METROLOGY PROCEDURE: PART A NATIONAL ELECTRICITY MARKET

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GROUP MANAGER – RETAIL MARKETS AND METERING	**15 MAY 2015**

Preface

The *metrology procedure* has been prepared by the Australian Energy Market Operator (AEMO) in accordance with the requirements of the *Rules*.

This version of the *metrology procedure*: Part A has been updated to align the version number of Metrology Procedure: Part A with that for Part B to Version 5.30 and make other text corrections .

AEMO acknowledges the assistance of industry participants who contributed to the final form of the *metrology procedure* through the Metrology Reference Group.

The effective date of the *metrology procedure* is 15 May 2015, in accordance with the *Rules*.

AEMO maintains a development program in relation to the *metrology procedure*. Please address any comments to Roy Kaplan, Manager Retail Development and Change Implementation at: (roy.kaplan@aemo.com.au).

Important Notice

This Metrology Procedure (Part A) is made by AEMO under clause 7.14 of the National Electricity Rules (Rules), and has effect only for the purposes set out in the Rules. The Rules and the National Electricity Law prevail over this Procedure to the extent of any inconsistency.

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Document History

Version	Date	Author	Comments
1.00	21/12/2006	MRG	Initial national publication, effective 1 January 2007.
1.20	22/08/2007	AEMO	Embedded network amendments, effective 22 November 2007
2.00	28/4/2008	AEMO	Incorporation of first tier jurisdictional metrology requirements, effective 31 July 2008
2.00	22/09/2008	AEMO	Incorporate South Australian jurisdictional metrology material effective 22 September 2008
2.01	01/07/2009	AEMO	Incorporate Victorian jurisdictional metrology material to support Victorian AMI rollout
2.01a	15 July 2011	AEMO	The extension of retail contestability to business customers consuming between 50 – 150 MWh per annum in Tasmania.
3.0	31 October 2011	AEMO	Updated to incorporate provisions of Rule Change: Provision of Metering Data Services and Clarification of Existing Metrology Requirements.
3.01	1 July 2012	AEMO	Updated to incorporate jurisdictional material in relation to Queensland Retail Tariff Reform
3.10	1 January 2014	AEMO	Introduction of FRC in Tasmania
3.20	1 March 2014	AEMO	Updated to incorporate provisions of *Rules* Change: National Electricity Amendment (Small Generation Aggregator Framework) Rule 2012 ERC 0141 and text corrections.
5.30	15 May 2015	AEMO	Updated to align version numbering with Metrology Procedure: Part B and to include corrections

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Section 1: General

1. General

1.1 Introduction

1.1.1 The *metrology procedure* is made in accordance with clause 7.14 of the *Rules*.

1.1.2 The *metrology procedure* is comprised of two parts, namely:

- Metrology Procedure: Part A National Electricity Market; and
- Metrology Procedure: Part B Metering Data Validation, Substitution and Estimation Procedure for Metering Types 1 – 7

1.1.3 The title of this document is the Metrology Procedure: Part A National Electricity Market.

1.1.4 The short title of this document is Metrology Procedure: Part A.

1.1.5 The short title of the Metrology Procedure: Part B Metering Data Validation, Substitution and Estimation Procedure for Metering Types 1 – 7 is Metrology Procedure: Part B.

1.1A Application

1.1A.1 The *metrology procedure* applies to *AEMO, Registered Participants, Metering Providers* and *Metering Data Providers* in relation to *connection points* in the *National Electricity Market* that may be classified as a *first-tier load*, *second-tier load*, *market load* or *intending load* in accordance with clause 2.3.1 of the *Rules*.

1.2 Purpose

1.2.1 The purpose of the *metrology procedure* is to set out:

a) The obligations of the *responsible person*, in relation to *metering installations* that are detailed in the *Rules*;

b) The obligations of the *responsible person, financially responsible Market Participant* or *AEMO* (determined in accordance with clauses 7.2.1A, 7.2.1B

and 7.2.5 of the *Rules*) in relation to the engagement of Metering Service Providers for:

1. Provision, installation, routine testing and maintenance of *metering installations* including the measurement of electrical *energy;* and
2. Provision of *metering data services* to facilitate the efficient operation of the market and for *load profiling* purposes;

c) The obligations of *AEMO* in relation to the conversion of *accumulated metering data* into *trading interval metering data* to facilitate the efficient operation of the market for wholesale *market* settlement purposes;

d) The obligations on *Metering Providers* in relation to the provision, installation, routine testing and maintenance of a *metering installation*; and

e) The obligations on *Metering Data Providers* in relation to the provision of *metering data services.*

1.3 Scope

1.3.1 The *metrology procedure* provides information on the application of *metering installations* to *connection points*. In particular, the *metrology procedure* sets out provisions for *metering installations* and *metering data services* relating to:

a) *Metering Providers* which include:

1. The type of *metering installation* permitted for the measurement of *active energy*;
2. The provision, installation, testing, inspection and maintenance of *metering installations;*
3. The components of each type of *metering installation; and*
4. Storage of, and access rights to, *energy data* in the *metering installation.*

b) *Metering Data Providers* which include:

1. The collection or calculation, processing and delivery of *metering data*; and
2. Storage of *metering data* in the *metering data services database* and rights of access to *metering data.*

1.3.2 The *metrology procedure* sets out those obligations that are imposed on a *Metering Provider* as contained in Chapter 7 of the *Rules*, or from the adoption of the *Rules* to practices approved by the *metrology procedure*.

1.3.3 The *metrology procedure* covers the full extent of a *metering installation*, from the *connection point* at one extreme to the point of *metering data* collection at the other extreme. It includes the *communications interface* that facilitates the

connection of the *metering installation* to the *telecommunications network* for the purpose of *remote acquisition* of *metering data*.

1.3.4 The *metrology procedure* covers the full extent of the *metering data services* from the *communication interface* up to the data transfer facilities for the purpose of delivery of *metering data* to *AEMO* and *Registered Participants.*

1.3.5 The *metrology procedure* does not cover operation of and processes related to the delivery of *metering data* to *AEMO* and *Registered Participants.* These are covered in *service level procedures* issued by *AEMO*.

1.3.6 The *metrology procedure* sets out those obligations that are imposed on a *Metering Data Provider* as contained in Chapter 7 of the *Rules,* or from the adoption of the *Rules* to practices approved by the *metrology procedure.*

1.4 Responsibility for Metering Provider services

1.4.1 The responsibility for the provision, installation, routine testing, maintenance and audit of a *metering installation* and its components is specified in Section 2 of Metrology Procedure: Part A.

1.4.2 The *responsible person* must engage *Metering Provider(s)* to undertake the tasks of provision, installation, testing, inspection and maintenance of *metering installations*, in accordance with clause 7.2.5 of the *Rules*.

1.5 Responsibility for Metering Data Provider services

1.5.1 The responsibility for *metering data services* is specified in Section 3 of Metrology Procedure Part A.

1.5.2 The *responsible person, financially responsible Market Participant* or *AEMO* (determined in accordance with clauses 7.2.1A, 7.2.1B and 7.2.5 of the *Rules*) must engage a *Metering Data Provider* for the provision of *metering data services,* in accordance with clause 7.2.5 of the *Rules.*

1.6 References

1.6.1 Metrology Procedure: Part A makes reference to the documents listed in this section:

a) Chapter 7 of the *Rules*;

b) Metrology Procedure: Part B Metering Data Validation, Substitution and Estimation Procedure for Metering Types 1 – 7 (MT_MA 1680);

c) MSATS Procedures: CATS Procedures Principles and Obligations (MT_RT1700);

d) Service Level Procedure: Metering Data Provider Services Category D and C for Metering Installation Types 1, 2, 3, 4, 5, 6 and 7;

e) Service Level Procedure: Metering Provider Services Category B for Metering Installation Types 1, 2, 3, 4, 5 and 6 (ME_MP1962);

f) ISO/IEC Guide 98: Guide to the expression of uncertainty in measurement (GUM);

g) AS ISO/IEC 17025: General Requirements for the Competence of Calibration and Testing Laboratories;

h) AS 1199: Sampling procedures for inspection by attributes – Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection

i) AS 2490: Sampling Procedures and Charts for Inspection by Variables for Percent Nonconforming

j) *Voltage transformer* standards:

AS 60044.2: Instrument transformers - Inductive voltage transformers;
AS 60044.3: Instrument transformers - Combined transformers;
AS 60044.5 (part): Instrument transformers - Capacitor voltage transformers; and
AS 1243: Voltage Transformers for Measurement and Protection (for three phase voltage transformers only)

k) *Current transformers* standards:

AS 60044.1: Instrument transformers - Current transformers; and
AS 60044.3: Instrument transformers - Combined transformers.

l) Electricity *meter* standards:

AS 1284.1: Electricity metering - General purpose induction watthour meters;
AS 62052.11: Electricity metering equipment (AC) – General requirements, tests, test conditions – Metering equipment;
AS 62053.21: Electricity metering equipment (AC) – Particular requirements – Static meters for active energy (classes 1 and 2); and
AS 62053.22: Electricity metering equipment (AC) – Particular requirements – Static meters for active energy (classes 0.2S and 0.5S)

1.6.2 In clause 1.6.1 above, the following meanings apply:

a) ISO means International Standards Organisation;

b) IEC means International Electrotechnical Commission;

c) AS means Australian Standard;

d) NZS means New Zealand Standard

1.7 Definitions

1.7.1 Words in Metrology Procedure: Part A and in Metrology Procedure: Part B that are shown in *italics* have the meaning specified in this clause 1.7 or, if they are not specified in this clause, they have the meaning specified in the *Rules*.

1.7.2 Subject to clause 1.8.2, words identified by the symbol "^" clarify the operation of the *Rules*. This is to accommodate the situation where a special condition has been introduced to a definition under the *Rules* for the purposes of the *metrology procedure*. Square brackets [ ] have been applied to the part of the definition that is the special condition.

accumulation meter

accumulation meter means a *meter* where the *energy data* recorded in the *meter* represents a period in excess of a *trading interval*.

Act

Act means the document(s) specified in the following table for the relevant jurisdiction:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria	Electricity Industry Act 2000 (Vic)
New South Wales	Electricity Supply Act 1995 (NSW)
South Australia	Electricity Act 1996 (SA)
Australian Capital Territory	Utilities Act 2000 (ACT)
Queensland	Electricity Act 1994 (Qld) and the Energy Assets (Restructuring and Disposal) Act 2006 (Qld)
Tasmania	Electricity Supply Industry Act 1995 (Tas)

actual meter reading

actual meter reading means the collection of *energy data* from the *metering installation*.

AEMO settlements timetable

AEMO settlements timetable means the time frame required for settlements as specified in procedures established from time-to-time by *AEMO*.

authority

authority means an *authority* issued under the *Act* for the Queensland jurisdiction.

average daily load

average daily load (ADL) means the field of that same name in *MSATS*.

basic meter profiler

basic meter profiler means the application of a *load profile*, including the *Net System Load Profile* or the *Controlled Load Profile*, to determine *trading interval* data from *accumulated metering data*.

card operated meter

This definition only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Queensland	**Card operated meter** means a *meter* that contains control equipment that switches on and off in accordance with the amount of credit stored in the *meter*.

child

A **child** *metering point* is a *metering point* which has a relationship to a *parent metering point* such that the arithmetical difference between the *energy* measured at the *parent metering point* and the *child metering point* represents the *energy* consumption for one or more other *connection points*.

Commission

Commission means the person specified in the following table for the relevant jurisdiction:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria	Essential Services Commission under the Essential Services Commission Act 2001 (Vic);
South Australia	Essential Services Commission of South Australia;
Australian Capital Territory	Independent Competition and Regulatory Commission;
New South Wales	Independent Pricing and Regulatory Commission;
Queensland	Queensland Competition Authority;
Tasmania	Office of the Tasmanian Energy Regulator;

connection point^

The agreed point of supply established between *Network Service Provider(s)* and another *Registered Participant*, *Non-Registered Customer* or *franchise customer*.

