

Market Operations Rule (NSW Rules for Electricity Metering) No. 3 of 2001

1 Name and commencement

This Rule is the Market Operations Rule (NSW Rules for Electricity Metering) No. 3 of 2001 and commences on 1 January 2002.

2 Objects of the Rule

- 2.1 Electricity metering for the purposes of wholesale market settlement is regulated by the *National Electricity Code* or the *Metrology Procedure*.
- 2.2 The purpose of this Rule is to regulate electricity metering to the extent not regulated by the *National Electricity Code* or the *Metrology Procedure*.

3 Application of the Rule

This Rule applies to:

- (a) All *Local Network Service Providers* (“*LNSPs*”) licensed in New South Wales;
- (b) All *Retailers* licensed in New South Wales; and
- (c) All *Accredited Service Providers* (“*ASPs*”) in New South Wales.

4 Power to make Rule

This Rule is made under section 63C of *The Act*.

5 Operation of Rule

- 5.1 Where under this Rule, an *LNSP* is required to give notice or information to a *customer*, the *LNSP* may give such notice or information to the *customer’s Retailer* if the *Retailer* and *LNSP* have made arrangements to this effect under the *Market Operations (Arranged Connection Services) Rule*.
- 5.2 Nothing in this Rule enables an *LNSP* to require payments of any costs by a *customer* to the extent to which the *customer* is liable to pay a *Retailer* for such costs in accordance with the *Electricity Supply (General) Regulation 2001* and the *Market Operations (Arranged Connection Services) Rule*.

6 Meter Provision – General requirements for first and second tier metering

6.1 Location of metering equipment

6.1.1 An *LNSP*, *Responsible Person* or *ASP* must install new *metering equipment* at a location as set out in reference 1.5 in Schedule 1 of the *Metrology Procedure*.

6.1.2 The new *metering equipment* installed under clause 6.1.1 must be installed in compliance with the Service and Installation Rules operating in the relevant *LNSP* area.

6.1.3 The new *metering equipment* installed under clause 6.1.2 must be installed in a position which is readily accessible to any person whose obligation it is to test, adjust, maintain, repair, replace or collect *metering data* from the *metering equipment*.

6.2 Minimum standards for metering equipment

6.2.1 Changing tariffs

If an *LNSP* or *Retailer* wants to introduce a new distribution or retail tariff or change an existing distribution or retail tariff which requires new or different *metering equipment* to be operated in a different manner, the *LNSP* or the *Retailer* must seek agreement with the *LNSP* or the *Responsible Person* (as the case may be) prior to the introduction of the new tariff or change to an existing tariff.

6.2.2 Switching and time keeping

Where tariffs for the sale of electricity to a *customer* in respect of an *electrical installation* are based on different rates according to the time of day, the *metering equipment* must:

- (a) for *interval metering equipment*, meet the requirements of reference 4.8 of Schedule 1 of the *Metrology Procedure*; and
- (b) include an internal or external clock complying with AS 1284.7; or
- (c) have a clock which is automatically adjusted on each occasion it is accessed electronically, and effectively remain within the time-keeping standards imposed by AS 1284.7; or
- (d) be controlled by a frequency injection system operated by the *LNSP*.

6.2.3 *Metering equipment* which has been installed, or held in stock for the *LNSP*, prior to the effective date of these Rules is deemed to meet the requirements of these Rules.

6.2.4 For the avoidance of doubt, *second tier metering equipment* must meet the requirements of the *NEC* and relevant *Metrology Procedure*.

6.3 Sealing

6.3.1 Seals

6.3.1.1 The *LNSP* or the *Responsible Person* must ensure the *metering equipment* is secure and that associated links, circuits and information storage are secured by means of seals or other devices approved by the *LNSP* or by *NEMMCO*, respectively.

6.3.1.2 The *LNSP* or the *Responsible Person* must:

- (a) in respect of new *metering equipment* provide seals or other appropriate devices to detect such interference; and
- (b) maintain a register of all relevant security fitting tools and seals.

6.3.2 Broken seals

6.3.2.1 The *LNSP* or the *Responsible Person* must replace a broken seal on the first occasion the *metering equipment* is visited to take a reading after receiving notification that a seal has been broken, or within 100 days, whichever is the earlier.

6.3.2.2 The costs of replacing seals which are broken are to be borne:

- (a) if the seal was broken by the *customer*;
- (b) if the seal was broken by the *Retailer*, by the *Retailer*; or
- (c) otherwise:
 - (1) in respect of a *first tier customer*, by the *LNSP*; and
 - (2) in respect of a *second tier customer* by the *Responsible Person*.

6.3.2.3 If it appears that, as a result of, or in connection with, the breaking of a seal, the relevant *metering equipment* may no longer meet the relevant *minimum standards*, then the *LNSP* or the *Responsible Person* (as the case may be) must test the *metering equipment* in accordance with clause 6.4 or replace as per clause 6.5.

6.4 Field testing (requested by a customer)

6.4.1 Obligation to field test

6.4.1.1 Subject to clause 6.4.1.2 an *LNSP* or a *Responsible Person* (as the case may be) must within 15 *business days* of a request from a *customer* or a *Retailer* on behalf of a *customer*, test *metering equipment* or any part thereof which has been installed to measure and record the amount of electricity supplied to an *electrical installation* of the *customer* to ascertain whether or not the *metering equipment* is *defective*.

6.4.1.2 The *LNSP* or the *Responsible Person* may, if it wishes, extend the 15 *business days* time limit if malfunction of the *metering* equipment was the result of a declared natural disaster or if clause 6.4.7(c) applies.

6.4.2 Method of field testing

6.4.2.1 An *LNSP* or a *Responsible Person* must test *metering equipment* under clause 6.4.1 by:

- (a) measuring the error of the *metering equipment* by the use of test equipment, the calibration of which is traceable to the Australian National Standards maintained by the CSIRO National Laboratory as required by the National Measurement Act 1960; or
- (b) by installing, for a period of not less than 7 days, *check metering equipment* of similar or higher accuracy class which has been specially calibrated prior to conducting the field test using equipment whose current calibration is traceable to the Australian National Standards maintained by the CSIRO National Measurement Laboratory as required by the National Measurement Act 1960.

6.4.2.2 The accuracy of *metering equipment* tested under this clause 6.4.2 must:

- (a) for *electrical installations* with consumption of greater than 750 MWh per annum:
 - (1) for *first tier customers*, be in accordance with clause 7.2.4 and with a maximum allowable level of testing uncertainty as set out in table 1 in clause 7.4.6; and
 - (2) for *second tier customers*, be in accordance with the *NEC*;
- (b) for *electrical installations* with consumption of less than 750 MWh per annum:
 - (1) for *first tier customers*, be in accordance with clause 7.2.4 and with a maximum allowable level of testing uncertainty as set out in table 1 in clause 7.4.6; and
 - (2) for *second tier customers*, be in accordance with the *Metrology Procedure*,and *active energy meters* must be tested at three (3) currents in accordance with clause 6.4.4; and
- (c) for *reactive energy meter* measurements, not exceed 3% with a maximum allowable level of testing uncertainty as set out in table 1 in clause 7.4.6.

6.4.3 Unmetered loads

An *LNSP* or a *Responsible Person* must conduct tests in respect of unmetered loads in accordance with clause 3.9.6 to 3.9.11 (inclusive) of the *Metrology Procedure*. For the purposes of this clause, all references in the *Metrology Procedure* to:

- (a) a Code Participant are references to a *customer*;
- (b) a *Responsible Person* are references to an *LNSP* or a *Responsible Person*; and
- (c) a type 7 *metering installation* are references to an unmetered load.

6.4.4 Active energy meters

Unless otherwise agreed by a *customer* and an *LNSP* or a *Responsible Person* (as the case may be), installed *active energy meters* must be tested by the *LNSP* or the *Responsible Person* (as the case may be) at three (3) currents as follows:

- (a) if the installed *active energy meter* is nominally compliant to AS 1284.1 or AS 1284.5, testing must be carried out at 100% and 10% of *basic current*, unity power factor and 100% of *basic current*, 0.5 power factor; or
- (b) if the installed *active energy meter* is nominally compliant to IEC 1036 or AS 1284.9, testing must be carried out at 100% and 10% of *rated current*, unity power factor and 100% of *rated current*, 0.5 power factor.

