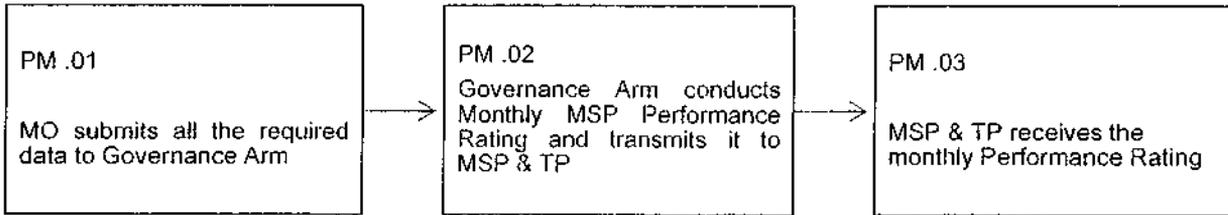


**ANNEX A**

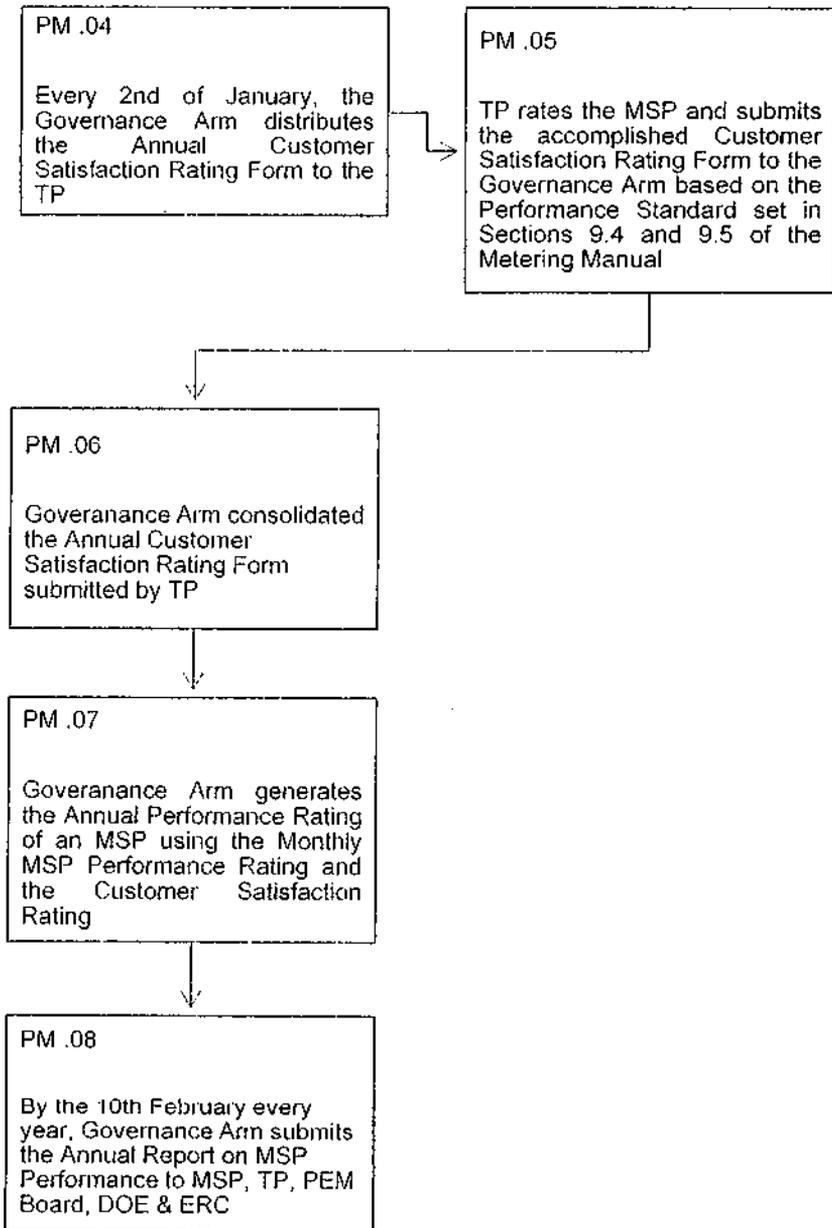
**“9.7.4 Work Flow For MSP Performance Rating**

<b>MO</b>	<b>GOVERNANCE ARM</b>	<b>TP</b>
-----------	-----------------------	-----------

**MONTHLY**

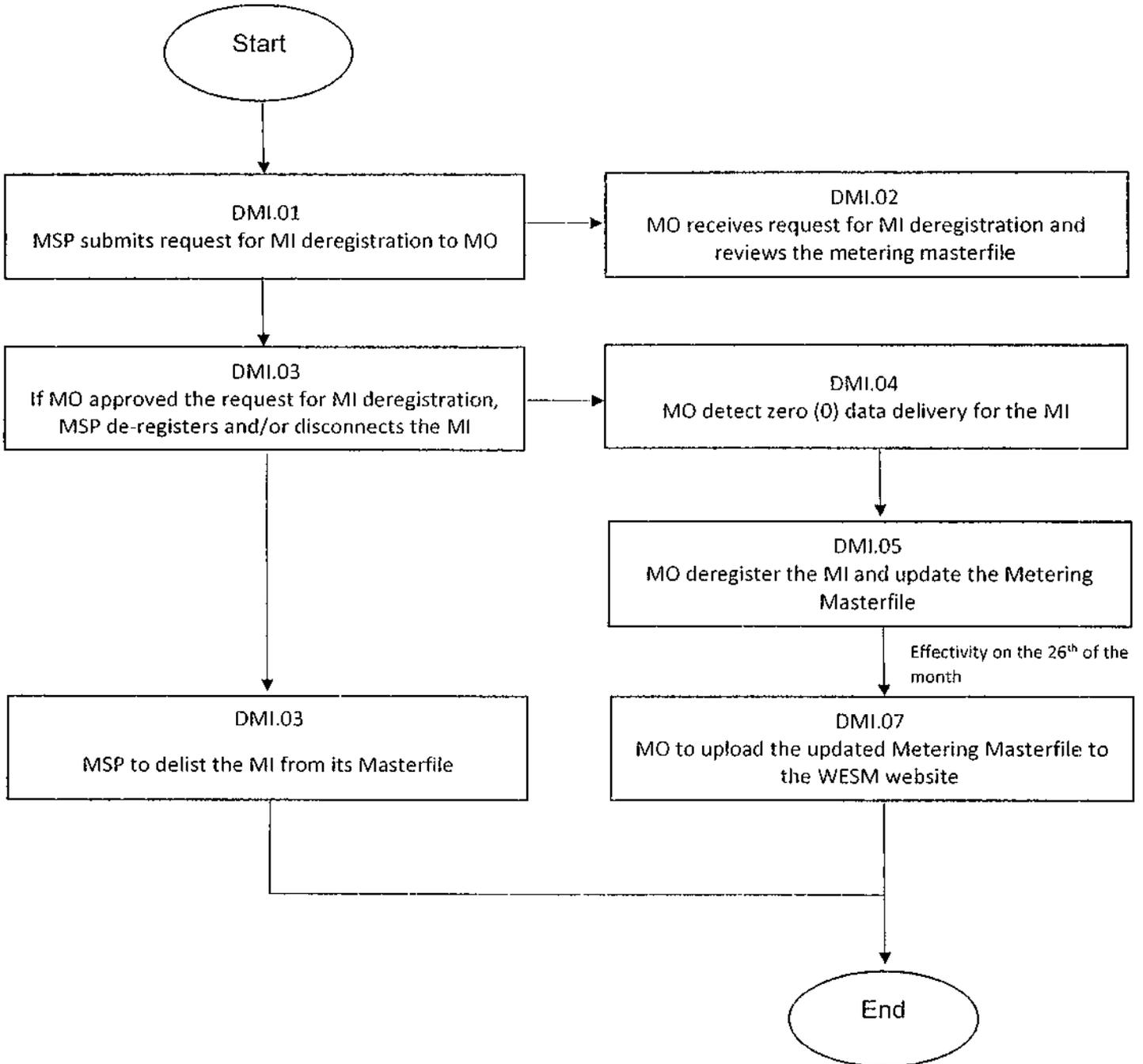


**ANNUALY**



**ANNEX B**

**"10.5 WORKFLOW FOR DEREGISTRATION OF METERING INSTALLATION**



**ANNEX C**

**"10.6 PROCEDURAL STEPS FOR DE-REGISTRATION OF METERING INSTALLATION**

Ref.	Task Name	Task Detail	When	Method	Completion Events
DMI.01	MSP submits request for MI deregistration to MO	MSP sends MI deregistration letter to MO containing the reason of deregistration and other pertinent details including the schedule of deregistration.	After reaching an agreement with the WESM member to de-register the MI	By e-mail, courier or fax and official letter address to MO	Notice to MO
DMI.02	MO receives MI deregistration	After receiving the letter of deregistration of MI, MO reviews the request of the MSP. MO review the Metering Masterfile and issue instructions to deregister the MI	After DMI. 01	By e-mail, courier or fax and official letter address to MO	
DMI.03	MSP de-registers and/or disconnects the MI and notify the MO	If MO approved the request for MI deregistration, MSP de-registers and/or disconnects the MI on the agreed schedule. MSP to cease sending of data of de-registered MI to the MO	At the agreed de-registration or disconnection schedule		