[This definition only applies to a jurisdiction as specified in the following table:]

Jurisdiction	Variation in accordance with jurisdictional policy
South Australia	Until a date notified to *AEMO* by the *Minister*, for the purposes of this *metrology procedure*, where a *distribution network* is operated pursuant to an exemption from holding a *licence*, the *connection point* is the agreed point of *supply* between the *embedded network* operator and a *Registered Participant*, *Non-Registered Customer* or customer as defined in the *Act*. "*Connection point*" may also mean the agreed point of *supply* established between *Network Service Provider(s)* and another customer as defined in the *Act*.
Victoria, New South Wales, Australian Capital Territory, Queensland, Tasmania	"*Connection point*" may also mean the agreed point of *supply* established between *Network Service Provider(s)* and another customer as defined in the *Act*.

controlled load

controlled load means those *loads* that are wired separately from other appliances, are controlled by components of the *metering installation* (e.g. frequency injection relay or time clock) and may be separately metered from the remaining *load* at the *metering point*. The majority of *controlled loads* are associated with off-peak hot water.

controlled load profile (CLP)

controlled load profile is a type of *load profile* calculated in accordance with the *metrology procedure*.

data stream

data stream means a stream of *energy data* or *metering data* associated with a *metering point*, as represented by a *NMI*. For example, a *NMI* will have multiple *data streams* where one or more *meters* or one or more channels or registers comprise a single *meter*. Each *data stream* is identified by a suffix, which is associated with the *NMI* to which it belongs.

electricity connection and metering manual (ECMM)

This definition only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Queensland	Electricity Connection and Metering Manual means the document of that title produced by the relevant *Local Network Service Provider(s)* in this jurisdiction.

embedded network

An **embedded network** is a *distribution network* which has a *connection point* to another *distribution network* and does not have a *connection point* to a *transmission network*.

end-use customer

A person who is supplied electricity through a *distribution system* by a *Market Customer*.

estimated reading

estimated reading means an estimate of a *meter* reading where an *actual meter reading* has not occurred **or** a *substitute* of a *meter* reading used for the purposes of transferring an *end-use customer* to a new *Retailer* where an *actual meter reading* has not occurred.

estimation, estimate, estimated

The processing of *metering data*, undertaken by a *Metering Data Provider,* for the forward *estimation* of *metering data* where the *scheduled meter reading* cycle does not support the delivery time frames of *metering data* to *AEMO* and other *Registered Participants*.

final reading

final reading means the last *actual meter reading* for an *end-use customer* when they vacate an address or change *Retailer* or the last *actual meter reading* taken before all or any part of a *metering installation* is removed or modified and where the modification effects the *energy data* in the *metering installation*.

first-tier controlled load

first-tier controlled load means a *controlled load* that is a *first-tier load*.

first-tier load^

Electricity purchased at a *connection point* directly and in its entirety from the *Local Retailer* and which is classified as a *first-tier load* in accordance with Chapter 2 [of the *Rules*].

[For the purposes of the *metrology procedure*, a *first-tier load* also includes the electricity purchased at a *connection point* directly and in its entirety from the *Local Retailer* even if it has not been so classified].

ILAC

ILAC means International Laboratory Accreditation Cooperation.

interval meter

interval meter means a *meter* that records *interval energy data*.

inventory table

inventory table is a table of devices for *unmetered loads* associated with each *NMI* as described in clauses 14.3.3 and 14.4.3 in Metrology Procedure: Part B.

licence

licence means a *licence* issued by the *Commission* pursuant under the *Act*, for all jurisdictions other than Queensland, where the Department of Mines and Energy issues an '*authority*' and New South Wales where it is granted by the *Minister* for Energy under the *Act*.

load profile

load profile is a *profile* of *metering data* aggregated across a defined set of *connection points*.

load table

load table is a table of *unmetered* device *loads* as described at clause 14.2.4 in Metrology Procedure: Part B.

Local Network Service Provider^ (LNSP)

Within a *local area*, a *Network Service Provider* to which that geographical area has been allocated by the *Jurisdictional Regulator*.

[Note: If there is more than one *Local Network Service Provider* for a *local area*, a reference to the *Local Network Service Provider* in respect of a *metering installation* or *connection point* is a reference to the *Local Network Service Provider* that holds a *licence* in respect of the *network* to which that *metering installation* or *connection point* is *connected*.]

meter provision

meter provision means the provision, installation and maintenance of the components of the *metering installation*.

National Measurement Institute

National Measurement Institute means the institute with that name established under the *National Measurement Act (1960)* of the Commonwealth as amended from time to time.

negotiated retail contract

This definition only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Queensland	negotiated retail contract has the meaning given in the *Act.*

Net System Load Profile (NSLP)

Net System Load Profile is a type of *load profile* calculated in accordance with the *metrology procedure*.

non-controlled load

non-controlled load means a *load* that is not a *controlled load*.

on/off table

on/off table means a table recording the switching status (On = 1, Off = 0) for each trading interval for the *unmetered loads* associated with a *NMI* as described in Metrology Procedure: Part B.

parent metering point

A **parent metering point** is a *metering point* through which the *energy* measured is supplied to more than one *connection point.*

physical inventory

physical inventory means a physical count of devices.

profile area

profile area means, for the purposes of calculating the *Net System Load Profile*, the *TNIs* that supply the *distribution network* of the *Local Network Service Provider*. If part of the *local area* of a *Local Network Service Provider* is located within the *local area* of another *Local Network Service Provider*, for the purposes of calculating the *Net System Load Profile*, that part of the *local area* of the first *Local Network Service Provider* is considered to be part of the *profile area* of the second *Local Network Service Provider*.

Profile Preparation Service (PPS)

Profile Preparation Service means the calculation of the *Net System Load Profile* or the *Controlled Load Profile*.

Queensland Market Customer

This definition only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Queensland	**Queensland Market Customer** has the meaning given to market customer in the *Act.*

Queensland Non-Market Customer

This definition only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Queensland	**Queensland Non-Market Customer** has the meaning given to non-market customer in the *Act.*

reasonable endeavours

reasonable endeavours in relation to a person, means the person must act in good faith and do what is reasonably necessary in the circumstances.

Retailer

Retailer means an entity which holds a *retail licence*, or a supplier *authority*, or a retail *authority*, as applicable for the relevant jurisdiction.

retail licence

retail licence means, in relation to the relevant jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria	a licence issued by the Essential Services Commission under the *Act* to sell electricity;
New South Wales	a Retailer suppliers' licence issued by the Minister to supply or sell electricity in New South Wales in accordance with section 33 of the *Act*;
South Australia	a holder of a licence under Part 3 of the *Act* to retail electricity in South Australia;
Australian Capital Territory	a licence issued by the *Commission* to supply electricity in the ACT in accordance with Part 3 of the *Act*;
Queensland	an authority issued under the *Act* to a retail entity in Queensland.

routine testing

routine testing, for the purposes of the *metrology procedure*, includes the ongoing and regular maintenance testing, compliance testing and in-service testing of *metering installation* components initiated by the *responsible person* or *Metering Provider* to fulfil their obligations in accordance with S7.3 of the *Rules*.

sample test plan

sample test plan means a statement of the sample size or sizes to be taken, the frequency of sample testing and the required accuracy.

scheduled meter reading

scheduled meter reading means an *actual meter reading* on a cycle that equates to the *end-use customer*'s billing cycle, usually monthly or quarterly.

scheduled reading date

scheduled reading date means the date of next *scheduled meter reading*.

Second-tier controlled load

Second-tier controlled load means a *controlled load* that is a *second-tier load*.

second-tier non-controlled load

second-tier non-controlled load means a *non-controlled load* that is a *second-tier load*.

special meter reading

special meter reading means an *actual meter reading* performed outside of the usual reading cycle for the *meter*.

substitution, substitute, substituted

A process undertaken by a *Metering Data Provider* or *AEMO* for the substitution of missing (null) or erroneous *metering data* or where the *metering data* has failed the *validation* process.

Transmission Network Service Provider^ (TNSP)

A person, authorised under jurisdictional Acts and Regulations, who engages in the activity of owning, controlling or operating a *Transmission system*.

Transmission Node Identity (TNI)

Transmission Node Identity means the unique identifier assigned by *AEMO* to each node in the transmission system.

unmetered

unmetered means a *load* or a *connection point* at which a *meter* is not necessary under S7.2 of the *Rules.*

validation, validate, validated

A process undertaken by the *Metering Data Provider* to test the veracity and integrity of *metering data* prior to transfer to *AEMO* and other *Registered Participants*.

1.8 Interpretation

1.8.1 The *metrology procedure* must be interpreted in accordance with the following rules unless an intention to the contrary appears:

a) Headings are only for convenience and do not affect interpretation;

b) Where a jurisdictional table of difference is found in a sub-clause, the contents of the table of difference are referenced as that sub-clause;

c) Words in the singular include the plural and words in the plural include the singular;

d) Words of one gender include any gender;

e) If a word or phrase is defined, another grammatical form of that word or phrase has a corresponding meaning;

f) An expression indicating a natural person includes a company, partnership, joint venture, association, corporation or other body corporate and a governmental agency;

g) A reference to a paragraph, clause, sub-clause, attachment or schedule is a reference to a paragraph, clause or sub-clause of, and an attachment or schedule to, the *metrology procedure* and a reference to the *metrology procedure* includes any annexure, attachment or schedule;

h) A reference to a thing (including, but not limited to, a right) includes any part of that thing;

i) A reference to a right includes a remedy, power, authority, discretion or benefit;

j) A reference to a regulatory instrument, including legislation, code, rule and order includes any amendment to that regulatory instrument, any consolidation or replacement of it, and any subordinate legislation made under it;

k) If a period of time is specified and dates from a given day or the day of an act or event, it is to be calculated exclusive of that day;

l) An event which is required under the *metrology procedure* to occur on or by a stipulated day which is not a *business day* may occur on or by the next *business day*;

m) A reference to * is a reference to a multiplication symbol, except in clause 1.9 of Metrology Procedure: Part A;

n) Examples are descriptive only and not exhaustive; and

o) A reference to a document or a provision of a document includes an amendment or supplement to, or replacement or novation of, that document or that provision of that document;

