

and with selective pulse frequency or rate. The minimum pulse frequency shall comply with the IEC Standard or its equivalent national standard, for the shortest integration period and the accuracy class of the meter. Pulse output shall be galvanically isolated from the voltage/current transformers being measured and from the auxiliary supply input terminals. The insulation test voltage shall be 1000 VAC, 60 Hz and applied for one minute.

9.3.4 Integrating Pulse Recorders

- 9.3.4.1 Integrating Pulse Recorders shall be capable of recording integrated Demand periods adjustable between fifteen (15) minutes and sixty (60) minutes. An exemption to this requirement shall be allowed for those Users supplied with bundled services.
- 9.3.4.2 Each recorder shall be capable of electronic data transfer through dedicated telephone lines or the Grid Owner's communication channels or manual downloading of data on-site. The Grid Owner shall allow an exemption to this requirement for those Users supplied with bundled services.
- 9.3.4.3 The integrating pulse recorders shall provide a record for reference at a future time. The record shall be suitable for reference for a period of at least one (1) year after it was generated. The integrating pulse recorder shall be regularly interrogated and the record shall also be maintained at the recorder for two (2) complete billing periods between one (1) interrogation or sixty (60) days, whichever is longer.
- 9.3.4.4 The time reference used with the Demand recorder shall ensure that the Demand period accuracy of this integrating pulse recorder is with a time error of no more than ± 1 second.
- 9.3.4.5 All revenue metering installations shall record time, based on Philippine standard time.
- 9.3.4.6 The start of each demand period shall be within ± 30 seconds of the standard time.
- 9.3.4.7 Reprogramming of integrating pulse recorders shall be done as soon as possible within one billing cycle if there is a time error.

9.4 METERING EQUIPMENT TESTING AND MAINTENANCE

9.4.1 Instrument Transformer Testing

- 9.4.1.1 Test on the Instrument Transformers shall be done by a party authorized by the Meter Operator and the concerned User during the Test and Commissioning stage and then at least once every five (5) years or as the need arises due to questions on accuracy. The tests shall be carried out in accordance with this Chapter or an agreed equivalent international standard.
- 9.4.1.2 An Instrument transformer shall not be connected to a load beyond its rated burden and shall be operated at the optimum burden range to achieve maximum accuracy of the metering system. Burden Test shall be conducted

during commissioning, re-installation or relocation or when requested by the User and/or the Grid Owner. Loading resistors for compensating low burdens may be allowed as long as accuracy level is sustained.

9.4.2 Meter Testing and Calibration

The Meter Operator and User, through the ERC or an independent party authorized by the ERC, shall test and seal the meters at least once a year and recalibrate or replace such meters if found to be outside the acceptable accuracy stipulated in the Grid Code.

9.4.3 Request for Test

- 9.4.3.1 A User or the Market Operator may request a test of the installed metering equipment if it has reason to believe that the performance of the Equipment is not within the accuracy limits set forth in this Chapter. The test shall be done by the ERC or by an independent party authorized by the ERC.
- 9.4.3.2 If the meter Equipment fails the test, the Meter Operator shall pay for the cost of the test. If the meter Equipment passes the test, the party who requested the test shall pay for the test cost.

9.4.4 Maintenance of Metering Equipment

- 9.4.4.1 The metering equipment at the Connection Point shall be maintained by the Meter Operator. All test results, maintenance programs, and sealing records shall be kept for the life of the Equipment. The Equipment data and test records shall be made available to authorized parties.
- 9.4.4.2 The Meter Operator shall repair the metering System as soon as practical and in any event within two (2) days if a metering System malfunctions or maintenance occurs. The Meter Operator shall be allowed to charge the metering services provided, subject to the approval of the ERC.

9.4.5 Metering Equipment Security

The Meter Operator shall take all reasonable steps to prevent unauthorized interference with the Equipment. The Meter Operator shall provide seals and other appropriate devices to prevent unauthorized alteration on site settings and calibrations. The metering Equipment cubicle shall be completely and securely locked and sealed, provided any register on Equipment is visible and accessible. The Meter Operator shall also provide appropriate security against unauthorized access and against corruption of data in transmission.