DC \_\_\_\_\_ – ADOPTING FURTHER AMENDMENTS TO THE WHOLESALE ELECTRICITY SPOT MARKET (WESM) RULES AND MARKET MANUALS ON METERING FOR THE IMPLEMENTATION OF ENHANCEMENTS TO WESM DESIGN AND OPERATIONS (Provisions for Metering Services Provider Performance, Metering Standards and Site-Specific Loss Adjustments)

**ANNEX C**

Ref.	Task Name	Task Detail	When	Method	Completion Events
DMI.04	MO detect zero (0) data delivery for the MI	MO verify if the MI is de-registered and/or disconnected by detecting zero (0) data delivery for the said MI	After MI de-registration and/or disconnection	By meter data inspection	
DMI.05	MO deregisters the MI	MO deregister the MI and update the Metering Masterfile  Effectivity of de-registration to the market shall be on the 26 <sup>th</sup> of the month following the actual de-registration or disconnection of the WESM Member by the MSP under DMI.03	After DMI.04		
DMI.06	MSP to delist the MI	MSP to delist the MI from its masterfile and old MIRF shall be deregistered	After DMI.05		End of deregistration process of MI
DMI.07	MO to update the MI in the Metering Masterfile	MO to upload the updated Metering Masterfile to the website and old MIRF shall be deregistered	After DMI.06		End of deregistration process of MI

METERING SERVICE AGREEMENT
Between NGCP and [SHORT NAME] for [Name of Power Plant]

This METERING SERVICE AGREEMENT (hereinafter referred to as the "Agreement") is entered into by and between:

The NATIONAL GRID CORPORATION OF THE PHILIPPINES ("NGCP"), a corporation duly organized and existing under and by virtue of the laws of the Republic of the Philippines, with principal office address at the NGCP Building, Quezon Avenue corner BIR Road, Diliman, Quezon City, represented by its President and Chief Executive Officer, [Name of President and CEO], who is duly authorized to represent NGCP in this Agreement as confirmed by the attached authority marked as Annex A;

- and -

[CUSTOMER] ("SHORT NAME" or "CUSTOMER") a corporation duly organized and existing under and by virtue of the laws of the Republic of the Philippines, with principal office address at [Office Address], represented by its [Position of Representative], [REPRESENTATIVE], who is duly authorized to represent [SHORT NAME] in this Agreement as confirmed by the attached authority marked as Annex B;

NGCP and [SHORT NAME] shall be referred to individually as "Party" and collectively as "Parties,"

WITNESSETH:

WHEREAS, on 13 December 2006, the Energy Regulatory Commission ("ERC") in ERC Case No. 2006-015RC approved the Revised Rules, Terms, and Conditions for the Provision of Open Access Transmission Service ("OATS Rules") which govern the provision of transmission services to qualified grid users;

WHEREAS, NGCP is the concessionaire that operates and maintains the nationwide system pursuant to Republic Act No. 9136, otherwise known as the "Electric Power Industry Reform Act of 2001" or EPIRA and NGCP's congressional franchise under Republic Act No. 9511;

WHEREAS, NGCP is authorized by the ERC to act as Wholesale Electricity Spot Market ("WESM") Metering Service Provider ("MSP") by virtue of the Certificate of Authority issued to NGCP;

WHEREAS, NGCP is also registered as a WESM MSP under the WESM Rules;

WHEREAS, [SHORT NAME] requires revenue metering facilities and services for measuring the energy and/or demand delivered and/or received from the Grid for purposes of settlement of energy and transmission charges;

[CUSTOMER]
By:

REPRESENTATIVE
Designation

Signed in the Presence of:

NATIONAL GRID CORPORATION OF THE PHILIPPINES
By:

[Name of President & CeO]
President and Chief Executive Officer

NOW, THEREFORE, in view of the foregoing premises, the Parties hereby agree that NGCP shall be the MSP of the CUSTOMER, subject to the following terms and conditions:

I. SCOPE OF AGREEMENT

- 1. This Agreement shall cover the metering points of the [ ]'s facility, as listed in Annex "C" and shown in the diagram attached as Annex "D" of this Agreement.

II. GENERAL PROVISIONS

- 2. Application and Incorporation of the OATS Rules, WESM Rules, PGC and Other Issuances. The obligations of the Parties under this Agreement shall also be governed by the prevailing versions of the OATS Rules, WESM Rules, Philippine Grid Code ("PGC"), and other relevant issuances, orders, rules and regulations promulgated by proper government agencies and authorities as if they are written herein. This shall be understood to include all amendments and modifications thereof, as may be issued from time to time as long as vested rights under this Agreement are not impaired.

- 3. Definition of Terms. In this Agreement the expressions set out below shall have the following meanings:

A. Metering Equipment. As defined in the PGC, it is the apparatus necessary for measuring electrical real and reactive power and energy, inclusive of a multi-function meter and the necessary instrument potential, current, and phase shifting transformers and all wiring and communication devices. It includes, but is not limited to, current transformers, voltage transformers, current instrument transformer, lightning arrester, meters, modem, test switch/block.

B. Metering Installation. As defined in the OATS Rules, these are set of devices, equipment and apparatus used to measure and record the consumption and production of electricity installed by NGCP or Customer. It refers to the whole metering facility which includes Metering Equipment and other related requirements such as, but not limited to seclusion fence, perimeter lighting, and gravel surfacing.

C. Full Metering Services. A type of metering service wherein NGCP provides and owns the Metering Installation, including instrument transformers and lightning arrester as may be applicable.

D. Meter Only Services. A type of metering service wherein the CUSTOMER shall provide all the Metering Equipment, except for the revenue meters and appurtenances, i.e. meter box, test switches, and modem.

All other capitalized terms shall have the same meaning as defined in the OATS Rules, the PGC, the WESM Rules, and the WESM Metering Manual.

[CUSTOMER]  
By:

REPRESENTATIVE  
Designation

Signed in the Presence of:

NATIONAL GRID CORPORATION OF THE PHILIPPINES  
By:

[Name of President & CEO]  
President and Chief Executive Officer

E. EFFECTIVITY AND TERM

4. This Agreement shall be for a period of \_\_\_\_ (\_\_\_\_) years and shall take effect on the 26<sup>th</sup> day of \_\_\_\_\_ 20\_\_\_\_ until the 25<sup>th</sup> day of \_\_\_\_\_ 20\_\_\_\_, unless earlier terminated in accordance with this Agreement.

