



National Electricity Amendment (Integration of NEM Metrology Requirements) Rule 2008 No.1

under the National Electricity Law as applied by:

- (a) the National Electricity (South Australia) Act 1996;
- (b) the Electricity (National Scheme) Act 1997 of the Australian Capital Territory;
- (c) the National Electricity (New South Wales) Act 1997 of New South Wales;
- (d) the Electricity - National Scheme (Queensland) Act 1997 of Queensland;
- (e) the Electricity - National Scheme (Tasmania) Act 1999 of Tasmania;
- (f) the National Electricity (Victoria) Act 2005 of Victoria; and
- (g) the Australian Energy Market Act 2004 of the Commonwealth.

The Australian Energy Market Commission makes the following Rule under the National Electricity Law.



John Tamblyn
Chairman

Australian Energy Market Commission

National Electricity Amendment (Integration of NEM Metrology Requirements) Rule 2008 No.1

1. Title of Rule

This Rule is the *National Electricity Amendment (Integration of NEM Metrology Requirements) Rule 2008 No.1*.

2. Commencement

This Rule commences operation on 6 March 2008.

3. Amendment of the National Electricity Rules

The National Electricity Rules are amended as set out in Schedule 1.

Schedule 1 Amendment of National Electricity Rules

(Clause 3)

[1] Rule 7.1 Introduction to the Metering Chapter

Omit rule 7.1 and substitute:

7.1 Introduction to the Metering Chapter

7.1.1 Purpose

- (a) The purpose of this Chapter is to set out the rights and obligations of *Registered Participants* and the rights, obligations and qualifications of *Metering Providers* associated with the measurement of electrical *energy*, and the provision of *metering data* and *B2B Data* and the performance of *B2B Communications*.
- (b) This Chapter sets out provisions relating to:
 - (1) *revenue metering installations* and *check metering installations* used for the measurement of *active energy* and, where appropriate, *reactive energy*;
 - (2) collection and provision of *metering data* and *B2B Data*;
 - (3) provision, installation and maintenance of *metering installations* and the provision and servicing of *data collection systems*;
 - (4) accuracy of *metering installations*;
 - (5) inspection, testing and audit requirements;
 - (6) security of, and rights of access to, *metering data* and *B2B Data*;
 - (7) competencies and standards of performance; and
 - (8) the *metering database*, including *metering register* requirements.
- (c) Nothing in this Chapter precludes the application of evolving technologies and processes as they become available in accordance with the *Rules*.

7.1.2 Obligations of Market Participants to establish metering installations

- (a) Before participating in the *market* in respect of a *connection point*, a *Market Participant* must ensure that:
 - (1) the *connection point* has a *metering installation* and that the *metering installation* is registered with *NEMMCO*;
 - (2) either:

- (i) it has become the *responsible person* under clause 7.2.2 and has advised the *Local Network Service Provider*; or
 - (ii) it has sought an offer and, if accepted, entered into an agreement under clause 7.2.3; and
- (3) prior to registration, a *NMI* has been obtained by the *responsible person* for that *metering installation*.
- (b) *NEMMCO* may refuse to permit a *Market Participant* to participate in the *market* in respect of any *connection point* in relation to which that *Market Participant* is not in compliance with its obligations under paragraph (a).

[2] Clause 7.2.1 Responsible person

Omit clauses 7.2.1(1) to (3) and substitute:

- (1) this Chapter 7; and
- (2) the *metrology procedure*.

[3] Clause 7.2.2 Responsibility of the Market Participant

Omit clause 7.2.2(a) and substitute:

- (a) A *Market Participant* may elect to be the *responsible person* for a *metering installation* that is a type 1, 2, 3 or 4 *metering installation*.

[4] Clause 7.2.3 Responsibility of the Local Network Service Provider

Omit clause 7.2.3 and substitute:

7.2.3 Responsibility of the Local Network Service Provider

- (a) The *Local Network Service Provider* is the *responsible person* for:
 - (1) a type 1, 2, 3 or 4 *metering installation* connected to, or proposed to be connected to, the *Local Network Service Provider's network* where the *Market Participant* has accepted the *Local Network Service Provider's* offer in accordance with paragraphs (b) and (c); and
 - (2) a type 5, 6 or 7 *metering installation* connected to, or proposed to be connected to, the *Local Network Service Provider's network* in accordance with paragraphs (d) to (i).

Types 1 - 4 metering installations

- (b) A *Market Participant* may request in writing an offer from the *Local Network Service Provider* to act as the *responsible person* where a type 1, 2, 3 or 4 *metering installation* is, or is to be, installed.
- (c) If the *Local Network Service Provider* receives a request under paragraph (b), the *Local Network Service Provider* must:
 - (1) offer to act as the *responsible person* in respect of that *metering installation*; and
 - (2) provide the *Market Participant* with the terms and conditions on which the offer is made,no later than 15 *business days* after the *Local Network Service Provider* receives the written request from the *Market Participant*.