6.4.5 Current injection

If a test carried out under this clause 6.4 requires the injection of current, an *LNSP* or a *Responsible Person* (as the case may be) must inspect the records stored in the *metering equipment* and alter the *metering data* to ensure that no amount is payable by the relevant *customer* in respect of electricity consumed during the test. If a test carried out under this clause 6.4 is based on actual *customer loads*, no adjustment is required under this clause 6.4.5.

6.4.6 Costs

- (a) Subject to clause 6.4.6(b), costs incurred by an *LNSP* or a *Responsible Person* (as the case may be) of testing *metering equipment* under this clause 6.4, including the cost of replacing any seal used to protect the *metering equipment* broken by the *LNSP* or the *Responsible Person* to allow the test to be carried out, are to be paid:
 - (1) by the *customer* in accordance with the *Electricity Supply General (Regulation) 2001*, if a test is requested by the *customer* and demonstrates that the *metering equipment* is not defective;

- (2) by the *LNSP*, if a test is requested by the *LNSP* and demonstrates that the *metering equipment* is not *defective*;
 - (3) by the *Retailer*, if a test is requested by the *Retailer* and demonstrates that the *metering equipment* is not *defective*; and
 - (4) otherwise:
 - by the *LNSP*, in respect of a *first tier customer*; or
 - by the *Responsible Person*, in respect of a *second tier customer*.
- (b) For tests conducted following a request from a *customer* or a *Retailer* on behalf of a *customer*, an *LNSP* or a *Responsible Person* (as the case may be) may seek payment of the anticipated costs of testing *metering equipment* prior to the commencement of testing, but if the *metering equipment* fails to meet the accuracy standards prescribed under clause 6.4.2.2 or clause 6.4.3, the *LNSP* or the *Responsible Person* (as the case may be) must refund the payment made by the *customer*, or a *Retailer* on behalf of a *customer*, within 5 *business days* of completion of the test.

6.4.7 Notice, presence and records

- (a) An *LNSP* or a *Responsible Person* (as the case may be) must give a *customer* 5 *business days* written notice (or such lesser period nominated by the *customer*) of when and where a test of *metering equipment* under clause 6.4.1 is to be carried out and what method of testing under clause 6.4.2 is to be adopted.
- (b) A *customer* is entitled to be present when a test of *metering equipment* is carried out under clause 6.4.1.
- (c) If the requirement under clause 6.4.1 that testing be carried out within 15 *business days* of receiving a request from a *customer* would prevent the *customer* from being present when the test is carried out, then the *LNSP* or *Responsible Person* (as the case may be) and the *customer* may agree a mutually convenient time to conduct the test.
- (d) An *LNSP* or a *Responsible Person* (as the case may be) must keep records of tests under this clause 6.4 for 7 years.
- (e) An *LNSP* or a *Responsible Person* (as the case may be) must provide copies of the results of any testing of *metering equipment* to the *customer* on request.
- (f) Where an *LNSP* ceases to be responsible for a *customer's* *metering equipment* or a *Responsible Person* changes in respect of *metering equipment*, the outgoing *LNSP* or *Responsible Person* (as the case may be) must provide the test records in respect of the *metering equipment* to

the incoming *LNSP* or *Responsible Person* (as the case may be) who is responsible for the *metering equipment*, on request, within a reasonable time of the request.

6.5 Defective metering equipment

6.5.1 Repair or replace

If the test under clause 6.4 demonstrates that any *metering equipment* is *defective*, an *LNSP* or a *Responsible Person* (as the case may be) must as soon as possible but no later than 10 *business days* after the test:

- (a) repair the *metering equipment* so that it meets the *minimum standards* of accuracy required under the applicable provisions of the *NEC*, the *Metrology Procedure* and this Market Operations Rule; or
- (b) replace the *metering equipment* by installing new *metering equipment*.

6.5.2 Costs

The *LNSP* or the *Responsible Person* (as the case may be) must bear the cost of repairing or replacing *metering equipment* unless a request is made by a *first tier customer*, or a *Retailer* on behalf of a *first tier customer*, to the *LNSP* under clause 7.1.1(d), in which case the cost of replacing *metering equipment* is to be borne as contemplated in clause 7.1.1(d).

7 Meter Provision – Additional requirements for first tier customers

7.1 Installation

7.1.1 Obligation to provide

- (a) Subject to clauses 7.1.1(b), 7.1.1(d), 7.1.1(i) and 7.1.1(k), if a first tier customer or a Retailer on behalf of a first tier customer requests a supply of electricity to the electrical installation of the first tier customer from an LNSP, the LNSP must provide, install, commission, test and maintain metering equipment to measure and record the amounts of electricity supplied to the first tier customer's electrical installation.
- (b) Where an *ASP* is engaged to install *metering equipment* under clause 7.1.1(a), the *LNSP* must provide the *metering equipment* to the *ASP*.
- (c) Subject to clauses 7.1.1(k) and 7.1.2, an *LNSP* must on request from a *first tier customer* or a *Retailer* on behalf of a *first tier customer* provide:
 - (1) where the electricity flowing through the *metering point* is less than 160 MWh per annum either *accumulation metering equipment* or *interval metering equipment*; and
 - (2) where the electricity flowing through the *metering point* is greater than or equal to 160 MWh per annum, *interval metering equipment*.
- (d) Subject to clause 7.1.1(e), if a *first tier customer*, or a *Retailer* on behalf of a *first tier customer*, requests an *LNSP* to provide a type of *metering equipment* which is different from the type the *LNSP* otherwise would provide, the *first tier customer*, or a *Retailer* on behalf of a *first tier customer*, must bear any costs incurred by the *LNSP* and/or *ASP* providing and installing that new *metering equipment* in excess of those which the *LNSP* and/or *ASP* would have incurred in providing and installing the other type of new *metering equipment*.
- (e) An *LNSP* and/or *ASP* must inform a *first tier customer* of the extra cost of providing and installing different *metering equipment* under clause 7.1.1(d) and the *first tier customer*, or a *Retailer* on behalf of a *first tier customer*, must consent to pay that cost and the costs incurred in accordance with clause 10.9.2 before the *metering equipment* is installed by the *LNSP* and/or *ASP*.
- (f) Where a *first tier customer*, or a *Retailer* on behalf of a *first tier customer*, requests an *LNSP* and/or *ASP* to provide and install *interval metering equipment* in accordance with clause 7.1.1(c), the *LNSP* and/or *ASP* must use its *reasonable endeavours* to provide and install *interval metering equipment* within 20 *business days* of receiving a *written*

request to do so from the *first tier customer*, or the *Retailer* on behalf of the *first tier customer*.

- (g) Subject to clauses 7.1.1(h), 7.1.1(i) and 7.1.1(k), if the distribution or retail tariff payable for the *supply* of electricity in respect of an *electrical installation* of a *first tier customer* changes and the change renders the relevant existing *metering equipment* incapable of appropriately measuring and recording the amount of electricity *supplied* to that *electrical installation*, an *LNSP* must provide and install new *metering equipment* to appropriately measure and record the amount of electricity *supplied* to the *first tier customer's electrical installation*.
- (h) Subject to clause 7.1.1(l), the cost of providing and installing new *metering equipment* under clause 7.1.1(g) shall be paid:
 - (1) for installation resulting from a change in the distribution tariff, by the *first tier customer*; and
 - (2) for installation resulting from a change to the retail tariff, by the *Retailer*.
- (i) Subject to clause 7.1.1(j) if the cost of installing, testing and maintaining new *metering equipment* to measure and record the amount of electricity *supplied* to an *electrical installation* of a *first tier customer* is likely, in the reasonable opinion of the *LNSP*, to exceed the amounts to be paid for the *supply* and sale of electricity to the *first tier customer* in respect of the *electrical installation*, the *LNSP* and the *first tier customer* may agree that electricity *supplied* is to be treated as an unmetered *load*, in which case the amount of electricity *supplied* must be the amount determined in accordance with clause 10.4.
- (j) The *supply* of electricity between the *LNSP* and the *first tier customer* under clause 7.1.1(i) may only be treated as an unmetered *load* where the unmetered *load* is published by the *Metrology Coordinator* in its list of agreed market *loads* under clause 1.1(d) of Schedule 11 of the *Metrology Procedure*.
- (k) An *LNSP* must provide and install *interval metering equipment* (sample meter) to meter *controlled loads* for the purposes of calculating the *Controlled Load Profile*, where required to do so in accordance with clause 12.
- (l) The cost of providing and installing new *metering equipment* under clause 7.1.1(k) shall be borne by the *LNSP*.
- (m) For the purposes of clause 7.1.1(c), the volume threshold for a *metering point* must be determined from the annual consumption for the billing periods over the most recent 12 month period, or prorated over a 12 month period based on the *Average Daily Load* where consumption over the most recent 12 month period is not available. Where no

consumption energy data is available, the annual consumption may be estimated based on an engineering report or *consumption energy data* from the loads of similar customers. *Connection points* may not be aggregated for the purposes of determining the annual consumption.

