METROLOGY PROCEDURE: PART A NATIONAL ELECTRICITY MARKET

PREPARED BY: Market Development
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<table>
<thead>
<tr>
<th>P. GEERS</th>
<th>VERSION: 5.30</th>
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<tr>
<td>EXECUTIVE GENERAL MANAGER MARKETS</td>
<td>15 MAY 2015</td>
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NEW SOUTH WALES  QUEENSLAND  SOUTH AUSTRALIA  VICTORIA  AUSTRALIAN CAPITAL TERRITORY  TASMANIA
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 – Regulatory Change 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

<table>
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<th>Date</th>
<th>Author</th>
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<tr>
<td>1.00</td>
<td>21/12/2006</td>
<td>MRG</td>
<td>Initial national publication, effective 1 January 2007.</td>
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<td>1.20</td>
<td>22/08/2007</td>
<td>AEMO</td>
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<td>2.00</td>
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<td>AEMO</td>
<td>Incorporate South Australian jurisdictional metrology material effective 22 September 2008</td>
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<td>2.01</td>
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<td>AEMO</td>
<td>Incorporate Victorian jurisdictional metrology material to support Victorian AMI rollout</td>
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<td>2.01a</td>
<td>15 July 2011</td>
<td>AEMO</td>
<td>The extension of retail contestability to business customers consuming between 50 – 150 MWh per annum in Tasmania.</td>
</tr>
<tr>
<td>3.0</td>
<td>31 October 2011</td>
<td>AEMO</td>
<td>Updated to incorporate provisions of Rule Change: Provision of Metering Data Services and Clarification of Existing Metrology Requirements.</td>
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<tr>
<td>3.01</td>
<td>1 July 2012</td>
<td>AEMO</td>
<td>Updated to incorporate jurisdictional material in relation to Queensland Retail Tariff Reform</td>
</tr>
<tr>
<td>3.10</td>
<td>1 January 2014</td>
<td>AEMO</td>
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</tr>
<tr>
<td>5.30</td>
<td>15 May 2015</td>
<td>AEMO</td>
<td>Updated to align version numbering with Metrology Procedure: Part B and to include corrections</td>
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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;
Metrology Procedure: Part A

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:

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

**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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queensland</td>
<td>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.</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria</td>
<td>Essential Services Commission under the Essential Services Commission Act 2001 (Vic);</td>
</tr>
<tr>
<td>South Australia</td>
<td>Essential Services Commission of South Australia;</td>
</tr>
<tr>
<td>Australian Capital Territory</td>
<td>Independent Competition and Regulatory Commission;</td>
</tr>
<tr>
<td>New South Wales</td>
<td>Independent Pricing and Regulatory Commission;</td>
</tr>
<tr>
<td>Queensland</td>
<td>Queensland Competition Authority;</td>
</tr>
<tr>
<td>Tasmania</td>
<td>Office of the Tasmanian Energy Regulator;</td>
</tr>
</tbody>
</table>
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:]

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Australia</td>
<td>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.</td>
</tr>
<tr>
<td>Victoria, New South Wales, Australian Capital Territory, Queensland, Tasmania</td>
<td>“Connection point” may also mean the agreed point of supply established between Network Service Provider(s) and another customer as defined in the Act.</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queensland</td>
<td>Electricity Connection and Metering Manual means the document of that title produced by the relevant Local Network Service Provider(s) in this jurisdiction.</td>
</tr>
</tbody>
</table>

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\(^\ast\)

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\(^\ast\) (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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queensland</td>
<td>negotiated retail contract has the meaning given in the Act.</td>
</tr>
</tbody>
</table>

**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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queensland</td>
<td>Queensland Market Customer has the meaning given to market customer in the Act.</td>
</tr>
</tbody>
</table>