F. OBLIGATIONS OF THE PARTIES

5. Obligations of NGCP.

A. In accordance with and in addition to NGCP's obligations under the applicable laws and issuances referred to in Section 2, NGCP shall have the following obligations in rendering **Full Metering Services**:

- i. Provide and install PGC and WESM – compliant revenue meters, instrument transformers, and other necessary metering equipment and accessories for CUSTOMERS;
- ii. Provide concrete foundation for the high voltage metering equipment if the Metering Installation is located inside an NGCP substation. For Metering Installations installed outside an NGCP substation, 6.A.1 will apply;
- iii. Install security locks and/or seals at access points of the Metering Equipment;
- iv. Retrieve meter data that represents delivered and/or received energy/demand for purposes of settlement of energy and transmission charges;
- v. Provide monthly meter data to the CUSTOMER within seven days from the end of each Billing Period;
- vi. Deliver meter data to the Market Operator for billing and settlement in the WESM, if applicable;
- vii. Periodically perform the prescribed tests on the metering equipment, as may be required in the prevailing versions of PGC, WESM Rules, or other applicable laws and issuances from government entities;
- viii. Perform technical investigation to support the resolution of the billing disputes arising from contested meter data; and
- ix. Perform such other tasks as may be required of the WESM MSP under the WESM Rules and Metering Manual, if applicable.

B. NGCP shall have the following obligations in rendering **Metering Only Services**:

- i. Provide and install PGC and WESM – compliant Meter Security Enclosure (Meter Box) and appurtenances such as revenue meter, modem, test block.

- ii. Provide concrete foundation for the high voltage metering equipment if the Metering Installation is located inside an NGCP substation, For Metering Installations installed outside an NGCP substation, 6.A.1 will apply;
- iii. Install security locks and/or seals at access points of the Metering Equipment;
- iv. Retrieve meter data that represents delivered and/or received energy/demand for purposes of settlement of energy and transmission charges;
- v. Provide monthly meter data to the CUSTOMER within seven days from the end of each Billing Period;
- vi. Deliver meter data to the Market Operator for billing and settlement in the WESM, if applicable;
- vii. Periodically perform the prescribed tests on the metering equipment, as may be required in the prevailing versions of PGC, WESM Rules, or other applicable laws and issuances from government entities subject to applicable technical services fee to be paid by the CUSTOMER;
- viii. Perform technical investigation to support the resolution of the billing disputes arising from contested meter data; and
- ix. Perform such other tasks as may be required of the WESM MSP under the WESM Rules and Metering Manual, if applicable.

**6. OBLIGATIONS OF THE CUSTOMER.**

- A. In accordance with and in addition to the CUSTOMER's obligations under the applicable laws and issuances referred to in Section 2 of this Agreement, the CUSTOMER shall have the following obligations whether availing of Full Metering Service or Meter Only Service:
  - i. For all Metering Installation located outside an NGCP Substation, the CUSTOMER shall, at its own expense:
    - a. provide sufficient space for the Metering Installation pursuant to the OATS Rules, WESM Rules, WESM Market Manual, and other relevant laws;
    - b. provide security/exclusion fence, security controls, and adequate lighting and gravel surfacing around the Metering Installation, pursuant to the PGC, WESM Rules, and other relevant laws;
    - c. provide reasonable logistical assistance to NGCP personnel during commissioning of the Metering Installation;
    - d. install structurally sound concrete foundation, support structure, and grounding connections for the Metering Installation;

- e. install Landline or Public Switched Telephone Network (PSTN) connection to the revenue meter, as may be required by NGCP, to provide connectivity between the meter and the NGCP remote meter data retrieval system; and
  - f. maintain good housekeeping of the Metering Installation surroundings.
- ii. Provide NGCP personnel reasonable access at all times to the Metering Installations for the purpose of maintenance of Metering Equipment and meter reading/data retrieval. NGCP undertakes to strictly comply with the safety and security measures and policies of the CUSTOMER. For this purpose, NGCP shall not hold the CUSTOMER liable for the death or bodily injury to the officers, workers, and representatives of NGCP while inside the premises of the CUSTOMER, unless if the death or bodily injury is caused by willful act or inexcusable negligence of the CUSTOMER. Furthermore, NGCP shall indemnify the CUSTOMER for any damage, loss or other expense incurred or suffered by the CUSTOMER which is proven to be due to a negligence act or omission of NGCP's officers, workers, and representatives while inside the CUSTOMER's premises and in the performance of its duties as MSP;
  - iii. Review the delivered meter data and notify NGCP of any error or inaccuracy on meter reading and data within thirty (30) days from receipt thereof;
  - iv. Pay metering service charges to NGCP in accordance with the ERC-prescribed rates and WESM Rules, if applicable.
  - v. Prior to energization of Metering Installation, the CUSTOMER shall ensure its membership with the WESM, as well as the registration of the Metering Installation with the WESM.
- B. In addition to the obligations mentioned in Section 6.A, CUSTOMERS availing of **Meter Only Services** shall have the following obligations:
- i. Provide the Metering Equipment compliant with PGC, WESM Rules, and other applicable laws, *provided however*, that revenue meters and appurtenances, *i.e.* meter box, test switches, and modem shall be provided by NGCP.
  - ii. Coordinate with the ERC for the conduct of the verification test of Metering Installations pursuant to GRM 9.2.5.2.1 of the PGC.
  - iii. pay for the cost of any testing to be performed on the instrument transformers;
  - iv. pay for the cost of testing to be performed on the lightning arrester, if such testing is requested by the CUSTOMER; and
  - v. provide three (3) spare units for each type of instrument transformer and three (3) spare lightning arresters. Otherwise, in case of equipment malfunction and until the CUSTOMER provides an acceptable replacement for the Metering Installation, the procedure in Section 7.1 will be followed.
- C. The **CUSTOMER** may, in emergency cases, enter into any agreement with another party for the repair of the Metering Installations owned by the CUSTOMER, subject, however to NGCP's review and assessment. In this

case, the CUSTOMER shall hold NGCP harmless against any claim, loss, or damage arising from such repair, maintenance, or activity.

**7. EQUIPMENT MALFUNCTION.**

- 7.1 NGCP shall adopt the procedure provided for under the WESM Market Manual in case of malfunction of the Meter Installation or where there is failure of meter data retrieval.
- 7.2 In case of equipment malfunction for Meter Only Services and in addition to 7.1, NGCP may install a complete set of Metering Equipment upon the request of the CUSTOMER, subject however to availability of such Metering Equipment. Thereafter, Full Metering Service will be adopted.

**8. Upgrading of Metering Installation.** Any subsequent upgrading of Metering Installation to be compliant with the requirements of the PGC and WESM may be the subject of an amendment to this Agreement.

**9. Audit of Revenue Metering Facilities, Equipment and Data.** The CUSTOMER may audit the metering facilities, equipment, and meter data that are covered by this Agreement subject to procedures mutually acceptable to the Parties.

**10. CONFIDENTIALITY OF METERING DATA**

- 10.1 All metering data shall be considered as Confidential Information and the Parties shall jointly protect and secure such data from unauthorized access. Parties shall not even under conditions of confidence, make available, disclose, provide, or communicate the metering data directly or indirectly, in any form or manner, to any person except:
- a. to the entities mentioned in GRM 9.3.6 of the PGC and Chapter 4.8.3 of the WESM Rules.
  - b. when the disclosure is required by law or specifically ordered by a judicial, governmental, or regulatory authority, in due exercise of its jurisdictional powers, provided:
    1. that the Party duly informs such authority that the information requested are confidential,
    2. informs the other party of such requirement immediately upon receiving notice of any order (or request that could lead to an order) seeking such disclosure,
    3. takes all reasonable measures, as may be consistent with their legal obligation, to hold in abeyance the disclosure to the maximum extent legally possible to allow the other Party reasonable opportunity to exercise its rights available by law relating to the order of disclosure, and
    4. promptly extends to the other Party reasonable cooperation necessary to enable the latter to fully protect

its interests, including providing all relevant information, documentation and assistance.

- 10.2 Any breach of metering security that is observed or reported to one of the Parties must be reported to the other Party.
- 10.3 A Party responsible for any damage resulting from the disclosure or consequent unauthorized use of the Metered Data shall indemnify the other Party for any substantiated damage caused. The provision of Clause 10 shall survive the expiration or termination of this Agreement.

