MINUTES OF MEETING

Rules Change Committee
159th Regular Meeting (No. 2019-12)
06 December 2019, 9:00 AM – 1:30 PM
16/F IEMOP Training Room, Robinsons Equitable Tower
Ortigas Center, Pasig City

Philippine Electricity Market Corporation

Agenda	Action Required
I. **Call to Order**	There being a quorum, the meeting was called to order at around 9:00 AM.
II. **Determination of Quorum**	

Attendance List	
In-attendance	Not In-attendance
<u>Rules Change Committee</u> *Principal Members:* **Maila Lourdes G. de Castro**, Chairperson – Independent **Francisco Leodegario R. Castro, Jr.** – Independent **Allan C. Nerves** – Independent **Concepcion I. Tanglao** – Independent **Abner B. Tolentino** – Generation (PSALM) **Cherry A. Javier** – Generation (APC) **Dixie Anthony R. Banzon** – Generation (MPPCL) **Ryan S. Morales** – Distribution (MERALCO) **Jose P. Santos** – Distribution (INEC) **Virgilio C. Fortich, Jr.** – Distribution (CEBECO III) **Ricardo G. Gumalal** – Distribution (ILPI) **Lorreto H. Rivera** – Supply (TPEC) **Ambrocio R. Rosales** – System Operator (NGCP) **Isidro E. Cacho** – Market Operator (IEMOP)	

Other MERALCO Representatives:
Eric T. Equiz
Justin E. Mendiola
Allan Garcia

Other NGCP Representative/s:
Francis Vicencio

Other IEMOP Representative/s:
Jonathan dela Viña

PEMC – Market Assessment Group
Karen A. Varquez
Romellen C. Salazar
Divine Gayle C. Cruz
Dianne L. De Guzman

PEMC – ECO
Atty. Hazel G. Lopez

PEMC – Legal
Monica Martin

PEMC – CPC
Kevin dela Cuesta

PEMC – OP
Marydette C. Jocson

PEMC – IT
Janeth A. Ceniza

Agenda	Agreements/Action Plans
III. Adoption of the Agenda	The proposed agenda was approved as presented.

Agenda	Agreements/Action Plans
IV. Review of the Minutes of the Previous Regular Meeting (158th Meeting, 08 November 2019)	The minutes of the 158th RCC Meeting was approved as presented.
V. New Business	

Agenda	Agreements/Action Plans
5.1. Proposed Amendments to the WESM Manual on Registration, Suspension, and De-Registration Criteria and Procedures for General Enhancements to the Application Process of New WESM Members	• The RCC approved the publication of the proposal to solicit comments of participants and interested parties.

2
3 Mr. Jonathan dela Viña of IEMOP presented their proposal for amendments to the WESM
4 Manual on Registration, Suspension, and De-Registration Criteria and Procedures for General
5 Enhancements to the Application Process of New WESM Members, to seek the RCC's
6 approval on its publication for comments of industry participants and interested parties.
7
8 He mentioned in his presentation that the proposal emanated from the DOE's instruction,
9 through a letter to IEMOP dated 17 April 2019, to spearhead amendments to address the
10 issue on the prolonged testing and commissioning (T&C) of some plants. Based on
11 observation, five (5) variable renewable energy (VRE) plants have been conducting their T&C
12 from three (3) to five (5 years) already, way beyond the two-month prescription of the ERC.
13 These plants, which are not considered under commercial operations yet, are effectively
14 exempted from the WESM Rules obligations in terms of the submission of projected output,
15 compliance with the forecast accuracy standards, among others, but are being paid as price
16 takers in the market.
17
18 Following the DOE's directive, IEMOP reviewed the relevant market manuals and found that
19 there are currently no clear procedures for the treatment and registration of plants undergoing
20 T&C and those transitioning to commercial operations. Thus, IEMOP drafted its proposal to
21 address the concerns raised by the DOE and to clarify the procedures for the registration of
22 the plants undergoing T&C.
23
24 The proposal of IEMOP can be summarized as follows:
25
26   1. Implement a three-phased registration (vs. one-track registration in the current MO
27   process):

