed into *trading intervals*.

## 6.10 Specific Metering Data estimation requirements for metering installations types 5, 6 and 7

6.10.1 Subject to clause 6.5 of this procedure, the *Metering Data Provider* must have a process for the creation of *estimated metering data*.

6.10.2 To meet *meter data* delivery requirements, this process must either:

(a) create individual blocks of *estimated metering data* on a daily basis; or

(b) create a single block of *estimated metering data*.

~~(b):~~

i. from the current reading event to a period beyond the newly published next scheduled read date for types 5 and 6; or

ii. from the current calculation event to a period beyond the next scheduled calculation event for type 7.

~~ii.~~

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## 6.11 Delivery performance requirements for metering data

6.11.1 The *Metering Data Provider* must ensure only *metering data* which has passed *validation* is delivered to AEMO, *Metering Data Providers* and *Registered Participants*.

6.11.2 Subject to clause 36.5 of this procedure, the *Metering Data Provider* must:

(a) deliver to AEMO, *Metering Data Providers* and *Registered Participants* all actual *metering data* which has passed *validation* within two *business days* of the actual *metering data* being received into the *metering data services database*;

(b) *substitute, validate* and deliver to AEMO, *Metering Data Providers* and *Registered Participants* the *substituted metering data* within two *business days* of the actual *metering data* being received into the *metering data services database* and failing *validation*; and;

(c) *substitute, validate* and deliver to AEMO, *Metering Data Providers* 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*.

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~~6.11.3 The Metering Data Provider must validate and deliver to AEMO, Metering Data Providers and Registered Participants all substituted metering data within two business days of the metering data being substituted.~~

~~6.11.3 Where metering data fails validation, the Metering Data Provider must substitute, validate and deliver to AEMO, Metering Data Providers and Registered Participants, all substituted metering data within two business days of the metering data being received into the metering data services database.~~

6.11.4 For metering installations type 5, 6 and 7 the Metering Data Provider must validate and deliver to AEMO, Metering Data Providers and Registered Participants all estimated metering data within two business days of the metering data being estimated.

6.11.5 The Metering Data Provider must ensure that all failed validations are reviewed promptly such that:

- (a) where the initial review of the failed validation identifies that the actual metering data is valid, deliver the actual metering data to AEMO, Metering Data Providers 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 metering data, and the receipt of such information identifies that the actual metering data is valid, deliver the actual metering data to AEMO, Metering Data Providers and Registered Participants within two business days of the metering data passing validation.

6.11.6 The Metering Data Provider must deliver metering data that has passed validation to AEMO for the periods specified in the Data Delivery Calendar, for all connection points that the Metering Data Provider is nominated in MSATS, for the specified weekly periods:

- (a) to a quantity level of at least 98% complete metering data for all settlement weeks; and
- (b) to a quality level of at least 98% 'actual' or 'final', for periods specified as four monthly and six monthly revision settlement weeks only; and
- (c) by 5pm on the day specified in the Data Delivery Calendar for the relevant settlement week.

6.11.7 The Meter Data Provider must ensure that all metering data is delivered to AEMO, Metering Data Providers and registered participants for the full period of any retrospectively created data streams within two business days of that data stream becoming active in MSATS.

6.11.8 Summary Data Delivery Table:

	Delivery to entitled registered participant (e.g. MDP, LNSP, TNSP, LR, FRMP)	Delivery to AEMO
Data Type	NMI data stream (e.g. E1, B1, 71, 44) Deliver validated metering data including any estimations and	Net NMI data stream (e.g. N1, 71, 44) Deliver validated metering data including any estimations and

	<i>substitutions.</i>	<i>substitutions.</i> Interval <i>metering data</i> must be <del>as-</del> net aggregated to 30 minutes.
File Format	'MDFF' Meter Data File Format (or Agreed Format).	'MDM' AEMO aseXML data file format.
Delivery Point	To the <i>Registered Participants</i> via <i>B2B e-Hub</i> inbox (or Agreed Method)	To the <i>Metering Data Provider's</i> MSATS inbox

- 6.11.9 For *Metering Data Providers* undertaking the provision of *metering data services* in relation to AML roll out and clause 9.9B of the *Rules*, *metering data estimation* is not required where *metering data* is delivered to AEMO, *Metering Data Providers* and *Registered Participants* on a daily basis for the previous day.
- 6.11.10 The *Metering Data Provider* must notify AEMO and affected participants of any operational delays which impact on normal expected *metering data* delivery.