**D. BILLING, PAYMENT AND CREDIT SUPPORT**

- 11. **Billing and Payment.** The Rates, Methodology, Billing and Settlement Module of the OATS Rules shall govern the billings by NGCP of the MSP Charge and other applicable charges as may be agreed upon by the parties, and the payment of such billings by the CUSTOMER.
- 12. **Mode of Payment.** Payment shall be made by way of:
  - a. BDO Bills Payment Slip (BPS);
  - b. Checks to be paid Over-the-Counter (OTC) through NGCP Cashier;
  - c. On-line funds transfer to NGCP's account; or
  - d. Other forms as may be approved by NGCP.
- 13. **Check Payments.** In case a check issued is dishonored, the applicable penalty under the OATS Rules shall accrue from the time the obligation became due. NGCP shall have the right to refuse subsequent payments made by check. NGCP also reserves the right to pursue other available actions against the CUSTOMER.
- 14. **Application of Payments.** In case the CUSTOMER is liable for any amounts due under this Agreement, including penalties, NGCP shall first apply any payments to past due amounts before applying the same to the current billing. In case of partial payments, NGCP shall apply the hierarchy of payments in the following order: (a) regulated charges, (b) charges for excluded services, (c) other charges.
- 15. **Penalty and Interest.** Interest over any unpaid account shall be governed by Module F of the OATS Rules.
- 16. **Credit Support.** CUSTOMER shall, if requested by NGCP, provide credit support or additional credit support in a form and on terms acceptable to NGCP which includes:
  - a. cash;
  - b. guarantee;
  - c. standby letter of credit; or
  - d. surety bond,

Credit Support, in the form of b, c, and d above, shall be issued by entities acceptable to NGCP.

[CUSTOMER]  
By:

REPRESENTATIVE  
Designation

Signed in the Presence of:

NATIONAL GRID CORPORATION OF THE PHILIPPINES  
By:

[Name of President & CEO]  
President and Chief Executive Officer

[CUSTOMER]

By:

REPRESENTATIVE

Designation

- 17. **Designated Commercial Banks.** In accordance with Module F5 of the OATS Rules and for purposes of determining interest on amounts unpaid after Due Date, including amounts placed in escrow or in any other form placed by reason of a dispute, NGCP shall inform the CUSTOMER in writing of its designated commercial banks. NGCP shall have the right to change its list of designated commercial banks and shall notify the CUSTOMER within a reasonable time in writing of the said change, which shall be effective commencing the billing month following the receipt of the notice.

**VI. SUSPENSION AND TERMINATION OF SERVICE**

- 18. **Suspension of Service.** NGCP may suspend the provision of metering service to the CUSTOMER for (1) non-fulfillment of the latter's obligations, (2) for causes in accordance with the OATS Rules, (3) when the CUSTOMER or any of its employees, agents, and representatives commit pilferage of NGCP assets, (4) when the CUSTOMER tampers or make unauthorized alteration of meter data, or (5) when requested by the Market Operator or Contracted Generator or Supplier of a Load Customer, as an interim measure until such time that the CUSTOMER has remedied the cause of suspension and upon payment of reconnection fee.

Signed in the Presence of:

- 19. **Termination.**

- 19.1 NGCP may terminate this Agreement without need of further notice in the event that the CUSTOMER fails to remedy the cause of suspension within ninety (90) days from the imposition thereof. Services shall resume only if the cause of suspension and termination has been remedied by the CUSTOMER and upon payment of reconnection fee.

- 19.2 The Parties may also terminate this Agreement in accordance with the Default and Termination provisions in the OATS Rules.

- 19.3 If applicable, this Agreement shall be deemed terminated should the CUSTOMER's facility permanently ceases to operate and is disconnected from the Grid.

- 19.4 In all instances, the CUSTOMER shall arrange the necessary de-energization of electrical facilities and provide access to NGCP personnel to allow de-commissioning and removal of NGCP-installed metering equipment from the metered facilities.

- 19.5 Termination shall be without prejudice to the fulfillment of the Parties' remaining obligations under this Agreement, if any.

- 19.6 In the event that the CUSTOMER's power plant permanently shuts down but continues to be connected to the Grid as a Load Customer as defined in the OATS Rules, this Agreement shall continue to be in force, subject to amendments if necessary.

- 20. **Limitation of Liability.** NGCP shall not be liable for damages of any form arising from or related to, directly or indirectly, the lawful and proper exercise of its rights and obligations under this Agreement and in accordance with the

NATIONAL GRID CORPORATION OF THE PHILIPPINES

By:

[Name of President & CEO]

President and Chief Executive Officer

Metering Service Agreement\_ver\_02/2021  
[Name of Power Plant]

grounds and procedures provided under the OATS Rules, WESM Rules, WESM Market Manual, PGC, and other issuances from government entities.

21. **Co-Terminus with the Transmission Service Agreement.** Termination of the Transmission Service Agreement may also cause the termination of this Agreement, at the option of NGCP.

22. **Assignment.** This Agreement may be assigned in accordance with Module A11 of the OATS Rules.

22.1 **Metering Service Business Spin-off.** In the event of the spin-off of NGCP's Metering Service business, this Agreement shall remain binding, and the rights and obligations of NGCP under this Agreement shall be transferred to its successor-in-interest. NGCP shall notify the CUSTOMER in writing at least sixty (60) days prior to such occurrence.

22.2 **Sale of the CUSTOMER's Facility.** In the event that the CUSTOMER's facility are sold or transferred to another entity, this Agreement shall remain binding and the rights and obligations of the CUSTOMER under this Agreement shall be transferred to its successor-in-interest, provided, the CUSTOMER complies with the requirements under Module A11 of the OATS Rules.

23. **DISPUTE RESOLUTION.** The Parties shall endeavor to amicably resolve any dispute in relation to this Agreement. Otherwise, the Dispute Resolution Procedures of the OATS Rules, the PGC, the WESM Rules, and the WESM Metering Manual, as may be applicable, shall apply.

24. **NOTICES.** For communications to be given in relation to this Agreement, Module A12 of the OATS Rules shall apply.

Communications may likewise be sent by email from an email address designated by the sending Party below to an email address designated by the recipient Party below, provided that proof of receipt shall be the email "read receipt" in accordance with Module A12 of the OATS Rules.

**NGCP** NGCP Building, Quezon Avenue cor. BIR Road, Diliman, Quezon City

Attention: **Head of Revenue & Regulatory Affairs**

Email Address: [xxxxx]

Backup Email Address: [xxxxxx]

**SHORT NAME** Office Address

Attention:

Email Address:

**VII. MISCELLANEOUS PROVISIONS**

25. **Warranty of Corporate Existence and Authority.** Each Party hereby represents and warrants that: (a) it is duly incorporated, validly existing and in

Metering Service Agreement\_ver\_02/2021  
[Name of Power Plant]

[CUSTOMER]

By:

REPRESENTATIVE

Designation

Signed in the Presence of:

NATIONAL GRID CORPORATION OF THE PHILIPPINES

By:

ANTHONY L. ALMEDA

President and Chief Executive Officer

good standing under the laws of the Republic of the Philippines; (b) it possesses full power and authority to enter into this Agreement, and has taken all the necessary action to authorize the entry into and delivery of this Agreement, and the transactions contemplated hereby, and the performance of its obligations hereunder; (c) it has the power, licenses and permits required to carry on its business as it is being conducted and as proposed to be conducted; (d) this Agreement and the consummation of the transactions contemplated herein are its legal, valid, binding and enforceable obligations; and (e) it shall, in good faith, comply with all its obligations under this Agreement.

[CUSTOMER]  
By: \_\_\_\_\_  
REPRESENTATIVE  
Designation

Signed in the Presence of:

NATIONAL GRID CORPORATION OF THE PHILIPPINES  
By: \_\_\_\_\_  
[Name of President & CEO]  
President and Chief Executive Officer

- 26. **Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the Republic of the Philippines. This Agreement shall be subject to existing laws, policies, rules and regulations, administrative orders and any amendments and modifications thereof, emanating from the Department of Energy, the ERC, other government agencies or authorized bodies, and shall be deemed incorporated herein.
- 27. **Non-waiver of Rights.** Failure or delay by any Party in the exercise of any right, power or remedy under this Agreement shall not operate as a waiver thereof.
- 28. **Entire Agreement and Amendments.** This Agreement, its schedules, attachments and annexes supersede any previous agreement, arrangements or representation between the Parties, whether oral or written, in respect of the subject matter of this Agreement and shall constitute the entire agreement between the Parties in relation thereto.
- 29. **Severability.** If at any time, one or more provisions in this Agreement shall be determined to be illegal, invalid or unenforceable in any respect, the legality, validity and enforceability of the remaining provisions of this Agreement shall not be affected or impaired thereby, provided that the remaining provisions are sufficient to render to each Party the benefits contemplated hereby.
- 30. **Actions.** The Parties expressly recognize that the ERC has original and exclusive jurisdiction over all cases involving disputes between the Parties, and shall not bring such disputes before any other forum. Any other actions, suits of claims arising out of or related to this Agreement that are not within the jurisdiction of the ERC shall be filed exclusively in the proper courts of Quezon City, Philippines.
- 31. **Counterparts.** This Agreement may be executed by the Parties in counterparts, each of which when so executed and delivered shall be an original, but all of which shall together constitute one and the same instrument.