Types 5 -7 metering installations

- (d) The *Local Network Service Provider* may provide a *Market Participant* with a standard set of terms and conditions on which it will agree to act as the *responsible person* for a type 5, 6 or 7 *metering installation*.
- (e) Where the *Local Network Service Provider* has not provided the *Market Participant* with the standard set of terms and conditions referred to in paragraph (d), the *Market Participant* must request an offer from the *Local Network Service Provider* to act as the *responsible person* where a type 5, 6 or 7 *metering installation* is, or is to be, installed.
- (f) The *Local Network Service Provider* must, within 15 *business days* of receipt of the request under paragraph (e), make an offer to a *Market Participant* setting out the terms and conditions on which it will agree to act as the *responsible person*.
- (g) The terms and conditions of an offer made under paragraphs (d) or (f) must:
 - (1) be fair and reasonable; and
 - (2) not have the effect of unreasonably discriminating between *Market Participants*, or between the customers of a *Market Participant*.
- (h) In relation to an offer made under paragraphs (d) or (f), a *Market Participant*:
 - (1) must accept the offer; or
 - (2) may dispute the offer in accordance with rule 8.2.
- (i) If a *Market Participant* accepts the offer in accordance with paragraph (h), the *Local Network Service Provider*:
 - (1) becomes the *responsible person*; and

- (2) must provide *NEMMCO* with the *NMI* for the *metering installation* within 10 *business days* of entry into a *connection agreement* under clause 5.3.7 with that *Market Participant*.

[5] Clause 7.2.4 Joint metering installations

In clause 7.2.4(a), omit the words “7.2.2 or”.

[6] Clause 7.3.1 Metering installation components

In clause 7.3.1(a)(12), omit the word “and”.

[7] Clause 7.3.1 Metering installation components

In clause 7.3.1(a)(13), omit the matter “.” and substitute:

; and

- (14) if a type 6 *metering installation*, include facilities capable of continuously recording by a visible display, the total accumulated *energy* supplied through it over a period of at least 12 months, in accordance with subparagraph (1).

[8] Clause 7.3.1 Metering installation components

Omit clause 7.3.1(c) and substitute:

- (c) Either a *Local Network Service Provider* or a *Market Participant* may, with the agreement of the *responsible person* (which cannot be unreasonably withheld), arrange for a *metering installation* to contain features in addition to, or which enhance, the features specified in paragraph (b).

[9] Clause 7.3.1 Metering installation components

After clause 7.3.1(h), insert:

Requirements for metering installations for non-market generating units

- (i) In addition to the requirements in paragraphs (a) to (g), a *metering installation* for a *non-market generating unit* must:
 - (1) be capable of separately registering and recording flows in each direction where bi-directional *active energy* flows occur;

- (2) where payments for the purchase of electricity *generated* by that unit are based on different rates according to the time of the *day*, be capable of recording *interval energy data*;
- (3) where a *current transformer*, a *voltage transformer* or a *measurement element* for *reactive energy*, is installed, meet the requirements in schedule 7.2 for the type of *metering installation* appropriate to that *connection point*;
- (4) for units with a *nameplate rating* greater than 1 MW, meet:
 - (i) the accuracy requirements specified in schedule 7.2; and
 - (ii) the measurement requirements in paragraph (a)(8);
- (5) in relation to new accumulation *metering equipment* for units with a *nameplate rating* equal to or less than 1 MW, meet the minimum standards for *active energy* class 1.0 watt-hour or 2.0 watt-hour *meters* in accordance with clause S7.2.6.1(f);
- (6) for units with a *nameplate rating* of equal to or less than 1 MW that are capable of recording *interval energy*, meet the minimum standards of accuracy for the *active energy meter* in accordance with schedule 7.2 for a type 3 or 4 *metering installation* which is based on projected sent out annual *energy* volumes; and
- (7) if reasonably required by the *Distribution Network Service Provider* (where such a request must be in writing and with reasons), after taking into account the size of the *generating unit*, its proposed role and its location in the *network*, have the *active energy* and *reactive energy* measured where the unit has a *nameplate rating* of less than 1 MW.

[10] Clause 7.3.4 Metering installation types and accuracy

Omit clauses 7.3.4(e) to (g) and substitute:

- (e) Subject to the *metrology procedure* and this clause 7.3.4, a *financially responsible Market Participant* or a *Local Network Service Provider* may make arrangements with the *responsible person* to alter any type 5, 6 or 7 *metering installation*.
- (f) A *Local Network Service Provider* may alter a *metering installation* in accordance with paragraph (e) to make it capable of *remote acquisition* where the *Local Network Service Provider* decides that operational difficulties reasonably require the *metering installation* to be capable of *remote acquisition*.
- (g) An alteration of a *metering installation* by a *Local Network Service Provider* in accordance with paragraph (f), does not alter the classification of that installation to a type 4 *metering installation*.

[11] Clause 7.3.6 Payment for metering

In clause 7.3.6(a)(2), omit the word “and”.

[12] Clause 7.3.6 Payment for metering

In clause 7.3.6(a)(3), omit the matter “.” and substitute:

- ; and
- (4) the cost of additions and enhancements to *metering installations* undertaken in accordance with clause 7.3.1(c).

[13] Clause 7.3.6 Payment for metering

Omit clause 7.3.6(g) and substitute:

- (g) Where:
 - (1) a *financially responsible Market Participant* alters a type 5, 6 or 7 *metering installation* under clause 7.3.4 that leads to a change in the classification of that *metering installation*; and
 - (2) the *Local Network Service Provider* is no longer the *responsible person* for that *metering installation*,the parties must negotiate in good faith to ensure the *Local Network Service Provider* is reasonably compensated for the alteration to the *metering installation*.