## 6.12 Delivery of Metering Data for prudential processing

- 6.12.1 AEMO must communicate to the *Metering Data Provider* the requirement for prudential *metering data* by 10am *Eastern Standard Time* the day before the data is required.
- 6.12.2 The *Metering Data Provider* must deliver prudential *metering data* to AEMO for Type 1, 2, 3 and 4 *metering installations* for the days nominated by AEMO, as follows:
- 90% complete set of *validated actual metering data* for *connection points* which relate to wholesale market boundary and *Market Generator connection points* (these relate to *connection points* identified in MSATS as WHOLESAL, GENERATR and INTERCON);
  - 80% complete set of *validated actual metering data* for all other *connection points*; and
  - the *Metering Data Provider* must deliver *metering data* to AEMO by 8am *Eastern Standard Time* on the day(s) specified.
- 6.12.3 The *Metering Data Provider* must deliver prudential *metering data* to AEMO for Type 5, 6 and 7 *metering installations* for the days nominated by AEMO, as follows:
- ~~deliver a minimum~~ 80% complete data set of [validated metering data for all connection points to MSATS system for Prudential processing purposes](#), consisting of actual, *substituted* or *estimated metering data*; and
  - the *Metering Data Provider* must deliver *metering data* to AEMO by 8am *Eastern Standard Time* on the day(s) specified.

## 6.13 Interface requirements

- 6.13.1 The *Metering Data Provider* must comply with AEMO's Market Management Systems Access Procedure.
- 6.13.2 The *Metering Data Provider* must establish and maintain business interfaces to:
- the MSATS system 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*;
  - the *B2B e-Hub* for the interface with *Registered Participants*, other service providers and for the delivery of *metering data* to *Registered Participants* and other *Metering Data Providers*; and
  - other technologies such as email, facsimile, phone and internet for the general management of information and alternative delivery of *metering data* to *Registered Participants*.
- 6.13.3 The *Metering Data Provider* must demonstrate that any non-public communications network which is to be used for the *remote acquisition* of *metering data* is first approved by AEMO ~~which-and~~ has controls and processes supporting:
- data security, integrity and confidentiality;
  - functional, performance and capacity requirements; and
  - a contingency strategy for component failure.
- 6.13.4 The *Metering Data Provider* must maintain a NEMNet connection for the purposes of communication and file transfer with MSATS;
- 6.13.5 The *Metering Data Provider* will be provided with an inbox and outbox directory on the MSATS file server, which must be used for the transfer of files to and from AEMO via NEMNet and manage the appropriate directories in accordance with the MSATS Procedures.
- 6.13.6 The *Metering Data Provider* 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.
- 6.13.7 The *Metering Data Provider* must manage any batch file transfers to MSATS in accordance with MDM Procedures.
- 6.13.8 The *Metering Data Provider* must maintain an ongoing active line of communication with the *B2B e-Hub* for the management and response to *B2B e-Hub* Requests and Notifications.
- 6.13.9 The *Metering Data Provider* must ensure:
- all transmitted messages comply with the requirements of the aseXML message format; and
  - all files transacted through the *B2B e-Hub* interface ~~must~~ comply with the requirements of the aseXML message size requirements and B2B Technical Delivery Specifications.



6.13.10 Voice communications with *AEMO, Registered Participants, Metering Providers* and other *Metering Data Providers* are to be undertaken between 9:00am and 5:00pm on *business days* except under exceptional circumstances.

[6.13.11](#) The *Metering Data Provider* must work with *AEMO* in the provision of *metering data* and *CATS standing data* files to *AEMO* and *Registered Participants* via alternate means in emergency situations where normal processes cannot be utilised.

