



PUBLIC

Retail Manual

Metering Standards and Procedures

Issue 7.0 | RCOA-MSP

This Market Manual sets out the metering procedures and standards for the Retail Market.

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In case of inconsistency between this document and the DOE Circulars, the latter shall prevail.

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Document Approval

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*Declaring the Commercial Operations of Enhanced WESM Design and Providing Further Policies

Reference Document

Document ID	Document Title
	WESM Rules (as amended)
	Rules for the Integration of Retail Competition in the Wholesale Electricity Spot Market (Retail Rules)
WESM-MSP	WESM Manual: Metering Standards and Procedures
RCOA-RCP	Retail Manual: Registration Criteria and Procedures
	Grid Code
	Distribution Code
	DOE Department Circular DC2014-07-0014
	DOE Department Circular DC 2014-10-0020
	DOE DC2018-07-0019 (Rules Governing the Establishment of the Green Energy Option Program / GEOP)
	DOE DC2020-04-0009 (Guidelines Governing the Issuance of Operating Permits to Renewable Energy Suppliers Under the Green Energy Option Program)
	ERC Resolution No. 8, Series of 2021 (GEOP Rules)

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SECTION 1 INTRODUCTION

1.1. PURPOSE

Pursuant to Clause 4.9 of the *Retail Rules*, the *Central Registration Body* shall formulate and publish a *market manual* that:

- a) Describes the class and accuracy requirements of *meters metering installations* consistent with the *Philippine Distribution Code* and relevant regulatory issuances;
- b) Defines the procedures that *Retail Metering Services Providers* must undertake to validate, estimate, correct or substitute erroneous meter data;
- c) Defines the information that must be contained in the *installation database* of a *Retail Metering Services Provider*; and
- d) Other relevant procedures to implement the metering provisions of the *Retail Rules*.

As compiled, this Manual consolidates the pertinent metering procedures and standards applicable for *Retail Customers* and for the reference of *Distribution Utilities*¹, *Suppliers*, *Retail Metering Services Providers*, other *WESM Members* and the public. More specifically, this Manual, in compliance with Clause 4.9 of the *Retail Rules*, will:

- a) Define the *metering installation* standards that a *Retail Customer meter installation* must comply with to be eligible for registration in accordance with *Retail Rules* Clause 4.3.2;
- b) Describe the standard numbering system that *Retail Metering Services Providers* must follow when numbering and identifying their *metering installations*;
- c) Describe the procedures that the *Central Registration Body*, *Retail Customers*, and *Suppliers* must follow when registering *Retail Customer metering installations* in the *WESM* in accordance with *Retail Rules* Clause 4.3.2.1;
- d) Describe the procedures that the *Central Registration Body* and the *Retail Metering Services Providers* must follow to ensure *Retail Customer metering data* is collected in a timely and efficient manner;
- e) Describe the procedures of the *Central Registration Body* for the validation, estimation, and revision of *metering data* to make it settlement ready;
- f) Describe the reporting procedures in cases where there are errors associated with *metering data* or meter trouble; and
- g) Describe the procedures of the *Governance Arm* for the measurement and monitoring of the annual performance of *Retail Metering Services Providers*.

¹ As the default Retail Metering Services Provider

1.2. SCOPE OF APPLICATION

This Manual covers the metering procedures and standards for *metering installations* of *Retail Customers* that are connected to a *distribution system* operated by a *Distribution Utility* and have opted to switch to a *Supplier* or voluntary register in the *WESM*.

1.3. CONVENTIONS and DEFINITIONS

1.3.1. Conventions

The standard conventions to be followed in this Manual are as follows:

- a) The word 'shall' denotes a mandatory requirement;
- b) Unless otherwise defined or the context implies otherwise, the italicized terms used in this Manual which are defined in the *WESM Rules, Retail Rules, WESM Manual on Metering Standards and Procedures*,² *Philippine Grid Code* or *Philippine Distribution Code* will bear the same meaning as defined in the *WESM Rules, Retail Rules, WESM Manual on Metering Standards and Procedures Issue, Philippine Grid Code* or *Philippine Distribution Code*. Italicized terms that are used in this Manual but are not defined in the *WESM Rules, Retail Rules, WESM Manual on Metering Standards and Procedures Issue, Philippine Grid Code* or *Philippine Distribution Code* are defined in Section 1.3.2 of this Manual.
- c) Double quotation marks are used to indicate titles of publications, legislation, forms, and other documents; and
- d) Any procedure-specific convention(s) shall be identified within the specific document itself.

1.3.2. Definition of Terms

American National Standards Institute (ANSI). A private non-profit organization that oversees the development of voluntary consensus standards for products, services, processes, systems, and personnel in the United States.

End-to-End Test. A continuity test of data transfer from the *meter* to the Meter Data Retrieval System of the *Retail Metering Services Provider* and then to the Meter Data Collection System of the *Central Registration Body*.

Grid Off-Take Metering Point. Metering point at a grid at which the settlement *quantity* of a *Retail Customer* connected to a distribution system will be determined.

Grid Off-Take Meter. The device which measures and records the consumption or production of electricity at the *grid off-take metering point*.

² Issue 7.0 WESM-MSDM-MM-07

International Electrotechnical Commission (IEC). A non-profit, non-governmental international standards organization that prepares and publishes International Standards for all electrical, electronic and related technologies – collectively known as "electrotechnology".

Institute of Electrical and Electronics Engineers (IEEE). A professional association that is dedicated to advancing technological innovation and excellence.

Instrument Transformers. A general term for current transformers and voltage transformers.

Meter Trouble. Any error associated with *metering data*.

Meter Trouble Report. A report issued by the *Central Registration Body* to a *Retail Metering Services Provider* for the correction of detected *metering data* errors.

1.4. RESPONSIBILITIES

1.4.1. Compliance and Implementation

- a) The *Central Registration Body* shall be responsible for the development, validation, maintenance, publication, and revision of this document in coordination with *WESM Members* and in accordance with the rules change process;
- b) The *Retail Metering Services Provider* shall provide the necessary information and references for subsequent revisions and validation of this document;
- c) The *Rules Change Committee* shall be responsible for the initial approval of the subsequent revisions and issuances of this Manual;
- d) The *PEM Board* shall be responsible for the initial approval and endorsement to the DOE of the subsequent revisions and issuances of this Manual;
- e) The *Enforcement and Compliance Officer* shall be responsible for the investigation of any infraction by *Retail Metering Services Provider* of a *Retail Customer*, case where disputes involved *metering data*, and tampering of any *metering installation* that is detrimental to the integrity of the *metering data*; and
- f) Any other responsibilities of technical or legal committees or groups as stated in the *WESM Rules* and *Retail Rules*, the *Philippine Grid Code* or the *Philippine Distribution Code* which may affect the relevant provision of this Manual.

1.4.2. Amendments

Amendments to this Manual shall be submitted to the *WESM Rules Change Committee* and shall be acted upon pursuant to Section 1.8 of the *Retail Rules* and relevant market manuals.

1.5. EFFECTIVITY AND PUBLICATION

This Manual shall take effect upon approval by the *Department of Energy*. Thereafter, it shall be *published* in the *market information website*.³

³ www.wesm.ph

SECTION 2 METERING INSTALLATION STANDARDS

2.1 COVERAGE

This section defines the *metering installation* standards that a *Retail Customer meter installation* must comply with to be eligible for registration in the *WESM*.

The section also covers certain electrical, dimensional, and mechanical characteristics and designs, and takes into consideration certain safety features of current and inductively-coupled voltage transformers of types generally used in the measurement of electricity associated with revenue metering.

2.2 OVERVIEW

- a) A *metering installation* shall be accurate in accordance with the *Retail Rules*, the *Philippine Distribution Code*, and this Manual.⁴ For this purpose, the retail competition may adopt new technical standards for *metering installation* if necessary, subject to the approval of the DOE.
- b) A *metering installation* shall have electronic data recording facilities such that all *metering data* can be measured and recorded in an interval basis.⁵

2.3 GENERAL COMPLIANCE

This Manual supplements the minimum requirements in the *Philippine Distribution Code* and relevant *ERC* issuances for *metering installations* of *Retail Customers*. Any *metering installation* of a higher level of accuracy or functionality than the standards in the *Philippine Distribution Code* and relevant *ERC* issuances and this standard may also be installed.

For *GEOP End-User*, the *Retail Metering Services Provider* shall install a meter capable of registering energy use and demand recorded at 5-minute intervals. Existing metering installations that are non-compliant with this requirement shall be governed by Section 2.7 of this manual.