IN WITNESS WHEREOF, the Parties have executed this Agreement this \_\_\_\_ day of \_\_\_\_\_ 20\_\_ at \_\_\_\_\_.

Metering Service Agreement\_ver\_02/2021  
[Name of Power Plant]

NATIONAL GRID CORPORATION  
OF THE PHILIPPINES

CUSTOMER

By:

By:

[Name of President & CEO]  
President and Chief Executive  
Officer

REPRESENTATIVE  
POSITION

Signed in the Presence of:

\_\_\_\_\_

Republic of the Philippines )  
Quezon City ) S.S.

ACKNOWLEDGMENT

BEFORE ME, this \_\_\_\_\_ appeared [Name of President & CEO] with [government-issued ID] issued at Quezon City who represented himself to be the same person who executed this instrument and acknowledged the same to be his true and voluntary act and deed and of the corporation he represents.

This instrument, consisting of \_\_\_\_\_ (\_\_\_\_) pages, including the page on which this acknowledgment is written, has been signed on the signature page and on the left margin of each and every other page thereof by the concerned parties and their witnesses, and sealed with my notarial seal.

IN WITNESS WHEREOF, I have hereunto set my seal and signature.

Doc. No. \_\_\_\_\_  
Page No. \_\_\_\_\_  
Book No. \_\_\_\_\_  
Series of 20\_\_\_\_.

[CUSTOMER]

By:

REPRESENTATIVE

Designation

Signed in the Presence of:

NATIONAL GRID CORPORATION OF THE PHILIPPINES

By:

[Name of President & CEO]

President and Chief Executive Officer

Republic of the Philippines )  
Quezon City ) S.S.

Metering Service Agreement\_ver\_02/2021  
[Name of Power Plant]

ANNEX D

ACKNOWLEDGMENT

BEFORE ME, this \_\_\_\_\_ appeared \_\_\_\_\_ with \_\_\_\_\_ who represented himself to be the same person who executed this instrument and acknowledged the same to be his true and voluntary act and deed and of the corporation he represents.

This instrument, consisting of \_\_\_ ( ) pages, including the page on which this acknowledgment is written, has been signed on the signature page and on the left margin of each and every other page thereof by the concerned parties and their witnesses, and sealed with my notarial seal.

IN WITNESS WHEREOF, I have hereunto set my seal and signature.

Doc.	No.	_____:
Page	No.	_____:
Book	No.	_____:
Series of 20_____.		

**ANNEX D**

**Annex "A"**

**SECRETARY'S CERTIFICATE – NGCP**

Annex "B"

SECRETARY'S CERTIFICATE – [CUSTOMER]

Annex "C"

Metering Points of the CUSTOMER

Plant/Facility Name	Metering Point Name	Location/ Address	SEIN	*Applicable Charges
XXXXXX	XXXXXX	XXXXXX		XXXXXX

**\*Subject to change when NGCP finds discrepancies on its metering database**

[CUSTOMER]  
By:

REPRESENTATIVE  
Designation

Signed in the Presence of:

NATIONAL GRID CORPORATION OF THE PHILIPPINES  
By:

[Name of President & CEO]  
President and Chief Executive Officer

Annex "D"

Single Line Diagram for CUSTOMER's Metering Points

Below is the single line diagram (SLD) of showing the Customer's metering points.

*Insert Single Line Diagram*

[CUSTOMER]  
By:

REPRESENTATIVE  
Designation

Signed in the Presence of:

NATIONAL GRID CORPORATION OF THE PHILIPPINES  
By:

[Name of President & CEO]  
President and Chief Executive Officer



## APPENDIX K

## SITE-SPECIFIC LOSS ADJUSTMENT

## A. General Equations

The following are the equations to be used for performing the Site Specific Loss Adjustment (SSLA):

## Calculation of Line Losses

$$kW_{Meter} = \frac{kWh_{Meter}}{t}$$

$$kVAR_{Meter} = \frac{kVARh_{Meter}}{t}$$

$$pf = \frac{kW_{Meter}}{\sqrt{(kW_{Meter})^2 + (kVAR_{Meter})^2}}$$

$$I_{Line} = \frac{kW_{Meter}}{\sqrt{3} \times V_{Rated} \times pf}$$

$$Line_{kW-Loss} = \frac{(I_{Line})^2 \times R_T}{1000}$$

## Calculation of Transformer Losses:

For the calculation of the transformer losses, the following percent transformer loss (%Transformer<sub>Loss</sub>) shall be used to determine the total transformer losses.

Capacity (kVA)	Percent Transformer Loss (%)
1000	1.9
2000	1.8
3000	1.7
4000	1.6
5000	1.5
10000	1.4

*For in between capacities, interpolation shall be performed to calculate the Percent Transformer Loss*

When translating power (and energy) metered at the secondary side to the primary side, the following formula shall be used:

$$kW_{P-Meter} = \frac{kW_{Meter}}{\left(1 - \frac{\%Transformer_{Loss}}{100}\right)}$$

$$kVAR_{P-Meter} = \frac{kVAR_{Meter}}{\left(1 - \frac{\%Transformer_{Loss}}{100}\right)}$$

$$Transformer_{kW-Loss} = kW_{P-Meter} - kW_{Meter}$$

Conversely, power (and energy) that is metered at the primary side shall be translated to the secondary side using the formula:

$$kW_{S-Meter} = kW_{Meter} \left(1 - \frac{\%Transformer_{Loss}}{100}\right)$$

## ANNEX F

$$kVAR_{S-Meter} = kVAR_{Meter} \left(1 - \frac{\%Transformer_{Loss}}{100}\right)$$

$$Transformer_{kW-Loss} = kW_{Meter} - kW_{S-Meter}$$

Calculation of Adjusted Energy

$$Total_{kW-Loss} = Line_{kW-Loss} + Transformer_{kW-Loss}$$

$$Adjusted_{kW} = kW_{Meter} \pm Total_{kW-Loss}$$

(+) = if the *connection point* is located before the metering point (i.e., the line current initially passes through the *connection point* then the metering point)

(-) = if the *connection point* is located after the metering point (i.e., the line current initially passes through the metering point then the *connection point*)

$$Adjusted_{kWh} = Adjusted_{kW} \times t$$

Where:

$R_T$  = Total resistance of the line conductor per line, in ohms

$X_L$  = Total Reactance of the Line Conductor per line, in ohms

$pf$  = Power Factor

$kWh_{Meter}$  = Active energy derived from the *meter* registration, in kWh

$kVARh_{Meter}$  = Reactive energy derived from the *meter* registration, in kVARh

$kW_{Meter}$  = Demand (*Active Power*) derived from the *meter* registration, in kW

$kVAR_{Meter}$  = *Reactive Power* derived from the *meter* registration, in kVAR

$I_{Line}$  = Current along the line, in Ampere

$V_{Rated}$  = Rated voltage of the line, in kV

$Line_{kW-Loss}$  = the active loss along the line, in kW

$kW_{P-Meter}$  = Translated *active power* at the primary side of transformer, in kW

## ANNEX F

$kVAR_{P-Meter}$  = Translated reactive power at the primary side of transformer, in kVAR

$kW_{S-Meter}$  = Translated active power at the secondary side of the transformer, in kW

$kVAR_{S-Meter}$  = Translated reactive power at the secondary side of the transformer, in kVAR

$\% Transformer_{Loss}$  = Percent Transformer Loss Factor

$Transformer_{kW-Loss}$  = Total loss in the transformer, in kW

$Total_{kW-Loss} = P_{Loss}$  = Total active loss for a metering point, in kW

$Adjusted_{kW}$  = Adjusted active power, in kW

$t$  = duration of a *dispatch interval*, in hours

$Adjusted_{kWh}$  = Adjusted active energy, in kWh

### B. Cases for Loss Calculation

Note: The following illustrations and computations are sample cases only. Other actual detailed cases may use more than one sample case and may be discussed with the Trading Participants, Metering Services Provider, and Network Service Provider if necessary.