[14] Clause 7.6.1 Responsibility for testing

Omit clause 7.6.1 and substitute:

7.6.1 Responsibility for testing

- (a) Testing of a *metering installation* carried out under this clause 7.6.1 must be carried out in accordance with:
 - (1) this clause 7.6.1; and
 - (2) the relevant inspection and testing requirements set out in schedule 7.3.
- (b) A *Registered Participant* may request that the *responsible person* make arrangements for the testing of a *metering installation* and if the request is reasonable, the *responsible person* must:

- (1) not refuse the request; and
 - (2) make arrangements for the testing.
- (c) Where the *responsible person* does not undertake the testing requested under paragraph (b), the *responsible person* must advise *NEMMCO* that the requested testing has not been undertaken and *NEMMCO* must make the arrangements for the testing where, in *NEMMCO*'s reasonable opinion, it is practicable for *NEMMCO* to do so.
- (d) The *Registered Participant* who requested the tests under paragraph (b) may make a request to the *responsible person* to witness the tests.
- (e) The *responsible person* must not refuse a request received under paragraph (d) and must no later than 5 *business days* prior to the testing, advise:
 - (1) the party making the request; and
 - (2) where the *Local Network Service Provider* is the *responsible person*, the *financially responsible Market Participant*,
of:
 - (3) the location and time of the tests; and
 - (4) the method of testing to be undertaken.
- (f) The *responsible person* and *NEMMCO* must co-operate for the purpose of making arrangements for *NEMMCO* to inspect or test the *metering installation* where:
 - (1) the *responsible person* must give *NEMMCO* access to the *metering installation*; and
 - (2) *NEMMCO* must:
 - (i) no later than seven *business days* prior to the testing or inspection, give the *responsible person* notice of:
 - (A) its intention to access the *metering installation* for the purpose of inspection or testing;
 - (B) the name of the *representative* who will be conducting the test or inspection on behalf of *NEMMCO*; and
 - (C) the *time* when the test or inspection will commence and the expected *time* when the test or inspection will conclude; and
 - (ii) where reasonable, comply with the security and safety requirements of the *responsible person*.
- (g) Where *NEMMCO* or the *responsible person* has undertaken testing of a *metering installation* under this clause 7.6.1, *NEMMCO* or the

responsible person (as the case may be) must make the test results available in accordance with paragraphs (h) and (i).

- (h) If the test results referred to in paragraph (g) indicate deviation from the technical requirements for that *metering installation*, the results must be made available as soon as practicable to the persons who are entitled to that *metering data* under rules 7.7(a)(1) to (7).
- (i) If the test results referred to in paragraph (g) indicate compliance with the technical requirements for that *metering installation*, the test results must be made available as soon as practicable:
 - (1) in circumstances where the tests were requested by a *Registered Participant*, to the *Registered Participant* and persons who are entitled to that *metering data* under rules 7.7(a)(1) to (7); or
 - (2) to a *Registered Participant* if requested by that *Registered Participant*, where the tests are not the result of a request for testing.
- (j) *NEMMCO* must check test results recorded in the *metering register* by arranging for sufficient audits annually of *metering installations* and to satisfy itself that the accuracy of each *metering installation* complies with the requirements of this Chapter 7.
- (k) The *responsible person* must store the test results in accordance with clause 7.6.4 and provide a copy to *NEMMCO* upon request or as part of an audit.

[15] New clause 7.6.4 Retention of test records and documents

After clause 7.6.3 insert:

7.6.4 Retention of test records and documents

- (a) All records and documentation of tests prepared under this Chapter 7 or for the purposes of this Chapter 7 must be retained in accordance with this clause 7.6.4.
- (b) The *responsible person* must ensure records and documentation are retained as follows:
 - (1) for a period of at least 7 years:
 - (i) sample testing of *meters* while the *meters* of the relevant style remain in service;
 - (ii) the most recent sample test results of the *meters* referred to in subparagraph (i) after the *meters* are no longer in service;
 - (iii) non-sample testing of *meters* while the *meters* remain in service;

- (iv) the most recent non-sample test results after the *meters* are no longer in service;
 - (v) the most recent sample test results of *instrument transformers* after *instrument transformers* of the relevant type are no longer in service;
 - (vi) the most recent non-sample test results of *instrument transformers* after they are no longer in service;
 - (vii) tests of new *metering* equipment of the relevant style while the equipment remains in service; and
 - (viii) tests of new *metering* equipment of the relevant style after the equipment is no longer in service; and
- (2) for a period of at least 10 years:
 - (i) sample testing of *instrument transformers* while *instrument transformers* of the relevant type remain in service; and
 - (ii) non-sample testing of *instrument transformers* while they remain in service.
- (c) The *responsible person* must ensure records of type tests and pattern approvals carried out or obtained in accordance with clause S7.2.6.1(f) are retained while *metering* equipment of the relevant type remains in service and for at least 7 years after it is no longer in service.

[16] Rule 7.7 Rights of Access to Data

Omit rule 7.7(a) including the rule title and substitute:

7.7 Entitlement to metering data

- (a) The only persons entitled to receive *metering data*, *NMI Standing Data* or data from the *metering register* for a *metering installation* are:
 - (1) *Registered Participants* with a financial interest in the *metering installation* or the *energy* measured by that *metering installation*;
 - (2) *Metering Providers* who have an agreement to service the *metering installation*, in which case the entitlement to access is restricted to allow authorised work only;
 - (3) *financially responsible Market Participants* in accordance with the *meter churn guidelines* developed under clause 7.3.4(j);
 - (4) the *Network Service Provider* or providers associated with the *connection point*;
 - (5) *NEMMCO* and its authorised agents;
 - (6) an Ombudsman in accordance with paragraphs (d), (e) and (f);

- (7) a *financially responsible Market Participant's* customer upon request by that customer to the *financially responsible Market Participant* for information relating to that customer's *metering installation*; and
- (8) the *AER* or *Jurisdictional Regulators* upon request to *NEMMCO*.