⁴ Retail Rules Clause 4.3.2.2

⁵ Retail Rules Clause 4.3.2.6

2.4 METERS

This section provides the standards for *meters* located within the *metering installation*. These standards will enable a *metering installation* to comply with Clause 4.3.2 and Clause 4.3.3 of the *Retail Rules*.

2.4.1 Redundancy Requirement

The *Retail Metering Services Provider* shall provide for a back-up revenue *meter* upon the request of the *Retail Customer*. The back-up revenue *meter* may have a different make and model (i.e. different brand) from the main revenue *meter*. Provided, further, that the *Retail Metering Services Provider* shall use its reasonable endeavors to install and maintain the back-up revenue *meter* in a least-cost manner, which will be on the account of the concerned *Retail Customer*.

2.4.2 Technical Requirements

Meters, both installed as the main revenue *meter* and backup revenue *meter*, shall meet the minimum requirements provided under the *Philippine Distribution Code*.

2.5 INSTRUMENT TRANSFORMERS

Voltage transformers and *current transformers* within the *metering installations* shall meet the minimum requirements provided under the *Philippine Distribution Code*.

2.5.1 Maintenance for Metering Instrument Transformers

Condition-based maintenance shall be regularly conducted by the *Retail Metering Services Provider* such as Phase Angle Test including thermal scanning. The frequency of test shall be based on the utility's Maintenance Policy. If found with abnormal test results, the *instrument transformers* shall be isolated (de-energized) and tested for accuracy.

2.5.2 Safety Requirements and Grounding System

A *metering installation* shall conform to the safety and grounding system requirement of the *Philippine Distribution Code*.

2.6 SECURITY OF METERING INSTALLATIONS AND DATA

Metering installations shall meet the minimum security requirements listed in the *Philippine Distribution Code*.

2.7 EXISTING METERING INSTALLATIONS

An existing *metering installation* that does not fully comply with the requirements of this Manual shall be permitted by the *Central Registration Body* to remain in service subject to the following conditions:

- a) The *meter* has a mass memory capable of recording demand on an interval basis and have communication ports for remote and manual data retrieval;
- b) The Energy Regulatory Commission has tested or verified and sealed the *meter*.

SECTION 3 SITE EQUIPMENT IDENTIFICATION NUMBER (SEIN)

3.1 COVERAGE

This section describes the standard numbering system established by the *Central Registration Body* that *Retail Metering Services Providers* must follow when identifying their *metering installations* and individual equipment.

3.2 OBJECTIVES

The objectives of establishing a standard numbering system for identifying and numbering *metering installations* and its individual equipment are:

- a) To facilitate the location of *metering installations* for administrative purposes by reflecting the geographical location of the *metering installation* in its Site Equipment Identification Number; and
- b) To facilitate the identification of *metering installations* whose details are recorded in the *metering database* administered by the *Central Registration Body* under *Retail Rules* Clause 4.5.2;

3.3 GUIDELINES

The *Central Registration Body* and the *Retail Metering Services Providers* shall follow the procedures listed in this Section when numbering and identifying *metering installations* and its individual equipment.

3.3.1 Basis

The specific details of these guidelines are as prescribed in the *Philippine Distribution Code*.

3.3.2 Metering Installation

A *metering installation* shall be numbered using the following convention:

WWW-XXXX-YY-CCCC-NN

Where:

WWW Shall be the Standard Site ID of the Substation where the *Retail Customer* is drawing power from. Refer to Procedure No. 1 and Table 9 of the Appendix of the WESM Manual on Metering Standards and

Procedures⁶ for the procedure on the designation and a sample list of Standard Site IDs, respectively. Note: The Standard Site ID of the Substation where the *Retail Customer* is drawing power from also denotes the *Market Trading Node* that its *metering installation* shall be mapped to by the *Central Registration Body*.

- XXXX Shall be the Metered Participant ID of the Associated Grid Connection Point. Refer to Procedure No. 2 and Table 10 of the Appendix of the WESM Manual on Metering Standards and Procedures⁶ for the procedure on the designation and a sample list of Metered Participant IDs of Associated Grid Connection Points, respectively.
- YY Shall be a two (2) digit number designating the off-take grid meter.
- CCCC Shall be the Metered Participant ID of the *Retail Customer* as referenced to its short name ID. Refer to Appendix B for the procedure on the designation of Metered Participant IDs of *Contestable Customers*.
- NN Shall be a two (2) digit number identifying the *metering installation* of the facility of the *Retail Customer*.

Example:

ARA-MECO-01-PLDT-01

Where:

- | | |
|------|--|
| ARA | Standard Site ID of Araneta S/S |
| MECO | Metered Participant ID of Meralco |
| 01 | Grid Off-take Metering Point No. 1 |
| PLDT | Metered Participant ID of Philippine Long Distance Telephone Company |
| 01 | Metering Installation No. 1 of the Facility |

3.3.3 Meter

A *meter* shall be numbered using the following convention:

BY- (WWW-XXXX-YY-CCCC-NN)

⁶ Issue 7.0 WESM-MSDM-MM-07

Where:

- B Shall be a one (1) letter initial designating the purpose of the *meter*. Refer to Table A-1 for the standard purpose designations of *meters*.
- Y Shall be a one (1) digit number designating the function of the *meter*. The standard function designations are as follows: 1 – Delivered (OUT), 2 – Received (IN), 3 – Bi-directional (IN&OUT).
- (WWW-XXXX-YY-CCCC-NN) Shall be the Standard Equipment Identification Number of the *metering installation* where the *meter* is located.

Example:

R3-ARA-MEC0-01-PLDT-01

Where:

- R Main *meter* purpose designation
- 3 Bi-directional function designation
- (WWW-XXXX-YY-CCCC-NN) Standard Equipment Identification Number of the *metering installation* where the *meter* is located (See sample in Section 3.3.2 for details)

3.3.4 Meter Box and Modem

A meter box or modem shall be numbered using the following convention:

DD-(B-WWW-XXXX-YY-CCCC-NN)

Where:

- DD Shall be the two (2) letter initial designation for the relevant *metering* equipment, device, or auxiliary. Refer to Table A-2 for the standard designation of metering equipment, devices and auxiliaries.
- B Shall be a one (1) letter initial designating the purpose of the *meter*. Refer to Table A-1 for the standard purpose designations of *meters*.
- (WWW-XXXX-YY-CCCC-NN) Shall be the Standard Equipment Identification Number of the *metering installation* where the *meter* is located

Example:

MB-(R-ARA-MEC0-01-PLDT-01)

Where:

MB	Meter Box equipment, device, or auxiliary designation
R	Main <i>meter</i> purpose designation
(WWW-XXXX-YY-CCCC-NN)	Standard Equipment Identification Number of the <i>metering installation</i> where the <i>meter</i> is located (See sample in Section 3.3.2 for details)

3.3.5 Meter Test Switch

A meter test switch shall be numbered using the following convention:

DDYY-(B-WWW-XXXX-YY-CCCC-NN)

Where:

DD	Shall be the two (2) letter initial designation for meter test switch. Refer to Table A-2 for the standard designations of metering equipment, devices and auxiliaries.
YY	Shall be a two (2) digit number designating the off-take grid meter.
B	Shall be a one (1) letter initial designating the purpose of the <i>meter</i> . Refer to Table A-1 for the standard purpose designations of <i>meters</i> .
(WWW-XXXX-YY-CCCC-NN)	Shall be the Standard Equipment Identification Number of the <i>metering installation</i> where the <i>meter</i> is located

Example:

TS01-(R-ARA-MEC0-01-PLDT-01)

Where:

TS	Meter Test Switch equipment, device, or auxiliary designation
01	Grid Off-take Metering Point No. 1
R	Main <i>meter</i> purpose designation

(WWW-XXXX-YY-CCCC-NN) Standard Equipment Identification Number of the *metering installation* where the *meter* is located (See sample in Section 3.3.2 for details)

3.3.6 Current Transformer

A *current transformer* shall be numbered using the following convention:

PDD-(B-WWW-XXXX-YY-CCCC-NN)

Where:

- | | |
|-----------------------|---|
| P | Shall be a one (1) letter initial designation for phase of the current transformer: A – Phase A, B –Phase B, C – Phase C |
| DD | Shall be the two (2) letter initial designation for the current transformer. Refer to Table A-2 for the standard designations of metering equipment, devices and auxiliaries. |
| B | Shall be a one (1) letter initial designating the purpose of the <i>meter</i> . Refer to Table A-1 for the standard purpose designations of <i>meters</i> . |
| (WWW-XXXX-YY-CCCC-NN) | Shall be the Standard Equipment Identification Number of the <i>metering installation</i> where the <i>meter</i> is located |

Example:

ACT-(R-ARA-MEC0-01-PLDT)

Where:

- | | |
|-----------------------|--|
| A | Phase A of the current transformer |
| CT | Current transformer equipment, device, or auxiliary designation |
| R | Main <i>meter</i> purpose designation |
| (WWW-XXXX-YY-CCCC-NN) | Standard Equipment Identification Number of the <i>metering installation</i> where the <i>meter</i> is located (See sample in Section 3.3.2 for details) |

SECTION 4 METERING INSTALLATION REGISTRATION

4.1 COVERAGE

Pursuant to *Retail Rules* Clause 4.3.2.1, a *metering installation* shall be registered in the WESM through the *Central Registration Body*.