7.1.2 Non-reversion

- (a) An *LNSP* must ensure that *interval metering equipment* is not replaced by *accumulation metering equipment*.
- (b) An *LNSP* must ensure that a *meter*, which is a sample *interval meter* installed under clause 7.1.1(k) for the purposes of calculating the *Controlled Load Profile*, is not removed without the consent of the *LNSP*.

7.2 Minimum standards for metering equipment

7.2.1 National metering identifier

An *LNSP* must issue a unique *NMI* for each new *metering installation* of a *first tier customer* within its *local area*. The *LNSP* must register the *NMI* with *NEMMCO* in accordance with procedures from time to time specified by *NEMMCO*.

7.2.2 New metering equipment

- (a) A *meter* and a *data logger* (where required) must be mounted on an appropriately constructed panel in accordance with clause 7.3.1(b)(4) of the *NEC*.
- (b) An *LNSP* or *ASP* (as the case may be) must ensure that the design of the new *metering equipment* incorporates the requirements set out in Schedule S7.2.6.1(c), (d), (e) and (h) of the *NEC*.
- (c) An *LNSP* or *ASP* (as the case may be) must ensure that when *metering equipment* is installed, it is checked in accordance with clause 2.5(c) of the *Metrology Procedure*.

7.2.3 Type of metering equipment

- (a) Any type of new *metering equipment* adopted by an *LNSP* must have National Standards Commission pattern approval from an accredited laboratory recognised under the International Certification Scheme in accordance with specifications or guidelines (including transitional arrangements) specified by the National Standards Commission under the National Measurement Act 1960 (Cth). Where National Standards Commission pattern approval is not required to be provided by the National Standards Commission, new *metering equipment* must be type tested by a National Association of Testing Authorities accredited laboratory or overseas equivalent to AS 1284.

- (b) An *LNSP* must keep records of tests conducted in accordance with clause 7.2.3(a) while *meters* of that type remain in service, or for 7 years, whichever is the longer period.
- (c) *Metering equipment* of a type in service in New South Wales on the *effective date* will be deemed to comply with the requirements of clause 7.2.3(a).
- (d) Modifications to existing *metering equipment* must be assessed by the *LNSP* to determine whether the modified design continues to meet the *minimum standards*. If the *LNSP* has reasonable grounds to believe that the modifications will affect the measuring capability of the *metering equipment*, the *metering equipment* must be resubmitted for pattern approval or type testing (as the case may be) in accordance with clause 7.2.3(a).

7.2.4 Minimum standards of accuracy for new metering equipment

- (a) The *minimum standards* of accuracy for new *accumulation metering equipment* are as follows:
 - (1) for *electrical installations* with consumption of less than 100 GWh per annum:
 - the *active energy meter*, in accordance with Schedule S7.2.6.1(f) of the *NEC* and the accuracy of the *active energy meter* must be in accordance with class 1.5 for *general purpose* watt hour *meters* set out in AS 1284 or in accordance with class 1.0 as set out in AS 1284 or IEC 1036;
 - the *current transformer* (if applicable), in accordance with Schedule S7.2.2(e) and S7.2.6.1(g) of the *NEC* and accuracy in accordance with class 0.5;
 - the *voltage transformer* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 3 *metering installations*; and
 - the *reactive energy meter* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 3 *metering installations*. The *reactive energy meter* may be combined within the same case as the *active energy meter* and may share common measurement and processing facilities.
 - (2) for *electrical installations* with consumption of equal to or greater than 100 GWh per annum and equal to or less than 1000 GWh per annum:

- the *active energy meter*, in accordance with table S7.2.3.1 of the *NEC* for type 2 *metering installations*;
 - the *current transformer* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 2 *metering installations*;
 - the *voltage transformer* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 2 *metering installations*; and
 - the *reactive energy meter* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 2 *metering installations*. The *reactive energy meter* may be combined within the same case as the *active energy meter* and may share common measurement and processing facilities.
- (3) for *electrical installations* with consumption of greater than 1000 GWh per annum:
- the *active energy meter*, in accordance with table S7.2.3.1 of the *NEC* in respect of type 1 *metering installations* (including note 1 to the table);
 - the *current transformer* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 1 *metering installations*;
 - the *voltage transformer* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 1 *metering installations*; and
 - the *reactive energy meter* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 1 *metering installations*. The *reactive energy meter* may be combined within the same case as the *active energy meter* and may share common measurement and processing facilities.
- (b) The *minimum standards* of accuracy for new *interval metering equipment* are as follows:
- (1) for *electrical installations* with consumption of less than 100GWh per annum:
- the *active energy meter*, in accordance with Schedule 1 of the *Metrology Procedure*, references 3.1 and 3.2;
 - the *current transformer* (if applicable), in accordance with Schedule 1 of the *Metrology Procedure*, references 2.1 and 2.2;

- the *voltage transformer* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 3 *metering installations*; and
 - the *reactive energy meter* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 3 *metering installations*. The *reactive energy meter* may be combined within the same case as the *active energy meter*, and measure, measurement, and processing facilities.
- (2) for *electrical installations* with consumption of equal to or greater than 100 GWh per annum and equal to or less than 1000 GWh per annum:
- the *active energy meter*, in accordance with table S7.2.3.1 of the *NEC* in respect of type 2 *metering installations*;
 - the *current transformer* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 2 *metering installations*;
 - the *voltage transformer* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 2 *metering installations*; and
 - the *reactive energy meter* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 2 *metering installations*. The *reactive energy meter* may be combined within the same case as the *active energy meter* and may share common measurement and processing facilities.
- (3) for *electrical installations* with consumption of greater than 1000 GWh per annum:
- the *active energy meter*, in accordance with table S7.2.3.1 of the *NEC* in respect of type 1 *metering installations* (including note 1 to the table);
 - the *current transformer* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 1 *metering installations*;
 - the *voltage transformer* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 1 *metering installations*; and
 - the *reactive energy meter* (if applicable), in accordance with table S7.2.3.1 of the *NEC* in respect of type 1 *metering installations*. The *reactive energy meter* may be combined within the same case as the *active energy meter* and may share common measurement and processing facilities.

7.2.5 Minimum standards of accuracy for new metering equipment for non-market generators

- (a) *Metering equipment for non-market generators* must comply with the *minimum standards* of accuracy for new *metering equipment* for electrical installations with consumption of less than 100GWh per annum, in accordance with clause 7.2.4(a)(1) or clause 7.2.4(b)(1);
- (b) *Metering equipment for non-market generators* greater than 1 MW must have the capacity to measure *active energy* and *reactive energy*;
- (c) An *LNSP* may require the *metering equipment for non-market generators* less than 1 MW to have *reactive energy* metering taking into account the size of the generator, its proposed role and its location in the network;
- (d) *Metering equipment for non-market generators* must have the capacity to measure positive and negative flows separately; and
- (e) Where tariffs for the purchase of electricity from the *non-market generator* are based on different rates according to the time of day, *interval metering equipment* must be installed.

7.2.6 Display, settings and suitability of metering equipment

The display, settings and suitability of *metering equipment* must comply with clause 7.3.1(a)(1), and Schedules S7.2.5 and S7.4.1(e) of the *NEC*.

7.2.7 Storage of records and data loggers

- (a) *Accumulation metering equipment* must be able to store internally records of the amount of electricity *supplied* to a *first tier customer's electrical installation* for at least as long as the intervals between the rendering of bills to the *first tier customer* by its *LNSP* and its *Retailer* (as the case may be).
- (b) Subject to clause 7.2.7(e), for *interval metering equipment*, the *data logger* must have the capability of storing *energy data*:
 - (1) for *electrical installations* without communications for remote reading of data, in accordance with reference 4.9 of Schedule 1 of the *Metrology Procedure*; and
 - (2) for *electrical installations* with communications for remote reading of data, in accordance with clauses 7.3.1(a)(9), (10) and (11) of the *NEC*.
- (c) For *interval metering equipment*, *data logger* clock error is:
 - (1) for *electrical installations* with consumption of less than 750 MWh per annum, in accordance with reference 4.8 of Schedule 1 of the *Metrology Procedure*; and

- (2) for *electrical installations* with consumption of greater than 750 MWh per annum, in accordance with table S7.2.3.1 of the *NEC*.
- (d) Subject to clause 7.2.7(e), *interval metering equipment* must be equipped in accordance with references 4.11 and 4.12 of Schedule 1 of the *Metrology Procedure*. For the purposes of this clause a reference to a *Metrology Coordinator* in the *Metrology Procedure* is a reference to *IPART*.
- (e) *Metering equipment* which has been installed, or which was held in stock for the *LNSP* prior to the *effective date* which does not meet the requirements set out in this clause 7.2.7(b) and (d) may be used where approved by *IPART*.