Queensland Non-Market Customer

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

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queensland</td>
<td>Queensland Non-Market Customer has the meaning given to non-market customer in the Act.</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria</td>
<td>a licence issued by the Essential Services Commission under the Act to sell electricity;</td>
</tr>
<tr>
<td>New South Wales</td>
<td>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;</td>
</tr>
<tr>
<td>South Australia</td>
<td>a holder of a licence under Part 3 of the Act to retail electricity in South Australia;</td>
</tr>
<tr>
<td>Australian Capital Territory</td>
<td>a licence issued by the Commission to supply electricity in the ACT in accordance with Part 3 of the Act;</td>
</tr>
<tr>
<td>Queensland</td>
<td>an authority issued under the Act to a retail entity in Queensland.</td>
</tr>
</tbody>
</table>

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

[Diagram showing the process of meter provision and metering data provision, including steps such as consumer consent, responsible person selection, AEMO accreditation and registration, and meter installation by various parties.]
1.9.2 Metering data services process diagram for metering installations

<table>
<thead>
<tr>
<th>Metering installation</th>
<th>Metering data measurement process</th>
<th>Metering data collection process</th>
<th>Metering data processing and storage process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 7</td>
<td>Unmetered Supply</td>
<td>Assets recorded by LNSP</td>
<td>*Calculated metering data → Metering data services database</td>
</tr>
<tr>
<td>Type 6</td>
<td>Basic Meter Manually Read</td>
<td></td>
<td>*Accumulated metering data → Metering data services database</td>
</tr>
<tr>
<td>Type 5</td>
<td>Interval Meter Manually Read</td>
<td>Interval metering data</td>
<td>*Subst/Est metering data (interval) → Metering data services database</td>
</tr>
<tr>
<td>Types 1 to 4</td>
<td>Interval Meter Remotely Read</td>
<td></td>
<td>*Subst metering data (interval) → Metering data services database</td>
</tr>
</tbody>
</table>

Databases from which eligible Registered Participants are provided data

Related processes:
- Metering Database
- Profile Preparation Service
- Basic Meter Profile
- Settlements

Effective Date: 15 May 2015 Status: Final
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*
Metrology Procedure: Part A

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

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>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.</td>
</tr>
<tr>
<td>Victoria</td>
<td>the availability of trained and competent staff to install metering installations to determine that the installation is correct</td>
</tr>
<tr>
<td>South Australia</td>
<td>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);</td>
</tr>
<tr>
<td>Australian Capital Territory</td>
<td></td>
</tr>
<tr>
<td>Queensland</td>
<td></td>
</tr>
<tr>
<td>Tasmania</td>
<td></td>
</tr>
<tr>
<td>New South Wales</td>
<td>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);</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria</td>
<td>Installation of <em>metering installations</em>, including:</td>
</tr>
<tr>
<td>South Australia</td>
<td>(1) the availability of trained and competent staff to install and test <em>metering installations</em> to determine that the installation is correct; and</td>
</tr>
<tr>
<td>Australian Capital Territory</td>
<td>(2) the use of test and inspection procedures to confirm that the <em>metering installation</em> is correct and that <em>metering constants</em> are recorded and/or programmed correctly.</td>
</tr>
<tr>
<td>Queensland</td>
<td></td>
</tr>
<tr>
<td>Tasmania</td>
<td></td>
</tr>
<tr>
<td>New South Wales</td>
<td>Installation of <em>metering installations</em>, including:</td>
</tr>
<tr>
<td></td>
<td>(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;</td>
</tr>
<tr>
<td></td>
<td>(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 <em>metering installations</em> to determine that the installation is correct; and</td>
</tr>
<tr>
<td></td>
<td>(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 <em>metering installation</em> is correct and that <em>metering constants</em> are recorded and/or programmed correctly.</td>
</tr>
</tbody>
</table>
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 CTs 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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>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.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>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.</td>
</tr>
</tbody>
</table>

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”
Metrology Procedure: Part A