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6.13.11

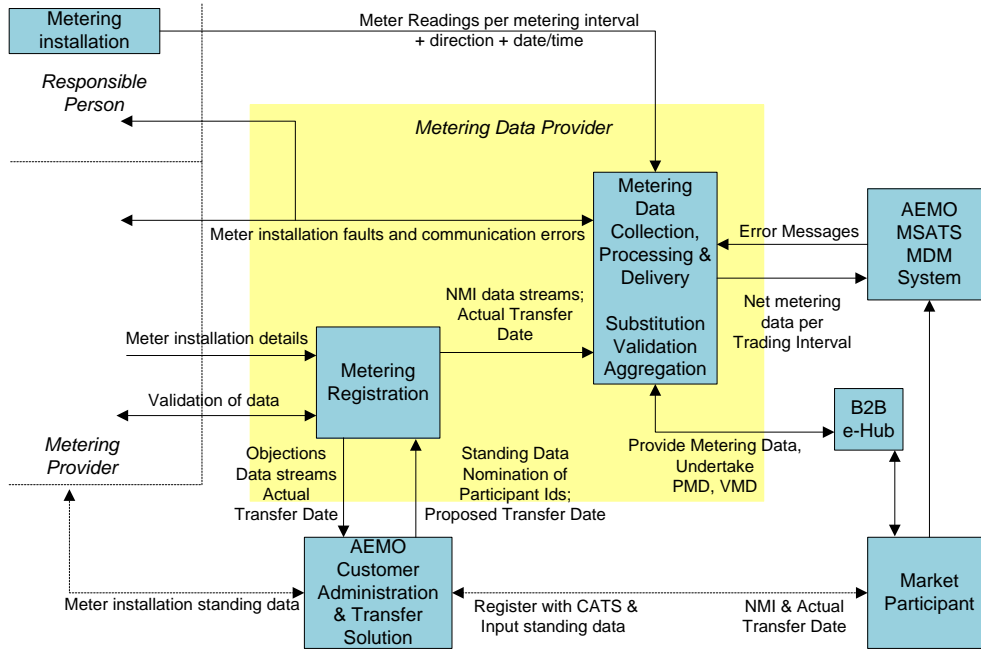
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6.13.12 Figure 1 below outlines the key Metering Data Provider interfaces:

6.13.12 Interfaces for MDP's

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## 7 Service requirements for Metering Data Providers - Category C

### 7.1 System requirements

- 7.1.1 The *Metering Data Provider* must maintain and operate a *metering data collection* services system to facilitate:
- (a) the receipt of reading requests and associated information including read routes, registers, passwords, last read data, scheduled reading date, type of reading required and other information as agreed from time to time with a *Metering Data Provider - Category D*;
  - (b) the management of meter reading schedules;
  - (c) the *collection* of *metering data* from the *metering installation* inclusive of any *metering data* alarms or events as agreed with a *Metering Data Provider - Category D*;
  - (d) *validation* of *metering data* relevant to the *collection* process in accordance with section 7.2 and 7.3 of the *metrology procedure: Part B*;
  - (e) the transfer of *metering data* in a format agreed with the relevant *Metering Data Provider - 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 *Metering Data Provider - Category D* so that repairs can be affected in a timely manner.
- 7.1.2 The *Metering Data Provider* must ensure the *metering data collection* services system provides a full audit trail.
- 7.1.3 The *Metering Data Provider* must ensure a process for the recording and logging of faults and problems associated with the reading function of meters is maintained. The process must log any:
- (a) access problems;
  - (b) meter security issues;
  - (c) meter faults;
  - (d) read failures; and
  - (e) other information as agreed with *Metering Data Provider - Category D*.

### 7.2 Metering Data Collection and transfer requirements

- 7.2.1 The *Metering Data Provider* must:
- (a) use reasonable endeavours to ensure actual *metering data* is *collected* for all *connection points* for which they are responsible.
  - (b) use reasonable endeavours to ensure the *metering data* is *collected* from *metering installations* type 5 and 6 within two *business days* prior to and two *business days* subsequent to the scheduled reading date.
  - (c) ensure that all *metering data collected* and any fault reason codes associated with a reading failure or access issues 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 *Metering Data Provider - Category D* immediately upon identification of an inability to *collect* or transfer *metering data* in accordance with the timeframes specified above.
- (e) ensure that all access issues are communicated to the *Metering Data Provider - Category D*.
- (f) ensure that the *meter* time of all type 5 *metering installations* is synchronised to *Eastern Standard Time* through the *collection* process within the accuracy requirements of the *Rules*;
- (g) ensure for type 5 *metering installations*, the *Metering Data Provider – Category D* is informed, through an agreed method, where the *meter* reading process failed to synchronise the *metering installation* time with *Eastern Standard Time*.
- (h) ensure for time of use type 6 *metering installations*, the *Meter Data Provider – Category D* is informed, through an agreed method, where the meter time is not synchronised to *Eastern Standard Time*; and
- (i) ensure that special read requests are managed in accordance with the B2B Procedures.