	Phase 1: Backfeed Operations	Phase 2: Test and Commissioning	Phase 3: Commercial Operations / Full Market Participation
Documentary Requirements	COC application	ERC Certification for the Conduct of T&C	COC (or PAO) Other documents: SEC Registration, Board Certificates, Articles of Incorporation, etc.
Technical Requirements	Meter, RTU	Meter, RTU	Meter, RTU, Digital Certificate for the Access to the Market Participant Interface (MPI)
Market Modelling	Load Resource	Generator Resource	Generator Resource

Membership Status	WESM Member	WESM Member	WESM Member

2. Payment for the generated output of T&C plants is allowed only up to the ERC's prescribed period (two months or up to the extended period certified by the ERC). Applicant has to seek ERC approval on the request for extension on T&C period.

3. Submission of Market Participation Agreement (MPA) to IEMOP prior to the approval of membership, to ensure the commitment of applicant to the prescriptions of the market rules and manuals.

4. Payment of registration fees only during the first application

5. System Operator (SO) to automatically stop submitting over-riding constraints upon expiration of the [approved] T&C period.

After the presentation, the RCC raised some concerns and clarifications.

1. Mr. Ambrocio Rosales inquired if currently the generators get paid, as price takers, even if their T&C period is already beyond the two-month period prescribed by the ERC. Mr. dela Viña responded that some generators get paid, as long as their T&C period is within the certified period. ERC may issue a certification to the generator regarding any request for extension of the T&C period.

2. Mr. Ryan Morales inquired on what governs the dispatch of the generator that has gone beyond the prescribed two-month T&C period, and that generator has a contract with a certain Distribution Utility (DU). He explained that the DUs are able to get their contracted energy with T&C plants at reduced rates in the absence of any fixed fees. Mr. dela Viña responded that the central scheduling being implemented in the market is not affected by bilateral contracts. Thus, with the proposal, the SO will not schedule a plant whose T&C period has gone beyond two (2) months, unless that plant can present a certification from the ERC approving any request for an extension of the T&C period. Mr. dela Viña explained that the proposal merely harmonizes the market procedures with the ERC Rules that a Generation Company cannot sell power without a Certificate of Compliance (COC). He then expressed that any concern on selling power beyond the prescribed timeline shall be elevated to the ERC.

3. Ms. Lorreto Rivera inquired on whose responsibility it is in informing the SO of any ERC-certified extension on the T&C period. Mr. dela Viña responded that in the IEMOP's proposal, it is the responsibility of the MO to notify the generator and the SO seven (7) days prior to expiration of the T&C period. The notifications are being proposed to prompt the generator to coordinate with the ERC and also the SO in order that it will stop sending overriding constraints for the plant whose T&C period has expired.

4. Atty. Maila de Castro inquired if the number of days in the two-month prescribed period for the conduct of T&C is based on calendar days. Ms. Cherry Javier expressed that the basis for it should be the actual testing conducted, to consider that some plants are only available to conduct the T&C for a number of days in a month. The suggestion

75 was supported by Mr. Dixie Banzon, citing the case of some T&C plants that need to
76 replace some parts of the facility, which at times take long. Mr. dela Viña responded
77 that the ERC normally indicates the testing dates in the certification that it issues to the
78 generator. In response to Atty. de Castro, he stated that the interpretation on whether
79 the testing period is based on calendar days or testing days is up to the ERC, as it is
80 not clear in the ERC Rules.

81
82 5. Mr. Rosales stated that there are some plants that are already registered but need to
83   shutdown to undergo rehabilitation. Once the rehabilitation is completed, these plants
84   need to undergo T&C for the synchronization with the grid. He then inquired on the
85   following: a) if these plants should be paid as price takers, and b) what is the applicable
86   limit for their conduct of T&C. He deemed that while the proposal only covers the
87   procedures for the T&C of new facilities, the IEMOP should also consider this in the
88   proposal because the plants he was describing are also undergoing T&C anyway. Mr.
89   Isidro Cacho responded that since the case being cited by Mr. Rosales is for the plants
90   that were already issued a COC, then they can go directly to commercial operations.
91   If they get flagged for the reason that they went on shutdown, then they will just have
92   to provide their justification. Mr. Cacho expressed that to his knowledge, these plants
93   are put on security limit by the SO. Mr. Rosales explained that his concern is on the
94   prolonged T&C of these plants that are imposed with overriding constraints, at full load,
95   for the entire period that it is undergoing T&C. He opined that certain plants that have
96   bilateral contracts with DUs may take advantage since they can be dispatched at their
97   Pmax instead of their Pmin. At this point, Mr. Cacho stated that it may require a policy
98   to address the concerns being raised by Mr. Rosales on the prolonged T&C of plants
99   undergoing rehabilitation. As regards the dispatch of those plants, Mr. dela Viña
100   expressed that such may be addressed through dispatch protocol. In response to Mr.
101   Rosales also, Mr. Banzon expressed that while Generators will be paid as price takers,
102   the impact of them being dispatched as such is lowering the price in the market.