This section provides the procedures to be followed by the *Central Registration Body*, *Retail Customers*, *Suppliers*, and *Retail Metering Services Providers* for the registration of *metering installations* of *Retail Customers* in the WESM.

4.2 OVERVIEW

In order for a *metering installation* to be successfully registered in the WESM, *Retail Metering Service Providers* must be able to demonstrate to the *Central Registration Body* that the *metering installation* for registration is compliant with the *Retail Rules* and Section 2 of this Manual.

4.3 METERS FOR REGISTRATION

Main and backup *meters*, of revenue quality and the same *accuracy class*, shall be registered.

4.4 REGISTRATION PROCEDURES

4.4.1 Submission of Application Form and Pertinent Documents

If the *metering installation* of a *Retail Customer* subject to a *switch request* is not yet registered with the *Central Registration Body*, the prospective *Supplier* shall initiate the registration by creating a Metering Installation Registration Form (MIRF) request in the Central Registration and Settlement System. This is provided that all pre-switching requirements have been complied by the *Supplier*. In turn, its *Retail Metering Services Provider* shall submit the following to the *Central Registration Body* using the Central Registration and Settlement System.

- a) Accomplished Metering Installation Registration Form (MIRF) per metering point as published in the *market information web site*.
- b) Single Line Diagram

Simplified Single Line Diagram of the *Distribution Utility's* network showing the connection of the *Retail Customer's metering point* to the

default *grid off-take metering point* and other nearest *grid off-take metering points*.

If the *Retail Customer* is a grid-connected customer, it shall submit the Single Line Diagram showing the connection of the *Retail Customer's metering point* to the main grid substation.

c) Meter Testing

For *Retail Customers* having an average monthly peak demand of 1MW and above, the *Retail Metering Services Provider* shall submit all prior test results of its *meter* within the last two (2) years; and

d) Documentation of other special features of the meter.

4.4.2 Validation of Documents

Upon receipt of the Metering Installation Registration Form, the *Central Registration Body* shall inspect and validate the submitted documents for completeness and conformance to the standards established in Section 2 of this Manual.

4.4.2.1 Conformance to Requirements

If the *Central Registration Body* deems that the submitted documents are conformant and indicates conformance to its requirements, the *Central Registration Body* shall notify the *Retail Metering Services Provider* of the conformance through fax, mail, or e-mail.

4.4.2.2 Non-conformance to Requirements

4.4.2.2.1 Notification

If the *Central Registration Body* deems that the submitted documents are non-conformant or indicates a non-conformance to its requirements, the *Central Registration Body* shall request the relevant *Retail Metering Service Provider* to provide further clarifications by sending a notification either through fax, mail, or e-mail.

4.4.2.2.2 Resubmission of Documents

To proceed with the registration process, the *Retail Metering Services Provider* shall resubmit all necessary documents requested by the *Central Registration Body* through mail or courier.

4.4.3 Determination of Market Trading Node

Prior to registration, the *Retail Metering Services Provider* shall indicate the *grid off-take metering point* of the *Retail Customer* in the Metering Installation Registration Form.

Upon identification of the *grid off-take metering point*, the *Central Registration Body* shall determine the *Market Trading Node* of the *Retail Customer* or *Supplier*, as applicable, by following the *Market Trading Node* of the assigned *grid off-take metering point*.

4.4.4 Approval of Application

Upon receipt of all documents indicating the conformance of the *metering installation* for registration to the standards in this Manual, the *Central Registration Body* shall issue its approval to the *metering installation* for registration, update its registry, and *publish* the newly registered *metering installation* of the *Retail Metering Service Provider* in the *market information web site*.⁷

⁷ www.wesm.ph

SECTION 5 METERING DATA COLLECTION

5.1 COVERAGE

Pursuant to *Retail Rules* Clause 4.4.2.1, the *Retail Metering Services Provider*, on behalf of its associated *Supplier* or *Retail Customer*, shall retrieve the *metering data* from the *meter* and transmit the *metering data* to the *Central Registration Body*.

The *Retail Metering Services Provider* shall use all reasonable endeavors to ensure that *metering data* will be transmitted to the *metering database* of the *Central Registration Body* from its *metering installation* pursuant to *Retail Rules* Clause 4.3.7.1:

- a) Within the applicable accuracy parameters described in the *Philippine Grid Code*, the *Philippine Distribution Code* and relevant *Market Manuals*; and
- b) Within the time required for settlement and at a level of availability of at least ninety-nine (99%) per annum or as otherwise agreed between the *Central Registration Body* and the *Retail Metering Services Provider*.

This section provides the procedures to be followed by the *Central Registration Body*, *Retail Customers*, *Suppliers*, and *Retail Metering Services Providers* in the collection and submission of *metering data* to the *Central Registration Body*.

5.2 DATABASES

5.2.1 Metering Database

Pursuant to *Retail Rules* Clause 4.5.2.1, the *Central Registration Body* shall create, maintain and administer a *metering database*, which shall include a metering register containing information for each *metering installation* registered with the *Central Registration Body*.

5.2.1.1 Data Inclusions

The *metering database* shall include *metering data*, energy data, data substituted in accordance with *Retail Rules* Section 4.6, and all calculations made for settlement purposes.⁸

⁸ Retail Rules Clause 4.5.2.2

5.2.1.2 Storage Duration

Furthermore, data shall be stored in the *metering database*.⁹

- a) For sixteen (16) months in accessible format; and
- b) For ten (10) years in archive.

5.2.1.3 Access

The only entities¹⁰ entitled to have either direct or remote access to *metering data* on a read-only basis from the *metering database* or the metering register in relation to a *metering point* are:

- a) Each *Supplier* whose *gross energy settlement quantities* are determined by reference to quantities of energy flowing through that *metering point*,
- b) The *Retail Metering Services Provider* who is responsible for the *metering installation* at that *metering point*,
- c) The *Central Registration Body* and its authorized agents,
- d) The *Market Operator* and its authorized agents,
- e) Any *Retail Customer* with respect to the *metering data* in relation to the *metering point* registered to it;
- f) Any *Distribution Utility* with respect to *Retail Customers* whose facilities are located in its franchise area and for whom said *Distribution Utility* is not the *Retail Metering Services Provider*,
- g) The Market Surveillance Committee,
- h) The Enforcement and Compliance Office,
- i) The Market Assessment Group,
- j) The PEM Auditor,
- k) The Department of Energy, and
- l) The Energy Regulatory Commission.

5.2.1.4 Payment for Access to Metering Data

Except for costs incurred in the transmission and access of data to the *Central Registration Body*, the *Market Operator*, *Suppliers*, *Distribution Utilities* and *Retail Customers* for purposes of settlement, all reasonable costs that will be incurred by the *Retail Metering Services Provider* or by the *Central Registration Body* in providing *meter data* shall be paid by the person or entity to whom the *metering data* information was provided, as described in *Retail Rules* Clause 4.5.5.

⁹ Retail Rules Clause 4.5.2.3

¹⁰ Retail Rules Section 4.5.3

5.2.2 Installation Database

In accordance with *Retail Rules* Clause 4.5.1.2, a *Retail Metering Services Provider* shall ensure that each affected *Supplier*, *Distribution Utility*, and *Retail Customer* as well as the *Central Registration Body* is given access to the information in its installation database at all reasonable times and:

5.2.2.1 Data Inclusions

The *installation database* shall include *metering data*, energy data, and, if necessary, data substituted.

5.2.2.2 Access

In accordance with *Retail Rules* Clause 4.5.1.2, a *Retail Metering Services Provider* shall ensure that each affected *Supplier*, *Distribution Utility*, and *Retail Customer* as well as the *Central Registration Body* is given access to the information in its *installation database* at all reasonable times and:

- a) In the case of data sixteen (16) months old or less, within seven (7) working days of receiving written notice from the person or entity seeking access; and
- b) In the case of data more than sixteen (16) months old, within thirty (30) working days of receiving written notice from the person or entity seeking access.