#### Line Loss Only

Case 1: A *connection point* is located before the metering point Figure L1 and G1) (In this case, the line current initially passes through the *connection point*, then the metering point).

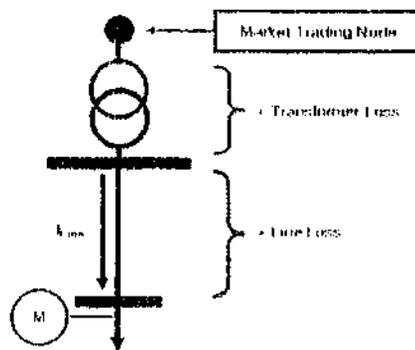


Figure L1

## ANNEX F

### a. Loads:

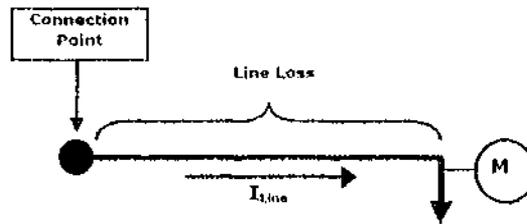


Figure L1

### b. Generators

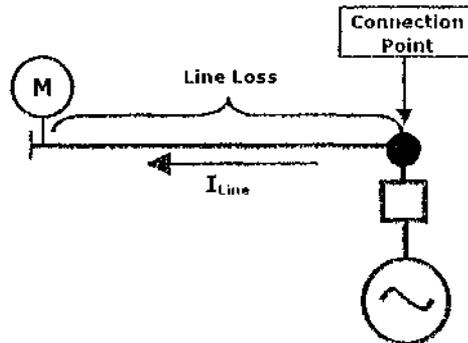


Figure G1

$$kW_{Meter} = \frac{kWh_{Meter}}{t}$$

$$kVAR_{Meter} = \frac{kVARh_{Meter}}{t}$$

$$pf = \frac{kW_{Meter}}{\sqrt{(kW_{Meter})^2 + (kVAR_{Meter})^2}}$$

$$I_{Line} = \frac{kW_{Meter}}{\sqrt{3} \times V_{Rated} \times pf}$$

$$Line_{kW-Loss} = \frac{(I_{Line})^2 \times R_T}{1000}$$

$$Total_{kW-Loss} = Line_{kW-Loss}$$

$$Adjusted_{kW} = kW_{Meter} + Total_{kW-Loss}$$

ANNEX F

$$Adjusted_{kWh} = Adjusted_{kW} \times t$$

Case 2: A connection point is located after the metering point (Figure L2 and G2) (In this case, the line current initially passes through the metering point then the connection point)

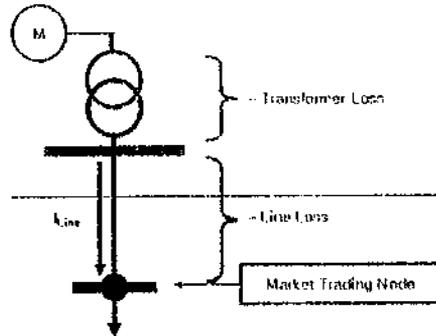


Figure L2

a. Loads

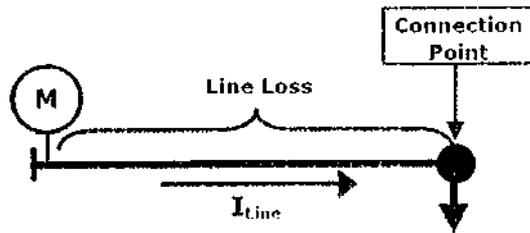


Figure L2

b. Generators

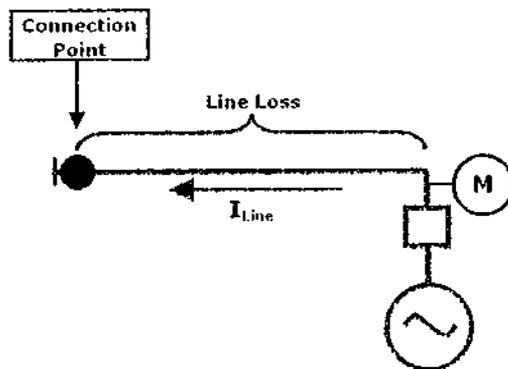


Figure G2

$$kW_{Meter} = \frac{kWh_{Meter}}{t}$$

## ANNEX F

$$kVAR_{Meter} = \frac{kVARh_{Meter}}{t}$$

$$pf = \frac{kW_{Meter}}{\sqrt{(kW_{Meter})^2 + (kVAR_{Meter})^2}}$$

$$I_{Line} = \frac{kW_{Meter}}{\sqrt{3} \times V_{Rated} \times pf}$$

$$Line_{kW-Loss} = \frac{(I_{Line})^2 \times R_T}{1000}$$

$$Total_{kW-Loss} = Line_{kW-Loss}$$

$$Adjusted_{kW} = kW_{Meter} - Total_{kW-Loss}$$

$$Adjusted_{kWh} = Adjusted_{kW} \times t$$

### Transformer Loss Only

Case 1: A *connection* point is located before the *metering point* (Figure L3 and G3) (In this case, the line current initially passes through the *connection* point then the metering point)

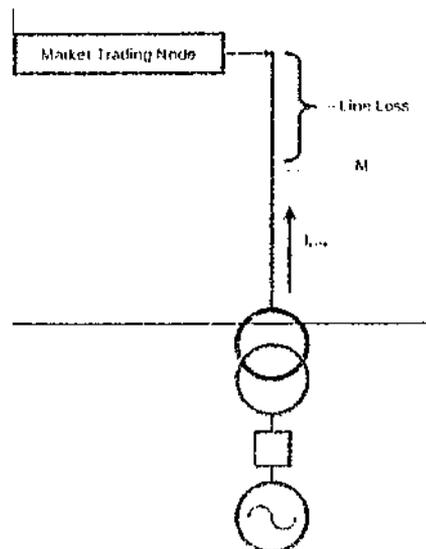


Figure G1

ANNEX F

a. Loads

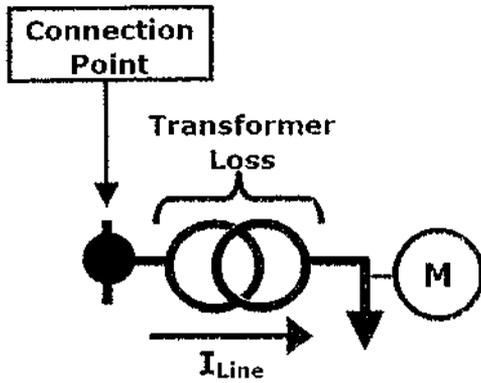


Figure L3

$$kW_{Meter} = \frac{kWh_{Meter}}{t}$$

$$kW_{P-Meter} = \frac{kW_{Meter}}{\left(1 - \frac{\%TransformerLoss}{100}\right)}$$

$$Transformer_{kW-Loss} = kW_{P-Meter} - kW_{Meter}$$

$$Total_{kW-Loss} = Transformer_{kW-Loss}$$

$$Adjusted_{kW} = kW_{Meter} + Total_{kW-Loss}$$

$$Adjusted_{kWh} = Adjusted_{kW} \times t$$

b. Generators

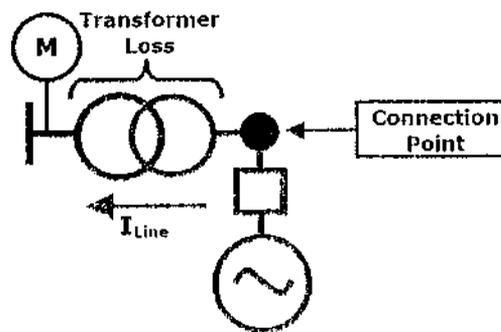


Figure G3

## ANNEX F

$$kW_{Meter} = \frac{kWh_{Meter}}{t}$$

$$kW_{P-Meter} = \frac{kW_{Meter}}{\left(1 - \frac{\%Transformer_{Loss}}{100}\right)}$$