103
104 6. Atty. de Castro inquired if the application of the proposal is prospective. Mr. dela Vina
105   responded that the IEMOP included a transitory provision in its proposal and that
106   IEMOP will assess applications based on current submissions to IEMOP.

107
108 Following the discussions, the RCC approved the publication of IEMOP's Proposed
109 Amendments to the WESM Manual on Registration, Suspension, and De-Registration Criteria
110 and Procedures for General Enhancements to the Application Process of New WESM
111 Members in the PEMC website to solicit comments of participants and interested parties.
112

Agenda	Agreements/Action Plans
5.2. Proposed Amendments to Market Rules – WESM Manual on Metering Standards and Procedures for Issue 11.0 and 12.0	• The RCC approved the publication of the proposal to solicit comments of participants and interested parties.

113
114 Mr. Eric Equiz of MERALCO's Metering department presented their Proposed Amendments
115 to Market Rules – WESM Manual on Metering Standards and Procedures for Issue 11.0 and
116 12.0. He explained that the proposed amendments intend to consider the latest revision of

117 International Standard IEC 61869-2 (2012), which cancels and replaces the first edition of IEC
118 60044-1 published in 19961 and to update the term "ANSI" to "IEEE". Further, the proposal
119 aims to address the different interpretations as well as to align and clarify the rated burden
120 requirement based on PGC 2016 Rules and WESM Metering Standards and Procedures in
121 accordance to the recognized International Standards governing the Standard Requirements
122 on Instrument Transformers (IEC 61869-2 and IEEE C57.13).
123
124 As a background, he informed the body that their proposal emanated when MERALCO
125 submitted to NGCP their proposed replacement of current transformer (CT) and potential
126 transformer (PT), and NGCP upon its review of the proposal, said that MERALCO's CT (which
127 is 15.5VA) is non-compliant based on the Philippine Grid Code (PGC).
128
129 Mr. Equiz explained that that under the WESM Rules, the prescribed limit for the burden of
130 the CT is up to 12.5 VA while in the PGC, the limit is 5VA only. As such, the conflicting rules
131 on the limit for the burden of CT led to the different interpretation by NGCP and MO, and
132 MERALCO (together with other DUs). Based on MERALCO's interpretation, a CT metering
133 shall be given an accuracy rating for its standard burden for which it is rated. The accuracy
134 class may be stated for the maxim burden for which it is rated, which implies that all lower
135 burdens shall also be under that class.
136
137 For clarity, Mr. Joey Santos inquired if the accuracy will be the same from 2.5 VA to 12.5 VA
138 CT burden. Mr. Equiza responded positively, but said that NGCP requires a CT of 5VA burden
139 only, since it is the requirement under the PGC.
140
141 Mr. Fortich shared that they had the same experience as MERALCO, when the NGCP did not
142 accept their proposal because of the latter's requirement of 5VA CT burden. He expressed his
143 opinion that it would be best to set the limit to at least 5VA up to 12.5 VA, rather than setting
144 it to a single, exact value of 5VA only, and that the NGCP should accept any proposal as long
145 as the CT burden falls within these thresholds.
146
147 For his part, Mr. Rosales opined that the RCC should not be the venue to resolve the differing
148 interpretations of MERALCO and NGCP (with NGCP having the same interpretation with
149 IEMOP) as to what should be the prescribed burden of the CT. He suggested referring the
150 matter instead to the Technical Committee (TC).
151
152 In response to Mr. Rosales, Mr. Morales informed the body that the matter was already
153 referred to the Technical Committee by MECO (through Mr. Gilbert Pagobo), who had the
154 same experience as MERALCO. He shared that the TC was of the opinion that the
155 specifications of MECO's CT comply with the metering accuracy class of 0.3.
156
157 In recognition that the matter at hand is a technical matter, Mr. Ric Gumalal inquired on who
158 is the proper authority to make a ruling on this and give its interpretation. The RCC believed it
159 should be the ERC that should rule on the matter.
160
161 The representative from MERALCO said that they had prior discussions with the ERC
162 regarding the matter. Based on MERALCO's information, the ERC said that the opinion of
163 NGCP is understandable, adding that the same interpretation may arise if the auditors will

