



Draft National Electricity Amendment (Integration of NEM Metrology Requirements) Rule 2007

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

Draft National Electricity Amendment (Integration of NEM Metrology Requirements) Rule 2007

1. Title of Rule

This Rule is the *Draft National Electricity Amendment (Integration of NEM Metrology Requirements) Rule 2007*.

2. Commencement

This Rule commences operation on [insert date].

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

[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) – (3) and substitute:

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

[3] Clause 7.2.1A [Deleted]

Omit clause 7.2.1A

[4] Clause 7.2.2 Responsibility of the Market Participant

Omit clause 7.2.2(a) and substitute:

- (a) Subject to the requirements relating to joint *metering installations* under clause 7.2.4, a *Market Participant* may elect to be the *responsible person* for a *metering installation* that is a type 1, 2, 3 or 4 installation.

[5] 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) Subject to the requirements relating to joint *metering installations* under clause 7.2.4, 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 installations* 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; and
 - (2) may dispute the offer in accordance with rule 8.2.

- (i) If a *Market Participant* accepts the offer in accordance with paragraph (g), 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*.

[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 to continuously record by a visible display the total accumulated *energy* supplied through it, 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 those 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) - (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* is installed, meet the requirements in Schedule 7.2 for:
 - (i) a type 3 *metering installation*; or
 - (ii) the type of *metering installation* appropriate to that *connection point*;
- (4) where a *voltage transformer* is installed, meet the requirements in Schedule 7.2 for:
 - (i) a type 3 *metering installation*; or
 - (ii) the type of *metering installation* appropriate to that *connection point*;
- (5) in relation to the *measurement element* where a *reactive meter* is installed, meet the requirements in Schedule 7.2 for:
 - (i) a type 3 *metering installation*; or
 - (ii) the type of *metering installation* appropriate to that *connection point*;
- (6) for units with an output greater than 1 MW, meet:
 - (i) the accuracy requirements specified in schedule 7.2; and
 - (ii) the measurement requirements in paragraph (a)(8);
- (7) in relation to new accumulation *metering equipment* for units with an output 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 Schedule S7.2.6.1(f);
- (8) for units with an output of 1 MW or less 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 type 3 or 4 *metering installations* which is based on projected sent out annual *energy* volumes; and
- (9) 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) and (f) and substitute:

- (e) Subject to the *metrology procedure* and this clause 7.3.4, a *financially responsible Market Participant* and 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 only alter a *metering installation* in accordance with paragraph (e) to make it capable of *remote acquisition* where the provider decides that operational difficulties reasonably require the *metering installation* to be capable of *remote acquisition*.

[11] 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*.

[12] 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* must be carried out in accordance with:
- (1) this clause 7.6.1; and
 - (2) the 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 not refuse the request.
- (c) Where the *responsible person* does not undertake the testing requested under paragraph (b), *NEMMCO* must make the arrangements for the testing where reasonable.
- (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 (c) 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 installation; and
 - (2) *NEMMCO* must:
 - (i) no later than two *business days* prior to the testing or inspection, give the *responsible person* notice of:
 - (A) its intention to access the 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, the *responsible person* or *NEMMCO* (as the case may be) must make the test results available to:
 - (1) *NEMMCO* or the *responsible person* (depending on which party conducted the tests); and
 - (2) a *Registered Participant* registered against the *connection point* in *NEMMCO's connection point* registration system.
- (h) *NEMMCO* must, if the results referred to in paragraph (g) for a *metering installation* indicate:
 - (1) deviation from the technical requirements, make the results available as soon as practicable; or

- (2) the installation meets the technical requirements, make the results available upon request.
- (i) *NEMMCO* must check test results recorded in the *metering register* by arranging for sufficient audits of *metering installations* and satisfy itself that the accuracy of each *metering installation* complies with the requirements of this Chapter 7.
- (j) 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.

[13] 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) A *responsible person* must retain records and documentation as follows:
 - (1) for a period of 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 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) A *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 7 years after it is no longer in service.

[14] 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) the *Metering Provider* or providers with an agreement to service the *metering installation*, in which case the entitlement to access is restricted to allow authorised work only;
 - (3) *Metering Providers* in accordance with *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) the *AER* or *Jurisdictional Regulator* upon request to *NEMMCO*;
 - (7) an Ombudsman in accordance with paragraphs (d), (e) and (f); and
 - (8) a *financially responsible Market Participant's* customer upon request to the participant for information relating to that customer's *metering installation*.

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

[16] Clause 7.8.2 Security controls

Omit clause 7.8.2(g) and substitute:

- (g) Subject to the authorisation of the *responsible person*, if a customer of a *financially responsible Market Participant* requests a 'read-only' password, the 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*.

[17] 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), that the *metering database* is altered in accordance with the validation, substitution and estimation procedures in the *metrology procedure*,
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 test referred to in paragraph (b) is based on actual *connection point* loads, no adjustment is required.