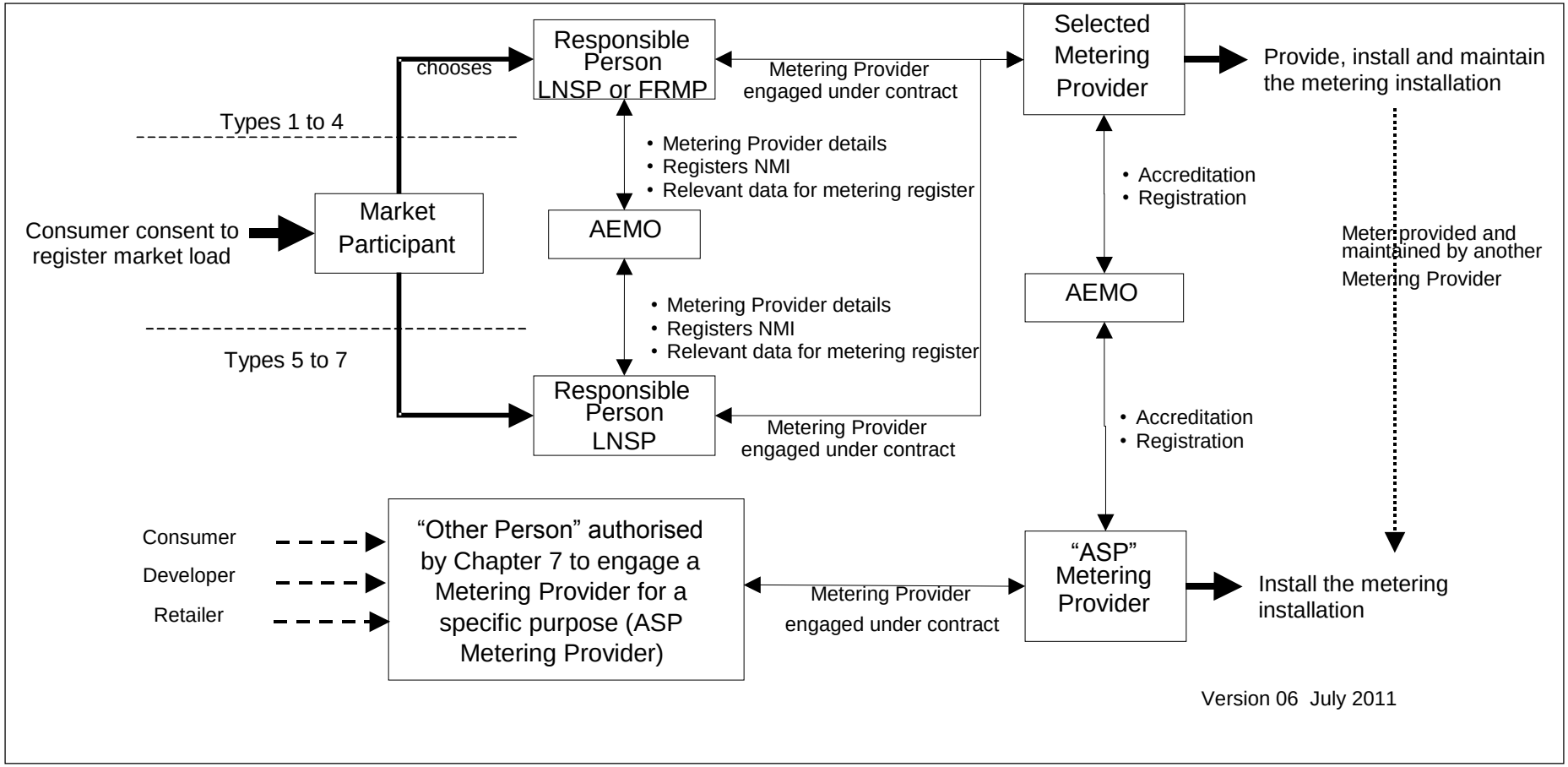
1.8.2 If there is any inconsistency between the *Rules* and the *metrology procedure*, the *Rules* will prevail to the extent of that inconsistency.

1.8.3 A reference to a provision in the *Rules* is taken to be a reference to that provision as renumbered from time to time.

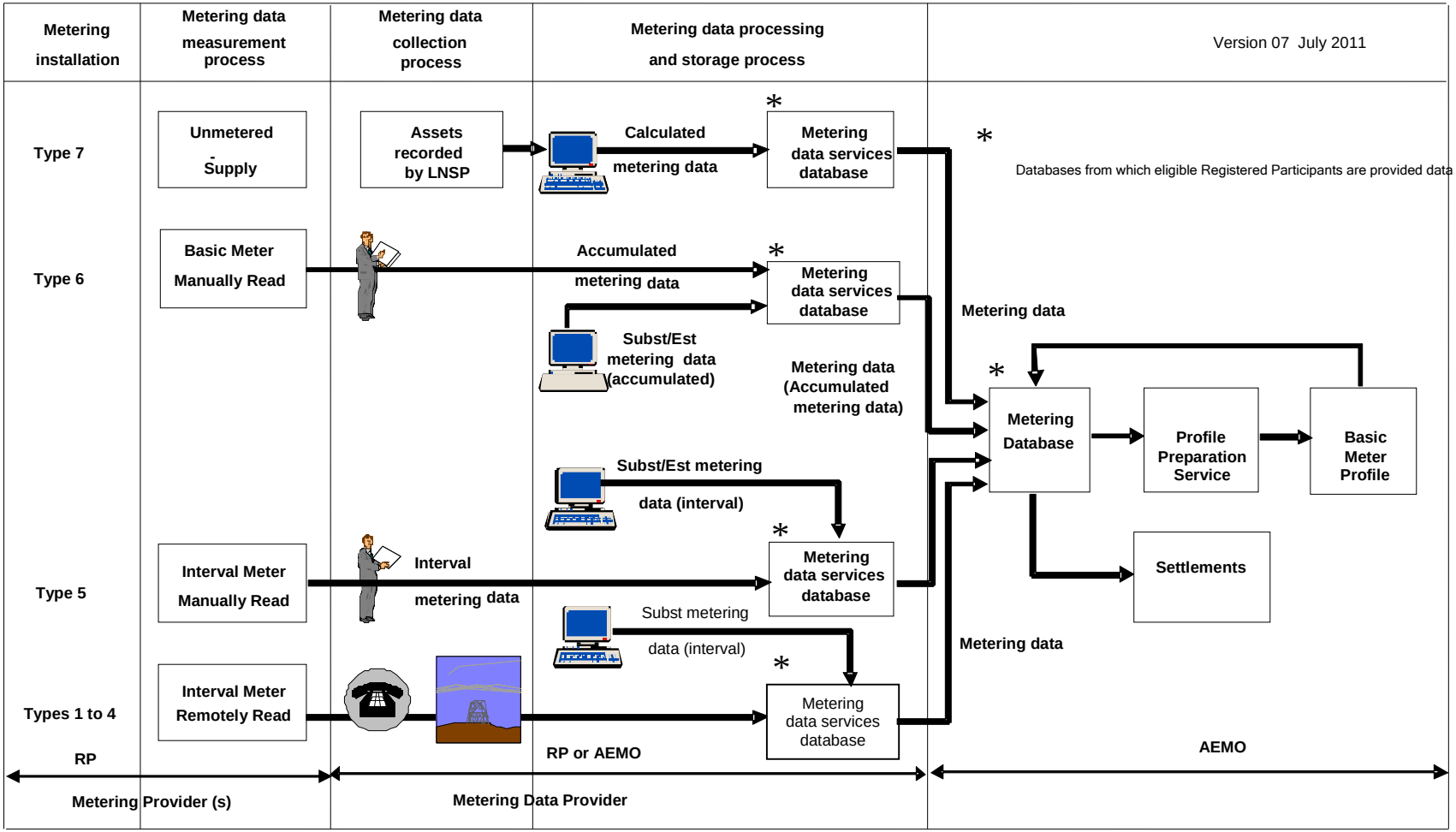
1.8.4 A reference to a provision in the *metrology procedure* is taken to be a reference to that provision as renumbered from time to time

1.9 Meter provision and metering data provision process diagrams

1.9.1 Meter provision process diagram for metering installations



1.9.2 Metering data services process diagram for metering installations



1.10 Metering installation components

1.10.1 Components of a *metering installation* are identified in clause 7.3.1 of the *Rules*.

1.10.2 The components, their characteristics and associated service requirements for *metering installations* that have not been detailed in the *Rules* have been itemised in clause 2.4 of Metrology Procedure: Part A.

1.11 Dispute resolution

1.11.1 Dispute resolution on any matter associated with the *metrology procedure* must be managed in the following way:

a) A dispute between the *responsible person* and *AEMO* must be managed by the parties using the dispute resolution process specified in clause 8.2 of the *Rules*;

b) A dispute between the *Metering Provider* and *AEMO,* or the *Metering Data Provider* and *AEMO* must be managed by the parties using the dispute resolution process specified in clause 8.2 of the *Rules*;

c) A dispute between the *Metering Provider* and the *responsible person,* or between the *Metering Data Provider* and the *responsible person* must be managed by the parties using the dispute resolution process contained in an appropriate service agreement, or in the absence of an appropriate service agreement, using the dispute resolution process in clause 8.2 of the *Rules*.

1.11.2 In any dispute about records of the amount of electricity supplied to a *metering point*, clause 2.10.4 applies for type 1, 2, 3, 4, 5 and 6 *metering installations* and clause 3.9.3 applies for type 7 *metering installations*.

1.11.3 The *responsible person* involved in a dispute of the kind referred to in clause 1.11.2 must keep all records in relation to the dispute for a period of seven years from the resolution of the dispute.

1.11.4 The *metrology procedure* has been prepared, maintained and amended in accordance with clauses 7.1.3 and 7.1.4 of the *Rules* and consequently *AEMO* may make reference to this document (in addition to the *Rules*) should a *metering installation* dispute arise.

1.12 Enforcement

1.12.1 The enforcement provisions of the *Rules* apply to the *metrology procedure* with respect to the *responsible person, Metering Provider* and *Metering Data Provider*

in accordance with clauses 7.2.1, 7.4.2(bb) and 7.4.2A(e) of the *Rules* respectively.

1.12.2 The enforcement provisions of the *Rules* apply to *AEMO* in respect to its obligations specified in the *metrology procedure*.

1.13 Disaster recovery

1.13.1 The *Metering Data Provider* must ensure that a Disaster Recovery Plan is established and in place to facilitate the return to operational service of IT systems (including the *metering data services database*) in the event of a system or process failure, in accordance with the Service Level Procedure: Metering Data Provider Services Category D and C for Metering Installations Types 1, 2, 3, 4, 5, 6 and 7.

1.13.2 The *Metering Provider* must ensure that a Disaster Recovery Plan is established and in place to facilitate the return to operational service of IT systems in the event of a process failure, in accordance with Service Level Procedure: Metering Provider Services Category B for Metering Installation Types 1, 2, 3, 4, 5 and 6.

1.14 Document responsibility

1.14.1 In accordance with clauses 7.1.3 and 7.1.4 of the *Rules*, *AEMO* is responsible for:

a) Preparing the *metrology procedure* in accordance with *Rules consultation procedures*;

b) Revising the *metrology procedure* in accordance with *Rules consultation procedures*; and

c) Publishing the *metrology procedure*.

1.14.2 The *metrology procedure* must be available for public access on the *AEMO* website.

1.14.3 Where *AEMO* considers a proposed amendment to the *metrology 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.*

Section 2: Meter Provision

2. Responsibility for Meter Provision

2.1 Application of clause 2

2.1.1 The requirements of clause 2.2 are applicable to type 1, 2, 3, 4, 5 and 6 *metering installations* in all *participating jurisdictions*.

2.1.2 The requirements of clause 2.3 are applicable to type 5 and 6 *metering installations* only. These clauses apply in the jurisdictions of Australian Capital Territory, New South Wales, South Australia, Queensland, Victoria and Tasmania.

2.1.3 The requirements of clauses 2.4, 2.5, 2.6, 2.7, 2.8, 2.9 and 2.10 are applicable to type 1, 2, 3, 4, 5 and 6 *metering installations*. These clauses apply in the jurisdictions of Australian Capital Territory, New South Wales, South Australia, Queensland, Victoria and Tasmania.

2.2 Overall responsibility requirements

2.2.1 *Metering Providers* must be registered with *AEMO* on the basis of the capabilities required for:

a) Type 1, 2, 3 and 4 *metering installations* as specified in S7.4 of the *Rules*;

b) Type 5 and 6 *metering installations* as specified in S7.4.4 of the *Rules* and clause 2.3 of Metrology Procedure: Part A, respectively; and / or

c) Installing a *metering installation* in accordance with the *ASP* category of *Metering Provider* (if registered by a participating jurisdiction) as specified in S7.4.2(c) of the *Rules*.

2.2.2 A *responsible person* must use *Metering Provider(s)* to provide, install, routinely test and maintain the relevant components, characteristics and service requirements of the *metering installation* as specified in the *Rules* and the *metrology procedure,* as appropriate.

2.2.3 A *responsible person* is responsible for the design of a *metering installation* and warrants that the design complies with the components, characteristics and service requirements as specified in the *Rules* and Metrology Procedure: Part A, as appropriate.

2.2.4 A *responsible person* must ensure the components have been selected, properly installed and initially tested by the *Metering Provider(s)* so that the *metering installation* satisfies the relevant accuracy and performance requirements in the *Rules* and the *metrology procedure*.