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[1] Abstract of IEC 61869-2: 2012; website: https://webstore.iec.ch/publication/6050

164   consider the 5VA prescription for the burden of CT's under the current PGC. However,
165   MERALCO shared that the ERC is of the opinion that such prescription may need to be
166   changed.
167
168   At this point, Ms. Javier suggested approving the publication of the proposal so that the parties
169   can submit formally their comments on the same.
170
171   Following the discussions, the RCC approved the publication of MERALCO's Proposed
172   Amendments to Market Rules – WESM Manual on Metering Standards and Procedures for
173   Issue 11.0 and 12.0.
174

VI. Matters Arising from Previous Meeting	
Agenda	**Agreements/Action Plans**
6.1. Draft RCC Resolution No. 2019-19: Proposed Amendments to the WESM Rules and New Market Manual on WESM Compliance Officers' Accreditation	• The RCC approved the RCC Resolution No. 2019-19, as presented, and instructed the transmittal of the same to the PEM Board together with the matrix on the WESM Rules amendments and the proposed New Market Manual on WESM Compliance Officers' Accreditation. • The Secretariat informed the body that the proposal will be tackled during the PEM Board meeting scheduled on December 11, 2019. The information was duly noted by the RCC.

175

Agenda	**Agreements/Action Plans**
6.2. Deliberation on the Proposed Amendment to the WESM Manual on Metering Standards and Procedures to Harmonize with the Site Specific Loss Adjustment (SSLA) Procedures of Wholesale Metering Services Providers	• The RCC approved the endorsement of the proposal to the PEM Board as revised. • The Secretariat shall finalize the matrix of proposed changes and draft the resolution, for approval in the next meeting.

176
177   The RCC deliberated on the proposal, including the comments of various parties and IEMOP's
178   response to these comments, which was explained by Mr. dela Viña.
179
180   As submitted, PEMC's comments on the proposed amendment to Section 8.5.2.1 are as
181   follows:
182   a.) The Metering Service Provider (MSP) should furnish the Network Service Provider
183   (NSP) or Trading Participant (TP), as may be applicable, copies of the pertinent data
184   that would be submitted to the Market Operator (MO). This will give the NSP/TP the
185   chance to validate the said data and determine whether it has still issues or concerns
186   on said data.
187   b.) The MSP should also be required to state in the data for submission to MO any
188   pending/unsettled issues/concerns on said data between the MSP and NSP/TP.

189

190 The IEMOP responded that immediate submission of the pertinent data is recommended to
191 ensure accuracy of metered quantities for settlement. The IEMOP thus, suggested that any
192 review be performed upon submission of the data to the MO. Mr. dela Viña further explained
193 that IEMOP's position for the immediate submission of the pertinent data to MO is to allow
194 them to immediately reflect any [significant] changes needed in the calculation for SSLA
195 resulting from the physical re-configurations in the lines and transformers. To address the
196 issue on validation, he added that a provision is specified in the market manual allowing the
197 Trading Participants (TPs) to review, after the MSP's submission of data to the MO, any issue
198 on the data. He highlighted at this point that the proposal is more on ensuring immediate
199 submission and conducting validation afterwards.