[17] Clause 7.8.1 Security of metering equipment

Omit clause 7.8.1 and substitute:

7.8.1 Security of metering installations

- (a) The *responsible person* must ensure that a *metering installation* is secure and that associated links, circuits and information storage and processing systems are protected by security mechanisms acceptable to *NEMMCO*.
- (b) *NEMMCO* may override any of the security mechanisms fitted to a *metering installation* with prior notice to the *responsible person*.
- (c) If a *Local Network Service Provider*, *financially responsible Market Participant*, or *Metering Provider* becomes aware that a seal protecting *metering* equipment has been broken, it must notify the *responsible person* within 5 *business days*.
- (d) If a broken seal has not been replaced by the person who notified the *responsible person* under paragraph (c), the *responsible person* must replace the broken seal no later than:
 - (1) the first occasion on which the *metering* equipment is visited to take a reading; or
 - (2) 100 days,after receipt of notification that the seal has been broken.
- (e) The costs of replacing broken seals as required by paragraph (d) are to be borne by:
 - (1) the *financially responsible Market Participant* if the seal was broken by its customer;
 - (2) a *Registered Participant* if the seal was broken by the *Registered Participant*; or
 - (3) by the *Metering Provider* if the seal was broken by the *Metering Provider*,and otherwise by the *responsible person*.
- (f) If it appears that as a result of, or in connection with, the breaking of a seal referred to in paragraph (c) that the relevant *metering* equipment

may no longer meet the relevant minimum standard, the *responsible person* must ensure that the *metering* equipment is tested.

[18] Clause 7.8.2 Security controls

After clause 7.8.2(f), insert:

- (g) Subject to the authorisation of the *responsible person*, if a customer of a *financially responsible Market Participant* requests a ‘read-only’ password, the *financially responsible Market Participant* must:
 - (1) obtain a ‘read-only’ password from the *Metering Provider*; and
 - (2) provide a ‘read-only’ password to the customer within 10 *business days*,in accordance with paragraph (c).
- (h) The *responsible person* referred to in paragraph (g) must not unreasonably withhold the authorisation required by the *financially responsible Market Participant*.

[19] Clause 7.8.4 Changes to metering data

Omit clause 7.8.4 and substitute:

7.8.4 Changes to metering data

- (a) The original stored *energy data* in a *meter* must not be altered except when the *meter* is reset to zero as part of a repair or reprogramming.
- (b) If an on-site test of a *metering installation* requires the injection of current, the *responsible person* must ensure that:
 - (1) the *energy data* stored in the *metering installation* is inspected; and
 - (2) if necessary following the inspection under subparagraph (1), alterations are made to the *metering data* in accordance with paragraph (c),to ensure that the *metering data* in the *metering database* is not materially different from the energy volumes flowing through the *connection point* during the period of the test.
- (c) If a *responsible person* considers alterations are necessary under paragraph (b)(2), the *responsible person* must:
 - (1) for a type 1, 2, 3 or 4 *metering installation*, advise *NEMMCO* of the variation and *NEMMCO* must arrange for the *metering database* to be altered in accordance with the validation, substitution and estimation procedures in the *metrology procedure*; or

- (2) for a type 5, 6 or 7 *metering installation*, alter the *energy data* in accordance with the validation, substitution and estimation procedures in the *metrology procedure* and submit the altered data to *NEMMCO*.
- (d) If a test referred to in paragraph (b) is based on actual *connection point* loads, no adjustment is required.

[20] Clause 7.9.1 Metering databases

Omit clause 7.9.1(f) and substitute:

- (f) The person who is required under this Chapter 7 to collect the *metering data* from the *metering installation* for the purpose of *settlements* must ensure that:
 - (1) the data is stored separately from the *metering database* and retained for a period of 7 years in the form in which it was collected; and
 - (2) a record of each adjustment or substitution to the *metering data* in respect of a *metering installation* is stored separately from the *metering database* and retained for a period of 7 years.
- (g) For all types of *metering installations*, the *metering database* must contain *metering data* that is retained:
 - (1) online for 13 months in an accessible format; and
 - (2) following the retention under subparagraph (1), in archive in a form that is accessible independently of the format in which the data is stored for a period of 5 years and 11 months.

[21] Clause 7.9.3 Periodic energy metering

In clause 7.9.3, except in clause 7.9.3(b)(2), omit the words “*energy data*” wherever occurring and substitute the words “*metering data*”.

[22] Clause 7.9.4 Data validation and substitution

Omit clauses 7.9.4(a) and (b) including the clause title and substitute:

7.9.4 Data validation, substitution and estimation

- (a) *NEMMCO* is responsible for the validation and substitution of *metering data* for a type 1, 2, 3 and 4 *metering installation* in accordance with the *metrology procedure*.

- (b) The *responsible person* is responsible for the validation, substitution and estimation of *metering data* for a type 5, 6 and 7 *metering installation* in accordance with the *metrology procedure*.

[23] Clause 7.11.1 Metering data

In clause 7.11.1, omit the words “clause 7.9.4(b)” wherever occurring and substitute the words “clause 7.14.1(c)(6)”.