9.5 METER READING AND METERING DATA

9.5.1 Integrating Pulse Metering Data

- 9.5.1.1 The Meter Operator or the Data Collection Agent shall download Integrating Pulse Metering data (the actual hourly data on generation and off-takes at each Connection Point during the previous week) for billing and

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Module E: Metering

E1 Metering Service

- E1.1 **Pre-Market.** Prior to the Spot Market Commencement Date, the Transmission Provider shall provide metering services as outlined in this Module E and in accordance with these OATS Rules and in order to meet the standards set out in the Grid Code.
- E1.2 **WESM Conditions.** From the Spot Market Commencement Date, the Transmission Provider shall undertake the role of Metering Service Provider for the Transmission Customer in accordance with these OATS Rules, the Grid Code and the WESM Rules if selected to do so by the Transmission Customer.

E2 Metering Requirements

- E2.1 **Pre-Market.** Prior to the Spot Market Commencement Date, the Transmission Provider shall ensure that Metering Installations are provided, tested and maintained in accordance with, and that the accuracy of each Metering Installation complies with, the requirements of the Grid Code.
- E2.2 **WESM Conditions.** From the Spot Market Commencement Date, the Transmission Provider shall:
- (a) Ensure that Metering Installations for which they are responsible, are provided, tested and maintained in accordance with, and that the accuracy of each installation complies with, the requirements of the Grid Code and the WESM Rules.
 - (b) Ensure that the Market Operator is able to obtain the metering data from each Metering Point.
 - (c) Assist Trading Participants in the registration of Meter Installations with the Market Operator, including in the provision of the information required for the Metering Database as described in the WESM Rules.

E3 Provide Metering Installation Equipment

- E3.1 **Pre-Market.** Prior to the Spot Market Commencement Date, the Transmission Provider shall:
- (a) Provide the revenue meters at each Point of Connection in accordance with the Grid Code.

- (b) Ensure the Metering Equipment and Metering Installation complies with the equipment standards, including minimum accuracy levels, as stated in the Grid Code.
- (c) Control access to Metering Installations, in accordance with the Grid Code.

E3.2 **WESM Conditions.** From the Spot Market Commencement Date, the Transmission Provider, if elected as Metering Service Provider, shall:

- (a) Provide the complete Metering Installations for every Point of Connection to the Grid, as close as practicable to the actual Point of Connection in accordance with the Grid Code and the WESM Rules.
- (b) Ensure each Metering Installation complies with the equipment standards, including minimum accuracy levels, as stated in the Grid Code.
- (c) Shall control access to Metering Installations, in accordance with the Grid Code and the WESM Rules.

E4 **Metering information to be provided**

E4.1 **Pre-Market.** Prior to the Spot Market Commencement Date, the Transmission Provider shall provide the metering information set out in the Grid Code to those parties requiring the information under these OATS Rules and the Grid Code.

E4.2 **WESM Conditions.** From the Spot Market Commencement Date, the Transmission Provider, if elected as Metering Service Provider, shall:

- (a) Provide the metering information set out in the Grid Code to those parties requiring the information under these OATS Rules, the Grid Code and the WESM Rules.
- (b) Provide metering information to the Market Operator that is reasonably required by the Market Operator under the WESM Rules.
- (c) Maintain a Metering Database in accordance with the WESM Rules.

E5 **Metering equipment testing and maintenance**

The Metering Service Provider shall:

- (a) Test and recalibrate the Metering Installation or ensure that it is tested and recalibrated by an independent third party approved by the ERC, in accordance with the Grid Code.

- (b) Ensure that tests on instrument transformers are carried out in accordance with the Grid Code.
- (c) Arrange for a third party to undertake any test requested by the Transmission Customer or Market Operator.
- (d) Allow the Transmission Customer to witness any test requested by that Transmission Customer.
- (e) Maintain the Metering Equipment at the Metering Installation, in accordance with the Grid Code.