200

201 Atty. Monica Martin inquired, for clarity, whether the NSP or the MSP submits the data to the
202 MO. Mr. dela Viña responded that currently, there is only 1 WESM NSP and MSP, which is
203 the NGCP. But even if such is the case, there are certain data that the MSP group of NGCP
204 requests from the SO, particularly, the transmission sub-station data, since the coverage of
205 MSP is only up to the connection point. He thus said that to consider the internal processes of
206 NGCP regarding data request and provision, based on previous discussions with them, the
207 IEMOP proposes to document the process through their proposal, with the corresponding
208 timeline. He emphasized that the MSP will still be the one to consolidate all the data for
209 submission to the MO.

210

211 Further on the proposal, IEMOP agreed to NGCP's suggestion to consolidate the provisions
212 8.5.1 and 8.5.2, as well as sections 8.5.2.1 and 8.5.2.2.

213

214 However, Mr. dela Viña opined that the NGCP's suggested timeline for the NSP's submission
215 to the MSP of the data and information regarding the modifications in the lines and
216 transformers that may affect SSLA calculation, which is suggested to be 30 calendar days,
217 may be too long. He explained that the SSLA is finalized during the first or second day of the
218 month. Thus, the IEMOP would prefer receiving the said data no later than 5 days after the
219 billing period for the changes to be reflected in the final bill. He added that if no submission is
220 received, then the IEMOP will use the previous data for the SSLA calculation.

221

222 Mr. Ambrocio Rosales expressed, however, that the NSP may not be able to provide all the
223 data within the five-day timeline being proposed by IEMOP. He said that the 30-calendar days
224 being proposed by NGCP is to consider the cases where there are modifications and
225 verifications.

226

227 On his part, Mr. Morales opined that 15 days is needed considering internal clearance.

228

229 On this note, Ms. Javier recalled the IEMOP's justification that the 5-day timeline is to allow
230 them to reflect the changes in the billing since any modifications will be applied prospectively.
231 Thus, the adjustments may no longer be considered once the final bill has been issued. She
232 clarified however, that there should be separate timelines for the NSP submission to the MSP
233 and the MSP submission to MO. To her understanding, the NGCP comment refers to the
234 timeline for the former. She opined that the more critical timeline would be on the MSP's
235 submission of data to the MO.

236

237   Mr. Francis Vicencio, who was invited to join the discussion to explain the comments of NGCP-
238   Metering Group, stated that the basis of their proposed 30 calendar day timeline is the process
239   for submission of data by embedded generators where the DU, as the NSP, is the one
240   submitting data to the NGCP. The NGCP anticipated that dealing with the DUs may take longer
241   that is why they are proposing a relatively longer timeline. He added that the worst case
242   scenario, which was also considered in their proposed timeline, is when changes in the
243   physical configurations that would significantly affect the SSLA calculation was implemented
244   but there was no proper communication with the NGCP. Mr. Vicencio added that the
245   information that will be provided by the NSP is raw data that still needs to be processed and
246   converted to RXB format by the NGCP, in order for it to be used readily by the MO in the SSLA
247   calculation.
248
249   At this point. Mr. Rosales suggested that the 30-day proposed timeline by NGCP to already
250   consider the timeline for submission of data by the MSP to the MO. Below are the specific
251   timelines suggested by Mr. Rosales:
252
253   Submission of data from NSP to MSP: 20 calendar days
254   Submission of data from MSP to MO: 10 calendar days
255
256   The RCC then agreed to reflect in the proposal the timelines as suggested above.
257
258   On the part of MERALCO, Mr. Morales explained that the MERALCO's suggestion is to
259   exempt both the MSP and NSP connected to the DU network in the submission of data
260   specified under the proposed Section 8.5.1.1 and 8.5.1.2.
261
262   Mr. dela Viña stated that on the part of MO, the rules are applied equally to all parties covered
263   by such rule. In the case where there are embedded generators within the DU system, having
264   their metering point away from their connection point may be favorable either to the DU or the
265   generator. It is for the reason that moving the metering point at the same location of the
266   connection point is being proposed in order to be fair to both parties. Mr. dela Viña said that
267   IEMOP aims to ensure that there are details in the rules that would specify the impact of having
268   the metering point away from the connection point.
269
270   Following the deliberations, the RCC approved the Proposed Amendment to the WESM
271   Manual on Metering Standards and Procedures to Harmonize with the Site Specific Loss
272   Adjustment (SSLA) Procedures of Wholesale Metering Services Providers, as revised, based
273   on the RCC's deliberations and in consideration of the comments from the parties. The RCC
274   instructed the Secretariat to finalize the matrix *(see ANNEX)* and prepare the RCC resolution
275   approving the proposal and its endorsement to the PEM Board, for approval in the next RCC
276   meeting.
277