2.2.5 Where the *responsible person* has engaged *Metering Provider(s)* in accordance with clause 1.4.2 of Metrology Procedure: Part A, the *responsible person* must ensure that the components, characteristics and service requirements that are to be used for the *metering installation* by the *Metering Provider(s)* comply with the *Rules* and the *metrology procedure.*

2.2.6 A *Metering Provider* must be able to exhibit capabilities to provide detailed specification and design requirements for those *metering installations* for which accreditation has been provided.

2.2.7 A *Metering Provider* must provide, install, routinely test and maintain the *metering installation* and its associated components in accordance with the service requirements specified in the *Rules,* the *metrology procedure* and the *service level procedures*.

2.3 Capabilities of Metering Providers for type 5 and 6 metering installations

2.3.1 Clause 2.3 applies to the jurisdictions of Victoria, New South Wales, South Australia, Australian Capital Territory, Queensland and Tasmania.

2.3.2 A person may seek accreditation as a *Metering Provider* for type 5 and 6 *metering installations*.

2.3.3 The category of *meter provision* are:

a) Installation only of the whole-current meter; or

b) Provision, installation and maintenance of the *meter, current transformers* (where required) and *voltage transformers* (where required).

2.3.4 *Metering Providers*, who apply for accreditation to install only the whole-current *meter* of a type 5 or 6 *metering installation*, must be able to exhibit the following capabilities to the reasonable satisfaction of *AEMO*:

a) Design and specification of *metering* schemes, including:

1. Knowledge and understanding of the relevant sections of the *metrology procedure* and the *Rules*; and
2. Knowledge of equipment (*meter*s and other components of a *metering installation*).

b) Installation of *metering installations*, including:

1. This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
New South Wales	where the *Metering Provider* for the installation of the *meter* and/or *data logger* has been engaged by a person other than the *responsible person*, a requirement to only install a *meter* and/or *data logger* provided by the *Metering Provider* (for provision of the *meter*) nominated by the *responsible person,* and to install the *meter* and/or *data logger* so that the optical port, communications port, and/or visible display can be readily accessed for *meter* reading.

2. This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria **South Australia** **Australian Capital Territory** **Queensland** **Tasmania**	the availability of trained and competent staff to install *metering installations* to determine that the installation is correct
New South Wales	the availability of trained and competent staff to install *metering installations* to determine that the installation is correct and who are accredited by the Electricity Association of NSW as Level 2 *Accredited Service Providers* (*ASP*);

3. The availability of the appropriate equipment to install *metering installations*; and
4. The use of test and inspection procedures to confirm that the *metering installation* is correct and that *metering* constants are recorded and/or programmed correctly.

c) Quality System, including a knowledge and understanding of the appropriate standards and guides, including those in the *metrology procedure* and the relevant sections of the *Rules*.

2.3.5 *Metering Providers*, who apply for accreditation to provide, install and maintain the *meter* and *current transformers* (where required) of a type 5 or 6 *metering installation*, must be able to exhibit, to the reasonable satisfaction of *AEMO:*

a) Detailed design and specification of *metering* schemes, including:

1. Knowledge and understanding of the *metrology procedure* and the relevant sections of the *Rules*;
2. Knowledge of equipment (*meters*, *current transformers* and other components of a *metering installation*);
3. Design experience including knowledge of *current transformers* and the effect of burdens on performance;
4. Ability to calculate *metering* multipliers, etc; and
5. Ability to produce documentation, such as single line diagrams, panel layouts and wiring diagrams.

b) Programming and certification requirements for *metering installations* to the required accuracy, including:

1. Licensed access to *metering* software applicable to all equipment being installed by the *Metering Provider*;
2. Ability to program requirements by setting variables in *meters* and other components of the *metering installation*;
3. Management of the testing of all equipment to the accuracy requirements specified in the *Rules* and the *metrology procedure*;
4. Certifications that all calibration and other *meter* parameters have been set, verified and recorded prior to *meters* and other components of the *metering installation* being released for installation;
5. All reference/calibration equipment to be tested to ensure full traceability to test certificates issued in accordance with S7.4.3(b)(5) of the *Rules* or directly from the *National Measurement Institute*; and
6. Compliance with AS ISO/IEC 17025 "General Requirements for the Competence of Calibration and Testing Laboratories" with regard to the calculation of uncertainties and accuracy.

c) This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria **South Australia** **Australian Capital Territory** **Queensland** **Tasmania**	Installation of *metering installations*, including: (1) the availability of trained and competent staff to install and test *metering installations* to determine that the installation is correct; and (2) the use of test and inspection procedures to confirm that the *metering installation* is correct and that *metering* constants are recorded and/or programmed correctly.
New South Wales	Installation of *metering installations*, including: (1) where the Metering Provider for the installation of the meter and/or data logger has been engaged by a person other than the responsible person, there is a requirement to provide the meter to that Metering Provider for installation; (2) where the Metering Provider for installation of the meter and/or data logger has been engaged by the responsible person, the availability of trained and competent staff to install and test metering installations to determine that the installation is correct; and (3) where the Metering Provider for installation of the meter and/or data logger has been engaged by the responsible person, the use of test and inspection procedures to confirm that the metering installation is correct and that metering constants are recorded and/or programmed correctly.

d) Inspection and maintenance of *metering installations* and equipment, including:

1. An asset management strategy for the *instrument transformer* operated *meters, current transformers, voltage transformers* (where applicable) and other components of the *metering installation*;
2. Approved test and inspection procedures to perform appropriate tests as detailed in the *metrology procedure*;
3. Calibrated field test equipment for *instrument transformer* and *meter* testing to the required levels of uncertainty; and
4. Secure documentation system to maintain *metering* records for all work performed on a *metering installation*, including details of the security method used.

e) Verification of *energy data* as follows:

1. On inspection, testing and/or maintenance, verification that readings, constants and multipliers are correct.

f) Quality System including:

1. The calculations of accuracy based on test results, including all reference standard errors;
2. An estimate of testing uncertainties which must be calculated in accordance with the ISO/IEC Guide 98: “Guide to the expression of uncertainty in measurement (GUM)”; and
3. A knowledge and understanding of the appropriate standards and guides, including those in the *metrology procedure* and the relevant sections of the *Rules*.

2.4 Metering installation components

2.4.1 *Meters* used in type 1, 2, 3, 4, 5 and 6 *metering installations* must comply with any applicable specifications or guidelines (including transitional arrangements) specified by the *National Measurement Institute,* under the *National Measurement Act,* and must also meet the relevant requirements of *Australian Standards* and International Standards:

a) For type 1, 2, 3, 4 and 5 (including type 3 and 4 whole current) *metering installation measurement elements*; AS 62052.11, AS 62053.21 and AS 62053.22.
b) For type 6 *metering installation measurement elements*; AS 1284.1, AS 62053.21 and AS 62052.11.

2.4.2 New *current transformers* for type 1, 2, 3, 4, 5 and 6 *metering installations* must meet the relevant requirements of AS 60044.1 and must also comply with any applicable specifications or guidelines (including transitional arrangements)

specified by the *National Measurement Institute,* under the *National Measurement Act.*

2.4.3 New *voltage transformers* for type 1, 2, 3, 4 ,5 and 6 *metering installations* must meet the relevant requirements of AS 60044.2, AS 60044.3, AS 60044.5 and AS 1243 and must also comply with any applicable specifications or guidelines (including transitional arrangements) specified by the *National Measurement Institute,* under the *National Measurement Act.*

2.4.4 The *responsible person* must ensure that *metering* equipment purchased must have a valid pattern approval issued under the authority of the *National Measurement Institute* or, until relevant pattern approvals exist, a valid type test certificate issued by a *NATA* accredited laboratory or a body recognised by *NATA* under the *ILAC* mutual recognition scheme. Relevant approval certificates must be provided to *AEMO* on request.

2.4.5 The *responsible person* must ensure that a visible display is provided to display, at a minimum, the cumulative total *energy* for each *data stream* measured by that *metering installation.*

2.4.6 *Metering data* is required for all *trading intervals* on a daily basis at a level of availability of at least 95% per annum from type 1, 2, 3 and 4 *metering installations*.

2.4.7 Summation metering

a) If summation *metering* is achieved by paralleling current transformer secondary circuits, the overall *metering system* must meet the minimum standards for a new *metering installation* under all load combinations of the individual *current transformer* secondaries.
b) If summation *metering* is achieved by the arithmetic sum of data registers or the accumulation of pulses, each individual *metering point* must meet the minimum standards for a new *metering installation* and the *responsible person* must on request demonstrate that the summation techniques reliably and accurately transfer data.
c) Current transformer secondaries can only be paralleled using appropriate arrangements of links; this must not be done at the *meter* terminals.
d) For type 2 *metering installations* only: Direct summation, in which secondary wiring from a multiple number of feeders are connected directly into the terminals of a *meter,* or summation *CT*s are permitted provided that the overall errors of the installation are considered.

2.4.8 Where a *metering installation* records *interval energy data* the interval periods are based on:

a) The end of each interval for a 15 minute interval period must be on the hour, on the half hour and on each quarter of an hour (*EST*).

b) The end of each interval for a 30 minute interval period must be on the hour and on the half hour (*EST*).
c) Other sub-multiple intervals, where agreed with *AEMO*, the *LNSP* and the *Market Participant*, provided that the ends of the intervals correspond each and every exact hour (*EST*) and half hour (*EST*).

2.4.9 For type 1, 2, 3, 4 and 5 *metering installations* with a pulse output, the *measurement element* pulse output must provide a number of energy pulses in each integrating period commensurate with the accuracy class of the *metering installation* when operating at the top of the range of measurement of the *metering installation* but may be set at a lower rate where the anticipated operating range is significantly lower than the top of the range of measurement of the *metering installation.*

2.4.10 The *responsible person* must provide pulse output facilities representing the quantity of electricity measured, in accordance with the relevant *Australian Standard* for that *meter*, within a reasonable time of being requested by a *financially responsible Market Participant* to provide such facilities.

2.4.11 Where the *metering installation* includes equipment for load control or the measurement of *reactive energy*, the installation and operation of that equipment will be governed by an instrument other than the *metrology procedure*, for example, a 'use of system' agreement between the *Local Network Service Provider* and the *financially responsible Market Participant*.

2.4.12 This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
New South Wales	The *responsible person* must allow another person to engage a registered *metering Provider* for the purposes of installing the *meter* and/or *data logger* in accordance with the *Rules,* that is, to engage a registered *metering provider* under the NSW *Accredited Service Provider* scheme.

2.4.13 This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
New South Wales	The *responsible person* must ensure that, where another person engages a registered *metering provider* for the purposes of installing the *meter* and/or *data logger,* a *meter* and/or *data logger* is provided to that *metering provider* by the *metering provider* engaged for the purposes of providing the *meter* and/or *data logger*.

2.4.14 The *Metering Provider* must allocate "read-only" passwords to *Market Participants, Local Network Service Providers* and *AEMO*, except where separate "read-only"

and "write" passwords are not available, in which case the *Metering Provider* must allocate a password to *AEMO* and the *Metering Data Provider* only.

2.4.15 Any programmable settings available within the *metering installation*, or any peripheral device, which may affect the resolution of displayed or stored data, must meet the relevant requirements of AS 62052.11, AS 62053.21 and AS 62053.22 and must comply with any applicable specifications or guidelines (including transitional arrangements) specified by the *National Measurement Institute,* under the *National Measurement Act.*

2.4.16 For *connection points* with a type 5 *metering installation,* the volume of electricity flowing through the *connection point* is to be less than "x" MWh per annum, where "x" varies according to jurisdiction, except for *first-tier load* type 5 *metering installations* that meet the requirements of clause 11.20.3(a) of the *Rules*.