7.2.2 Where the *meter* assigns alarms and/or events to the data channel and/or the *metering data* concerned, the *Metering Data Provider* system must process and provide the alarm along with the *metering data* [to support the as part of the required-metering data validation](#) process in accordance with the *metrology procedure*: Part B and as agreed with *Metering Data Provider - Category D*.

## 8 System architecture & administration

### 8.1 Data archival and recovery

- 8.1.1 The *Metering Data Provider* must ensure that their *metering register* information and *metering data* is accessible, online and archived in accordance with clause 7.11.3 of the *Rules*.
- 8.1.2 The *Metering Data Provider* must have retrieval mechanisms that allow the archived *metering data* to be recovered, re-evaluated and delivered in agreed timeframes to *AEMO* and *Registered Participants*.

### 8.2 Data backup

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

### 8.3 Disaster recovery

- 8.3.1 The *Metering Data Provider* must ensure that a Disaster Recovery Plan is established and in place to ensure that in the event of a system failure, the system can be returned to normal operational service within two *business days*.
- 8.3.2 The *Metering Data Provider* 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 *Metering Data Provider* as being current for the systems and processes in place.
- 8.3.3 Where the *Metering Data Provider* 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.
- 8.3.4 Where the *Metering Data Provider* adopts a Disaster Recovery Plan that has a segmented system approach, the Disaster Recovery Plan must ~~also~~:
- (a) detail the interfaces and relationships amongst 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.
- 8.3.5 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 *Metering Data Provider* operations.

- 8.3.6 In the event a system failure does occur, the *Metering Data Provider* must ensure that:
- (a) the *Metering Data Provider's metering data services database* is restored to operational service within two *business days*; and
  - (b) all processing and delivery backlogs of *metering data* to AEMO and *Registered Participants* is completed within the same two *business days* in [58.3.6\(a\)](#) above.
- 8.3.7 The *Metering Data Provider* must at its earliest opportunity notify AEMO of any failure where the *Metering Data Provider* has a requirement to implement its established Disaster Recovery Plan.

## 8.4 System administration and data management

- 8.4.1 The *metering data services database* must be operated and administered 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 7.7 of the *Rules*; and
  - (d) a minimum of 95% system availability (i.e. hardware and systems downtime do not exceed a maximum of 438 hours per annum).
- 8.4.2 The *Metering Data Provider* 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.

## 9 Quality control

### 9.1 Scheduled Metering Data audits

- 9.1.1 The *Metering Data Provider* must undertake all services in a manner that is auditable, and must support scheduled reviews of their *metering data service database*, processes, procedures and systems.
- 9.1.2 *AEMO* will undertake periodic certification reviews, to a negative assurance level of the *Metering Data Provider's metering data service database*, processes, procedures and systems to assess the *Metering Data Provider's* compliance with the *Rules*, Procedures under the *Rules* and this *service level procedure*.
- 9.1.3 All scheduled reviews will be through a centralised review process established by *AEMO* and will be undertaken at the *Metering Data Provider's* own costs.
- 9.1.4 Where a review is conducted under this *service level procedure*, the *Metering Data Provider* must, at its own 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.
- 9.1.5 Scheduled reviews of the *Metering Data Provider'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; or
  - (c) at *AEMO's* discretion, at twelve month intervals based on previous satisfactory audit reviews of the *Metering Data Provider*.
- 9.1.6 *AEMO* must provide the *Metering Data Provider* a minimum of:
- (a) 30 business days notification prior to a scheduled review; and
  - (b) 15 business days' ~~notice notification will be given to the *Metering Data Provider*~~ for the provision of any specific data requests as part of the audit.

### 9.2 Other audits

- 9.2.1 Audits may be undertaken at any time by *AEMO* in accordance with *Rules* requirements and may be carried out following a request from a *Registered Participant*.
- 9.2.2 Where an audit of a *metering installation* is conducted by *AEMO* under clause 7.6.3 (d) of the *Rules*, and *metering data* must be obtained from the *Metering Data Provider* in support of this audit, the *Metering Data Provider* must provide the *metering data* within two *business days* of *AEMO's* request.
- 9.2.3 The *Metering Data Provider* must assist *AEMO* with reasonable requests for the provisioning of *metering data* and relevant *CATS Standing Data* information relating to *connection points* that are part of the market audit process of *AEMO*, *responsible persons*, *Metering Providers* and *Metering Data Providers*.