Agenda	Agreements/Action Plans
6.3. Deliberation on the Proposed Amendment to the WESM Dispatch Protocol Manual to Enhance Procedures in Must-Run Unit Accounting	• The RCC discussed the comments received from the different parties. • Following the discussions, the RCC deferred any decision on the matter, pending IEMOP's further review of the proposal to consider the comments of NGCP ramping up in the accounting of MRU

Agenda	Agreements/Action Plans
6.4. Deliberation on the Proposed Amendment to the WESM Rules and WESM Manual on Information Disclosure and Confidentiality Issues 5.0 Regarding Exceptions for Confidentiality Undertakings for Oversight Bodies	• The RCC approved the endorsement of the proposal to the PEM Board as originally submitted by IEMOP. • The Secretariat shall prepare the draft resolution, for approval in the next meeting.

278
279 The RCC deliberated on the proposal. Mr. dela Viña presented the comments received from
280 the different parties and IEMOP's response on the same.
281
282 Mr. dela Viña explained the rationale for their proposal to exempt the DOE and ERC in the
283 execution of a non-disclosure agreement on confidential market data. He informed the body
284 that that there are ongoing efforts for the development of a protocol with DOE and ERC with
285 regard to data provision. However, IEMOP is currently being required to submit certain
286 confidential market data, on a regular basis, to these oversight bodies. While the current rules
287 prescribe the undertaking of a non-disclosure agreement for confidential market data, the
288 IEMOP is in a dilemma since they cannot withhold the data from their oversight bodies even
289 in the absence of a non-disclosure agreement. To ensure that the IEMOP is not in breach for
290 providing the confidential market data being required by the DOE and the ERC, it proposes
291 for the exemption of these two bodies in the requirement for the execution of a non-disclosure
292 agreement.
293
294 The RCC acknowledged the concern raised by the body, thus approving the proposal to
295 exempt the DOE and the ERC.
296
297 However, the RCC did not accept the other recommendations to also exempt PEMC and PCC,
298 in the undertaking of a non-disclosure agreement. Atty. Martin explained that the reason for
299 the exemption being requested by PEMC is in recognition that PEMC acts as the governance
300 body for the WESM. The RCC's concern, however, was more on the handling of the data at
301 the other end. On the inclusion of the PCC in the exempted bodies, Mr. dela Viña stated that
302 there is no such request similar to that of PEMC, rather, the suggestion came from SPC Island
303 Power Corporation (SIPC) as provided in its comments on the proposal.
304
305 Mr. Cacho inquired on the case of the Market Surveillance Committee (MSC), which is under
306 the realms of PEMC. The MSC was originally included in the exemption on confidentiality
307 undertaking, with the presumption that it is an independent body.
308
309 Atty. Maila reiterated that the RCC agreed to exempt only the DOE and ERC based on the
310 justification provided by the IEMOP and the concerns raised by the sector representatives in
311 the RCC.
312
313 Ms. Rivera also cited that there is now a strict policy on data privacy currently being imposed
314 upon private corporations such as theirs. Their lawyers are thus insisting that any confidential
315 data about their company shall be handled properly.
316

317 Following the deliberations, the RCC approved the Proposed Amendments to the WESM
318 Rules and WESM Manual on Information Disclosure and Confidentiality Issues 5.0 Regarding
319 Exceptions for Confidentiality Undertakings for Oversight Bodies, as proposed by IEMOP. The
320 RCC instructed the Secretariat to finalize the matrix *(see ANNEX)* and prepare the RCC
321 resolution approving the proposal and its endorsement to the PEM Board, for approval in the
322 next RCC meeting.
323

VII. Other Matters	
Agenda	**Agreements/Action Plans**
7.1. Office 365	PEMC representatives Ms. Janeth Ceniza and Ms. Marydette Jocson explained the features of Office 365 and provided a demonstration of how to use the application. They explained that all PEMC employees and WESM Governance Committees will eventually be given access to Office 365. The RCC noted the information presented and thanked the representatives from PEMC.
7.2. PEM Board Meeting schedules: a) PEM Board – **11 December 2019**	The RCC noted the updates and information.
VIII. Schedules of Next Meetings	▪ January 17th ▪ February 21st ▪ March 20th
IX. Adjournment	There being no other matters left for discussion, the RCC adjourned the meeting at about 1:30 PM.