5.3 COLLECTION AND SUBMISSION PROCEDURE

This section provides the process for the collection and submission to the *Central Registration Body* of *metering data*.

5.3.1 Requirements

5.3.1.1 Data

The *metering data* shall contain the following:

- a) Date and time, or time series, of the meter readings received for each *Retail Customer* meter,
- b) Active energy (kWh), active power (kW), reactive energy (kVARh), and reactive power (kVAR) data in 5-minute resolution with assigned channel number, and
- c) Site Equipment Identification Number of the *meter*.

5.3.1.2 Format

The *Retail Metering Services Provider* shall submit the *metering data* in a format prescribed by the *Central Registration Body*.

5.3.1.3 Timing

Pursuant to *Retail Rules* Clause 4.3.8, all meter clocks shall be synchronized by the *Retail Metering Services Provider* to Philippine Standard Time (PST) to ensure accuracy of accounting and settlements as applicable.

5.3.2 Daily Process

5.3.2.1 Collection

At an interval basis, the *meter* at the *metering point* of a *Retail Customer* continuously records *metering data*. Immediately at the end of the *trading day*, the *Retail Metering Services Provider* shall collect the *metering data* and event log of the whole *trading day* from each *meter*, identified by its Recorder ID (SEIN) and Device ID (Serial Number), of all its associated *Retail Customers* registered under Chapter 2 of the *Retail Rules*.

5.3.2.2 Submission

The *Retail Metering Services Provider* shall submit the collected *metering data* of the *trading day* to the *Central Registration Body* at 0400H of the succeeding *trading day*.

The *Retail Metering Services Provider* shall transmit the *meter data* from the metering facilities to the *Central Registration Body's* database via the data exchange protocol prescribed by the *Central Registration Body* (refer to *Appendix C*).

For cases of questionable *meter data* and the *Central Registration Body* requires the submission of secured *meter data* language, the *Retail Metering Services Provider* shall submit and open the secured *meter data* language in the presence of the *Central Registration Body* using the *Retail Metering Service Provider* software for purposes of validation.

5.3.2.2.1 Normal

In the event that no *metering data* was received by 0800H, the *Central Registration Body* shall immediately call the attention of the *Retail Metering Services Provider* to transmit the data through the same method.

5.3.2.2.2 Communication Failure

In case of communication failure between a *meter* and its Meter Data Retrieval System, the *Retail Metering Services Provider* shall retrieve the *metering data* from the *meter* manually through a meter reader handheld device or laptop. The *metering data* shall then be uploaded to the Meter Data Retrieval System of the *Retail Metering Services Provider* for export to the Meter Data Collection System of the *Central Registration Body*.

5.3.3 Monthly Process

Not later than three (3) *business days* after the end of the billing period, the *Retail Metering Services Provider* shall submit monthly preliminary *metering data* of all *metering points* of its associated *Retail Customers*. In addition, *Retail Metering Services Provider* shall submit a transmittal letter that includes a tabulation of all associated *metering points* and their corresponding total metered quantity for the billing period. The *Retail Metering Services Provider* shall also report to the *Central Registration Body* all discrepancies between the monthly *metering data* and the daily metering data values with justifications for the discrepancies.

In the event that metering data errors are detected by the *Central Registration Body* in accordance with Section 6 of this Manual, the *Retail Metering Services Provider* shall be required to submit final *metering data* addressing the errors.

Non-compliances with the above requirement shall be reported by the *Market Operator* to the *Governance Arm* or the *Enforcement and Compliance Office*, as may be authorized by the relevant *Market Manuals*, subject to the established rules on enforcement proceedings and sanctions.

5.3.4 Conversion to Dispatch Interval Data

- 5.3.4.1 If the *metering data* submitted by the *Retail Metering Services Provider* under Section 5.3.2 and 5.3.3 does not have the same resolution as a *dispatch interval* (e.g. 15-minutes, 30-minutes, 1-hour), the *Central Registration Body* shall convert the *metering data* to a *dispatch interval* basis using the procedure in Section 5.3.4.2.
- 5.3.4.2 The *Central Registration Body* shall convert *metering data* to a *dispatch interval* basis by dividing the value of the *metering data* evenly across the number of *dispatch intervals* within the duration of the interval of the *metering data* (e.g. 15-minute metering data will be divided by three).
- 5.3.4.3 The *Central Registration Body* shall review the conversion procedure when the threshold for contestability is reduced to less than 500kW.

5.4 EMERGENCY PROCEDURES

This section provides the procedural steps to be followed in case of a failure of the Meter Data Retrieval System of the *Retail Metering Services Provider* or an emergency situation that requires the transfer of the *metering data* processing operations of the *Central Registration Body* from the Main Server to the Emergency Back-up System (EBS).

5.4.1 Failure of the Meter Data Retrieval System

In case of a failure of the Meter Data Retrieval System of the *Retail Metering Services Provider*,

- a) The *Retail Metering Services Provider* shall:
 - i. Inform the *Central Registration Body* of the occurrence of a failure of its Meter Data Retrieval System;
 - ii. Perform emergency restoration of its Meter Data Retrieval System;
 - iii. While the Meter Data Retrieval System is out of service, retrieve all required *metering data* using alternative methods of retrieval and submit it within seven (7) *business days* to the *Central Registration Body* in a file format that is compatible with the system of the *Central Registration Body*. For this purpose, the *Retail Metering Services Provider* may use a backup Meter Data Retrieval System, if it is available, or retrieve the *metering data* on-site or remotely using the appropriate software;
 - iv. Inform the *Central Registration Body* when its Meter Data Retrieval System is ready to resume normal operation; and
 - v. Resume normal retrieval and transmittal of *metering data* using the Meter Data Retrieval System.
- b) The *Central Registration Body* shall, upon receipt of the *metering data*, perform validation (refer to Section 6 of this Manual) and process the *metering data* for accounting, billing and settlement, and upload the *metering data* to the *metering database*.

5.4.2 Transfer to Emergency Back-up System

In the event that an emergency situation requires the transfer of the *metering data* processing operations of the *Central Registration Body* from the Main Server to the Emergency Back-up System (EBS),

- a) The *Central Registration Body* shall:

- i. Inform the *Retail Metering Services Providers, Suppliers*, and the *Retail Customers* of the need to transfer operations from the Main Server to the Emergency Back-up Site;
 - ii. Instruct *Retail Metering Services Providers* to transmit *metering data* to the Emergency Back-up Site;
 - iii. Activate the Emergency Back-up Site, upload the *metering data*, perform validation and process the *metering data* for accounting, billing and settlement as applicable;
 - iv. Perform emergency restoration of its Main Server;
 - v. When the operations are ready to resume at the Main Server, inform the *Retail Metering Services Providers* to resume *metering data* transmittal to the Main Server; and
 - vi. Resume operations at and upload the *metering data* to the Main Server, perform validation and process the *metering data* for accounting, billing and settlement as applicable.
- b) The *Retail Metering Services Provider* shall:
- i. Transmit the *metering data* to the Emergency Back-up Site of the *Central Registration Body* when instructed; and
 - ii. Resume transmittal of *metering data* to the Main Server of the *Central Registration Body* when informed.

SECTION 6 DATA VALIDATION, ESTIMATION AND EDITING

6.1 COVERAGE

Pursuant to *Retail Rules* Clause 4.6, the *Retail Metering Services Providers* shall be responsible for supplying accounting-ready meter data to the *Central Registration Body*. In case of *metering data* error, the *Retail Metering Services Providers* shall be responsible for validation, estimation and editing of the affected *metering data*.

This section provides the methodologies and procedures for validating, estimating, and editing *metering data* for the determination of the *metered quantity* of a *Retail Customer* in accordance with *Retail Rules* Clause 3.3.3.2

6.2 GENERAL DESCRIPTION

All *metering data* received by the *Central Registration Body* shall be evaluated using the validation, estimation and editing process described in this section.

The *Central Registration Body* shall issue a *Meter Trouble Report* for all *metering data* that fails the validation component of the Validation, Estimate and Editing process. When *Meter Trouble Reports* are issued, the *Central Registration Body* shall give instructions to the concerned *Distribution Utility* or *Retail Metering Service Provider* who shall investigate the *meter trouble* and subsequently provide a report to the *Central Registration Body*. The concerned *Retail Metering Services Provider* shall then estimate and update the meter data. Procedures regarding *Meter Trouble Reports* are described in more detail in Section 7 of this Manual.