The values of "x" applicable to a jurisdiction is specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria **New South Wales** **South Australia** **Australian Capital Territory**	Value of "*x*" is 160 MWh per annum
Queensland **Tasmania**	Value of "*x*" is zero (0) MWh per annum.

2.4.17 The volumes of electricity flowing through *connection points,* referred to in clause 2.4.16, for each jurisdiction are specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria **New South Wales** **Queensland**	The volume threshold for a *connection point* must be determined from the annual consumption for the *billing periods* over the most recent 12 month period, or prorated over a 12 month period based on the *Average Daily Load* where consumption over the most recent 12 month period is not available. Where no consumption data is available, the annual consumption may be *estimated* based on an engineering report or consumption data from the *loads* of similar customers. *Connection points* may not be aggregated for the purposes of determining the annual consumption.
South Australia	The volume threshold for a *connection point* must be determined from: (1) the consumption at that *connection point* for any period of 12 consecutive months in the previous 2 year period, or (2) where such consumption data is not available or has not been accurately recorded, an *estimate* of the annual consumption at

Jurisdiction	Variation in accordance with jurisdictional policy
	that *connection point* taking into account past electricity consumption levels, the electricity consumption capacity of plant and equipment, the operations for which electricity is required and any other matter considered relevant. *Connection points* may not be aggregated for the purposes of determining the annual consumption.
Australian Capital Territory	The volume threshold for a *connection point* must be determined from: (1) the annual consumption over the most recent 12 month period, or (2) from the annual consumption over the most recent 12 month period plus an allowance of 2%, or (3) *estimated* where consumption over the most recent 12 month period is not available or has not been accurately recorded. Where no consumption data is available, the potential annual consumption may be *estimated* having regard to relevant circumstances including, but not limited to: (a) the consumption capacity of the *connection point* and the extent to which that capacity is likely to be utilised in the future; (b) any recent or proposed change in ownership or use of the premises supplied at the *connection point*; or (c) any recent or proposed increase in the consumption capacity of the *connection point.* *Connection points* may not be aggregated for the purposes of determining the annual consumption.

2.4.18 For *connection points* with a type 6 *metering installation,* the volume of electricity flowing through the *connection point* is to be less than “y” MWh per annum, where “y” varies according to jurisdiction, except for *first-tier load* type 6 *metering installations* that meet the requirements of clause 11.20.3(a) of the *Rules*.

The values of “y” applicable to a jurisdiction is specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria **South Australia** **Australian Capital Territory**	Value of "*y*" is 160 MWh per annum.
New South Wales	Value of "*y*" is 100 MWh per annum.
Queensland	Value of "*y*" is: a) 750 MWh per annum for *end-use customers* that are not *Queensland Market Customers* in accordance with (c), below, and, aa) For the period 1 July 2012 to 30 June 2013, 750 MWh per annum for *end-use customers* who cease to be *Queensland Non-Market Customers* on 1 July 2012 by operation of the *Act* and/or Queensland *Electricity Regulation 2006*, and, b) 100 MWh per annum for *Queensland Market Customers* in accordance with (c), below of this *metrology procedure*. c) The *responsible person* must ensure that the meters installed in the type 6 *metering installations* under (a) and (b), above, are *interval meters* which must be capable of being upgraded for use in a type 4 *metering installation* without replacing the *meter*. d) 100 MWh per annum for *end-use customers* where: (i) *card operated meters* are installed in accordance with the regulatory framework, or (ii) *meters* are installed temporarily in a place other than the *meter's* permanent location.
Tasmania	Value of "*y"* is 150 MWh per annum.

2.4.19 The volumes of electricity flowing through *connection points,* referred to in clause 2.4.18, for each jurisdiction are specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria **South Australia** **New South Wales** **Queensland** **Tasmania**	The volume threshold for a *connection point* must be determined from the annual consumption for the *billing periods* over the most recent 12 month period, or prorated over a 12 month period based on the *Average Daily Load* where consumption over the most recent 12 month period is not available. Where no consumption data is available, the annual consumption may be *estimated* based on an engineering report or consumption data from the *loads* of similar *customers*. *Connection points* may not be aggregated for the purposes of determining the annual consumption.

Australian Capital Territory	The volume threshold for a *connection point* must be determined from: (1) the annual consumption over the most recent 12 month period, or (2) from the annual consumption over the most recent 12 month period plus an allowance of 2%, or (3) *estimated* where consumption over the most recent 12 month period is not available or has not been accurately recorded. Where no consumption data is available, the potential annual consumption may be *estimated* having regard to relevant circumstances including, but not limited to: (a) the consumption capacity of the *connection point* and the extent to which that capacity is likely to be utilised in the future; (b) any recent or proposed change in ownership or use of the premises supplied at the *connection point*; or (c) any recent or proposed increase in the consumption capacity of the *connection point.* *Connection points* may not be aggregated for the purposes of determining the annual consumption.

2.4.20 *Meters* and components for a type 5 or 6 *metering installation*, which were installed, or which were held in stock for the *responsible person*, prior to the following dates,

a) 1 January 2007 for *second-tier loads*.
b) 1 July 2008 for *first-tier loads*.

and which met the requirements of a *participating jurisdiction* at that time, are deemed to meet the requirements of the *metrology procedure.*

2.4.21 Subject to clause 2.4.20, *metering installations* which have been installed, or which are held in stock for the *responsible person* in a specific jurisdiction, prior to the effective date of that jurisdiction's initial Metrology Procedure and which do not meet the requirements of the *Rules* or the *metrology procedure*, may be used where approval from a Jurisdictional Regulator had been obtained prior to the effective date of the *metrology procedure* or approval is obtained from *AEMO. AEMO* may issue guidelines on the approval process.

2.4.22 *First-tier load* summation *metering installations* that were commissioned prior to 1 July 2008 that complied with the applicable jurisdictional requirements at this date and continue to meet the applicable jurisdictional requirements are taken to be *Rules* and *metrology procedure* compliant. The summation *metering installations* are deemed non-compliant if they do not meet the applicable jurisdictional accuracy standards at 30 June 2008. Defective *first-tier load* summation *metering installations* that were commissioned prior to 1 July 2008 must be repaired or

replaced so as to ensure the summation *metering* meets the minimum standards in accordance with the *Rules* and the *metrology procedure*.

2.4.23 A type 5 *metering installation* is to have the capability of storing *interval energy data* for a period of 200 *days*. Components of a type 5 *metering installation* installed, or held in store for the *responsible person*, prior to 1 January 2007 are to have the capability of storing *interval energy data* for a period of at least two *meter reading cycles* plus 15 *days*, or 35 *days*, whichever is the greater.

2.4.24 A type 5 *metering installation* must have an optical port that meets the relevant requirements of AS 1284.10.2 or AS 62056.21 or a computer serial port to facilitate downloading of 90 *days* of half hourly *interval energy data,* for each *meter* associated with the *metering installation,* in 35 seconds or less.

2.4.25 A type 5 or 6 *metering installation* clock is to be reset to within ± 20 seconds of *Eastern Standard Time* on each occasion that the *metering installation* is accessed, in accordance with sub-clauses a) and b), and the maximum drift in the type 5 *metering installation* clock permitted between successive *meter* readings is ± 300 seconds.

a) *Metering Provider* must reset a type 5 or 6 *metering installation* clock when inspecting, maintaining or commissioning the *metering installation.*
b) *Metering Data Provider* must reset a type 5 *metering installation* clock when *interval metering data* is collected from the *metering installation.*

2.4.26 A *current transformer* connected type 5 *metering installation* with a slower download time than specified in clause 2.4.24 may be used where approved by *AEMO*.

2.4.27 A type 5 *metering installation* must have provision for future upgrade to a type 4 *metering installation* without the need for replacement of the *measurement element.*

2.4.28 For type 6 *metering installations* with different time of day rates, the *metering installation* must meet the relevant requirements of *AS* 62054.11, *AS* 62054.21 and *AS* 62052.21, or have the switching between the different rates controlled by a frequency injection relay or time clock operated by the *Local Network Service Provider*.

2.5 Embedded networks

2.5.1 This clause only applies in a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria, South Australia	(1) Should a *child* in an *embedded network* elect to purchase electricity from a Retailer other than the parent's Retailer, the responsible person must ensure that:

Jurisdiction	Variation in accordance with jurisdictional policy
	(a) the *child* has an *interval meter* installed; and (b) the parent of the *embedded network* has an *interval meter* installed.
New South Wales	(1) Should a *child* in an *embedded network* elect to purchase electricity from a Retailer other than the parent's Retailer, the responsible person must ensure that, at the time the *child* switches Retailer and at the cost of the *child*: (a) if the parent has an *interval meter* that is settled on the basis of *interval energy data*, the *child* must have a type 4 or type 5 *metering installation* that is settled on the basis of *interval energy data*; (b) if the parent has an *accumulation meter* or an *interval meter* that is settled on the basis of *accumulated energy data*, the *child* must have a type 6 *metering installation* or, if the *child* has an *interval meter*, that meter must be settled on the basis of *accumulated energy data*. (2) Where a *child* in an *embedded network* has switched Retailer in accordance with clause 2.5.1[NSW](1)(b) above and the parent subsequently: (a) installs an *interval meter* and elects to have its meter settled on the basis of *interval energy data*; or (b) elects to have its existing *interval meter* settled on the basis of *accumulated energy data* in accordance with clause 3.4.2[NSW](3); or (c) elects to have its existing *interval meter* settled on the basis of *interval energy data*, the responsible person must ensure that at the time the parent changes, and at the cost of the parent, the *child*'s *metering installation* meets the requirements of paragraph (a) or (b) of clause 2.5.1[NSW](1) above, as applicable.
Australian Capital Territory	(1) The responsible person must ensure that the *metering installation* is not for a *child* in an *embedded network*. (2) Where the *metering installation* is for a *child* in an *embedded network*, the responsible person must ensure that additional metering is installed accordingly which ensures that the requirements of clause 2.5.1[ACT](1) above are met.

2.6 Reversion of metering installation types

2.6.1 This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria	The *responsible person* must ensure that a type 4 or type 5 *metering installation* is not replaced by a type 6 *metering installation*.
New South Wales	(1) The *responsible person* must ensure that a *meter*, which meets the requirements of a type 5 *metering installation,* and is installed at a *connection point* consuming more than 100 MWh per annum and less than 160 MWh per annum, is not removed from a *metering point*, unless: (a) the *metering installation* is to be replaced by a *metering installation* type 1, 2, 3, 4, or 5; or (b) the *NMI* is deregistered. (2) Where an *interval meter* has been installed in accordance with clause 3.4.2[NSW](1), the *responsible person* must ensure that it is not replaced with an *accumulation meter*. (3) The *responsible person* must ensure that a *meter*, which is a sample *interval meter* installed for the purposes of calculating a *Controlled Load Profile*, is not removed without the consent of the *Local Network Service Provider*. (4) The *responsible person* must ensure that the *energy* consumed and measured by a *meter*, which is a sample *interval meter* installed for the purposes of calculating a *Controlled Load Profile*, is settled in the wholesale electricity market on the basis of a *metering installation* type 6.
South Australia	(1) Subject to clause 2.6.1 [SA](2), the *responsible person* must ensure that a type 4 or type 5 *metering installation* is not replaced by a type 6 *metering installation*. (2) A type 4 or type 5 *metering installation* may be replaced by a type 6 *metering installation* in relation to a specified *connection point* where approved by the *Minister* and written notice of that approval has been provided to *AEMO*. (3) The *responsible person* must ensure that a *meter*, which is a sample *interval meter* installed for the purposes of calculating the *Controlled Load Profile*, is not removed without the consent of the *Local Network Service Provider*.
Australian Capital Territory	(1) The *responsible person* must ensure that a type 4 or type 5 *metering installation* is not replaced by a type 6 *metering installation.* (2) The *responsible person* must ensure that where a *meter* capable of recording *interval energy data* is installed, the *metering*

Jurisdiction	Variation in accordance with jurisdictional policy
	installation complies with the requirements of a type 4 or type 5 *metering installation*.
Queensland	(1) The *responsible person* must ensure that an *interval meter* is not replaced by an *accumulation meter*. (2) The *responsible person* may convert a remotely read *interval meter* to a manually read *interval meter* if the consumption drops below 100MWh per annum. (3) The *responsible person* must ensure that a *meter*, which is a sample *interval meter* installed for the purposes of calculating a *Controlled Load Profile*, is not removed without the consent of the *Local Network Service Provider.* (4) The *responsible person* must ensure that the *energy* consumed and measured by a *meter*, which is a sample *interval meter* installed for the purposes of calculating the *Controlled Load Profile*, is settled in the wholesale electricity market on the basis of a type 6 *metering installation*.
Tasmania	(1) The *responsible person* must ensure that a type 4 or type 5 *metering installation* is not replaced by a type 6 *metering installation.* (2) A type 4 or type 5 *metering installation* may be replaced by a type 6 *metering installation* in relation to a specified *connection point* where approved by the *Minister* and written notice of that approval has been provided to *AEMO*.