[18] Clause 7.9.1 Metering databases

Omit clause 7.9.1(f) and substitute:

- (f) The *responsible person* must ensure that *metering data* in respect of a *metering installation* is retained for a period of 7 years in the form in which it was collected.
- (g) The *responsible person* must ensure that a separate record of each adjustment or substitution to *metering data* in respect of a *metering installation* is retained for a period of 7 years.
- (h) 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.
- (i) 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 the data is stored separately in the form that it was collected for the period of time specified in paragraphs (g) and (h).

[19] 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*”.

[20] 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 types 1, 2, 3 and 4 *metering installations* in accordance with the *metrology procedure*.
- (b) The *responsible person* is responsible for the validation, substitution and estimation of *metering data* for types 5, 6 and 7 *metering installations* in accordance with the *metrology procedure*.

[21] 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)”.

[22] 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 ought reasonably to 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.

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

[24] Clause 7.14.1 Requirements of the metrology procedure

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

[25] Clause 7.14.1 Requirements for 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*.

[26] 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 ($\pm\%$) (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		
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

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		
4	less than 750 MWh (Item 2)	1.5	NA	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)	NA	Either 0.5CT and 1.0 <i>meter Wh</i> ; 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)
6	Less than y MWh (Item 4)	2.0 (Item 4b)	NA	CT or whole-current connected <i>General Purpose meter Wh</i> 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 6)	NA	No <i>meter Techniques</i> for determination of <i>estimated energy</i>	NA

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		
	(Item 5)			<i>data to be included in the metrology procedure.</i>	

[27] Clause S7.2.3.1 Accuracy requirements for metering installations

Omit Item 1 of clause S7.2.3.1 and substitute:

- Item 1:
- (a) For types 3, 4, 5 and 6 *metering installations*, 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*.

[28] 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 market settlement, the load pattern can be reasonably calculated by a relevant method set out in the *metrology procedure*;
 - (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; and
- (4) the *load* is classified as a *market load*.
- (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.

[29] 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%	0.75%	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 0.75GWh to less than 100GWh

% Rated Load	Power Factor					
	Unity	0.866 lagging		0.5 lagging		Zero
	active	active	reactive	active	reactive	reactive
10	2.5%	2.5%	4.0%	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 2-6 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.

[30] 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*.

[31] 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.

[32] 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 equipment owner must keep appropriate test certificates of the tests referred to in paragraph (a).
- (c) The *responsible person* must ensure that testing of the *metering installation* is carried out:
 - (1) in accordance with 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*;
 - (3) in accordance with a test plan which has been registered with *NEMMCO*; and
 - (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 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 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. Notes (These are 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.

[33] 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 have current 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

[34] 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”.

[35] 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)”.

[36] 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”.

[37] Chapter 10 New definitions

In Chapter 10, insert the following new definitions in alphabetical order:

substituted energy data

Metering data substituted in accordance with the *metrology procedure*.

estimated energy data

Metering data estimated in accordance with the *metrology procedure*.

[38] Chapter 10 Substituted definitions

In Chapter 10, omit the following definitions and substitute:

energy data

Interval energy data or *accumulated energy data*.

estimated energy data

Metering data estimated in accordance with the *metrology procedure*.

metering data

The data obtained from a *metering installation*, the processed data, *estimated energy data* or *substituted energy data*.

[39] 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*.

[40] Chapter 11 Savings and Transitional Rules

Insert at the end of Chapter 11 the following rule:

11.X Rules consequential on the making of the National Electricity Amendment (Integration of NEM Metrology Requirements) Rule 2007

11.X.1 Definitions

For the purposes of this rule 11.X:

Amending Rule means the National Electricity Amendment (Integration of NEM Metrology Requirements) Rule 2007.

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

Minimalist Transitioning Approach means the definition in the Queensland Electricity Industry Code.

new clause 7.3.1 means clause 7.3.1 of the *Rules* as amended by the Amending Rule.

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

11.X.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 as 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 included in the *metrology procedure*.

11.X.3 First-tier load metering installations

- (a) A *first-tier load metering installation* registered with NEMMCO 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 installation continues to comply with the applicable jurisdictional requirements.

- (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 included in the *metrology procedure*.

11.X.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 included in the *metrology procedure* in accordance with clause 11.X.3(c).

11.X.5 Minimalist Transitioning Approach in Queensland

In respect of entities operating under the Minimalist Transitioning Approach in Queensland, 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* that in accordance with the *Market Settlement and Transfer Solution Procedures*:

- (1) has a NMI classification of SMALL; and
- (2) where the *Local Network Service Provider* has not received a valid request from a *Market Customer* for the *NMI* to be registered with *NEMMCO*.

11.X.6 Metrology procedure

- (a) *NEMMCO* must make the required amendments to the *metrology procedure* as a result of the Amending Rule by 30 June 2008.
- (b) Any action taken by *NEMMCO* prior to the commencement date to amend the *metrology procedure* for the purposes of paragraph (a) is taken to satisfy the equivalent action under clause 7.14.4 of the *Rules*.

END OF DRAFT RULE