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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria</td>
<td>Value of “x” is 160 MWh per annum</td>
</tr>
<tr>
<td>New South Wales</td>
<td></td>
</tr>
<tr>
<td>South Australia</td>
<td></td>
</tr>
<tr>
<td>Australian Capital</td>
<td></td>
</tr>
<tr>
<td>Territory</td>
<td></td>
</tr>
<tr>
<td>Queensland</td>
<td>Value of “x” is zero (0) MWh per annum.</td>
</tr>
<tr>
<td>Tasmania</td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria</td>
<td>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.</td>
</tr>
<tr>
<td>New South Wales</td>
<td></td>
</tr>
<tr>
<td>Queensland</td>
<td></td>
</tr>
<tr>
<td>South Australia</td>
<td>The volume threshold for a connection point must be determined from:</td>
</tr>
<tr>
<td></td>
<td>(1) the consumption at that connection point for any period of 12 consecutive months in the previous 2 year period, or</td>
</tr>
<tr>
<td></td>
<td>(2) where such consumption data is not available or has not been accurately recorded, an estimate of the annual consumption at</td>
</tr>
</tbody>
</table>
### Jurisdiction

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria</td>
<td>Value of “y” is 160 MWh per annum.</td>
</tr>
<tr>
<td>South Australia</td>
<td>Value of “y” is 100 MWh per annum.</td>
</tr>
<tr>
<td>Australian Capital Territory</td>
<td></td>
</tr>
<tr>
<td>New South Wales</td>
<td>Value of “y” is 100 MWh per annum.</td>
</tr>
<tr>
<td>Queensland</td>
<td>Value of “y” is:</td>
</tr>
<tr>
<td></td>
<td>a) 750 MWh per annum for end-use customers that are not Queensland Market Customers in accordance with (c), below, and,</td>
</tr>
<tr>
<td></td>
<td>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,</td>
</tr>
<tr>
<td></td>
<td>b) 100 MWh per annum for Queensland Market Customers in accordance with (c), below of this metrology procedure.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>d) 100 MWh per annum for end-use customers where:</td>
</tr>
<tr>
<td></td>
<td>(i) card operated meters are installed in accordance with the regulatory framework, or</td>
</tr>
<tr>
<td></td>
<td>(ii) meters are installed temporarily in a place other than the meter’s permanent location.</td>
</tr>
<tr>
<td>Tasmania</td>
<td>Value of “y” is 150 MWh per annum.</td>
</tr>
</tbody>
</table>

### 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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria</td>
<td>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.</td>
</tr>
<tr>
<td>South Australia</td>
<td>Connection points may not be aggregated for the purposes of determining the annual consumption.</td>
</tr>
<tr>
<td>New South Wales</td>
<td></td>
</tr>
<tr>
<td>Queensland</td>
<td></td>
</tr>
<tr>
<td>Tasmania</td>
<td></td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria, South Australia</td>
<td>(1) Should a <em>child</em> in an <em>embedded network</em> elect to purchase electricity from a <em>Retailer</em> other than the parent’s <em>Retailer</em>, the <em>responsible person</em> must ensure that:</td>
</tr>
</tbody>
</table>
### Jurisdiction | Variation in accordance with jurisdictional policy
--- | ---
**New South Wales** | (a) the *child* has an *interval meter* installed; and  
(b) the parent of the *embedded network* has an *interval meter* installed.  

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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria</td>
<td>The responsible person must ensure that a type 4 or type 5 metering installation is not replaced by a type 6 metering installation.</td>
</tr>
<tr>
<td>New South Wales</td>
<td>(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:</td>
</tr>
<tr>
<td></td>
<td>(a) the metering installation is to be replaced by a metering installation type 1, 2, 3, 4, or 5; or</td>
</tr>
<tr>
<td></td>
<td>(b) the NMI is deregistered.</td>
</tr>
<tr>
<td></td>
<td>(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.</td>
</tr>
<tr>
<td></td>
<td>(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.</td>
</tr>
<tr>
<td></td>
<td>(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.</td>
</tr>
<tr>
<td>South Australia</td>
<td>(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.</td>
</tr>
<tr>
<td></td>
<td>(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.</td>
</tr>
<tr>
<td></td>
<td>(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.</td>
</tr>
<tr>
<td>Australian Capital Territory</td>
<td>(1) The responsible person must ensure that a type 4 or type 5 metering installation is not replaced by a type 6 metering installation.</td>
</tr>
<tr>
<td></td>
<td>(2) The responsible person must ensure that where a meter capable of recording interval energy data is installed, the metering</td>
</tr>
</tbody>
</table>
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.