[24] Clause 7.11.2 Outages and malfunctions

Omit clause 7.11.2 and substitute:

7.11.2 Metering installation malfunctions

- (a) Unless an exemption is obtained from *NEMMCO* under this clause 7.11.2, in respect of a *connection point* with:
 - (1) a type 1, 2 and 3 *metering installation*, if a malfunction occurs to the installation, repairs must be made to it as soon as practicable but no later than 2 *business days* after the malfunction was detected or should reasonably have been detected; or
 - (2) a *metering installation* other than the installations referred to subparagraph (1), if a malfunction occurs to the installation, repairs must be made to it as soon as practicable but no later than 10 *business days* after the malfunction was detected or ought reasonably to have been detected.
- (b) *NEMMCO* must establish and *publish* a procedure applicable to the provision of exemptions for the purpose of paragraph (a) and *NEMMCO* may revise the procedure from time to time.
- (c) If an exemption is provided by *NEMMCO* under this clause 7.11.2 then the *Metering Provider* must provide *NEMMCO* with a plan for the rectification of the *metering installation*.
- (d) A *Registered Participant* who becomes aware of an *outage* or malfunction of a *metering installation* must advise *NEMMCO* as soon as practicable.

[25] Rule 7.12 Meter Time

Omit rule 7.12 and substitute:

7.12 Time settings

- (a) The *responsible person* must ensure that all *metering installations* and *data logger* clocks are referenced to *Eastern Standard Time* and

maintained to a standard of accuracy in accordance with schedule 7.2 relevant to the *load* through the *metering point*.

- (b) In relation to a type 1, 2, 3 and 4 *metering installation*, the *responsible person* must provide to *NEMMCO* suitable remote data access to set the time function of the installation.
- (c) In relation to a type 5, 6 and 7 *metering installation*, the *responsible person* must set the time function of the *metering installation*.
- (d) *NEMMCO* must ensure that the *metering database* clock is maintained within -1 second and +1 second of *Eastern Standard Time* for a type 1, 2, 3 and 4 *metering installation*.
- (e) The *responsible person* must ensure that the *metering installation* database clock is maintained within - 1 second and + 1 second of *Eastern Standard Time* for types 5, 6 and 7 *metering installations*.

[26] Clause 7.14.1 Requirements of the metrology procedure

In clause 7.14.1(c)(5), omit the word “and”.

[27] Clause 7.14.1 Requirements of the metrology procedure

Omit clause 7.14.1(c)(6) and substitute:

- (6) procedures for the preparation of *settlements ready data* on the following matters:
 - (i) data validation and substitution in accordance with clause 7.9.4;
 - (ii) data estimation for the purposes of clause 7.11.1; and
 - (iii) in relation to the matters specified in clause 7.9.3, the method:
 - (A) by which accumulated *metering data* is to be converted into *trading interval* data; and
 - (B) of managing the *first-tier load energy data* that is necessary to enable the conversion referred to in subparagraph (1) to take place; and
- (7) other matters in the *Rules* required to be included in the *metrology procedure*.

[28] Table S7.2.3.1 Overall Accuracy Requirements of Metering Installation Components (Item 1)

Omit table S7.2.3.1 and substitute:

Table S7.2.3.1 Overall Accuracy Requirements of Metering Installation Components (Item 1)

Type	Volume limit per annum per connection point	Maximum allowable overall error (±%) (refer Tables 2 - 6) at full load		Minimum acceptable class or standard of components	Metering installation or data logger Clock Error (Seconds) in reference to EST
		active	reactive		
1	greater than 1000 GWh	0.5	1.0	0.2 CT/VT/Meter Wh 0.5 Meter varh	±5
2	100 to – 1000 GWh	1.0	2.0	0.5 CT/VT/ Meter Wh 1.0 Meter varh	±7
3	0.75 to less than 100 GWh	1.5	3.0	0.5 CT/VT 1.0 Meter Wh 2.0 Meter varh	±10
4	less than 750 MWh (Item 2)	1.5	n/a	Either 0.5 CT and 1.0 Meter Wh; or whole current connected <i>General Purpose meter MWh</i> : <ul style="list-style-type: none"> • with a <i>data logger</i>; and • meets the requirements of clauses 7.11.1(a) and (b) or 7.11.1(a) or (c). 	±20 (Item 2a)
5	Less than x MWh (Item 3)	1.5 (Item 3b)	n/a	Either 0.5CT and 1.0 meter Wh; or whole current connected <i>General Purpose meter Wh</i> ; <ul style="list-style-type: none"> • with a <i>data logger</i>; and • meets the requirements of clause 7.11.1(d) 	±20 (Item 3a)

Type	Volume limit per annum per connection point	Maximum allowable overall error ($\pm\%$) (refer Tables 2 - 6) at full load		Minimum acceptable class or standard of components	Metering installation or data logger Clock Error (Seconds) in reference to EST
		active	reactive		
6	Less than y MWh (Item 4)	2.0 (Item 4b)	n/a	CT or whole-current connected <i>General Purpose meter</i> Wh with data processing used to convert <i>accumulated energy data</i> into <i>metering data</i> and to provide <i>estimated energy data</i> where necessary.	(Item 4a)
7	Volume limit not specified (Item 5)	(Item 6)	n/a	No <i>meter</i> Techniques for determination of <i>estimated energy data</i> to be included in the <i>metrology procedure</i> .	n/a

[29] Clause S7.2.3 Accuracy requirements for metering installations

Omit Item 1 of clause S7.2.3.1 and substitute:

- Item 1:
- (a) For a type 3, 4, 5 and 6 *metering installation*, direct connected *meters* may be used if the *meters* meet the requirements of the relevant *Australian Standards* and International Standards which must be identified in the *metrology procedure*.
 - (b) The *metering installation* types referred to in paragraph (a) must comply with any applicable specifications or guidelines (including any transitional arrangements) specified by the National Measurement Institute under the *National Measurement Act*.