2.7 Routine testing and inspection of metering installations

2.7.1 The *responsible person* must ensure that type 1, 2, 3, 4, 5 and 6 *metering installations* are tested and inspected in accordance with clause 7.6 and S7.3 of the *Rules* and the *metrology procedure*.

2.7.2 Clauses 2.7.3 to 2.7.10 (inclusive) are to be regarded as the asset management strategy guidelines for *metering installations* for the purpose of S7.3 of the *Rules*.

2.7.3 An asset management strategy and test plan under clause S7.3.1(c)(2) and (3) of the *Rules* must not modify the application of clauses S7.3.1(a), (b), (c)(4) and (5), (d)-(f) or clause S7.3.2 of the inspection and testing requirements of the *Rules*.

2.7.4 In relation to *meters,* an acceptable alternate testing practice under the asset management strategy or test plan for in-service *meter* performance will

demonstrate compliance with the requirements of Australian Standard "AS 1284.13: Electricity Metering in-service compliance testing".

2.7.5 If the *responsible person* is not testing in accordance with Table S7.3.2 and/or Table S7.3.3 of the *Rules*, the *responsible person* must ensure that an asset management strategy and test plan is established and maintained for testing and inspection requirements.

2.7.6 Where the *responsible person* is proposing to use the time based schedules in Table S7.3.2 and/or Table S7.3.3 of the *Rules* for *meters* and *instrument transformers*, the *responsible person* must ensure that an asset management strategy and test plan is established and maintained for testing and inspection requirements.

2.7.7 Unless the *responsible person* has developed an alternative accuracy assessment method for type 5 and 6 *metering installations* described in an asset management strategy, that meets the intent of S7.2.3.5 and S7.2.3.6 of the *Rules* and is approved by *AEMO*, the overall *metering installation* error is calculated by the vector sum of the errors of each *metering installation* component, i.e. a + b + c.

a = error of *VT* and wiring

b = error of *CT* and wiring

c = error of *meter*

2.7.8 The *responsible person* must ensure an asset management strategy and a test plan required under clauses 2.7.3 to 2.7.6 are submitted to *AEMO* for approval and registration respectively.

2.7.9 Where the *responsible person* is not the *Local Network Service Provider*, the *responsible person* must provide reasonable access to the asset management strategy and test plan for the *Local Network Service Provider*.

2.7.10 For those *meters* for which new or amended pattern approval has been received from the *National Measurement Institute*, or, in the absence of pattern approval, new or amended type testing has been undertaken by a *NATA* accredited laboratory or a body recognised by *NATA* under the *ILAC* mutual recognition scheme, the *responsible person* must ensure that the *sample test plan* stipulates that this population of *meter* is tested at least once in the first three years of being placed in service.

2.7.11 If the accuracy of the *metering installation,* does not comply with the requirements of the *Rules*, the *responsible person* must undertake the actions in accordance with clause 7.6.2 and clause 7.9.5 of the *Rules*.

2.7.12 If, for type 5 and 6 *metering installations,* a *metering installation* test, inspection or audit demonstrates errors in excess of those prescribed and the time at which those errors arose is not known, the error is deemed to have occurred at a time

half way between the time of the most recent test or inspection which demonstrated that the *metering installation*, or the *meter* family to which the *meter* of the *metering installation* belongs, complied with the relevant accuracy requirement and the time when the error was detected.

2.8 Installation of meter(s)

2.8.1 The *responsible person* must use *reasonable endeavours* to ensure that, at the time of installation, a *metering installation* is:

a) Protected against damage.
b) In a position which allows safe and unimpeded access to the *end-use customer* or any person whose obligation it is to test, adjust, maintain, repair, or replace the *metering installation*, or to collect *metering data* from the *metering installation*.
c) Available to the *end-use customer* or any person whose obligation it is to test, adjust, maintain, repair, or replace the *metering installation*, or to collect *metering data* from the *metering installation* via safe, convenient and unhindered access when it is not located at the *end-use customer's* premises.

2.8.2 The *responsible person* must ensure that when each *meter* of a type 5 *metering installation* or *meter* of a type 6 *metering installation* is installed, it is checked such that:

a) It, subject to clauses 2.4.10, 2.4.19 and 2.4.20, complies with the relevant requirements of the *Rules* and the *metrology procedure*;

b) It has been tested and inspected prior to installation in accordance with the relevant requirements of the *Rules* and the *metrology procedure*;

c) It has the optical port, communications port, and/or visual display located so that the optical port, communications port, and/or visual display can be readily accessed for *meter* reading, and

d) This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	**Variation in accordance with jurisdictional policy**
Queensland	Complies with the relevant *Electricity Connection and Metering Manual*, which each *Local Network Service Provider* must publish and update from time to time.

2.8.3 In accordance with clauses 7.3.1(c), 7.3.4(e), 7.3A(a) and 7.3A(g) of the *Rules*, the *responsible person* must not unreasonably withhold its consent to a request from a *Market Participant* or *Local Network Service Provider* to install a *metering installation* of a type that is different from that already installed, or provide facilities in addition to that which the *responsible person* otherwise would install, provided that the *metering installation* satisfies any applicable technical requirements (including those reasonably required by the *Local Network Service Provider*) and

complies with the requirements of the *Rules* and the *metrology procedure* applicable to the *metering installation* type.

2.8.4 Where a *Market Participant* or *Local Network Service Provider* requests in writing for the *responsible person* to provide and install a *metering installation*, the *responsible person* must use *reasonable endeavours* to provide and install the *metering installation* within 20 *business days* of receipt of the written request. Note, an exception to this sub-clause is where high voltage equipmet procurement with long lead times is required.

2.8.5 If the pricing arrangements for the supply of electricity in respect of a *connection point* change, and the *metering installation* is thereafter incapable of appropriately measuring and recording the amount of electricity supplied to that *connection point*, the *responsible person* must provide, install, commission, test and maintain the *metering installation* to appropriately measure and record the amount of electricity supplied to the *connection point*.

2.9 De-commissioning of meter

2.9.1 Before de-commissioning all or any part of the existing *metering installation*, the *Metering Provider* undertaking the work must ensure that:

a) Arrangements are put in place to ensure a *final reading* is taken, at the time of de-commissioning, of all *energy data* maintained in the existing *meter*; and

b) The ownership of the existing *meter* is ascertained and arrangements made for the *meter* to be returned to its owner within 10 *business days* unless otherwise agreed.

2.9.2 Where the *metering data* from the *final reading* is not transferred to the relevant *Metering Data Provider* at the time of de-commissioning, the owner upon receipt of the *meter* pursuant to clause 2.9.1(b), must ensure the *metering data* or *final reading* (as applicable), is provided to that *Metering Data Provider* within two *business days* of receipt.

2.10 Request for testing type 1 – 6 metering installations

2.10.1 If requested by a *Registered Participant* with a financial interest in the *metering installation* or the *energy* measured by the *metering installation*, the *responsible person* or *AEMO* (as applicable) must make arrangements for the testing of the *metering installation* in accordance with clause 7.6.1 of the *Rules*.

2.10.2 If requested by a *Registered Participant* with a financial interest in the *metering installation, AEMO* must make arrangements in accordance with clause 7.6.3 of the *Rules* to determine the consistency of *metering data* held in the *metering data services database* and the *energy data* held in the type 1, 2, 3, 4, 5 and 6 *metering installation.*

2.10.3 Where the *Registered Participant* requests a *metering installation* test in accordance with clauses 2.10.1 and 2.10.2:

a) The *responsible person* or *AEMO* (as applicable) must use *reasonable endeavours* to conduct the test within 15 *business days* of the request.

b) If the requirement under clause 2.10.3(a) would prevent the *Registered Participant's* customer witnessing the test, then the *responsible person* or *AEMO* may agree to a mutually convenient time to conduct the test.

c) The *responsible person* or *AEMO* (as applicable) must, if requested, provide an estimate of costs associated with the test prior to any test being undertaken.

2.10.4 Where there is a discrepancy between *energy data* stored in the *metering installation* and the *metering data* stored in the *metering data services database*, the *energy data* stored in the *metering installation* is prima facie evidence of the *connection point's energy data*, except if the *meter* or components of the *metering installation* are found to be malfunctioning.

2.10.5 Where the *responsible person* or *AEMO* (as applicable) has undertaken testing of a *metering installation* under clauses 2.10.1, the *responsible person* or *AEMO* must make the test results available in accordance with clause 7.6.1 of the *Rules*.

2.10.6 If the accuracy of the *metering installation* does not comply with the requirements of the *Rules*, the *responsible person* must undertake the actions in accordance with clause 7.6.2 and clause 7.9.5 of the *Rules*.

Section 3: Metering Data Services

3. Responsibility for Metering Data Services

3.1 Application of clause 3

3.1.1 The requirements of this clause 3 are applicable to type 1, 2, 3, 4, 5, 6 and 7 *metering installations*.

3.1.2 Clause 3 applies to the jurisdictions of Australian Capital Territory, New South Wales, Queensland, South Australia, Victoria and Tasmania.

3.2 Metering data services

3.2.1 *Metering Data Providers* must be registered with *AEMO* on the basis of the capabilities to provide *metering data services* for type 1, 2, 3, 4, 5 and 6 *metering installations* as specified in S7.6 of the *Rules.*

3.2.2 *Metering Data Providers* must be registered with *AEMO* on the basis of the capabilities to provide *metering data services* for type 7 *metering installations* as specified in S7.6 of the *Rules* and clause 3.3 of Metrology Procedure: Part A.

3.2.3 The *responsible person*, or *financially responsible Market Participant* (where applicable) must use *Metering Data Provider(s)* for the provision of *metering data services* in accordance with clause 7.2.5 of the *Rules*.

3.2.4 The *Metering Data Provider* is responsible for the provision of *metering data services* in relation to each *metering installation* for which it is responsible, in accordance with clause 7.11.2 of the *Rules*.

3.2.5 The *responsible person* or *AEMO* (as applicable) must ensure that *calculation, validation, substitution* and forward *estimation* of *metering data*, where appropriate, is undertaken in accordance with:

a) Clauses 1.4, 1.5, 2, 6, 8 and 9 of Metrology Procedure: Part B for type 1, 2, 3 and 4 *metering installations*.

b) Clauses 1.4, 1.5, 1.6, 3, 6, 7, 8, 10 and 15 of Metrology Procedure: Part B for type 5 *metering installations*.

c) Clauses 1.4, 1.5, 1.6, 4, 6, 7, 8, 11 and 15 of Metrology Procedure: Part B for type 6 *metering installations*.

d) Clauses 1.4, 1.5, 1.6, 5, 6, 8, 12 and 14 of Metrology Procedure: Part B for type 7 *metering installations*.

3.3 Capabilities of Metering Data Providers for metering installation type 7

3.3.1 Clause 3.3 applies to the jurisdictions of Victoria, New South Wales, South Australia, Australian Capital Territory, Tasmania and Queensland.