Prepared by:

Romellen C. Salazar
Specialist
Market Assessment Group – Rules Review Division

Reviewed by:
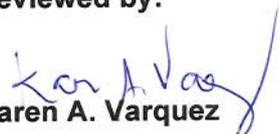
Karen A. Varquez
Manager
Market Assessment Group – Rules Review Division

**Noted by:**
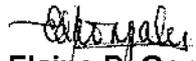
Elaine D/ Gonzales
Acting Head
Market Assessment Group

Approved by:
THE RULES CHANGE COMMITTEE

Independent Members:

Maila Lourdes G. de Castro
Chairperson

Francisco L.R. Castro, Jr.

Allan C. Nerves

Concepcion I. Tanglao

Generation Sector Members:

Dixie Anthony R. Banzon
Masinloc Power Partners Co. Ltd.
(MPPCL)

Abner B. Tolentino
Power Sector Assets and Liabilities
Management Corporation (PSALM)

Cherry A. Javier
Aboitiz Power Corp.
(APC)

(vacant seat)

Distribution Sector Members:

Virgilio C. Fortich, Jr.
Cebu III Electric Cooperative, Inc.
(CEBECO3)

Ryan S. Morales
Manila Electric Company
(MERALCO)

Ricardo G. Gumalal Iligan Light and Power, Inc. (ILPI)	**Jose P. Santos** Ilocos Norte Electric Cooperative, Inc. (INEC)
Supply Sector Member:	
Lorreto H. Rivera TeaM (Philippines) Energy Corporation (TPEC)	
Market Operator Member:	
Isidro E. Cacho, Jr. Independent Electricity Market Operator of the Philippines (IEMOP)	
System Operator Member:	
Ambrocio R. Rosales National Grid Corporation of the Philippines (NGCP)	
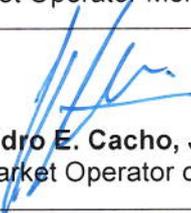
PROPOSED AMENDMENTS TO THE WESM RULES AND VARIOUS MANUALS

06 DECEMBER 2019

INDEPENDENT ELECTRICITY MARKET OPERATOR OF THE PHILIPPINES

18F PEMC BOARDROOM

THE PROPONENT

- The proponent is the Independent Electricity Market Operator of the Philippines, Inc.

- IEMOP acts as the market operator of the WESM.

2

OUTLINE

ACTION REQUESTED

RATIONALE OF THE PROPOSAL

SUMMARY OF THE PROPOSAL

OTHER RELEVANT MATTERS

3

ACTION REQUESTED

• For approval to publish

No.	Description	Document/s	Rationale
	General Enhancements to the Application Process of New WESM Members	WESM Registration Manual	Process improvement

4

ENHANCEMENTS TO NEW WESM MEMBER APPLICATION
Rationale of the Proposal

- On 17 April 2019, IEMOP received a letter from the DOE regarding the prolonged test and commissioning of some variable renewable energy (VRE) plants

Plant	Technology	Start of T&C	T&C Duration (Years)
1PETSOL_G02	Solar	Apr 2016	3.4
1SMBELL_G01	Hydro	Nov 2016	2.8
3MEC_G01	Solar	Jan 2015	4.7
4SEPSOL_G01	Solar	Mar 2016	3.5
8COSMO_G01	Solar	May 2016	3.3

5

ENHANCEMENTS TO NEW WESM MEMBER APPLICATION
Rationale of the Proposal

DOE Concern
- Prolonged test and commissioning effectively exempts VRE plants from market responsibilities (e.g., submission of forecasted generation)

DOE Instruction
- IEMOP to spearhead amendments to address the issue

WESM Manual Gap
- No clear procedures on the conduct of test & commissioning and transition to commercial operations

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ENHANCEMENTS TO NEW WESM MEMBER APPLICATION
Summary of the Proposal