[30] Clause S7.2.3 Accuracy requirements for metering installations

Omit Item 5 of clause S7.2.3 and substitute:

- Item 5:
- (a) A type 7 *metering installation* classification applies where a *metering installation* does not require a *meter* to measure the flow of electricity in a power conductor and accordingly there is a requirement to determine by other means the *energy data* that is deemed to flow in the power conductor.
 - (b) The condition referred to in paragraph (a) will only be allowed for *connection points* where *NEMMCO* in consultation with the *Local Network Service Provider* determines:
 - (1) the load pattern is predictable;
 - (2) for the purposes of *settlements*, the load pattern can be reasonably calculated by a relevant method set out in the *metrology procedure*; and
 - (3) it would not be cost effective to meter the *connection point* taking into account:
 - (i) the small magnitude of the *load*;
 - (ii) the *connection* arrangements; and
 - (iii) the geographical and physical location.
 - (c) The *metrology procedure* must include arrangements for type 7 *metering installations* that have been classified as *market loads*.
 - (d) A *connection point* that meets the condition for classification as a type 7 *metering installation* does not limit that *connection point* from being metered in the future.

[31] Tables S7.2.3.2 - S7.2.3.5

Omit tables S7.2.3.2 – S7.2.3.5 including the note and substitute:

Table S7.2.3.2 Type 1 Installation – Annual Energy Throughput greater than 1,000 GWh

% Rated Load	Power Factor					
	Unity	0.866 lagging		0.5 lagging		Zero
	active	active	reactive	active	reactive	reactive
10	1.0%	1.0%	2.0%	n/a	n/a	1.4%
50	0.5%	0.5%	1.0%	0.7%	1.4%	1.0%
100	0.5%	0.5%	1.0%	n/a	n/a	1.0%

Table S7.2.3.3 Type 2 Installation – Annual Energy Throughput between 100 and 1,000 GWh

% Rated Load	Power Factor					
	Unity	0.866 lagging		0.5 lagging		Zero
	active	active	reactive	active	reactive	reactive
10	2.0%	2.0%	4.0%	n/a	n/a	2.8%
50	1.0%	1.0%	2.0%	1.5%	3.0%	2.0%
100	1.0%	1.0%	2.0%	n/a	n/a	2.0%

Table S7.2.3.4 Type 3 Installation – Annual Energy Throughput from 0.75 GWh to less than 100 GWh

% Rated Load	Power Factor					
	Unity	0.866 lagging		0.5 lagging		Zero
	active	active	reactive	active	reactive	reactive
10	2.5%	2.5%	5.0%	n/a	n/a	4.0%
50	1.5%	1.5%	3.0%	2.5%	5.0%	3.0%
100	1.5%	1.5%	3.0%	n/a	n/a	3.0%

Table S7.2.3.5 Type 4 or 5 Installation – Annual Energy Throughput less than 0.75 GWh

% Rated Load	Power Factor		
	Unity	0.866 lagging	0.5 lagging
	active	active	active
10	2.5%	2.5%	n/a
50	1.5%	1.5%	2.5%
100	1.5%	1.5%	n/a

Table S7.2.3.6 Type 6 Installation – Annual Energy Throughput less than 0.75 GWh

% Rated Load	Power Factor		
	Unity	0.866 lagging	0.5 lagging
	active	active	active
10	3.0%	n/a	n/a
50	2.0%	n/a	3.0%
100	2.0%	n/a	n/a

(NOTE: All measurements in Tables S7.2.3.2 – S7.2.3.6 are to be referred to 25 degrees Celsius).

- (a) The method for calculating the overall error is the vector sum of the errors of each component part (that is, $a + b + c$) where:
 - a = the error of the *voltage transformer* and wiring;
 - b = the error of the *current transformer* and wiring; and
 - c = the error of the *meter*.
- (b) If compensation is carried out then the resultant *metering system* error shall be as close as practicable to zero.

[32] Clause S7.2.5 Resolution and accuracy of displayed or captured data

Omit clause S7.2.5 and substitute:

S7.2.5. Resolution and accuracy of displayed or captured data

Programmable settings available within a *metering installation*, *data logger* or any peripheral device, which may affect the resolution of displayed or stored data, must:

- (a) meet the requirements of the relevant *Australian Standards* and *International Standards* which must be identified in the *metrology procedure*; and
- (b) comply with any applicable specifications or guidelines (including any transitional arrangements) specified by the National Measurement Institute under the *National Measurement Act*.

[33] Clause S7.2.6.1 Design requirements

Omit clauses S7.2.6.1(f) and (g) and substitute:

- (f) *Meters* must:

- (1) meet the requirements of relevant *Australian Standards* and International Standards which must be identified in the *metrology procedure*; and
 - (2) 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.
- (g) New *instrument transformers* must:
- (1) meet the requirements of relevant *Australian Standards* and International Standards which must be identified in the *metrology procedure*; and
 - (2) 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.