6.3 VALIDATION PROCEDURES

This section provides the procedures to be followed by the *Central Registration Body* and the *Retail Metering Service Providers* in the daily and monthly validation processes.

6.3.1 Daily Validation

6.3.1.1 Validation Error Categories

The *Central Registration Body* shall perform several checks upon receipt of *metering data*. These checks are described further in Section 6.3.1.2. *Metering data* that fails the checks will be reported according to two (2) error categories:

- a) Missing Values; and
- b) Orphan Values

6.3.1.2 Validation Error Categories

The following checks shall be performed by the *Central Registration Body* for the above validation error categories:

- a) Check for missing values; and
- b) Check for values in the *metering data* whose *meter* is not registered in the *Central Registration Body*.

6.3.1.3 Meter Trouble Report

In cases where a *metering data* error is detected, the *Central Registration Body* shall issue a *Meter Trouble Report* to the concerned *Retail Metering Services Provider*. Further details are provided in Section 7 of this Manual.

6.3.1.4 Validation Reporting

The *Central Registration Body* shall prepare a daily validation report containing the errors encountered for the day and their respective category.

6.3.2 Monthly Validation

In addition to the daily validation, the *Central Registration Body* shall also validate the monthly *metering data* sent to the *Central Registration Body* by the *Retail Metering Services Providers*. The procedure for the monthly validation is as follows:

- a) The *Retail Metering Services Provider* shall submit preliminary *metering data* in accordance with Section 5.3.3 of this Manual. The preliminary *metering data* must have no missing values. The *Retail Metering Services Provider* shall report to the *Central Registration Body* all discrepancies between the monthly *metering data* and the daily *metering data* values with justifications for the discrepancies;
- b) The *Central Registration Body* shall compare the values contained in the monthly *metering data* to the daily *metering data* of each *metering point* earlier submitted by the *Retail Metering Services Provider*. If there are discrepancies between the values, a *Meter Trouble Report* (refer to Section 7) shall be issued to the *Retail Metering Services Provider*;
- c) If issued a *Meter Trouble Report*, a *Retail Metering Services Provider* shall correct the *metering data* and submit final *metering data* not later than four (4) *business days* prior to the issuance of the final settlement statement; and
- d) All final *metering data* shall be formally transmitted to the *Central Registration Body* with a cover letter identifying all the *metering points*, through their Standard Equipment Identification Number.

6.3.3 Validation of Grid Off-Take Metering Points

If the aggregate *metered quantity* of all facilities of *Retail Customers* assigned to the *grid off-take metering point* exceeds the *metered quantity* at that *grid off-take metering point*, the *Central Registration Body* shall issue a *meter trouble report* to the concerned *Retail Metering Services Provider*.

In case of any changes in the *grid off-take metering point* connectivity, it shall be the responsibility of the *Retail Metering Services Provider* to inform the *Central Registration Body* that the facilities of the *Retail Customers* have been connected to a different *grid off-take metering point*.

6.3.4 Virtual Grid Off-take Metering Point

All *Retail Customers* with *grid off-take metering points* that are associated to the same *market trading node* shall be mapped to a virtual *grid off-take metering point*. This virtual *grid off-take metering point* shall have a *metered quantity* equal to the sum of the *metered quantity* measured at the individual *grid off-take metering points*. To determine the *metered quantity* of the *Distribution Utilities*, the aggregated *metered quantity* of all *Retail Customers* assigned to the *grid off-take metering points* shall be deducted from the *metered quantity* of the virtual *grid off-take metering point*.

6.3.5 Metering Installation Validation Tests

Pursuant to *Retail Rules* Clause 4.6.2, in case of *metering data* error, the *Retail Metering Services Provider* shall perform validation, estimation and editing in order to derive corrected *metering data*. All *Retail Metering Services Providers* shall perform their responsibilities in accordance with the provisions under the *Philippine Distribution Code*. For reference, the Appendix D provides suggested validation tests for *Retail Metering Services Providers*.

6.3.5.1 Current and Voltage Check

This indicator detects the loss of voltage and/or current input to the *meter* due to failure of the supply from one or more *instrument transformers* or tampering.

6.3.5.2 Load Profile vs. Meter Reading

This checks for corruption related to the *meter* multiplier.

6.3.5.3 Intervals Found vs. Interval Expected

This checks for missing intervals.

6.3.5.4 Time Synchronization

This checks for synchronism of meter clock to Philippine Standard Time/Data Collection System time.

6.3.5.5 Number of Power Outage Intervals

This indicator allows periods of zero primary power to be identified.

6.3.5.6 Cyclic Redundancy Check /Read-Only Memory /Random Access Memory

This is part of the internal components of a *meter*, which is automatically flagged when failing.

6.3.5.7 Meter Clock Overflow

Flag generated by the *meter* indicating failure of internal electronics.

6.3.5.8 Hardware Reset

Flag generated by the *meter* indicating failure of internal electronics.

6.3.5.9 Time Reset

This indicates the interval in which the meter clock time has been changed creating either a shorter or longer interval.

6.3.5.10 Data Overflow on Interval

This indicates that the meter is creating more pulses than it can record in an interval or Data Collection System (DCS) can accommodate in an interval.

6.3.5.11 Number of Channels

The actual number of data channels from the meter does not match the number expected at the data collection System.

6.3.5.12 Changed Device ID

The internal device identifier does not match the value registered at the data collection system.

6.3.5.13 Watchdog Time Out

This is the failure of the meter to return data in response to a poll within the required time frame. This is reported by some recorders when a watchdog register is tripped or activated.

6.3.5.14 Parity Error

This indicator is determined by a parity error bit that is set by a recorder on a channel of data during status check or read/write function.

6.3.5.15 Event Log Check

This checks error messages and alarms recorded by the meter.

6.4 ESTIMATION PROCEDURES

6.4.1 Daily Process

Upon detection of a *metering error* in the daily *metering data*, the *Retail Metering Services Providers* shall correct and estimate the *metering data* on a daily basis in accordance with the estimation procedures under the *Philippine Distribution Code*. Appendix D provides suggested daily estimation procedures for reference of *Retail Metering Services Providers*.

6.4.1.1 Uncertain Value Checking

Any value in the *metering data* that falls outside the maximum and minimum range of the *metering data* as recorded in the registry of the *Central Registration Body* metering system shall be marked with the status 'uncertain'. Metering data with values with 'uncertain' status are estimated using the following:

6.4.1.1.1 Historical Values

The values with 'uncertain' status may be replaced using the following historical data:

- a) Value during the same dispatch interval of last week,
- b) Value during the same dispatch interval of the previous day, and
- c) Average of the values during the whole previous day.

6.4.1.1.2 Back-up Meter

The values with 'uncertain' status may be replaced with the values from the back-up *meter* during the same *dispatch interval*.

6.4.1.1.3 Previous Dispatch Interval Data

The values with 'uncertain' status may be replaced using the reading from the previous dispatch interval.

6.4.2 Monthly Process

Upon detection of a *metering error* in the monthly *metering data*, the *Retail Metering Services Providers* shall estimate the *metering data* in accordance with the estimation procedures under the *Philippine Distribution Code*. Appendix D provides suggested monthly estimation procedures for reference of *Retail Metering Services Providers*.

6.4.2.1 Interpolation of Metering Data

If *metering data* of one (1) to twelve (12) consecutive five-minute intervals are missing, *metering data* shall be estimated by means of interpolation between the available intervals.

6.4.2.2 Back-up Meter Data

If *metering data* of more than twelve (12) consecutive five-minute intervals are missing, *metering data* from the back-up *meter* can be directly substituted for the missing data from the main *meter* provided that the historical difference of *metering data* between the main and back-up *meters* does not exceed more than 0.2%. If the historical deviation exceeds 0.2% but not more than 0.6%, a correction factor based on the historical difference between the main and back-up *meters* shall be applied on the *metering data* from the back-up *meter* before it is substituted for the missing data.

6.4.2.3 From Grid Off-Take Meter

If both the main and back-up *meters* fail, the *metering data* on the *metering point* of the facility of the *Retail Customer* shall be estimated using the *metering data* from its *grid off-take meter*. The *metering data* of the *Retail Customer* shall be estimated by adjusting the *metering data* of its *grid off-take meter* using a historical factor obtained through the comparison of the historical *grid off-take metering data* and historical *Retail Customer* main *metering data* as prescribed in *Retail Rules* Clause 3.3.5.2. This method of estimation is not applicable for variable loads whose historical load profile is indeterminate.

6.4.2.4 Scientific Method of Estimation

If there is a loss of one of the phase voltages and currents, estimation shall be performed through the scientific method of calculation using the average remaining phase voltages or currents of good data from the historical load profile.