$$Transformer_{kW-Loss} = kW_{P-Meter} - kW_{Meter}$$

$$Total_{kW-Loss} = Transformer_{kW-Loss}$$

$$Adjusted_{kW} = kW_{Meter} + Total_{kW-Loss}$$

$$Adjusted_{kWh} = Adjusted_{kW} \times t$$

## APPENDIX L

## SPECIFICATIONS FOR TRANSMISSION REVENUE METERS

ITEMS	SPECIFICATIONS		REFERENCE DOCUMENTS
	MAIN METER	BACK- UP METER	
Accuracy Class	IEC 687 Class 0.2 / ANSI 12.20 Class 0.3 or better	Same as the main meter	PGC 2016 GRM 9.2.3
No. of Stators	Blondel's Theorem compliant /3-element	Same as the main meter	PGC 2016 GRM 9.2.2.1
Rating	115V 1 A or 5 A 60 Hz	Same as the main meter	The rating should be suitable to the secondary rating of the instrument transformers.
No. of Quadrants (Measurement)	Active Energy/Power Measurement: Bi-directional Reactive Power Measurement: 4 Quadrant	Bi-directional or as required by its application	PGC 2016 GRM 9.2.2.2 PGC 2016 GRM 9.2.3.3
Interval Data	Programmable to 1, 5, 15, 30, and 60 minute interval	Same as the main meter	PGC 2016 GRM 9.2.3.3
No. of Channels	The 10-channels are as follows: 1. KWH (Del) 2. KWH (Rec) 3. KVARH (Del) 4. KVARH (Rec) 5. Voltage (Ph A) 6. Voltage (Ph B) 7. Voltage (Ph C) 8. Current (Ph A) 9. Current (Ph B) 10. Current (Ph C)	Minimum requirements of 4 channels as follows: 1. KWH (Delivered) 2. KWH (Received) 3. KVARH (Quadrant 1) 4. KVARH (Quadrant 2)	PGC 2016 GRM 9.2.2.2 PGC 2016 GRM 9.2.3.3
Mass Memory	Minimum 60 day recording of a 5-minute time-stamped demand interval for 10 recording channels	Same as main meter	WESM 4.5.1 (g) PGC 2016 GRM 9.2.3.3
Meter Registers	The meter shall be capable of measuring, registering and recording	Minimum requirements • KWH (Delivered)	PGC 2016 GRM 9.2.2.2

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**ANNEX G**

ITEMS	SPECIFICATIONS		REFERENCE DOCUMENTS
	MAIN METER	BACK-UP METER	
	<p>the following electrical parameters per dispatch interval:</p> <ul style="list-style-type: none"> <li>• KWH (Delivered)</li> <li>• KWH (Received)</li> <li>• KVARH (Quadrant 1)</li> <li>• KVARH (Quadrant 2)</li> <li>• KVARH (Quadrant 3)</li> <li>• KVARH (Quadrant 4)</li> <li>• KVAH (Delivered)</li> <li>• KVAH (Received)</li> <li>• Max KW (Delivered)</li> <li>• Max KW (Received)</li> <li>• Power Factor</li> <li>• Frequency</li> <li>• Per Phase Current</li> <li>• Per Phase Voltage</li> </ul>	<ul style="list-style-type: none"> <li>• KWH (Received)</li> <li>• KVARH (Quadrant 1)</li> <li>• KVARH (Quadrant 2)</li> <li>• KVARH (Quadrant 3)</li> <li>• KVARH (Quadrant 4)</li> <li>• KVAH (Delivered)</li> <li>• KVAH (Received)</li> <li>• Max KW (Delivered)</li> <li>• Max KW (Received)</li> </ul>	PGC 2016 GRM 9.2.3.3
Loss Compensation	Optional	Optional	WESM 4.5.2.2
Security	The meter shall have provisions for securing the meter data, meter configurations and programs by electronic means and/or passwords. It shall also be secured physically by way of security seals.	Same as the main meter	WESM 4.5.6 PGC 2016 GRM 9.3.8.1 PGC 2016 GRM 9.3.8.2 PGC 2016 GRM 9.3.8.3
Communication Capability	The meter shall have at least a minimum of two (2) independent communication ports that could operate independently. Each port can communicate simultaneously, with each one using a different protocol. It should be capable of a two-way communication.	Same as the main meter	WESM 4.5.7.1 WESM 4.5.1 (c) PGC 2016 GRM 9.2.3.3
Internal Clock	The meter shall have an internal clock with an allowable error of +/-1 second	Same as the main meter	WESM 4.5.8.1 PGC 2016 GRM 9.2.3.3
Time Synchronization	Crystal synchronization. The internal clock shall be	Same as the main meter	WESM 4.5.8.1

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**ANNEX G**

ITEMS	SPECIFICATIONS		REFERENCE DOCUMENTS
	MAIN METER	BACK- UP METER	
	capable of being reset set by the data collection software during normal collection operations.		PGC 2016 GRM 9.2.3.3
Digital Display	The meter shall have a digital display with a minimum of 5 digits.	Same as the main meter	WESM 4.5.1 (c) PGC 2016 GRM 9.2.3.3
Codes and Standards Compliance	The meter shall adhere to established International Standards	Same as the main meter	PGC 2016 GCR 4.2.10 IEC, ANSI/IEEE
Applicable Compliance Tests	<p>These tests shall include material tests and established practice and/or other approved standards.</p> <p>Routine tests prescribed by the applicable standards shall be performed. In particular, the following tests shall be performed for the revenue meters:</p> <ul style="list-style-type: none"> <li>a. Power frequency tests (insulation)</li> <li>b. Impulse voltage test (insulation).</li> <li>c. HF interference test</li> <li>d. Surge withstand and fast transient tests</li> </ul>	Same as the main meter	PGC 2016 GRM 9.2.5.2 PGC 2016 GRM 9.2.5.3 PGC 2016 GRM 9.2.8.1 IEC 255-1 IEC 255-A (Class III) IEC 245-4
Battery	Capable of retaining readings and time of day for at least two days without external power source	Same as the main meter	WESM 4.5.1 (g) PGC 2016 GRM 9.2.3.3
Enclosure	<p>Minimum requirements</p> <p><b>Indoor:</b> Protected against dust limited ingress (no harmful deposit) and Protection against vertically falling drops of water e.g. condensation</p> <p><b>Outdoor:</b></p>	Same as the main meter	ANSI 12.1 4.3.4 PGC 2016 GRM 9.2.2.3 PGC 2016 GRM 9.2.2.4 PGC 2016 GRM 9.3.8

**ANNEX G**

ITEMS	SPECIFICATIONS		REFERENCE DOCUMENTS
	MAIN METER	BACK- UP METER	
	<p>For meter cover: Minimum Ingress Protection Rating of IP51 or NEMA 2 to protect the internal component against the harmful elements of environment that may affect its measuring circuit and operation.</p> <p>For meter box: Minimum Ingress Protection Rating IP34 or NEMA Type 3.</p>		

## APPENDIX M

## SPECIFICATIONS FOR REVENUE METERS FOR EMBEDDED GENERATORS REGISTERED AS WESM PARTICIPANTS

ITEMS	SPECIFICATIONS		REFERENCE DOCUMENTS
	MAIN METER	BACK-UP METER	
Accuracy Class	IEC 687 Class 0.2 / ANSI 12.20 Class 0.3 or better	Same as the main meter	IEC 687 4.6 PDC 2016 7.2.7
No. of Stators	Corresponds to the service type and complying with Blondel's Theorem	Same as the main meter	ANSI C12.1 PDC 2016 7.2.7
Voltage Rating	Corresponds to the secondary voltage rating of voltage transformers used	Same as the main meter	PDC 2016 7.2.7
Current Rating	Corresponds to the secondary current rating of current transformers used (typically 1A or 5A)	Same as the main meter	ANSI or IEC Standard PDC 2016 7.2.7
Frequency	60 Hz	Same as the main meter	PDC 2016 7.2.7
Measurement	Uni-directional active metering (delivered) and 2-quadrant reactive metering)  Or Bi-directional depending on the purpose	Same as the main meter	PDC 2016 7.2.7
Interval Data	Programmable to 5, 15, 30 minute interval	Same as the main meter	PDC 2016 7.2.7
No. of Channels	At least four (4) channels for bi-directional meters:  a. kWh (Delivered) b. kVARh (Delivered) c. kWh (Received) d. kVARh (Received)	Same as the main meter	This satisfies the minimum requirements as stated under: PDC 2016 7.2.7