7.3 Installation testing of metering equipment

7.3.1 Accuracy test

- (a) An *LNSP* must carry out, or cause to be carried out, an accuracy test to ascertain whether new *metering equipment* meets the relevant *minimum standards* either:
 - (1) prior to installation, on each individual *active energy meter*, *reactive energy meter*, *current transformer* and *voltage transformer*; or
 - (2) at the time of commissioning, on the installed *metering equipment*.
- (b) The test carried out under clause 7.3.1(a):
 - (1) must comply with the requirements set out in Schedules S7.3.1(b) and S7.3.2(b), (c), (d) and (f) of the *NEC*; and
 - (2) must take into account the currents and power factors under which the *metering equipment* will operate in practice, and must take into account *lightly loaded* and *heavily loaded* conditions.
- (c) If a test carried out under clause 7.3.1(a) demonstrates that the new *metering equipment* does not meet the relevant *minimum standards*, an *LNSP* must not install the new *metering equipment*, or if the new *metering equipment* has been installed, the *LNSP* must replace all non compliant new *metering equipment*.

7.3.2 Records

An *LNSP* must keep records of the test of the new *metering equipment* under clause 7.3.1 while *metering equipment* of that type remains in service, or for 7 years, whichever is the longer period.

7.4 Accuracy assurance

7.4.1 Accuracy tests

An *LNSP* must ensure that *metering equipment* is tested to ensure that it meets the minimum accuracy requirements set out in clause 7.3.1.

7.4.2 Maintenance plan

An *LNSP* must establish a maintenance plan for *metering equipment* for which it is responsible. The plan must take account of factors, including but not necessarily limited to:

- (a) The size of *first tier customer load* metered;
- (b) The age of the installed *meters*; and
- (c) The quantity and distribution of the installed *meters*.

7.4.3 Testing of direct connected meters

- (a) Subject to clause 7.4.3(b), an *LNSP* must ensure that a whole-current *meter (direct connected meter)* is tested in accordance with clauses 2.4.4 and 2.4.6 to 2.4.11 (inclusive) of the *Metrology Procedure*. For the purposes of this clause all references in the *Metrology Procedure* to:
 - (1) a *Responsible Person* are references to an *LNSP*; and
 - (2) a type 5 *metering installation* are references to *interval metering equipment*.
- (b) When the *Australian Standard* “AS 1284 Part 13 In-service compliance testing” has been published, that standard will replace clauses 2.4.4 and 2.4.6 to 2.4.11 (inclusive) of the *Metrology Procedure* for the purposes of clause 7.4.3(a).

7.4.4 Testing of transformer connected meters

- (a) The testing of transformer connected *meters* is to be carried out as per this clause, or in accordance with an asset management strategy that defines an alternative testing practice (ie other than time-based) determined by the *LNSP* and approved by *NEMMCO* for that *LNSP* for *second tier metering*.
- (b) The testing of transformer connected *meters* is to be carried out with a test plan, to the same requirements as for new equipment where equipment is to be recycled for use in another site, and so as to include all data storage and processing components included in these Rules.

- (c) Subject to clause 7.4.5, an *LNSP* must ensure that a transformer connected *meter* is tested:
 - (1) where the *meter* is an electronic type, by a full range *meter* accuracy test using a current injection method or other testing procedure approved by *IPART*, conducted at least once in every 5 year period;
 - (2) where the *meter* is an induction type, by a full range *meter* accuracy test using a current injection method or other testing procedure approved by *IPART*, conducted:
 - at least once in every 5 year period, if annual consumption is less than 100 GWh per annum; and
 - at least once in every 2.5 year period, if annual consumption is equal to or greater than 100 GWh per annum.
- (d) An *LNSP* must ensure that burden tests are carried out when *meters* are tested or when changes are made.

7.4.5 Testing of instrument transformers

- (a) The testing of instrument transformers is to be carried out as per this clause, or in accordance with an asset management strategy that defines an alternative testing practice (ie other than time-based) determined by the *LNSP* and approved by *NEMMCO* for that *LNSP* for *second tier metering*.
- (b) The testing of instrument transformers is to be carried out with a test plan, to the same requirements as for new equipment where equipment is to be recycled for use in another site, and so as to include all data storage and processing components included in these Rules.
- (c) An *LNSP* must ensure that a *CT* and a *VT* is tested using a primary injection test or other testing procedure approved by *IPART* at least once in any 10 year period.

7.4.6 Maximum allowable level of testing uncertainty

The maximum level of testing uncertainty allowed in respect of sampling testing carried out under clause 6.4 or under this clause 7.4 is set out in table 1:

Table 1

Description		Annual Consumption (x) per annum			
		x ≤ 160 MWh	x > 160 MWh x < 100 GWh	x ≥ 100 GWh x ≤ 1000 GWh	x > 1000 GWh
In Laboratory	CTs/VTs	0.1%	0.1%	0.1%	0.05%
	Meter Whs	0.3/cosφ%	0.2/cosφ%	0.1/cosφ%	0.05/cosφ%
	Meters varhs	0.5/sin φ%	0.4/sin φ%	0.3/sin φ%	0.2/sin φ%
In Field	CTs/VTs	0.2%	0.2%	0.2%	0.1%
	Meter Whs	0.3/cosφ%	0.3/cosφ%	0.2/cosφ%	0.1/cosφ%
	Meters varhs	0.5/sin φ%	0.5/sin φ%	0.4/sin φ%	0.3/sin φ%

Note: For sinφ and cosφ refer to ISO “Guide to the Expression of Uncertainty in Measurement”, where cosφ is the power factor.

7.4.7 Inspections

The *metering equipment* shall be inspected as set out in the table 2:

Table 2

Description	Annual Consumption (x) per annum in GWh			
	x < 2	2 ≤ x < 10	10 ≤ x < 100	x ≥ 100
<i>Metering equipment inspection</i>	When <i>meter</i> is tested.	3 years	2 years	12 months (2.5 years if <i>check metering installed</i>)

Note: A typical inspection may include: check the seals, compare the pulse counts, compare the direct readings of *meters*, verify *meter* parameters and physical connection, *current transformer* ratios by comparison.

7.4.8 Accuracy assurance of unmetered loads

An *LNSP* must validate unmetered *loads* in accordance with clauses 3.8.4 to 3.8.7 (inclusive) of the *Metrology Procedure*. For the purposes of this clause a reference in the *Metrology Procedure* to:

- (a) a *Responsible Person* is a reference to an *LNSP*;
- (b) a type 7 *metering installation* is a reference to an unmetered *load*;
- (c) the *Metrology Coordinator* is a reference to *IPART*; and
- (d) affected Code Participants is a reference to affected parties.

7.5 Repair or replacement of metering equipment

If a test carried out under clause 7.4 demonstrates that any *metering equipment* is *defective*, the *LNSP* must as soon as possible but no later than 10 *business days* after becoming aware of the defect or otherwise as agreed between the *first tier customer* and the *LNSP*:

- (a) repair the *metering equipment* so that it meets the *minimum standards* of accuracy which it was designed to meet; or
- (b) replace the *metering equipment* by installing new *metering equipment* in accordance with clause 7.1.1.

8 Meter Provision – Additional requirements for second tier customers

EXPLANATORY NOTE: Clause 8 imposes obligations on a *Responsible Person* which are additional to the installation obligations imposed on the *Responsible Person* under the *NEC* and the *Metrology Procedure*.

8.1 Installation

8.1.1 Particular requirements

- (a) Subject to clause 8.1.1(b), if the distribution or retail tariff payable for the sale of electricity in respect of a *second tier customer* requires particular *metering equipment*, a *Responsible Person* must provide, install, commission, test and maintain such *metering equipment*.
- (b) Where an *ASP* is engaged to install the *metering equipment* under clause 8.1.1(a), the *Responsible Person* must provide the *metering equipment* to the *ASP*.
- (c) The costs incurred under clause 8.1.1 (a) shall be paid:
 - (1) for installation resulting from a change to the distribution tariff, by the *second tier customer*; and
 - (2) for installation resulting from a change to the retail tariff, by the *Retailer*.