6.4.2.5 Historical Meter Data

If the above methods do not provide reasonable values, the following historical data from the main *meter* may be used for estimating missing values:

- a) Values during the same dispatch interval of the previous day with the same day type (i.e., weekday or weekend),
- b) Values during the same dispatch interval of the same day last week recorded by the same *meter* (i.e. Saturday, Sunday, Holidays), and
- c) Average value of the values during the same dispatch interval of the same day of the three (3) previous weeks recorded by the same *meter*.

This method of estimation is not applicable for variable load whose historical load profile is indeterminate.

6.4.2.6 Other Technical Methods

Other technical methods proposed and submitted by the *Retail Metering Services Providers* may be considered by the *Central Registration Body*.

6.5 EDITING PROCEDURE

The *Retail Metering Services Provider* shall submit to the *Central Registration Body* the *estimated metering data* as soon as practicable. The *Central Registration Body* shall update the *metering data* in the *metering database* to correct the values previously submitted by the *Retail Metering Services Provider*. This update shall include actual *metering data* obtained as well as estimated *metering data* within the required period.

6.6 DETERMINING THE METERED QUANTITIES OF CONTESTABLE CUSTOMERS

The *metered quantity* of each *Retail Customer* shall be determined as the net metered flows at their respective *metering points*, before adjustment for site-specific losses as stated in *Retail Rules* Clause 3.3.5.1

6.7 USE OF METERS

As stated in *Retail Rules* Clause 4.3.4, the registered *metering installation* shall be used by the *Central Registration Body* as the primary source of *metering data* for the settlement of the transactions of *Retail Customers* and their *Suppliers* in the WESM.

Notwithstanding any other provision of Chapter 4 of the *Retail Rules*, the *Central Registration Body* shall not be liable to any person or entity in respect of any inaccuracies, discrepancies or other defects in *metering data*, including *metering data* which is stored in the *metering database*; provided that these do not arise from the gross negligence or willful misconduct of the *Central Registration Body*.

Where a *metering installation* is used for purposes in addition to the provision of *metering data* to the *Central Registration Body*, then:

- 6.7.1 That use shall not be inconsistent with, or cause any WESM Member to breach any requirements of the WESM Rules, the Philippine Grid Code and Philippine Distribution Code or any applicable laws; and
- 6.7.2 The Retail Metering Services Provider shall coordinate with the entities that use the metering installation for such other purposes to ensure compliance with this Retail Rules Clause 4.3.4.3.

6.8 APPROVAL AND EXPORTING

The *Central Registration Body* shall approve all received *metering data* before they are used in the accounting and settlement process, as applicable. These *metering data* shall have been reviewed and verified using the methods discussed in Sections 6.3. Settlement-ready *metering data* shall be exported to the accounting and settlement process and only approved data are transferrable.

SECTION 7 METER TROUBLE REPORT

7.1 COVERAGE

This section provides the details and procedures in relation to the *Meter Trouble Report* and its issuance.

7.2 INITIATION

A *Meter Trouble Report* may be initiated due to the following:

- a) A *metering data* error is detected through the validation process described in Section 6.3 of this Manual; or
- b) A *Retail Metering Services Provider*, a *Retail Customer*, or a *Supplier* requests the *Central Registration Body* to issue a *Meter Trouble Report* to the *Retail Metering Services Provider* due to difficulties in communicating with a *metering installation*, or validation of *metering data*. Where the *Central Registration Body* determines that a *Meter Trouble Report* is not required, it shall notify the *Retail Metering Services Provider*, *Retail Customer*, or *Supplier* of its decision within twenty-four (24) hours.

7.3 ISSUANCE

The *Central Registration Body* shall issue a *Meter Trouble Report* to the concerned *Retail Metering Services Provider* and, for information, its associated *Retail Customer or Supplier* within twenty-four (24) hours after detection or request.

7.4 RESOLUTION

7.4.1 Timeline

Retail Metering Services Provider shall submit the correct *metering data* to the *Central Registration Body* within the timeline below:

- (a) Within two (2) *business days* from the issuance of Daily Meter Trouble Report;
and
- (b) Within seven (7) *business days* from the issuance of Monthly Meter Trouble Report.

7.4.2 Unresolved Meter Trouble Reports

7.4.2.1 Estimation

If a *Meter Trouble Report* is still unresolved after the designated timeline in Section 7.4.1, the *Retail Metering Services Providers* shall implement the estimation and editing of *metering data* in accordance with Section 6 of this Manual.

7.4.2.2 Late Resolution

The *Retail Metering Services Provider* may still resolve a *Meter Trouble Report* and provide *metering data* acceptable to the *Central Registration Body* after the deadline set in Section 7.4.1. For late resolutions, the deadline to be reflected in the final settlement statement to be prepared by the *Market Operator* is five (5) *business days* prior to the issuance of the final settlement statement of the affected *trading day*.

7.4.2.2.1 Before Deadline

If the *Retail Metering Services Provider* resolves the *Meter Trouble Report* and submits *metering data* not later than five (5) *business days* prior to the issuance of the final settlement statement date of the affected *trading day*, the *Central Registration Body* shall use the submitted *metering data* for the determination of the *gross energy settlement quantities* of *Suppliers* or *Retail Customers* for use by the *Market Operator* in its final settlement of the *Supplier* or *Retail Customer*.

7.4.2.2.2 After Deadline

If the *Retail Metering Services Provider* resolves the *Meter Trouble Report* and submits *metering data* later than five (5) *business days* prior to the issuance of the final settlement statement of the affected *trading day*, the *Central Registration Body* shall use the submitted *metering data* for the determination of the *gross energy settlement quantities* of *Suppliers* or *Retail Customers* for use by the *Market Operator* in its settlement revisions under Clause 3.14.9.2 of the *WESM Rules*.

7.4.2.3 Certification

In case of dispute with respect to the validation and substitution implemented by the *Retail Metering Services Provider*, the *Retail Metering Services Provider* shall provide a certification on the adjusted *metering data* in accordance with *Retail Rules* Clause 4.6.3.

SECTION 8 PERFORMANCE MANAGEMENT

8.1 COVERAGE

This section provides the *Retail Customers, Suppliers, Retail Metering Services Providers, and the Central Registration Body, and the Governance Arm* the steps for the review, evaluation, and measurement of the performance of a *Retail Metering Services Provider*.

8.2 OBLIGATIONS

The *Governance Arm* shall conduct periodic monitoring and reporting of the ratings of *Retail Metering Services Providers* using the measures in this section.

The *Retail Metering Services Providers* shall, if requested, provide the *Governance Arm* information necessary for the measurement of their performance.

8.3 OVERVIEW

The *Retail Metering Services Providers* shall be measured with respect to the following areas:

- a) The integrity of *metering data* provided by the *Retail Metering Services Provider* to the *Central Registration Body* and the *Retail Customers*;
- b) The timeliness of daily and monthly *metering data* delivery with respect to the deadlines in this Manual;
- c) The timeliness in resolving the daily and monthly Meter Trouble Reports; and
- d) Customer satisfaction.

8.4 PERFORMANCE MEASURES

The *Governance Arm* shall rate the performance of *Retail Metering Services Providers* in accordance with the standards set forth in this Manual.

8.4.1 Service Delivery

8.4.1.1 Delivery of Daily Metering Data

Delivery of daily metering data is computed as the ratio of the number of *metering installations* with successfully submitted *metering data* to the total number of active registered *metering installations*.

8.4.1.2 Integrity of Metering Data

Integrity of Metering Data is computed as the ratio of the number of *metering installations* for which its *metering data* has passed the validation process to the total number of *metering installation* successfully submitted *metering data*.

8.4.1.3 Timeliness and Percentage Resolution to the Daily Meter Trouble Report

Timeliness and Percentage Resolution to the daily Meter Trouble Reports is computed as the ratio of resolved Meter Trouble Reports within two (2) *business days*, to the total number of *metering installations* for which daily Meter Trouble Reports were issued on. Average daily timeliness and percentage resolution of daily Meter Trouble Reports shall be greater than or equal to 90%.

8.4.1.4 Timeliness and Percentage Resolution of Monthly Meter Trouble Reports

Timeliness and Percentage Resolution of monthly Meter Trouble Reports is computed as the ratio of resolved Meter Trouble Reports, within seven (7) *business days* prior issuance of final settlement statement. Average timeliness and percentage resolution of Monthly Meter Trouble Reports shall be greater than or equal to 90% as reported.