[34] Schedule 7.3 - Inspection and Testing Requirements

Omit Schedule 7.3 and substitute:

Schedule 7.3 - Inspection and Testing Requirements

S7.3.1. General

- (a) The *responsible person* must ensure that equipment comprised in a purchased *metering installation* has been tested to the required class accuracy with less than the uncertainties set out in Table S7.3.1.
- (b) The *responsible person* must ensure appropriate test certificates of the tests referred to in paragraph (a) are retained.
- (c) The *responsible person* (or any other person arranging for testing) must ensure that testing of the *metering installation* is carried out:
 - (1) in accordance with clause 7.6.1 and this schedule 7.3; or
 - (2) in accordance with an asset management strategy that defines an alternative testing practice (other than time-based) determined by the *responsible person* and approved by *NEMMCO*,and:
 - (3) in accordance with a test plan which has been registered with *NEMMCO*;
 - (4) to the same requirements as for new equipment where equipment is to be recycled for use in another site; and
 - (5) so as to include all data storage and processing components included in the *metrology procedure*, including algorithms used to prepare agreed load patterns.

- (d) *NEMMCO* must review the prescribed testing requirements in this schedule 7.3 every 5 years in accordance with equipment performance and industry standards.
- (e) The testing intervals may be increased if the equipment type/experience proves favourable.
- (f) The maximum allowable level of testing uncertainty (\pm) for all *metering* equipment must be in accordance with Table S7.3.1.

Table S7.3.1 Maximum Allowable Level of Testing Uncertainty (\pm)

Description		Metering Equipment Class				
		Class 0.2	Class 0.5	Class 1.0	General Purpose	Class 2.0
In Laboratory	CTs ratio phase	0.05% 0.07 crad	0.1% 0.15 crad	n/a	n/a	n/a
	VTs ratio Phase	0.05% 0.05 crad	0.1% 0.1 crad	n/a	n/a	n/a
	Meters Wh	0.05/cos ϕ %	0.1/cos ϕ %	0.2/cos ϕ %	0.2/cos ϕ %	n/a
	Meters varh	n/a	0.2/sin ϕ %	0.3/sin ϕ %	n/a	0.4/sin ϕ %
In Field	CTs ratio Phase	0.1% 0.15 crad	0.2% 0.3 crad	n/a	n/a	n/a
	VTs ratio Phase	0.1% 0.1 crad	0.2% 0.2 crad	n/a	n/a	n/a
	Meters Wh	0.1/cos ϕ %	0.2/cos ϕ %	0.3/cos ϕ %	0.3/cos ϕ %	n/a
	Meters varh	n/a	0.3/sin ϕ %	0.4/sin ϕ %	n/a	0.5/sin ϕ %

Where cos ϕ is the power factor at the test point under evaluation.

Table S7.3.2 Maximum Period Between Tests

Unless the *responsible person* has developed an asset management strategy that defines practices that meet the intent of this schedule 7.3 and is approved by *NEMMCO*, the maximum period between tests must be in accordance with this Table S7.3.2.

Description	Metering Installation Type				
	Type 1	Type 2	Type 3	Type 4	Types 5 & 6
CT	10 years	10 years	10 years	10 years	10 years
VT	10 years	10 years	10 years		n/a
Burden tests	When <i>meters</i> are tested or when changes are made				

CT connected Meter (electronic)	5 years	5 years	5 years	5 years	5 years
CT connected Meter (induction)	2.5 years	2.5 years	5 years	5 years	5 years
Whole-current (Direct Connected Meter)	The testing and inspection requirements must be in accordance with an asset management strategy. Guidelines for the development of the asset management strategy must be recorded in the <i>metrology procedure</i> .				

Table S7.3.3 Period Between Inspections

Unless the *responsible person* has developed an asset management strategy that meets the intent of this schedule 7.3 and is approved by *NEMMCO*, the period between inspections must be in accordance with this Table S7.3.3.

Description	Metering Installation Type			
	Type 1	Type 2	Type 3	Type 4, 5 & 6
<i>Metering installation equipment inspection</i>	2.5 years Note: increased inspection period allowed because of <i>check metering installation</i> requirements.	12 months (2.5 years if <i>check metering</i> installed)	> 10 GWh: 2 years 2 ≤ ≤10 GWh: 3 years <2 GWh: when meter is tested.	When meter is tested.

S7.3.2. Technical Guidelines

- Current transformer* and *voltage transformer* tests are primary injection tests or other testing procedures as approved by *NEMMCO*.
- The calculations of accuracy based on test results are to include all reference standard errors.
- An "estimate of testing uncertainties" must be calculated in accordance with the ISO "Guide to the Expression of Uncertainty for Measurement".
- Where operational *metering* is associated with *settlements metering* then a shorter period between inspections is recommended.
- For $\sin\phi$ and $\cos\phi$ refer to the ISO "Guide to the Expression of Uncertainty in Measurement", where $\cos\phi$ is the *power factor*.
- A typical inspection may include:

- (1) check the seals;
- (2) compare the pulse counts;
- (3) compare the direct readings of *meters*;
- (4) verify *meter* parameters and physical connections; and
- (5) *current transformer* ratios by comparison.

[35] Clause S7.4.3 Capabilities of Metering Providers for metering installations types 1, 2, 3 and 4

Omit clause S7.4.3(b)(5) and substitute:

- (5) all reference/calibration equipment for the purpose of meeting test or inspection obligations must be tested to ensure full traceability to test certificates issued by a *NATA* accredited body or a body recognised by *NATA* under the International Laboratory Accreditation Corporation (**‘ILAC’**) mutual recognition scheme and documentation of the traceability must be provided to *NEMMCO* on request; and

[36] Clause S7.5.2 Metering register information

In clause S7.5.2(d), omit the words “and substitution” and insert the words “, substitution and estimation”.