8.1.2 Minimum standards for metering equipment

- (a) A *Responsible Person* must keep records of type tests and pattern approvals carried out or obtained in accordance with Schedule S7.3.1(a) of the *NEC* while meters of that type are in service or for 7 years, whichever is the longer period.
- (b) The *minimum standards* of accuracy for *reactive energy meters* (if applicable), are as follows:
 - (1) for *interval metering equipment* for *electrical installations* with consumption of greater than 750 MWh per annum, as set out in table S7.2.3.1 of the *NEC*;
 - (2) for *accumulation metering equipment* for *electrical installations* with consumption of greater than 750MWh per annum, as set out in clause 7.2.4; and
 - (3) for *electrical installations* with consumption of less than 750 MWh per annum, in accordance with clause 7.2.4.
- (c) The *minimum standards* of accuracy for *non-market generators* are in accordance with clause 7.2.5

9 Metering Data Services – General requirements for first and second tier customer metering

9.1 Meter reading for customer transfer

9.1.1 On request by a *Retailer*, an *LNSP* or a *Responsible Person* (as the case may be) must use *reasonable endeavours* to carry out a *special meter read* to enable the transfer of a *customer* to that *Retailer* within three (3) business days of the request, or within a reasonable time of the request where good cause can be shown that three (3) business days can not be met.

9.1.2 On request by a *Retailer*, and where permitted by any relevant transfer rules or jurisdictional instruments, an *LNSP* or a *Responsible Person* (as the case may be) must use *reasonable endeavours* to carry out an *estimated read* to enable the transfer of a *customer* to that *Retailer* within two (2) business days of the request.

9.2 Information

9.2.1 Access to data

- (a) A *customer* is entitled to access data stored in *metering equipment* used to measure and record the amount of electricity *supplied* to its *electrical installation*, either by inspecting the *metering equipment* or, where available, by electronic access to the *metering equipment*.
- (b) Subject to clause 9.2.1(c), an *LNSP* or a *Responsible Person* (as the case may be) must, on written request from a *customer* or a *Retailer* on behalf of a *customer*, provide facilities to enable the *customer* to electronically access data stored in *metering equipment*, where electronic data is available, provided by the *LNSP* or the *Responsible Person*.
- (c) A *customer* who accesses data stored in *metering equipment* by remote electronic means must compensate the *LNSP* or the *Responsible Person* (as the case may be), for any cost incurred by the latter as a result of that access.
- (d) Where an *LNSP* or a *Responsible Person* has provided facilities to enable the *customer* to electronically access data stored in *metering equipment*, if remote electronic access to *metering equipment* is unavailable for a period of five consecutive *business days* due to the actions within the control of the *LNSP* or the *Responsible Person* (as the case may be), the *LNSP* or the *Responsible Person* must, if requested by the *customer* or a *Retailer* on behalf of a *customer*, obtain data locally from the *metering equipment* and provide that data to the *customer* at the *LNSP's* or the *Responsible Person's* cost.

- (e) Subject to clause 9.2.1(f), an *LNSP* or a *Responsible Person* (as the case may be) must, on request from a *customer* or a *customer's Retailer*, provide the *customer* with access to the *energy data* and the *metering data* in respect of the *metering equipment* which measures and records the amount of electricity supplied to the *electrical installation* of the *customer*.
- (f) An *LNSP* or a *Responsible Person* (as the case may be) may charge a *customer* in accordance with the *Electricity Supply (General) Regulation 2001* for the provision of *energy data* and *metering data* under clause 9.2.1(e).

9.2.2 Confidentiality

- (a) An *LNSP*, a *Responsible Person* and a *Retailer* must keep *metering data* confidential and use *reasonable endeavours* to protect and preserve the confidential nature of the *metering data*.
- (b) An *LNSP*, a *Responsible Person* and a *Retailer*:
 - (1) must not disclose a *customer's metering data* to any person except as permitted by this Market Operations Rule, the *Electricity Supply (General) Regulation 2001*, the *NEC* or the *Metrology Procedure*;
 - (2) must only use or reproduce a *customer's metering data* for the purpose for which it was collected under this Market Operations Rule or another purpose contemplated by any other code under *The Act*, *Electricity Supply (General) Regulation 2001*, the *NEC* or the *Metrology Procedure*;
 - (3) must not disclose or provide access to a *customer's metering data* to any person without the written consent of the *customer*; and
 - (4) must ensure that the *metering data* and other information obtained from a *customer* is treated in accordance with the consent of the *customer*.
- (c) This clause 9.2.2 does not prevent:
 - (1) the disclosure, use or reproduction of *metering data* if the *metering data* is at the time generally and publicly available otherwise than as a result of breach of confidence by an *LNSP*, a *Responsible Person* or a *Retailer* or its *disclosees*;
 - (2) the disclosure of *metering data* by an *LNSP*, a *Responsible Person* or a *Retailer* or its *disclosees* to:
 - its employees or the employees of its *related bodies corporate*; or

- its legal or other professional advisor, auditor or other consultant, requiring the *metering data* for the purposes of this Market Operations Rule or any other code under *The Act* or for the purpose of advising the *LNSP*, the *Responsible Person* or the *Retailer* or *disclosee* (as the case may be) in relation to those purposes;
 - (3) the disclosure, use or reproduction of *metering data* with the written consent of the relevant *customer*;
 - (4) the disclosure, use or reproduction of *metering data* to the extent required by law or by lawful requirement of:
 - any government or governmental body, authority or agency having jurisdiction over an *LNSP*, a *Responsible Person* or a *Retailer* or its *related bodies corporate*;
 - any stock exchange having jurisdiction over an *LNSP*, a *Responsible Person* or a *Retailer* or its *related bodies corporate*; or
 - *IPART*.
 - (5) the disclosure, use or reproduction of *metering data* required in connection with legal proceedings, arbitration, expert determination or other dispute resolution mechanism under this Market Operations Rule or any other code under *The Act*, the *NEC* or the *Metrology Procedure*;
 - (6) the disclosure, use or reproduction of aggregated *metering data* by whole *customer* classes only;
 - (7) the disclosure use or reproduction of *metering data* required to protect the safety of personnel or equipment or to prevent a serious and imminent threat to any person's life or health; or
 - (8) the disclosure use or reproduction of *metering data* by or on behalf of an *LNSP*, the *Responsible Person* or a *Retailer* to the extent it is reasonably required in connection with the *LNSP's*, the *Responsible Person's* or the *Retailer's* financing arrangements, investment in the *LNSP*, the *Responsible Person* or the *Retailer* or disposal of the *LNSP*, the *Responsible Person* or the *Retailer*.
- (d) In the case of a disclosure under clauses 9.2.2(c)(2) and 9.2.2(c)(8), the *LNSP*, a *Responsible Person* or the *Retailer* making the disclosure must inform the relevant *disclosee* of the confidentiality of the *metering data* and use *reasonable endeavours* to ensure that the *disclosee* keeps the *metering data* confidential.

10 Metering Data Services – Additional requirements for first tier customers

10.1 Collection of metering data

10.1.1 General obligation

In relation to the *supply* of electricity to a *first tier customer*, an *LNSP* must collect data stored in *metering equipment* as frequently as is required to enable it to discharge its minimum obligations and exercise its rights under the relevant contract.

10.1.2 Non Reversion

An *LNSP* must ensure that:

- (a) *Interval energy data* is collected from sample meters in accordance with clause 10.1.5;
- (b) Where the electricity flowing through the *metering point* is greater than, or equal to, 100 MWh per annum and an *interval meter* is installed, *interval energy data* must be collected from *interval meters* in accordance with clause 10.1.3;
- (c) Where the electricity flowing through the *metering point* is less than 100 MWh per annum and an *interval meter* is installed, initially either *interval energy data* or *accumulated energy data* may be collected from *interval meters* in accordance with clause 10.1.3 or clause 10.1.4, respectively;
- (d) Where the electricity flowing through the *metering point* is less than 100 MWh per annum, an *interval meter* has been installed, and *accumulated energy data* is being collected from that *interval meter*, the reading of that *interval meter* may be changed at any time so that *interval energy data* is collected;
- (e) Where the electricity flowing through the *metering point* is less than 100 MWh per annum, an *interval meter* has been installed and *interval energy data* is being collected from that *interval meter*, the reading of that *interval meter* may only be changed so that *accumulated energy data* is collected when:
 - (1) a transfer of the customer to a new Retailer has been effected, or
 - (2) interval energy data has been collected from that interval meter for a period of at least 12 contiguous months with the existing Retailer;
- (f) For the purposes of clauses 10.1.2(b), (c), (d) and (e), the volume threshold for a *metering point* must be determined from the annual consumption for the *billing periods* over the most recent 12 month

period, or prorated over a 12 month period based on the *Average Daily Load* where consumption over the most recent 12 month period is not available. Where no *consumption data* is available, the annual *consumption* may be estimated based on an engineering report or *consumption data* from the loads of similar *customers*. *Connection points* may not be aggregated for the purposes of determining the annual consumption.