3.3.2 A person may seek accreditation as a *Metering Data Provider* for type 7 *metering installations* for the processing and delivery of *calculated metering data.*

3.3.3 *Metering Data Providers*, who apply for accreditation to process and deliver *calculated metering data* of a type 7 *metering installation*, must be able to exhibit, to the reasonable satisfaction of *AEMO*:

a) Detailed knowledge of schemes for calculating *metering data* for *unmetered loads*, including:

1. Knowledge and understanding of the *metrology procedure* and the relevant sections of the *Rules*; and
2. Knowledge and understanding of *load tables*;
3. Knowledge and understanding of *inventory tables*; and
4. Knowledge and understanding of *on/off tables*.

b) Programming and certification requirements for *metering installations* to the required accuracy, including:

1. Licensed access to software applicable to calculate the *metering data* for *unmetered loads*;
2. Licensed access to software applicable to *validate* the *calculated metering data* and *substitute* the *metering data* where required, using each of the *substitution* types; and
3. Licensed access to software applicable to store the *calculated metering data* in the *metering data services database*.

c) Processing of *calculated metering data*, including:

1. Secure storage of historical data;
2. Implementation of appropriate password and security controls;
3. The availability of trained and competent staff to calculate the *metering data* for *unmetered loads*;
4. The availability of trained and competent staff to *validate* and *substitute calculated metering data* for *unmetered loads*; and
5. The availability of a *sample test plan* to audit that the *calculated metering data* held in the *metering data services database* is within the accuracy limits.

d) Transfer of *calculated metering data* to *AEMO* and affected *Registered Participants*, including:

1. Implementation of appropriate password and security controls; and
2. The availability of a disaster recovery guideline.

e) Quality System, including:

1. A knowledge and understanding of the appropriate standards and guides, including those in the *metrology procedure* and the relevant sections of the *Rules*; and
2. Secure documentation system to maintain records.

3.4 Metering data collection

3.4.1 For type 1, 2, 3, 4, 5 and 6 *metering installations,* the *responsible person* or *AEMO* (where applicable) must ensure that *metering data* is collected in accordance with the applicable *service level procedure*.

3.4.2 This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria	Subject to clause 3.4.3[Vic], the *type 5 accumulation boundary* is zero MWh per annum.
New South Wales	(1) Subject to clause 2.6.1[NSW](4), the *type 5 accumulation boundary* is 100 MWh per annum. (2) Subject to clause 2.6.1[NSW](4), where an *interval meter* has been installed in accordance with clause 3.4.2[NSW](1) above, the reading of that *interval meter* may be changed from being read as a *metering installation* type 6 to being read as a *metering installation* type 5, at any time. (3) Where an *interval meter* has been installed in accordance with clause 3.4.2[NSW](1) above, the *responsible person* must ensure that the reading of that *interval meter* may only be changed from being read as a *metering installation* type 5 to being read as a *metering installation* type 6 when: (a) a transfer of the *end-use customer* to a new *Retailer* has been effected, or (b) the *interval meter* has been read as a *metering installation* type 5 for a period of at least 12 contiguous months with the existing *Retailer*.
South Australia	(1) The type 5 accumulation boundary is zero MWh per annum. (2) The *responsible person* must ensure that the *energy* consumed and measured by a *meter*, which is a sample *interval meter* installed for the purposes of calculating the *Controlled Load Profile*, is settled in the wholesale *energy* market on the basis of a type 6 *metering installation*.
Australian Capital Territory	(1) In accordance with clause 2.6.1[ACT](2), the *type 5 accumulation boundary* is 100 MWh per annum. (2) If an *interval meter* has been installed for sites where the *type 5 accumulation boundary* is less than clause 3.4.2[ACT](1) above, the reading of that *interval meter* may be changed from

Jurisdiction	Variation in accordance with jurisdictional policy
	being read as a *metering installation* type 6 to being read as a *metering installation* type 5, at any time.
Queensland	The *type 5 accumulation boundary* is 750 MWh per annum.

3.4.3 This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria	Clauses 3.4.2[Vic] and 3.4.6 do not apply to type 5 *metering installations* installed on or after 27 February 2005. For type 5 *metering installations* installed on or after 27 February 2005, the *type 5 accumulation boundary* is 160 MWh per annum.
Australian Capital Territory	Clause 3.4.6 does not apply to the following *metering installations*: (1) for type 5 *metering installations* with consumption less than is specified in clause 3.4.2[ACT](1) where that *metering installation* is being read as a type 6.

3.4.4 This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria	During the period in which the *responsible person* is not required to collect *interval energy data* from any type 5 *metering installation* because of the operation of clause 3.4.3[Vic], if it does not collect *interval energy data* from that *metering installation*, it must collect *accumulation energy data* from that *metering installation* in accordance with this *metrology procedure* as if it were a type 6 *metering installation*.
Australian Capital Territory	During the period in which the *responsible person* is not required to collect *interval energy data* from any type 5 *metering installation* because of the operation of clause 3.4.2[ACT](2), if it does not collect *interval energy data* from that *metering installation*, it must collect *accumulation energy data* from that *metering installation* in accordance with this *metrology procedure* as if it were a type 6 *metering installation*.

3.4.5 This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Queensland	(1) An *interval meter* installed at a *connection point* where the flow of electricity is less than 100MWh per annum will be read as an *accumulation meter* unless the *metering installation* is classified as types 1 to 4.

	(2) Subject to (3), an *interval meter* installed for a *Queensland Market Customer* where the flow of electricity is greater than or equal to 100 MWh per annum must be read as a remotely read *interval meter*. (3) Notwithstanding (2), an *interval meter* installed where the flow of electricity is greater than or equal to 100 MWh per annum and where the *connection point* has never had an *end-use customer* with a *negotiated retail contract* will be read as an *accumulation meter* by the *Metering Provider*. (4) Once *interval energy data* from an *interval meter* is transferred to *AEMO*, the *interval meter* must continue to be read as an *interval meter* unless the *NMI* is reclassified from a *NMI* equal to or greater than 100 MWh per annum to a *NMI* less than 100 MWh per annum, in which case the *interval meter* may be read as an *accumulation meter*. (5) A *Local Network Service Provider* is permitted to read the *metering installation* for its own purpose providing the reading schedule is coordinated with the *responsible person*.

3.4.6 Subject to the dates specified in clause 3.4.3[Vic], for type 5 *metering installations* (excluding type 5 *metering installations* that are sample profile *meters* for the purposes of developing the *Controlled Load Profile(s)* in accordance with clause 13.3 of Metrology Procedure: Part B), the *responsible person* must:

a) Ensure that *interval metering data* is collected from the *metering installation* in accordance with the appropriate *service level procedure;* and

b) Use *reasonable endeavours* to ensure that *interval metering data* is collected from every type 5 *metering installation* once every three months and that this *metering data* is transferred to the *metering data services database* in accordance with clause 3.4.8.

c) This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
South Australia	The *responsible person* must ensure that *metering data* is collected from the *meters*/associated *data loggers* and this data is transferred to the *metering installation database* of a type 5 *metering installation* at least once every 6 months.

Note: The effective date of this Jurisdictional provision is 22 September 2008. The review date of this Jurisdictional provision is 31 December 2011.

3.4.7 For type 6 metering installations, the responsible person must:

a) Ensure that *accumulated metering data* is collected from *metering installations* in accordance with the appropriate *service level procedure;* and

b) Use *reasonable endeavours* to ensure that *accumulated metering data* is collected from every type 6 *metering installation* once every three months and that this *metering data* is transferred to the *metering data services database* in accordance with clause 3.4.8.

c) This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
South Australia	The *responsible person* must ensure that *metering data* is collected from the *metering installations*/associated *data loggers* and this data is transferred to the *metering installation database* of a type 6 *metering installation* at least once every 12 months.

Note: The effective date of this Jurisdictional provision is 22 September 2008. The review date of this Jurisdictional provision is 31 December 2011.

3.4.8 For the purposes of clauses 3.4.6 and 3.4.7, the *metering data* collected includes *metering data* that has been *substituted* in accordance with clause 3.2.5.

3.4.9 The *responsible person* must use *reasonable endeavours* to ensure that *metering data* is collected from a type 5 or 6 *metering installation* and this *metering data* is transferred to the relevant *metering data services database*, no more than two *business days* prior to, or two *business days* subsequent to, the *scheduled reading date* for that *metering installation*.

3.4.9A This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria	Nothing in clause 3.4.9 prevents the responsible person from additionally collecting *energy data* from a type 5 *metering installation* and transferring that data to the relevant *metering installation database* earlier than 2 *business days* prior to the *scheduled reading date* for that *metering installation.*

Note: The effective date of this Jurisdictional provision is 1 July 2009. The review date of this Jurisdictional provision is 31 December 2017.

3.4.10 For *metering installations* where the *responsible person* is not a *TNSP*, the *responsible person* must ensure that a schedule is developed and maintained to determine the *scheduled reading dates* for each *metering installation* in accordance with clauses 3.4.6 and 3.4.7, and the *meter* reading frequency as

agreed between the *financially responsible Market Participant* and the *Local Network Service Provider*.

3.4.11 For *metering installations* where the *responsible person* is not a *TNSP*, the *financially responsible Market Participant* may request that the *responsible person* arrange for a *special meter reading* after a *meter* has been first installed or when an *end-use customer* first transfers to the *financially responsible Market Participant*, if *metering data* cannot be obtained in the time frames required for the *AEMO settlements* timetable (refer clause 3.15 of the *Rules*) and appropriate *metering data* is not available on which to base a forward *estimate* in accordance with Metrology Procedure: Part B.

3.4.12 For *metering installations* where the *responsible person* is not a *TNSP*, on request by a *Retailer*, the *responsible person* must use *reasonable endeavours* to carry out a *special meter reading*, *final reading* or *estimated reading* within three *business days* of the request or within such other time period as specified in the relevant transfer rules or jurisdictional regulatory instruments.

3.4.13 The *Metering Data Provider* must reset the clock of a type 5 *metering installation* when *interval metering data* is collected from the *metering installation* in accordance with clause 2.4.24 of Metrology Procedure: Part A.

3.5 Metering data storage

3.5.1 The *Metering Data Provider* must provide a *metering data services database* containing *metering data* in accordance with clause 7.11.3 of the *Rules*.

3.5.2 The rights of access to the *metering data* held within the *metering data services database* and the rights to receive *metering data* are set out in clause 7.7 of the *Rules* and in clause 3.6 of Metrology Procedure: Part A.

3.5.3 The *load tables*, *inventory tables* and *on/off* tables for type 7 *metering installations* must be stored in the *metering data services database*.

3.6 Access to energy data and metering data

3.6.1 The *responsible person, AEMO* or the *financially responsible Market Participant* (determined in accordance with clauses 7.2.1A, 7.2.1B and 7.2.5 of the *Rules)*

must ensure that access to *energy data* and *metering data* (as applicable) is made in accordance with clause 7.7 of the *Rules.*

3.6.2 For the purposes of clause 3.6.1, access to *metering data* must be provided as follows:

a) type 1, 2, 3 and 4 *metering data* in accordance with Service Level Procedure: Metering Data Provider Services Category D and C for Metering Installation Type 1, 2, 3, 4, 5 ,6 and 7.

b) This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
Victoria	Despite Clause 3.6.2, where *metering data* for a type 5 *metering installation* is collected more frequently than required under clause 3.4.9 (as allowed under clause 3.4.9A[Vic]) access to *metering data* need not be provided until 5pm on the second *business day* after the next *scheduled reading date* for that *metering installation*.

Note: The effective date of this Jurisdictional provision is 1 July 2009. The review date of this Jurisdictional provision is 31 December 2017.