[37] Clause 8.2.1 Application and guiding principles

In clause 8.2.1(h)(10), omit the words “7.1.4(b)” and substitute the words “7.1.2(b)”.

[38] Clause 8A.2A.2 Derogation

In clause 8A.2A.2(a)(3), omit the words “clause 7.6.1(a)” and substitute the words “clause 7.6.1(a)(2)”.

[39] Clause 9.17.2 Initial Registration (clause 7.1.4)

In clause 9.17.2, omit the words “7.1.4” wherever occurring and substitute the words “7.1.2”.

[40] Chapter 10 Substituted definitions

In Chapter 10, substitute the following definition:

energy data

Interval energy data or accumulated energy data.

[41] Chapter 10 Deleted definitions

In Chapter 10, omit the following definition:

verifying authorities

Authorities appointed by the National Measurement Institute under the *National Measurement Act*.

[42] Chapter 11 Savings and Transitional Rules

After rule 11.19, insert:

Part P Integration of NEM Metrology Requirements

11.20 Rules consequential on the making of the National Electricity Amendment (Integration of NEM Metrology Requirements) Rule 2008

11.20.1 Definitions

For the purposes of this rule 11.20:

Amending Rule means the National Electricity Amendment (Integration of NEM Metrology Requirements) Rule 2008.

commencement date means the day on which the Amending Rule commences operation.

first-tier jurisdictional requirements publication means the publication published by *NEMMCO* in accordance with clause 11.20.6.

Minimalist Transitioning Approach has the same meaning as in the Queensland Electricity Industry Code.

new clause 7.3.1 means clause 7.3.1 of the *Rules* immediately after the commencement date.

Victorian *first-tier load* means a load in Victoria where the electricity flowing through the *connection point* is equal to, or greater than, 160 MWh per annum.

11.20.2 Metering installations for non-market generating units immediately prior to 30 June 2008

- (a) A *metering installation* for a *non-market generating unit* that was installed immediately prior to 30 June 2008 and complied with the applicable jurisdictional requirements for that installation on 30 June 2008 is taken to satisfy the requirements for *metering installations* for *non-market generating units* in new clause 7.3.1.
- (b) Where a *metering installation* for a *non-market generating unit* did not comply with the requirements referred to in paragraph (a), that installation must be repaired or replaced in accordance with the requirements of new clause 7.3.1.
- (c) The applicable jurisdictional requirements for *metering installations* for *non-market generating units* referred to in paragraph (a) must be referred to in the first-tier jurisdictional requirements publication.

11.20.3 First-tier load metering installations

- (a) Subject to clause 11.20.5, a *first-tier load metering installation* as at 30 June 2008 that complied with the applicable jurisdictional requirements for that installation as at that date is taken to comply with the *Rules* provided the *metering installation* continues to comply with the applicable jurisdictional requirements as at 30 June 2008.
- (b) A *first-tier load metering installation* that does not satisfy the requirements of paragraph (a) must be repaired or replaced in accordance with the *Rules*.
- (c) The applicable jurisdictional requirements referred to in paragraph (a) for *first-tier load metering installations* must be referred to in the first-tier jurisdictional requirements publication.

11.20.4 First-tier load metering installations in Victoria

- (a) Subject to paragraph (b) and despite the *Rules*, a *Market Participant* who is responsible for a Victorian *first-tier load* with a type 5 or type 6 *metering installation* immediately before the commencement date is taken to be the *responsible person* for that *metering installation*.
- (b) A *Market Participant* who is taken to be the *responsible person* for the *metering installation* referred to in paragraph (a) must ensure the *metering installation* meets the applicable jurisdictional requirements for that installation as referred to in the first-tier jurisdictional requirements publication in accordance with clause 11.20.3(c).

11.20.5 Minimalist Transitioning Approach in Queensland

For the duration of the Minimalist Transitioning Approach, clauses 7.2.3(i)(2), 7.2.5(b)(2), 7.2.5(d)(6) and 7.3.1(f) of the *Rules* do not apply in respect of a *metering installation* which:

- (a) is the responsibility of a *Market Participant* or *responsible person* who is operating under the Minimalist Transitioning Approach in Queensland; and
- (b) in accordance with the *Market Settlement and Transfer Solution Procedures*:
 - (1) has a *NMI* classification of SMALL; and
 - (2) the *Local Network Service Provider* has not received a valid request from a *Market Customer* for the *NMI* to be registered with *NEMMCO*.

11.20.6 First-tier jurisdictional requirements publication

- (a) *NEMMCO* must, in consultation with the *participating jurisdictions*, *publish* a document (**‘first-tier jurisdictional requirements publication’**) that lists the documents that contain the applicable jurisdictional requirements referred to in clauses 11.20.2, 11.20.3 and 11.20.4.
- (b) *NEMMCO* must *publish* the first-tier jurisdictional requirements publication by 30 June 2008.

11.20.7 Metrology procedure

- (a) *NEMMCO* must make the required amendments to the *metrology procedure* as a result of the Amending Rule by 31 July 2008.
- (b) All actions taken by *NEMMCO* prior to the commencement date to amend the *metrology procedure* in accordance with paragraph (a) are deemed to be valid as at the commencement date to the extent that those actions were taken in accordance with the relevant requirements of rule 7.14 (as though the Amending Rule was in force at the time that the action was taken).
- (c) The *metrology procedure* published in accordance with rule 7.14 immediately before the commencement date continues to apply as if the Amending Rule had not been made and until *NEMMCO publishes* the amended the *metrology procedure* in accordance with paragraph (a).

END OF RULE AS MADE