**ANNEX H**

ITEMS	SPECIFICATIONS		REFERENCE DOCUMENTS
	MAIN METER	BACK-UP METER	
	At least two (2) channels for unidirectional meters:  a. kWh (Received) b. kVARh (Received)		
Mass Memory	Minimum of 60-day recording of a 5-minute time-stamped demand interval for 4 recording channels for bi-directional meters or 2 recording channels for uni-directional meters	Same as the main meter	PDC 2016 7.2.7
Recording Billing Quantities	Display and record TOU energy and power parameters (kWh, kVarh, max. kW & cum. kW) for all rates	Same as the main meter	PDC 2016 7.2.7
Loss Compensation	Optional	Optional	WESM 4.5.2.2
Security	The meter shall have provisions for securing the meter data, meter configurations and programs by electronic means and/or passwords. It shall also be secured physically by way of security seals.	Same as the main meter	WESM 4.5.6 PDC 2016 7.4.7
Communication Capability	The meter shall have one (1) independent communication port in addition to the optical port.	Minimum requirements:  Optical port	WESM 4.5.7.1 WESM 4.5.1(c) PDC 2016 7.2.7
Internal Clock/Battery	With long life lithium battery for clock/ calendar maintenance	Same as the main meter	WESM 4.5.8.1 PDC 2016 7.2.1

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**ANNEX H**

ITEMS	SPECIFICATIONS		REFERENCE DOCUMENTS
	MAIN METER	BACK-UP METER	
Time Synchronization	Shall be crystal synchronization time-based. The internal clock shall be capable of being reset/set by the data collection software during normal collection operations.	Same as the main meter	
Digital Display	The meter shall have a digital display with a minimum of 5 digits.	Same as the main meter	WESM 4.5.1 (c) PDC 2016 7.2.7
Codes and Standards Compliance	The meter shall adhere to established International Standards	Same as the main meter	IEC, ANSI/IEEE PDC 2016 7.2.7
Enclosure	The meter shall be provided with the necessary cover to protect the internal component against the harmful elements of environment that may affect its measuring circuit and operation.	Same as the main meter	ANSI 12.1 4.3.4

APPENDIX N

SPECIFICATIONS FOR CURRENT TRANSFORMERS

ITEMS	SPECIFICATIONS	REFERENCE DOCUMENTS
Type	Outdoor Type; Minimum oil filled, Dry Type or Gas-filled	
Cooling	Oil immersed, Self-cooled; Butyl, Cast resin	
Construction	Single phase, wound type, free standing	
Accuracy Class	See section 2.5.4.1	PGC 2016 GRM 9.2.3.2 PGC 2016 Appendix 2
Burden	See section 2.5.4.1	PGC 2016 GRM 9.2.3.2 (c) PGC 2016 Appendix 2
Rated Primary Current	The thermal rating factor shall not be less than 1.0.	
Secondary Current	1A or 5A	PGC 2016 GRM 9.2.3.2 IEC 4.2 Standard values of rated secondary currents
Rating Factor	Minimum of 1.0 at 30°C	
Frequency	60 Hz	
Ambient Air Temperature	-5°C and 50°C for very hot climate	IEC 3.2.1 1996
BIL	Refer to Table 2 for applicable BIL	
Creepage Distance	Refer to Table 3 for applicable creepage distance	
Number of Core	Preferably Two (2) metering cores	PGC 2016 GRM 9.2.3.2
Mounting	Depend on the applications	
Grounding		PGC 2016 GCR 4.4.1.3.2 PGC GRM 9.2.2.1 (g)

**ANNEX I**

<b>ITEMS</b>	<b>SPECIFICATIONS</b>	<b>REFERENCE DOCUMENTS</b>
Security	Seal holder shall be provided to the CT secondary terminal box (see Figure 1)	PGC 2016 GRM 9.3.8.2 PGC 2016 GRM 9.2.4.1

APPENDIX O

SPECIFICATIONS FOR VOLTAGE TRANSFORMERS

ITEMS	SPECIFICATIONS	REFERENCE DOCUMENTS
Type	Outdoor Type; Minimum oil filled, Dry Type or Gas-filled	
Cooling	Oil immersed, Self-cooled; Butyl, Cast resin	
Construction	Single phase, Inductive type, single bushing	
Termination	Line-to-Ground (3-element metering) Line-to-Line (2-element metering)	PGC 2016 GRM 9.2.2.1
Accuracy Class	See section 2.5.4.2	PGC 2016 GRM 9.2.3.1 (a) PGC 2016 Appendix 2
Burden	See section 2.5.4.2	PGC 2016 GRM 9.2.3.1 (b) PGC 2016 Appendix 2
Ratio	See Table 5	
Secondary Voltage	See Table 5	
Frequency	60 Hz	
Operating Temperature	55°C average ambient temperature, with max ambient temperature not exceeding 65°C	
BIL	Refer to Table 2 for applicable BIL	
Creepage distance	Refer to Table 3 for applicable creepage distance	
Number of Core	Preferably Two (2)	
Mounting	Depend on the applications	
Grounding		PGC 2016 GCR 4.4.1.3.2 PGC GRM 9.2.2.1 (g)
Security	Seal holder shall be provided to the CT secondary terminal box (see Figure 1)	PGC 2016 GRM 9.3.8.2 PGC 2016 GRM 9.2.4.1

**ANNEX K**

Security	Seal holder shall be provided to the CT secondary terminal box (see Figure 1)	WESM Market Manual on Metering Standards and Procedures Section 2.9.1.3
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**ANNEX K**

**APPENDIX P**

**SPECIFICATIONS FOR CURRENT TRANSFORMERS FOR EMBEDDED GENERATORS**

ITEMS	SPECIFICATIONS	REFERENCE DOCUMENTS
Type	Minimum oil filled, Dry Type or Gas-filled	
Cooling	Oil immersed, Self-cooled; Butyl, Cast resin	
Accuracy Class	0.2 (IEC) or 0.3 (ANSI), or better	PDC 2016 7.2.6.2 (b)
Burden	5VA, guaranteed accurate from 0% to 100%	
Rated Primary Current	The thermal rating factor shall not be less than 1.0	
Secondary Current	1A or 5A	IEC 4.2 Standard values of rated secondary currents
Rating Factor	Minimum of 1.0 at 30°C	
Frequency	60 Hz	
Ambient Air Temperature	-5°C and 50°C for very hot climate	IEC 3.2.1 1996
BIL	Refer to Table 2 for applicable BIL	
Creepage Distance	Refer to Table 3 for applicable creepage distance	
Mounting	Depend on the applications	

**ANNEX K**

Security	Seal holder shall be provided to the CT secondary terminal box (see Figure 1)	WESM Market Manual on Metering Standards and Procedures Section 2.9.1.3
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## APPENDIX Q

## SPECIFICATIONS FOR VOLTAGE TRANSFORMERS FOR EMBEDDED GENERATORS

ITEMS	SPECIFICATIONS	REFERENCE DOCUMENTS
Type	Minimum oil filled, Dry Type or Gas-filled	
Cooling	Oil immersed, Self-cooled; Butyl, Cast resin	
Termination	Line-to-Ground (3-element metering) Line-to-Line (2-element metering)	
Accuracy Class	0.3 (ANSI) or 0.2 (IEC)	PDC 2016 7.2.6.1 (a)
Burden	75VA, guaranteed accurate from 0% to 100%	
Ratio	See Table 5	
Secondary Voltage	See Table 5	
Frequency	60 Hz	
BIL	Refer to Table 2 for applicable BIL	
Creepage distance	Refer to Table 3 for applicable creepage distance	
Mounting	Depend on the applications	
Security	Seal holder shall be provided to the CT secondary terminal box (see Figure 1)	WESM Market Manual on Metering Standards and Procedures Section Manual 2.9.1.3