8.4.1.5 Timeliness of Monthly Meter Data Delivery

Timeliness of Monthly Meter Data Delivery is computed as the ratio of the actual number of submitted *metering data* measured three (3) *business days* after the end of the billing period to the expected number of submitted *metering data* based on the number of *metering installations* of the *Metering Services Provider*. Timeliness of Monthly Meter Data Delivery shall be 100% or complete delivery of *metering data*. Incomplete Metering Data shall be rated based on the ratio of the number of metering points with meter data submitted to total *metering installations* as registered in the WESM.

8.4.2 Customer Satisfaction

Customer Satisfaction shall be computed using inputs collected through a survey. The survey shall allow the customers of the *Retail Metering Services Provider* to rate their satisfaction with regard to the following areas:

- a) Corporate Image,
- b) Punctuality and Responsiveness,
- c) Safety, and
- d) Behavior and General Impression.

To facilitate the survey, a *Retail Metering Services Provider* Customer Satisfaction Rating (CSR) Sheet shall be issued to the customers of the *Retail Metering Services Provider*. Annual average Customer Satisfaction shall be greater than or equal to 90%.

8.4.3 Summary

The performance measures described above are summarized in Table 1.

Table 1. Summary of Retail Metering Services Provider Performance Measures.

Performance Category	Measure	Criteria	Percent Weight	Percent Passing
Service Delivery	Daily Meter Data Delivery	Ratio of metering installations with successfully communicated metering data to total number of metering installations	25	95
	Integrity of Meter Data	Ratio of the number of metering installations with valid metering to the total number of metering installation with successfully communicated metering data	25	95
	Timeliness and Percentage Resolution to the Daily Meter Trouble Report	Ratio of resolved Meter Trouble Reports to the total number of metering installations for which a daily Meter Trouble Report was issued on	15	90
	Timeliness and Percentage Resolution of Monthly Meter Trouble Reports	Ratio of resolved Meter Trouble Reports to the total number of metering installations for which a monthly Meter Trouble Report was issued on	10	90
	Timeliness of Monthly Meter Data Delivery	Ratio of the actual number of submitted metering data to the expected number of submitted metering data based on the number of metering installations	15	100
Customer Satisfaction	Customer Satisfaction Rating	Retail Metering Service Provider Performance Appraisal by their Customers	10	90

8.4.4 Computation of Overall Performance

The overall performance of the *Retail Metering Services Provider* shall be computed by summing the product of the rating of the *Retail Metering Services Provider* on each performance measure and the percent weight of the same performance measure as indicated in Table 1.

8.5 MONITORING PROCEDURES

The *Governance Arm* shall calculate the performance measures and the overall performance score (Refer to Section 8.4 for details) of each *Retail Metering Services Provider* on a monthly, semi-annual and annual basis.

8.5.1 Monthly Performance Monitoring

After every *billing period*, the *Governance Arm* shall release to concerned *Retail Customers*, *Suppliers* and *Retail Metering Service Providers* the service delivery ratings (refer to Section 8.4.1) of their associated *Retail Metering Service Provider*. If requested, the *Governance Arm* shall discuss the results of the performance monitoring with the concerned *Retail Customer*, *Supplier*, or *Retail Metering Service Provider*. The results of the monthly performance monitoring shall be published in the *market information website*.¹¹

8.5.2 Semi-Annual Customer Satisfaction Monitoring

Every six (6) months, the *Governance Arm* shall determine the customer satisfaction rating of the *Retail Metering Services Providers* through the issuance of the Customer Satisfaction Rating Sheet to all direct *Retail Customers* and *Suppliers*. The *Governance Arm* shall require the direct *Retail Customers* and *Suppliers* to accomplish and submit the Customer Satisfaction Rating Sheets back to the *Governance Arm*.

The Customer Satisfaction Rating Sheets are to be accomplished every first week of July of the current year and January of the following year. The July rating shall determine the customer satisfaction performance of the *Retail Metering Services Provider* from January to June of the current year while the January rating shall determine the customer satisfaction performance of the *Retail Metering Services Provider* for the second half of the previous year (i.e., July to December).

8.5.3 Annual Performance Monitoring

¹¹ www.wesm.ph

The Annual Performance Monitoring of *Retail Metering Services Providers* covers the *billing periods* January to December of each year. It shall consist of:

- a) The annual rating of the performance measures under Section 8.4.1 computed by averaging the ratings during the twelve (12) *billing periods* of the year, and
- b) The Annual Customer Satisfaction Rating computed by averaging the ratings from the two (2) semi-annual surveys.

The Annual Performance Report for *Retail Metering Services Providers* shall be prepared and published by the *Governance Arm* in the *market information website*.

8.5.4 Reportorial Requirements

The *Retail Metering Services Provider* shall submit a report on any change in the *metering facilities* and the new Meter and Instrument Transformer Test Results to the *Central Registration Body* as part of its continuing compliance.

Appendix A Site Equipment Identification Number Tables
Table A-1. Meter Purpose Designations.

Designation	Meter Purpose
R	Main Meter
R1	Alternate Meter (Partial Redundant Metering)
B	Alternate Meter (Full Redundant Metering)
B1	Backup Meter

Table A-2. Metering Equipment, Devices and Auxiliaries Designations.

Designation	Description
CT	Current Transformer
LA	Lightning Arrester
MB	Meter Box
MD	Modem
MF	Multi-function Electronic Meter (Smart Meter)
PT	Potential Transformer
ST	Metering Structure
TS	Meter Test Switch

Appendix B Metered Participant ID Guidelines

These guidelines shall be followed in the labeling and numbering of *metering installations of Retail Customers*.

1. The Metered Participant ID of *Retail Customers* shall be identified by four (4) alphanumeric characters except for cases cited in items 5 and 6 of these guidelines.
2. The Metered Participant ID of *Retail Customers* whose full name corresponds to a three-letter abbreviation shall be that three-letter abbreviation appended by the zero (0) character.

Example:

Retail Customer	Metered Participant ID
American Power Conversion	APC0
Bank of the Philippine Islands	BPI0
Cultural Center of the Philippines	CCP0

3. The Metered Participant ID of *Retail Customers* whose corporate name is composed of only one or two words shall be the first letter of the first word, the succeeding two (2) consonants of the first word, and the first letter of the second word or the zero (0) character.

Example:

Retail Customer	Metered Participant ID
Amerton, Inc.	AMRI
Ayala Corp.	AYLC
Lancaster	LNC0
Magic Mall	MGCM
TIMEX	TMX0

4. The Metered Participant ID of *Retail Customers* whose name consists of four (4) letters or less shall be its name itself appended by the zero (0) character, if necessary.

Example:

Retail Customer	Metered Participant ID
PHPC	PHPC

5. The Metered Participant ID of *Retail Customers* that has numeric characters in its corporate name shall be the numeric characters and the abbreviation of the alphabetic characters.