3.6.3 The *energy data* or *metering data* (as applicable) for a *metering installation* available to the *Local Network Service Provider* pursuant to clauses 3.5.2 or 3.6.2 may be used by the *Local Network Service Provider* to calculate charges for *distribution services* for the purposes of clause 6.20.1(e) of the *Rules*.

3.6.4 The *responsible person* must ensure that *metering data* from the following is transferred to *AEMO*:

a) *Interval metered first-tier loads*, including *interval metered first-tier controlled loads*, where required by the *metrology procedure* in those participating

jurisdictions where that *interval metering data* is to be provided for *load profiling*;

b) *Unmetered first-tier loads*.

c) This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
New South Wales **Queensland**	Accumulation metered first-tier controlled loads.

3.6.5 The *responsible person* must notify *AEMO* of the *interval metered first-tier loads* that are to be transferred to *AEMO* for the purposes of clause 3.6.4.

3.7 Verification of metering data for type 5, 6 and 7 metering installations

3.7.1 The *responsible person* must ensure that a *sample test plan* is established and maintained, in accordance with *Australian Standards* "AS 1199: Sampling procedures for inspection by attributes – Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection" or "AS 2490: Sampling Procedures and Charts for Inspection by Variables for Percent Nonconforming" to *validate* that the *metering data* stored in the *metering data services database* with respect to a type 5 or 6 *metering installation* is consistent with the data stored in the *metering installation*.

3.7.2 The verification test must be conducted at a frequency in accordance with the *sample test plan* described in clause 3.7.1, which must not be less than once every 12 months.

3.7.3 If there is an inconsistency between the *energy data* held in a *metering installation* and the *metering data* held in the *metering data services database*, the *energy data* in the *metering installation* is to be taken as prima facie evidence of the amount of electricity supplied to that *metering point*, except if the *meter* or components of the *metering installation* are found to be not compliant.

3.7.4 The *responsible person* must ensure that a *sample test plan* is established and maintained in accordance with clause 3.8 of Metrology Procedure: Part A to *validate* that the *calculated energy data* stored in the *metering data services*

database, with respect to a type 7 *metering installation,* is consistent with the *physical inventory*.

3.7.5 A verification test must be conducted at a frequency in accordance with the *sample test plan* described in clause 3.7.4, which must not be less than once every 12 months.

3.7.6 The *calculated metering data* stored in a *metering data services database* for a type 7 *metering installation*, for a *NMI*, is consistent with the *physical inventory* if the error associated with calculating the *energy* value for the sample, that is,

$$\frac{\sum_{i=1}^{n} (\text{Agreed } \textit{load} \text{ per device type as per } \textit{load table})_i * (\text{Actual number of device type in the sample geographic area})_i}{\sum_{i=1}^{n} (\text{Agreed } \textit{load} \text{ per device type as per } \textit{load table})_i * (\text{Number of device type in the sample geographic area as per } \textit{inventory table})_i} - 1$$

where *i* = device type

is within the accuracy requirement determined in accordance with clause 3.7.7.

3.7.7 The accuracy requirement for the *calculated metering data* for a type 7 *metering installation*, based on the formula in clause 3.7.6, is within ± 2.0%. Where the existing error, based on the formula in clause 3.7.6, is greater than ± 2.0% then a date for reaching an error level within ± 2.0% shall be determined by *AEMO* in consultation with the *responsible person*. When the *inventory table* was first agreed and the accuracy of the initial table has been determined by the *responsible person* as not being within ± 2% then the accuracy requirement, prior to the date for achieving accuracy within ± 2%, will be determined by *AEMO* in consultation with the *responsible person* and the affected *Registered Participants* in a transition plan.

3.7.8 If there is an inconsistency between the *inventory table* held in the *metering data services database* for a type 7 *metering installation* and the *physical inventory*, the

physical inventory is to be taken as prima facie evidence of the actual number of devices.

3.8 Metering installation type 7 – sample testing

3.8.1 Clause 3.8 applies to the jurisdictions of Victoria, New South Wales, South Australia, Australian Capital Territory, Tasmania and Queensland.

3.8.2 The *responsible person* must ensure that the sample size is in accordance with Table 3.8 below. The sample is a sample of the devices in the *inventory table* for that *responsible person*.

3.8.3 The *responsible person* must ensure that the sample size for the first two validation tests is based on a normal sample size.

3.8.4 The *responsible person* must ensure that the sample size for subsequent validation tests is based on the following:

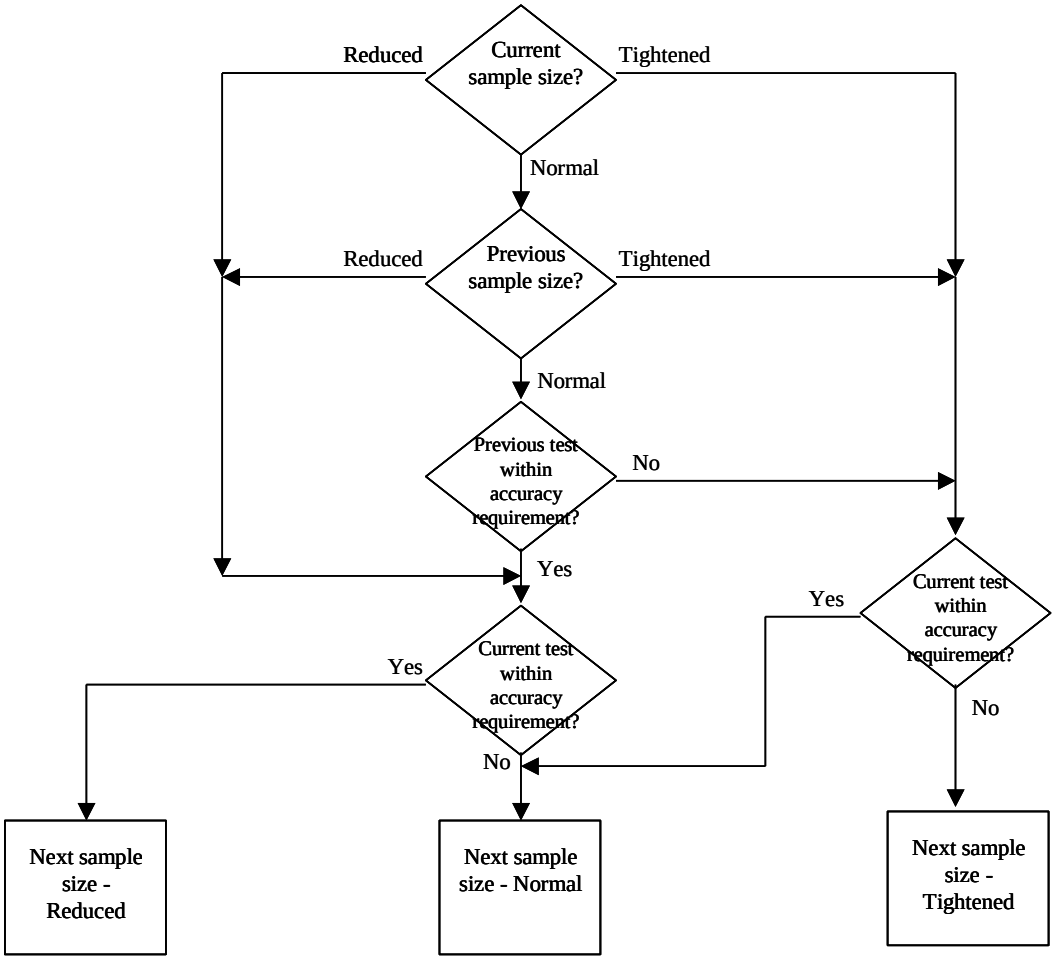


Table 3.8

Number of devices in Inventory Table	Sample size		
	Reduced	Normal	Tightened
2 to 8	2	2	3
9 to 15	2	3	5
16 to 25	3	5	8
26 to 50	5	8	13
51 to 90	5	13	20
91 to 150	8	20	32
151 to 280	13	32	50
281 to 500	20	50	80
501 to 1200	32	80	125
1201 to 3200	50	125	200
3201 to 10000	80	200	315
10001 to 35000	125	315	500
35001 to 150000	200	500	800
150001 to 500000	315	800	1250
500001 to over	500	1250	2000

3.8.5 The *responsible person* must ensure that a sample geographic area is randomly selected that contains the number of devices, as set out in the *inventory table*, as required by the sample size. The selection of the geographic area must be such that each device has an equal chance of being included in the sample.

3.8.6 The *responsible person* must ensure that the validation test is conducted at least once every six months, commencing from the first validation test.

3.8.7 Should the results of two consecutive validation tests, based on a reduced sample size, be within the accuracy requirements for that test, then the *responsible person*

must ensure that the next validation test is conducted at least once every 12 months.

3.9 Request for testing type 7 metering installation calculated metering data

3.9.1 If requested, in accordance with clause 7.6.1 of the *Rules,* by a *Registered Participant* with a financial interest in the type 7 *metering installation* or the *calculated metering data* for a type 7 *metering installation*, the *responsible person* or *AEMO* (as applicable) must make arrangements to test that the *calculated metering data* stored in the *metering data services database* is consistent with the *physical inventory* for the type 7 *metering installation*.

3.9.2 Where the *Registered Participant* requests a type 7 *metering installation calculated metering data* test in accordance with clause 3.9.1:

a) The *responsible person* or *AEMO* (as applicable) must use *reasonable endeavours* to conduct the test within 15 *business days* of the request.

b) The *responsible person* or *AEMO* (as applicable) must, prior to any test being undertaken, provide an estimate of costs associated with the test.

3.9.3 Where there is a discrepancy between the *calculated metering data* held in the *metering data services database* for a type 7 *metering installation* and the *physical inventory*, the *physical inventory* is to be taken as prima facie evidence of the actual number of devices.

3.9.4 Where the *responsible person* or *AEMO* (as applicable) has undertaken testing of a type 7 *metering installation calculated metering data* under clause 3.9.1, the *responsible person* or *AEMO* must make the test results available in accordance with clause 7.6.1 of the *Rules*.

3.9.5 If the *calculated metering data* accuracy does not comply with the requirements of clause 3.7.7, the *responsible person* must undertake the actions in accordance with clause 7.6.2 and clause 7.9.5 of the *Rules*.

3.10 Metering data obligations by AEMO

3.10.1 This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	Variation in accordance with jurisdictional policy
New South Wales, South Australia, Queensland	AEMO must prepare a Controlled Load Profile(s) (CLP) for each relevant profile area in accordance with Schedule 11 clause 2.1 and apply the CLP(s) by profile area to the consumption energy data from the applicable first tier controlled load accumulation meters and from the applicable second tier controlled load type 6 metering installations in accordance with Schedule 11 clause 2.2 to produce trading interval data. This clause does not apply to Ergon Energy's distribution area.

3.10.2 *AEMO* must prepare *Net System Load Profiles (NSLP)* by each *profile area* in accordance with clause 13 of Metrology Procedure: Part B and apply the *NSLP* by *profile area* to the *metering data* from type 6 *metering installations* to produce *metering data* in *trading intervals* for type 6 *metering installations*.

3.10.3 If *metering data* has not been transferred to *AEMO* to meet the *settlements* time frame or such *metering data* has been transferred but is unusable, *AEMO* must take action to obtain the *metering data* in accordance with clause 7.9.4 of the *Rules*.

3.10.4 Where *metering data* has been *substituted* in accordance with clause 3.10.3, *AEMO* must advise the affected *Registered Participants* that *metering data* from *second-tier loads* has been *substituted* by *AEMO*, at the same time as relevant *metering data* is sent to *Market Participants* for *settlements*.

3.10.5 This clause only applies to a jurisdiction as specified in the following table:

Jurisdiction	**Variation in accordance with jurisdictional policy**
New South Wales **Queensland** **South Australia** **Australian Capital Territory**	*AEMO* must enable the transfer to *AEMO* of a scaling factor, which represents the *estimated consumption energy data* for *first-tier controlled loads*.