10.1.3 First tier interval energy data

An *LNSP* must ensure that subject to clause 10.1.5, where *interval energy data* is collected from an *interval meter*:

- (a) *interval energy data* is collected from the *meters* and associated *data loggers* representing at least 90% of estimated total consumption, based on the previous 12 month period, for *first tier interval metered loads* for which the *LNSP* is responsible;
- (b) the data is transferred to the *metering installation database*, at a frequency which is at least once every three (3) months; and
- (c) the appropriate status flag in the *NMI Master Record Data* indicating that the *metering data* is to be netted off the *Net System Load Profile* must be set in *MSATS* for all the relevant *NMIs*.

10.1.4 First tier accumulated energy data

An *LNSP* must ensure that where *accumulated energy data* is collected from a *meter*:

- (a) for *controlled loads*, *accumulated energy data* is collected from the *meters* representing at least 90% of estimated total consumption, based on the previous 12 month period, for *first tier accumulation metered controlled loads* for which the *LNSP* is responsible;
- (b) the *consumption energy data* is calculated and transferred to the *metering installation database* at a frequency which is at least once every three (3) months; and
- (c) the appropriate status flag in the *NMI Master Record Data* indicating that the *metering data* is to be used to calculate the *Controlled Load Profile* must be set in *MSATS* for all the relevant *NMIs*.

10.1.5 Energy data from sample meters

An *LNSP* must ensure that:

- (a) *interval energy data* is collected from the *meters* and associated *data loggers* of sample *meters* installed in accordance with clause 7.1.1(k), and the data is transferred to the *metering installation database*, at a frequency which is at least once per week; and

- (b) the appropriate status flag in the *NMI Master Record Data* indicating that the *metering data* is to be used to calculate the *Controlled Load Profile* must be set in *MSATS* for all the relevant *NMIs*.

10.1.6 Alteration to original metering data

Alteration to original stored data in a *meter* is only permitted in accordance with clause 7.8.4 of the *NEC*.

10.1.7 Collection of metering data

- (a) Subject to clause 10.1.7(b), a *first tier customer*, or a *Retailer* on behalf of a *first tier customer*, may arrange with an *LNSP* or a *Retailer* the manner in which data stored in *metering equipment* provided to the *first tier customer* is to be collected.
- (b) A *first tier customer*, or a *Retailer* on behalf of a *first tier customer* may request that the data stored in *metering equipment* provided to it be collected by:
 - (1) an *LNSP*, by inspecting the *metering equipment*;
 - (2) an *LNSP*, by electronic means; or
 - (3) an *LNSP*, by any other means.
- (c) An *LNSP* may charge a *first tier customer* for the collection of *metering data* under this clause 10.1.7 to the extent that its costs of collection are higher than they would otherwise be.

10.1.8 Data security

- (a) Where the *energy data* held in the *metering equipment* is protected from direct or remote access by suitable password and security controls, such passwords and security controls must be used.
- (b) An *LNSP* must treat passwords as confidential information in accordance with clause 9.2.2.
- (c) The *customer* may only hold 'read only' passwords.
- (d) The *LNSP* will hold 'read only' and 'write' passwords.

10.1.9 Discrepancies

- (a) Where electricity is *supplied* to a *first tier customer*, if there is any discrepancy between:
 - (1) the data stored in *metering equipment* or where *metering equipment* is not capable of storing data, data collected from the *metering equipment*; and
 - (2) *metering data* in respect of that *metering equipment*,

the data contained in the *metering equipment* is to be prima facie evidence of the amount of electricity *supplied* to the facilities of the relevant *first tier customer*.

- (b) For an unmetered *metering installation*, if there is an inconsistency between the data held in the *metering installation database* and the *physical inventory*, the *physical inventory* is to be taken as prima facie evidence of the actual data.

10.2 Estimation of energy data

Where *energy data* collected in accordance with clauses 10.1.2 and 10.1.3 cannot be obtained in the time frame required for the *NEMMCO settlements timetable*, an *LNSP* must estimate *interval energy data* for *first tier loads* in accordance with clause 3.4 of the *Metrology Procedure*. For the purposes of this clause all references in the *Metrology Procedure* to:

- (a) a *Responsible Person* are references to an *LNSP*;
- (b) a *Financially Responsible Market Participant* are references to a *Retailer*; and
- (c) *Code Participants* in clause 3.4.4 are deleted.

10.3 Validation and substitution of energy data

10.3.1 Validation and substitution

- (a) An *LNSP* must ensure that *energy data* collected from *accumulation metering equipment* under clause 10.1:
 - (1) is validated in accordance with clause 3.3.1 and Schedule 8, clause 1 of the *Metrology Procedure*; and
 - (2) where necessary, is substituted in accordance with clause 3.3.2 and clauses 2, 3 and 4 of Schedule 8 of the *Metrology Procedure*.
- (b) An *LNSP* must ensure that *energy data* collected for *interval metering equipment* under clause 10.1:
 - (1) is validated in accordance with clause 3.3.1 and Schedule 6, clause 1 of the *Metrology Procedure*; and
 - (2) where necessary, is substituted in accordance with clause 3.3.2 and clauses 2, 3 and 4 of Schedule 6 of the *Metrology Procedure*.

10.3.2 Advice of substitution

- (a) If a substitution is made to *metering data* the *LNSP* or the *Retailer* (as the case may be) when issuing a bill to a *first tier customer* must inform

the *first tier customer* when a substitution is made and the basis on which the substitution has been made.

- (b) Where tests under clause 10.3.1(a)(1) or 10.3.1(b)(1) (as the case may be) demonstrate that there has been a failure of the *metering equipment* or that a measurement error exists, the *metering data* must be substituted in accordance with clause 10.3.1(a)(2) or 10.3.1(b)(2) (as the case may be) and the *LNSP* must provide the substituted *metering data* to the *Retailer* so that the *Retailer* can meet its billing obligations.
- (c) Where *metering data* in respect of *first tier customers* is required to be transferred to *NEMMCO* to calculate the *Net System Load Profile* or the *Controlled Load Profile*, the substituted data must be provided to *NEMMCO* by the *LNSP*.

10.3.3 Record of substitution

An *LNSP* must maintain a separate record of the substitution made under clause 10.3.1 for 7 years and provide access to the record at reasonable times to the relevant *first tier customer*.

10.4 Calculation of energy data for unmetered loads

- (a) The *Metrology Coordinator* will determine whether the *energy data* for unmetered *loads* that have been agreed by *NEMMCO* and the *Metrology Coordinator* in accordance with clause 1.1(d) of Schedule 11 of the *Metrology Procedure*, must be calculated for *first tier* loads in accordance with clause 10.4(b). The *Metrology Coordinator* will publish:
 - (1) a list of *first tier* unmetered *loads* for which the *energy data* must be calculated in accordance with clause 10.4(b); and
 - (2) a list of *first tier* unmetered *loads* for which the *energy data* does not need to be calculated in accordance with clause 10.4(b), unless a person has sought a determination under Clause 5 of the Electricity Supply (Second Termination of Transitional Retail Customer Status) Order 2001 in relation to a *first tier* unmetered load, in which case the *first tier* unmetered load for the relevant *NMIs* must be calculated in accordance with clause 10.4(b).
- (b) Subject to clause 10.4(a), an *LNSP* must ensure that *energy data* for a *first tier* unmetered *load* is calculated, validated and substituted in accordance with clause 3.5 of the *Metrology Procedure*. For the purpose of this clause all references in the *Metrology Procedure* to:
 - (1) a *Responsible Person* are references to an *LNSP*;

- (2) a type 7 *metering installation* are references to an unmetered load;
 - (3) Code Participants are references to *LNSPs* and *Retailers*; and
 - (4) *Metrology Coordinator* are references to *IPART*.
- (c) An *LNSP* must ensure that, where the *energy data* for an unmetered load is calculated in accordance with clause 10.4(b), the appropriate status flag for all relevant *NMIs* is set in the *NMI Master Record Data* in *MSATS*, indicating that the *energy data* calculated, validated and substituted under clause 10.4(b) is to be netted off the *Net System Load Profile*.