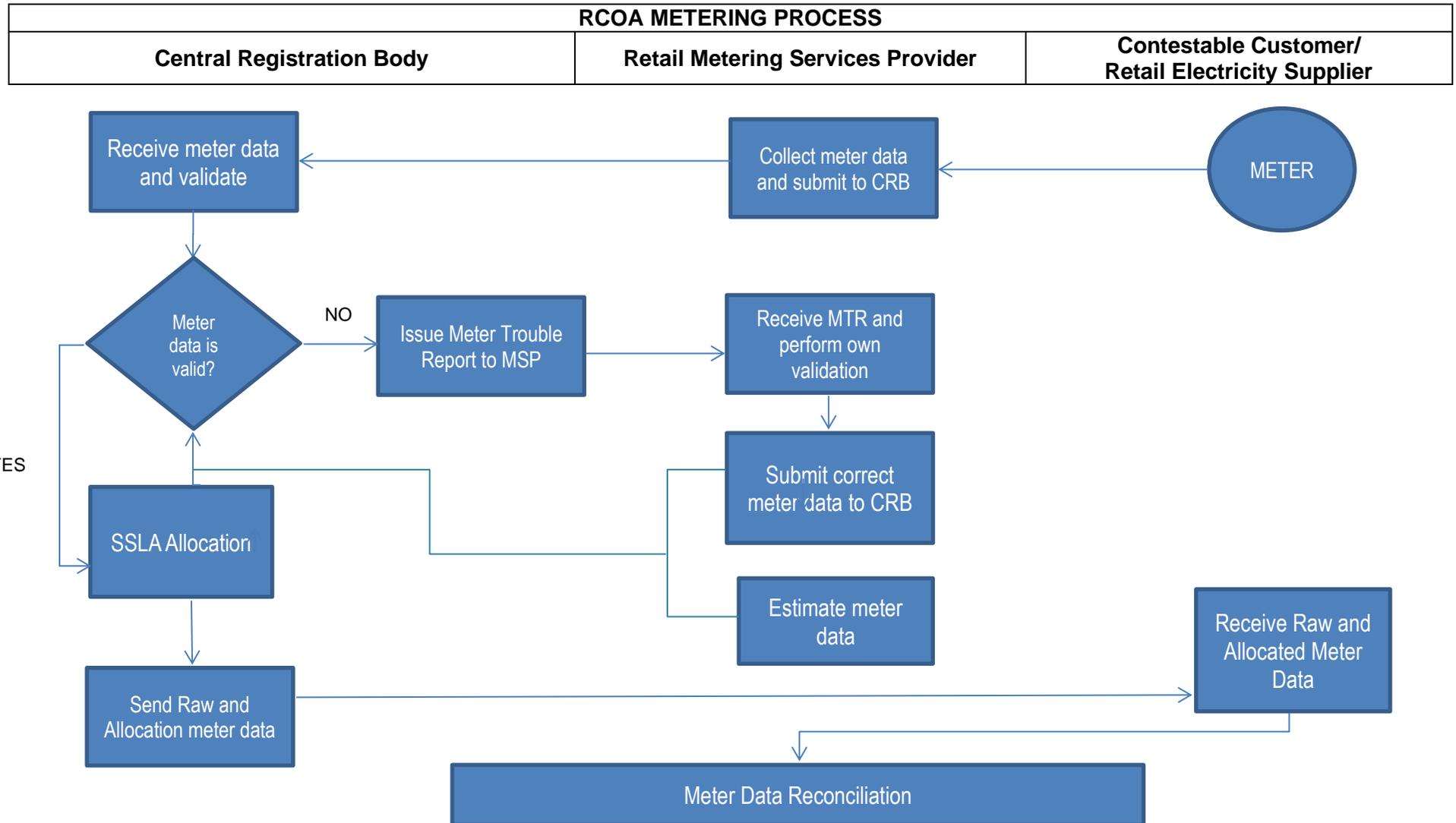
Example:

Retail Customer	Metered Participant ID
14-678 PROPERTY HOLDINGS INC.	146PH
1590 ENERGY CORPORATION	159EC
18-2 PROPERTY HOLDINGS INC	182PH
19-1 REALTY CORPORATION	191RC
6-24 PROPERTY HOLDINGS INC.	624PH
6-3 PROPERTY HOLDINGS INC.	63PHI
21ST CENTURY STEEL MILLS, INC.	21CSM

6. The Metered Participant ID of *Retail Customers* that has several facilities in their name shall be composed of six (6) alpha-numeric characters. The Metered Participant ID shall be the combination of three (3) alpha-numeric characters corresponding to the abbreviation of their corporate name, two (2) numeric characters corresponding to the facility number, and one (1) numeric character corresponding to the metering installation in that location.

Example:

Retail Customer	Metered Participant ID
ROBINSONS LAND CORP., Batangas	RLC011
ROBINSONS LAND CORP., Cavite	RLC021
ROBINSONS LAND CORP., Cavite	RLC022
ROBINSONS LAND CORP., Laguna	RLC031
ROBINSONS LAND CORP., Makati City	RLC041
ROBINSONS LAND CORP., Mandaluyong	RLC051
ROBINSONS LAND CORP., Mandaluyong	RLC052
ROBINSONS LAND CORP., Mandaluyong	RLC053
ROBINSONS LAND CORP., Mandaluyong	RLC054
ROBINSONS LAND CORP., Mandaluyong	RLC055
ROBINSONS LAND CORP., Mandaluyong	RLC056
ROBINSONS LAND CORP., Mandaluyong	RLC057
ROBINSONS LAND CORP., Manila	RLC061
ROBINSONS LAND CORP., Manila	RLC062
ROBINSONS LAND CORP., Manila	RLC063
ROBINSONS LAND CORP., Pasig City	RLC071
ROBINSONS LAND CORP., Quezon City	RLC081
ROBINSONS LAND CORP., Rizal	RLC091
ROBINSONS LAND CORP., Bacolod	RLC101
ROBINSONS LAND CORP., Cebu	RLC111

Appendix C RCOA Metering Process


Appendix D Metering Data Validation and Estimation Procedures

This appendix provides suggested *metering installation* validation and estimation procedures as reference to *Retail Metering Services Providers* when performing its responsibilities under Clause 4.6.2 of the *Retail Rules*.

A. Suggested Validation Tests

1. Current and Voltage Check

This indicator detects the loss of voltage and/or current input to the *meter* due to failure of the supply from one or more *instrument transformers* or tampering.

2. Load Profile vs. Meter Reading

This checks for corruption related to the *meter* multiplier.

3. Intervals Found vs. Interval Expected

This checks for missing intervals.

4. Time Synchronization

This checks for synchronism of meter clock to Philippine Standard Time/Data Collection System time.

5. Number of Power Outage Intervals

This indicator allows periods of zero primary power to be identified.

6. Cyclic Redundancy Check /Read-Only Memory /Random Access Memory

This is part of the internal components of a *meter*, which is automatically flagged when failing.

7. Meter Clock Overflow

Flag generated by the *meter* indicating failure of internal electronics.

8. Hardware Reset

Flag generated by the *meter* indicating failure of internal electronics.

9. Time Reset

This indicates the interval in which the meter clock time has been changed creating either a shorter or longer interval.

10. Data Overflow on Interval

This indicates that the meter is creating more pulses than it can record in an interval or Data Collection System (DCS) can accommodate in an interval.

11. Number of Channels

The actual number of data channels from the meter does not match the number expected at the data collection System.

12. Changed Device ID

The internal device identifier does not match the value registered at the data collection system.

13. Watchdog Time Out

This is the failure of the meter to return data in response to a poll within the required time frame. This is reported by some recorders when a watchdog register is tripped or activated.

14. Parity Error

This indicator is determined by a parity error bit that is set by a recorder on a channel of data during status check or read/write function.

15. Event Log Check

This checks error messages and alarms recorded by the meter.

B. Suggested Daily Estimation Procedures

Any value in the *metering data* that falls outside the maximum and minimum range of the *metering data* as recorded in the database of the *Retail Metering Services Provider* may be estimated using the following:

1. Historical Values

The values with 'uncertain' status may be replaced using the following historical data:

- a. Value during the same hour last week,
- b. Value during the same hour the previous day, and
- c. Average of the values during the whole previous day.

2. Backup Meter

The values with 'uncertain' status may be replaced with the values from the backup meter during the same hour.

3. Previous Hour Data

The values with 'uncertain' status may be replaced using the reading from the previous hour.

C. Suggested Monthly Estimation Procedures

1. Interpolation of Metering Data

If *metering data* of one (1) to four (4) consecutive fifteen-minute intervals are missing, *metering data* may be estimated by means of interpolation between the available intervals.

2. Back-up Meter Data

If *metering data* of more than four (4) consecutive fifteen-minute intervals are missing, *metering data* from the back-up *meter* may be directly substituted for the missing data from the main *meter* provided that the historical difference of *metering data* between the main and backup *meters* does not exceed more than 0.2%. If the historical deviation exceeds 0.2% but not more than 0.6%, a correction factor based on the historical difference between the main and backup *meters* is suggested to be applied on the *metering data* from the backup *meter* before it is substituted for the missing data.

3. From Grid Off-Take Meter

If both the main and backup *meters* fail, the *metering data* on the *metering point* of the facility of the *Retail Customer* may be estimated using the *metering data* from its *grid off-take meter*. The *metering data* of the *Retail Customer* may be estimated by adjusting the *metering data* of its grid off-take meter using a historical factor obtained through the comparison of the historical grid off-take *metering data* and historical *Retail Customer* main *metering data*. This method of estimation is not applicable for variable loads whose historical load profile is indeterminate.

4. Scientific Method of Estimation

If there is a loss of one of the phase voltages and currents, estimation may be performed through the scientific method of calculation using the average remaining phase voltages or currents of good data from the historical load profile.

5. Historical Meter Data

If the above methods do not provide reasonable values, the following historical data from the main *meter* may be used for estimating missing values:

- a) Values during the same hour of the previous day with the same day type (i.e., weekday or weekend),
- b) Values during the same hour of the same day last week recorded by the same *meter* (i.e. Saturday, Sunday, Holidays), and
- c) Average value of the values during the same hour of the same day of the three (3) previous weeks recorded by the same *meter*.

This method of estimation is not applicable for variable load whose historical load profile is indeterminate.