\[ a = \text{error of VT and wiring} \]
\[ b = \text{error of CT and wiring} \]
\[ c = \text{error of meter} \]

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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queensland</td>
<td>Complies with the relevant Electricity Connection and Metering Manual, which each Local Network Service Provider must publish and update from time to time.</td>
</tr>
</tbody>
</table>

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
Metrology Procedure: Part A

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 equipment 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:
   - Knowledge and understanding of the metrology procedure and the relevant sections of the Rules; and
   - Knowledge and understanding of load tables;
   - Knowledge and understanding of inventory tables; and
   - Knowledge and understanding of on/off tables.

b) Programming and certification requirements for metering installations to the required accuracy, including:
   - Licensed access to software applicable to calculate the metering data for unmetered loads;
   - 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
   - Licensed access to software applicable to store the calculated metering data in the metering data services database.

c) Processing of calculated metering data, including:
   - Secure storage of historical data;
   - Implementation of appropriate password and security controls;
   - The availability of trained and competent staff to calculate the metering data for unmetered loads;
   - The availability of trained and competent staff to validate and substitute calculated metering data for unmetered loads; and
   - 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:
   - Implementation of appropriate password and security controls; and
   - 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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria</td>
<td>Subject to clause 3.4.3[Vic], the type 5 accumulation boundary is zero MWh per annum.</td>
</tr>
</tbody>
</table>
| 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 |
Metrology Procedure: Part A

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queensland</td>
<td>being read as a <em>metering installation</em> type 6 to being read as a <em>metering installation</em> type 5, at any time.</td>
</tr>
<tr>
<td></td>
<td>The <em>type 5 accumulation boundary</em> is 750 MWh per annum.</td>
</tr>
</tbody>
</table>

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

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

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

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria</td>
<td>During the period in which the <em>responsible person</em> is not required to collect <em>interval energy data</em> from any type 5 <em>metering installation</em> because of the operation of clause 3.4.3[Vic], if it does not collect <em>interval energy data</em> from that <em>metering installation</em>, it must collect <em>accumulation energy data</em> from that <em>metering installation</em> in accordance with this <em>metrology procedure</em> as if it were a type 6 <em>metering installation</em>.</td>
</tr>
<tr>
<td>Australian Capital Territory</td>
<td>During the period in which the <em>responsible person</em> is not required to collect <em>interval energy data</em> from any type 5 <em>metering installation</em> because of the operation of clause 3.4.2<a href="2">ACT</a>, if it does not collect <em>interval energy data</em> from that <em>metering installation</em>, it must collect <em>accumulation energy data</em> from that <em>metering installation</em> in accordance with this <em>metrology procedure</em> as if it were a type 6 <em>metering installation</em>.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queensland</td>
<td>(1) An <em>interval meter</em> installed at a <em>connection point</em> where the flow of electricity is less than 100MWh per annum will be read as an <em>accumulation meter</em> unless the <em>metering installation</em> is classified as types 1 to 4.</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Australia</td>
<td>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.</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Australia</td>
<td>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.</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria</td>
<td>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.</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victoria</td>
<td>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.</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>Accumulation metered first-tier controlled loads.</td>
</tr>
<tr>
<td>Queensland</td>
<td></td>
</tr>
</tbody>
</table>

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,

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

where \( i = \text{device type} \)

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:

![Flowchart diagram showing the decision tree for sample size determination based on current and previous test results.]

Next sample size - Reduced

Next sample size - Normal

Next sample size - Tightened
Table 3.8

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

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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales, South Australia, Queensland</td>
<td>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.</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Variation in accordance with jurisdictional policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>AEMO must enable the transfer to AEMO of a scaling factor, which represents the estimated consumption energy data for first-tier controlled loads.</td>
</tr>
<tr>
<td>Queensland</td>
<td></td>
</tr>
<tr>
<td>South Australia</td>
<td></td>
</tr>
<tr>
<td>Australian Capital Territory</td>
<td></td>
</tr>
</tbody>
</table>