### 9.3 Corrective action

- 9.3.1 The *Metering Data Provider* must take corrective action on any reported instances of non-compliance identified by AEMO or through the *Metering Data Provider* audit process.
- 9.3.2 Where the *Metering Data Provider* becomes aware that incorrect *metering data* has been delivered to AEMO and *Registered Participants*, the *Metering Data Provider* must provide corrected *metering data* to all affected parties within one *business day* as required by clause 7.11.3 (e) of the *Rules*.
- 9.3.3 ~~Subject to any concerns that AEMO may have relating to *metering data*, *metering register* or relevant *CATS Standing Data* details,~~ AEMO may request corrective action where errors or omissions are found within AEMO's *settlements* process ~~and such~~. ~~These~~ requests are to be actioned as a priority by the *Metering Data Provider*.
- 9.3.4 Where the *Metering Data Provider* cannot deliver the corrected *metering data* in the timeframe specified above, the *Metering Data Provider* must advise AEMO and agree on an alternate delivery time.

### 9.4 Non-compliance and de-registration

- 9.4.1 The 'Service Provider Compliance Assessment and Deregistration Procedure' (established under clause 7.4.3 (a) of the *Rules*) shall be used by AEMO in any assessment of a non-conformance or breach by a *Metering Data Provider* to remain compliant with the *Rules*, any procedure authorised under the *Rules* or this *service level procedure*.
- 9.4.2 Subject to the assessed breach level as defined within the 'Service Provider Compliance Assessment and Deregistration Procedure', actions that may be taken by AEMO in the event that the *Metering Data Provider* has failed to take corrective action, includes:
- (a) loss of accreditation of the *Metering Data Provider*;
  - (b) deregistration from categories of accreditation;
  - (c) suspension from operation in the *National Electricity Market*;
  - (d) other applied limitation or level of restriction; or
  - (e) any combination of the above.

### 9.5 Review of accreditation

- 9.5.1 Circumstances where AEMO may require a *Metering Data Provider* to review its accreditation and subsequently apply for re-accreditation include:
- (a) where a *Metering Data Provider* has been de-registered and seeks re-registration;
  - (b) where a *Metering Data Provider* has been suspended from providing services under certain categories and seeks to have the suspension lifted;
  - (c) subsequent to changes to *Rules* requirements, Procedures under the *Rules*, or *Service Level Procedures*. This is likely to apply in instances where *Rules* changes have been made or new versions of the *Metrology Procedure* have been issued

which require significant functional system, process or procedural changes to be made by *Metering Data Providers*.

(d) significant changes or upgrades to a *Metering Data Provider's* existing systems or a system platform change to any part of the *metering data service database*. The *Metering Data Provider* must apply and be re-accredited prior to implementing the changes into their production environment and accepting or transmitting any market transactions, in accordance with the Metering Service Provider Accreditation Procedure; ~~and~~

(e) organisational mergers and acquisitions; ~~and~~

~~(e)(f)~~ under circumstances relating to clause 5.2 of this procedure-

## 10 Administration

### 10.1 Bilateral agreements

10.1.1 A *Registered Participant* may request the *Metering Data Provider* to:

- (a) provide *metering data* in an alternate format; and/or
- (b) deliver *metering data* by an alternate method; and/or
- (c) deliver *metering data* in an alternate time frame; and/or
- (d) provide any other *metering data services*.

10.1.2 Pursuant to clause 10.1.1 of this procedure, there is no mandated requirement for a *Metering Data Provider* to implement system changes and processes to facilitate bilateral agreements.

10.1.3 Any acceptance by the *Metering Data Provider* to deliver *metering data* to a *Registered Participant* in accordance with clause 10.1.1 of this procedure must not impact on *metering data* delivery to AEMO or any other *Registered Participant* for the *connection point(s)* concerned.

10.1.4 Any bilateral agreement established between the *Registered Participant* and the *Metering Data Provider* must be supported in writing for *service level procedure* audit compliance purposes.

### 10.2 Quality systems

10.2.1 The *Metering Data Provider* must operate and retain a quality system that meets clause S7.6.3 of the *Rules* to the satisfaction of AEMO, which is at least equal to a quality accreditation to the ISO9001 or ISO9002 standards.

### 10.3 Disputes

10.3.1 If a dispute arises between the *Metering Data Provider* and AEMO, a *Registered Participant*, a *Metering Provider* or any other *Metering Data Provider*, in relation to the provision of *metering data services* or this *service level procedure*, then the Dispute Resolution process as detailed clause 8.2 of the *Rules* shall apply.