10.5 Storage of energy data

An *LNSP* must store *energy data* in respect of separate *metering equipment* and unmetered loads separately, for a period of 7 years, in the form in which it was collected under clause 10.1.

10.6 Access to energy data

An *LNSP* must ensure that access is provided to *energy data* in accordance with clauses 3.7.1 and 3.7.4 of the *Metrology Procedure*. For the purposes of this clause, all references in the *Metrology Procedure* to:

- (a) a *Responsible Person* are references to an *LNSP*;
- (b) a Financially Responsible Market Participant are references to a *Retailer*;
- (c) “each metering installation for which the Financially Responsible Market Participant was registered with *NEMMCO*” in clause 3.7.1 are reference to each *metering installation* associated with a *customer’s connection point*;
- (d) type 5 or type 6 *metering installation* are references to *interval metering equipment* and *accumulation metering equipment* respectively; and
- (e) a reference to a type 7 *metering installation* are references to an unmetered load.

10.7 Transfer of energy data for wholesale market settlement

An *LNSP* must enable the transfer to *NEMMCO* of *energy data* in accordance with:

- (a) clause 3.10.6 (subject to clause 3.10.8) of the *Metrology Procedure*, where the *energy data* for first tier unmetered loads is calculated in accordance with clause 10.4(b) of these Rules;
- (b) the requirements set out in references 1.7, 1.8, 1.9, 1.15 and 1.16 of Schedule 3 of the *Metrology Procedure*;

- (c) the decision of the *Metrology Coordinator* as set out in references 2.2, 2.4 and 2.5 of Schedule 3 of the *Metrology Procedure*; and
- (d) for the purpose of this clause 10.7 all references in the *Metrology Procedure* to a metering installation database are references to a *metering installation database*.

10.8 Audits of energy data

An *LNSP* must co-operate with *NEMMCO* where *NEMMCO* audits metering associated with a *first tier customer's energy data* that is transferred to *NEMMCO* for the purposes of calculating the *Controlled Load Profile* and the *Net System Load Profile*.

10.9 Costs

10.9.1 If a *first tier customer*, or a *Retailer* on behalf of a *first tier customer*, requests an *LNSP* to provide a type of *metering equipment* which is different from the type the *LNSP* otherwise would provide in accordance with clause 7.1.1(d) then the *first tier customer*, or a *Retailer* on behalf of a *first tier customer*, must bear any costs incurred by the *LNSP* for metering data services in excess of those which the *LNSP* would otherwise have incurred.

10.9.2 An *LNSP* must inform a *first tier customer* of the extra cost of metering data services under clause 10.9.1(a) and the *first tier customer*, or the *Retailer* on behalf of the *first tier customer*, must consent to pay that cost before the *metering equipment* is installed in accordance with clause 7.1.1(f).

11 Metering Data Services – Additional requirements for second tier customers

11.1 Validation and substitution of energy data

11.1.1 Validation and substitution

A *Responsible Person* must ensure that the validation and substitution of *energy data* collected from *metering equipment* in respect of *second tier customers* must be carried out in accordance with the applicable provisions of the *NEC* and *Metrology Procedure*.

11.1.2 Advice of substitution

- (a) If a substitution is made to *metering data*, the *Responsible Person* or the *Retailer* when issuing a bill to a *second tier customer* must inform the *second tier customer* when a substitution is made and the basis on which the substitution has been made.
- (b) Where tests carried out under clause 11.1.1 demonstrate that there has been a failure of the *metering equipment* or that a measurement error exists, a *Responsible Person* must:
 - (1) substitute the *metering data* in accordance with *NEC* and the *Metrology Procedure*, where applicable; and
 - (2) provide the *metering data* to the *Retailer* to facilitate billing.

11.1.3 Record of substitution

A *Responsible Person* must maintain a separate record of any substitution made under clause 11.1.1 for 7 years and provide access to the record at reasonable times to the relevant *second tier customer*.

11.2 Costs

A *Responsible Person* may recover the costs for metering data services from the *Retailer* of a *second tier customer*.

12 Controlled load sample metering

12.1 Sample size and selection

12.1.1 An *LNSP* must ensure that at least 200 *controlled load* sample *meters* are installed for the purposes of calculating the *Controlled Load Profile* within each *LNSP* area, unless otherwise agreed by the *Metrology Coordinator*.

12.1.2 The method of selecting sample sites adopted by an *LNSP* should be agreed and approved by the *Metrology Coordinator* or his or her delegate.

12.1.3 An *LNSP* must use reasonable *endeavours* to ensure that sample *meter* sites:

- (a) Are occupied sites with active controlled load devices; and
- (b) Have historical annual consumption within two standard deviations of the mean *controlled load* annual consumption for that *LNSP* area.

12.1.4 In the event that an existing sample *meter* site becomes inappropriate for a sample *meter* as per clause 12.1.3 or for other reasons as the case may be, the sample *meter* should be relocated to an appropriate site selected in accordance with clause 12.1.2.

12.2 Weighting factor

The weighting factor assigned to each sample *meter* NMI in the calculation of the *Controlled Load Profile* should be $1/n$, where n is the number of sample *meters* contributing to the calculation of the *Controlled Load Profile* in the respective *LNSP* area.

13 Definitions and Interpretation

13.1 In this Rule, unless the context otherwise requires:

“Accredited Service Provider” means a person who has been accredited through an accreditation scheme to undertake contestable works.

“accumulated energy data” means the data that results from the measurement of the flow of electricity in a power conductor where the data represents a period in excess of a *trading interval*. The measurement is carried out at a *metering point*.

“accumulation metering equipment” means equipment capable of measuring and recording electricity *supplied* to an *electrical installation* in periods in excess of a *trading interval*, communications equipment, clocks and *current transformers* or *voltage transformers*.

“active energy” means a measure of electrical energy flow, being the time integral of the product of *voltage* and the in-phase component of current flow across a *connection point* expressed in watthours (Wh) and multiples of Wh.

“actual meter readings” means the physical collection of *energy data* created by way of a *scheduled meter reading* or a *special meter reading*.

“Australian Standard” or **“AS”** means the most recent edition of a standard publication by Standards Australia (Standards Association of Australia).

“Average Daily Load” means the field of that same name in *MSATS*.

“basic current” has the meaning given to it in *AS 1284 Part 1 – General Purpose Induction Watt hour Meters*.

“billing period” means the period of 7 days commencing at the start of a *trading interval* ending 12.30 am Sunday.

“business day” means a day other than a Saturday or Sunday or a public holiday designated in New South Wales.

“check metering” means metering installed for the purpose of checking *metering equipment*.

“connection point” means the agreed point of *supply* established between an *LNSP* and a *customer*.

“consumption energy data” means total *active energy* consumed over a period of time, obtained from the difference between successive *actual meter readings* at a *metering point*, or by *estimation*.

“controlled load” means those *loads* wired separately from other appliances, are controlled by means of frequency injection relay or time clock, and are separately metered from the remaining *load* at the *metering point*.

“Controlled Load Profile” means a dynamic form of load profile that profiles only *controlled loads*.

“current transformer” or **“CT”** means a transformer for use with *meters* and/or protection devices in which the current in the secondary winding is, within prescribed limits, proportional to and in phase with the current in the primary winding.

“customer” means a *first tier customer*, a *second tier customer* or a person connected to an *embedded network*.

“data logger” means a *metering installation database* or a device that collects electronic signals from a *measurement element*, and packages it in to 30 minute intervals (or sub-multiples) this device may contain data storage capability, be a separate item of equipment and/or be combined with the energy measuring components within one physical cycle.

“defective” means:

- (a) in relation to new *metering equipment*, that the new *metering equipment* is not meeting the *minimum standards*; and
- (b) in relation to existing *metering equipment*, that the existing *metering equipment* is not meeting the *minimum standards* of accuracy which it was designed to meet.

“direct connected meter” means a *meter* connected directly to the *electrical installation* being metered without an external *current transformer*.

“disclosee” means a person to whom an *LNSP* or a *Retailer* has disclosed or wishes to disclose *metering data*.

“distribution system” means a system of electric lines and equipment used in connection with electricity generally at *voltage* levels of 66 kV or below.

“effective date” means the date referred to in clause 2.

“electrical installation” means any electrical equipment at a *customer’s supply address* that is connected to, but not a part of, a *distribution system*.