E6 Meter reading

- E6.1 Pre-Market.** Prior to the Spot Market Commencement Date, the Transmission Provider shall provide meter-reading services in accordance with the Grid Code and in the presence of the Transmission Customer, when requested by the Transmission Customer.
- E6.2 WESM Conditions.** From the Spot Market Commencement Date, if elected as Metering Service Provider, the Transmission Provider shall provide meter-reading services in accordance with the Grid Code and the WESM Rules and in the presence of the Transmission Customer, when requested by the Transmission Customer.

E7 Validation of metering data

Prior to the Spot Market Commencement Date, the Transmission Provider shall undertake the basic validation and substitution of metering data, using check metering where available and where not available, using substitute values using a method approved by the ERC.

E8 Settlement

- E8.1 Metering Data.** The Transmission Provider shall provide metering data to the System Operator for billing and settlement purposes in accordance with the Grid Code.
- E8.2 Cooperation.** In the event that a Transmission Customer requests an audit of settlement data related to its account, the Transmission Provider shall cooperate in the auditing process in accordance with the Grid Code.

E9 Treatment of metering data

The Transmission Provider shall ensure that all metering data is kept secure and in accordance with the Confidentiality provisions in Module A to these OATS Rules and, subsequent to the Spot Market Commencement Date, in accordance with the WESM Rules.

E10 Application for new Metering Points, or changes to existing Metering Points

- E10.1 **Standard.** The Transmission Provider shall use reasonable endeavors to consider, respond to, and, if agreed between the parties, implement requests for additional Metering Points, or for changes to existing Metering Points by the Transmission Customer, via the Service Application process outlined in Module A and in a manner consistent with the Grid Code and, subsequent to the Spot Market Commencement Date, the WESM Rules.
- E10.2 **WESM Conditions.** From the Spot Market Commencement Date, the Transmission Provider, if elected as Metering Service Provider, shall record all details of a new Metering Installation and subsequent changes to Metering Installations and shall provide the information to the Market Operator for inclusion in the Installation Database, in accordance with the WESM Rules.

E11 Transmission Customer or Joint Obligations

- E11.1 **Space.** At each Metering Installation at the Transmission Customer's Point of Connection, the Transmission Customer shall provide, at its own cost, the space for the installation, including the meter housing. This space shall be fully secured by the Transmission Customer against access by any party other than personnel authorised by the Transmission Provider. The Transmission Provider shall provide full specifications for this housing and the enclosure required for the Metering Installation to the Transmission Customer.
- E11.2 **Access.** The Transmission Customer shall maintain the access way to the Metering Installation, including the enclosure within which the Metering Installation is kept and ensure that the Transmission Provider has unrestricted access to the Metering Installation at all times.
- E11.3 **Metering Equipment; Pre-Market.** Prior to the Spot Market Commencement Date, the Transmission Customer shall be responsible for the preparation, installation, operation and maintenance of the required Metering Equipment, except for the billing meters, at each Point of Connection in accordance with the Grid Code unless otherwise agreed between the Parties.
- E11.4 **Metering Equipment; WESM.** From the Spot Market Commencement date, if the Transmission Customer requires additional Metering Equipment, other than the primary Metering Installation provided at each Point of Connection, the Transmission Customer shall, at their own cost, provide the complete Metering Installation, including all associated items, with the exception of the revenue meters. The revenue meters shall be provided by the Transmission Provider and shall be charged for under a separate monthly customer charge as set out in Module F.
- E11.5 **Record and Modification.** Both parties shall ensure that the number and location of Metering Installations are recorded in Schedule F of the Transmission Customer's Service Agreement. The parties agree to amend

Schedule F of the Transmission Customer's Service Agreement as necessary to reflect any additions or modifications to the Metering Installations.

- E11.6 **Testing and Calibration.** Where the Transmission Customer has sought the testing and recalibration of one or more Metering Installations, the Transmission Customer shall pay for the testing and recalibration if the test finds the Metering Installation to be compliant with the Grid Code and the Transmission Provider shall pay for the testing and recalibration if the test finds the Metering Installation not to be compliant with the Grid Code.

E12 Changes in Metering Arrangements

If the Transmission Customer wishes to change any arrangements relating to its Metering provided by the Transmission Provider in its Service Agreement, it may submit a Service Application to the Transmission Provider under the process outlined in Rule 21 of Module A of these OATS Rules.