“energy” means *active energy* and/or *reactive energy*.

“energy data” means *interval energy data*, accumulated energy data, estimated energy data or *consumption energy data*.

“estimated read” means an estimate of a *meter* reading where an *actual meter read* has not occurred.

“first tier”, when referring to a *load*, means the electricity purchased at a *connection point* directly and in its entirety from its *local Retailer* or from an unlicensed *Retailer*.

“first tier customer” means a person who buys electricity from its *local Retailer* or from an unlicensed *Retailer*.

“general purpose” means the term applied by the National Standards Commission to refer to the classification of a *meter*.

“IEC Standard” or **“IEC”** means a standard set by the International Electrotechnical Commission.

“interval energy data” means the data that results from the measurement of the flow of electricity in a power conductor where the data is prepared by a *data logger* into intervals which correspond to a *trading interval* or a sub-multiples of a *trading interval*.

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

“interval metering equipment” means equipment capable of measuring and recording electricity supplied to a customer as *interval energy data* including *interval meters*, manual reading facilities, clocks, and when required, *current transformers* and *voltage transformers* and computing or communications equipment designed to facilitate electronic access.

“IPART” means the Independent Pricing and Regulatory Tribunal.

“load” means a *connection point* or defined set of *connection points* from which electrical power is delivered to a person or to another network or the amount of electrical power delivered at a defined instant at a *connection point* or aggregated over a defined set of *connection points*.

“local area” means the geographical area allocated to a *Network Service Provider* by the laws of the State of New South Wales.

“Local Network Service Provider” or **“LNSP”** means within a *local area*, a *Network Service Provider* to which that geographical area has been allocated by the laws of the State of New South Wales.

“local Retailer” has the meaning given to the term “standard retail supplier” in *The Act*.

“lock down period” means the period as nominated from time to time by *NEMMCO*, after the *billing period*, after which the *Net System Load Profile* is not recalculated as *estimated energy data* is replaced by *energy data* from *actual meter readings* or revised *estimated energy data*.

“market” means any of the markets or exchanges described in the *NEC*, for so long as the market or exchange is conducted by *NEMMCO*.

“Market Operations (Arranged Connection Services) Rule” means the Market Operations (Arranged Connection Services) Rule No. 1 of 2001.

“measurement element” means that energy measuring component which converts the flow of electricity in a power conductor into an electronic signal and/or mechanically recorded electrical measurement.

“meter” means a device complying with this Market Operations Rule which measures and records the production or consumption of electrical *energy*.

“metering data” means the data obtained from a *metering installation*, processed data or substituted data.

“metering equipment” means equipment installed or to be installed to safely measure, record, and, read records of the amounts of electricity in the nature of apparent *energy* and *reactive energy* supplied from an *LNSP’s distribution system* to an *electrical installation* of a *customer* including *meters*, *current transformers* and *voltage transformers*, wiring

and any computing or communications equipment designed to facilitate electronic access, such equipment being *accumulation metering equipment* or *interval metering equipment*.

“metering installation” means the assembly of components and/or processes that are controlled for the purpose of metrology. The assembly of components may include the combination of several *metering points* to derive the *metering data* for a *connection point*.

“metering installation database” means a database which stores *energy data* in respect of each *metering installation*.

“metering point” is the point of physical connection of the device measuring the current in the power conductor.

“metering system” means the *active energy meters, reactive energy meters, current transformers, voltage transformers* and any other *metering equipment* required to measure, record and collect a *customer’s metering data* for billing purposes.

“Metrology Coordinator” means the *Metrology Coordinator* for New South Wales appointed under the *NEC*.

“Metrology Procedure” means the New South Wales Electricity Supply Industry *Metrology Procedure* published under the *NEC* as amended from time to time.

“minimum standards”, in respect of new *metering equipment*, means the *minimum standards* referred to in clauses 6.2, 7.2 and 8.1 (where applicable) of this Market Operations Rule.

“Minister” means the Minister responsible for administering the National Electricity (New South Wales) Act 1997.

“MSATS” means the Market Settlement and Transfer System operated by *NEMMCO*.

“National Electricity Code” or **“NEC”** means the code approved in accordance with section 6(1) of the National Electricity (New South Wales) Act 1997 for the conduct of the National Electricity Market which is administered by *NEMMCO*.

“national metering identifier” or **“NMI”** means a national metering identifier in respect of a *metering installation* as described in clause 7.3.1(d) of the *NEC*.

“NEMMCO” means the National Electricity Market Management Company Limited A.C.N 072 010 327, the company that operates and administers the *market* in accordance with the *NEC*.

“NEMMCO settlements timetable” means the timeframe required for settlements as specified in procedures established from time-to-time by *NEMMCO*.

“Net System Load Profile” or **“NSLP”** means a dynamic form of *load* profile.

“Network Service Provider” means a person who is engaged in the activity of owning, controlling or operating a *distribution system*.

“non-market generator” means a generator that has been classified as a non-market generating unit in accordance with the *National Electricity Code*.

“physical inventory” means a physical count of devices.

“rated current” has the meaning given to it in AS 1284 Part 9.

“reactive energy” means a measure in varhours (varh) of the alternating exchange of stored *energy* in inductors and capacitors, which is the time-integral of the product of *voltage* and the out-of-phase component of current flow across a *connection point*.

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

“related body corporate” means in relation to a body corporate, a body corporate that is related to the first mentioned body by virtue of section 50 of the Corporations Law.

“Responsible Person” means in relation to *second tier customers*, the person who has the responsibility for a *metering installation* for a particular *connection point*, being either the *LNSP* or the “market participant” as described in chapter 7 of the *NEC*.

“Retailer” means an entity who holds a *retail licence*.

“retail licence” means a *Retailer* suppliers’ licence issued by the Minister to *supply* or sell electricity in New South Wales in accordance with section 33 of *The Act*.

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

“second tier customer” means a *customer* who purchases electricity in its entirety from a person other than its *local Retailer*.

“second tier Retailer” means in respect of a *customer*, a *Retailer* other than the *local Retailer*.

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

“supply” in relation to electricity, means the delivery of electricity.

“supply address” means the address where the *customer* is being *supplied* with electricity.

“The Act” means the Electricity Supply Act 1995, as amended.

“trading interval” means a thirty minute period ending on the hour (EST) or on the half hour, and, where identified by a time means the thirty minute period ending at that time.

“verifying authorities” means authorities appointed by the National Standards Commission under the National Measurement Act 1960 (Cth).

“voltage” means electronic force or electric potential between two points that gives rise to the flow of electricity.

“voltage transformer” or **“VT”** means a transformer for use with *meters* and/or protection devices in which *voltage* across the secondary terminals is, within prescribed area limits, proportional to and in phase with the *voltage* across the primary terminals.

“writing” includes any mode of representing or reproducing word, figures, drawings or symbols in a visible form.

13.2 Interpretation

In this Rule, unless the context otherwise requires:

- (a) headings and footnotes are for convenience or information only and do not affect the interpretation of this Market Operations Rule or of any term or condition set out in this Market Operations Rule;
- (b) words importing the singular include the plural and vice versa;
- (c) an expression importing a natural person includes any company, partnership, trust, joint venture, association, corporation or other body corporate and any governmental agency and vice versa;
- (d) a reference to a clause or appendix is to a clause or appendix of this Market Operations Rule;
- (e) a reference to any statute includes all statutes varying, consolidating, re-enacting, extending or replacing them and a reference to a statute includes all regulations, proclamations, ordinances, by-laws and determinations issued under that statute;
- (f) a reference to a document or a provision of a document includes an amendment or supplement to, or replacement of or novation of, that document or that provision of that document;
- (g) a reference to a person includes that person's executors, administrators, successors, substitutes (including, without limitation, persons taking by novation) and permitted assigns;
- (h) other parts of speech and grammatical forms of a word or phrase defined in this Market Operations Rule have a corresponding meaning;
- (i) a period of time:
 - which dates from a given day or the day of an act or event is to be calculated exclusive of that day; and
 - which commences on a given day or the day of an act or event is to be calculated inclusive of that day.
- (j) a reference to:
 - time is a reference to Eastern Standard Time, being the time at the 150th meridian of longitude east of Greenwich in England, or Co-ordinated Universal Time, as required by the National Measurement Act;
 - a day is a reference to a period commencing immediately after midnight and ending the following midnight; and
 - a month is a reference to a calendar month.
- (k) an event which is required under any term or condition set out in this Code to occur on or by a stipulated day which is not a *business day*, may occur on or by the next *business day*.