Current (One Process):

| Applicant | — | Documentary Requirements | Technical Requirements | Test & Commissioning | Commercial Operations | → | Full market participation |

Proposed (Three Phases):

Applicant

Phase 1:
- Documentary Requirements → Technical Requirements → Backfeed Operations → Grid withdrawal for construction
  - COC application
  - modelling of load resource (meter, RTU)

Phase 2:
- Documentary Requirements → Technical Requirements → Test & Commissioning → Test & commissioning (no payment beyond prescribed period)
  - ERC certification for test & commissioning
  - modelling of generator resource (meter, RTU)

Phase 3:
- Documentary Requirements → Technical Requirements → Commercial Operations → Full market participation
  - COC (or PAO)
  - digital certificate for MPI

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ENHANCEMENTS TO NEW WESM MEMBER APPLICATION
Summary of the Proposal

- Other enhancements

Documentary requirements
- Submission of market participation agreement (MPA) prior to approval of membership
- WESM membership at 1st entry
- Payment of registration fee only during 1st application

Test & Commissioning
- Notify GenCo seven (7) days before expiration
- No payment beyond expiration
- GenCo to submit new ERC certification to be proceed with T&C

8

OTHER RELEVANT MATTERS

- None

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ACTION REQUESTED

- For approval to publish

No.	Description	Document/s	Rationale
	General Enhancements to the Application Process of New WESM Members	WESM Registration Manual	Process improvement

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THANK YOU!

MINUTES OF MEETING

Rules Change Committee
159th Regular Meeting (No. 2019-12)
06 December 2019, 9:00 AM – 1:30 PM
16/F IEMOP Training Room, Robinsons Equitable Tower
Ortigas Center, Pasig City

324 **I.**   Proposed Amendment to the WESM Manual on Metering Standards and Procedures to Harmonize with the Site Specific Loss Adjustment (SSLA)
325   Procedures of Wholesale Metering Services Providers (ORCP-WM-19-17)
326

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
Metering Data Collection	5.3	5.3.3 Monthly Process XXX b. The *Market Operator* shall validate the monthly metering data relative to its format, the given SEINs, metering data and hourly interval. The Market Operator shall compare the monthly metering data to the values of the daily metering data for each *metering point* submitted by the *Metering*	5.3.3 Monthly Process XXX b. The *Market Operator* shall validate the monthly metering data relative to its format, the given SEINs, metering data and ***per dispatch*** ~~hourly~~ *interval*. The Market Operator shall compare the monthly metering data to the values of the daily metering data for each *metering point* submitted by	The revision is being proposed for a minor enhancement to reflect the transition to five-minute metering upon the implementation of the enhanced WESM design and operations.				Adopt IEMOP's proposal

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		Services Provider. If there are discrepancies between the values, the *Market Operator* shall issue a Meter Trouble Report (MTR) to the *Metering Services Provider*. XXX	the *Metering Services Provider*. If there are discrepancies between the values, the *Market Operator* shall issue a Meter Trouble Report (MTR) to the *Metering Services Provider*. XXX					
Data Validation, Estimation and Editing	6.2	6.2.1. All metering data received by the Market Operator shall be evaluated using the Validation, Estimation and Editing process described in this section. When metering	6.2.1 All metering data received by the Market Operator shall be evaluated using the Validation, Estimation and Editing process described in this section. When metering data contains missing values or	The revision is being proposed for a minor enhancement to reflect the transition to five-minute metering upon the implementation of the enhanced WESM design and operations.			[]	Adopt IEMOP's proposal

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		data contains missing values, uncertain values, or exceeds the maximum or minimum of the daily hourly load profile values of the registered meter, such metering data shall undergo estimation and editing wherein substitution of metering data shall be made using historical data.	exceeds the maximum capacity **_per dispatch interval_**, such metering data shall undergo estimation and editing where substitution of metering data shall be made using historical validated data.					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
Data Validation, Estimation and Editing	6.3.1	6.3.1.2 Validation Checks XXX e. Review the historical meter readings which fall outside defined parameters max/min of the historical data. The historical data used are as follows: 　i. Value during the same hour last week; 　ii. Value during the same dispatch interval of the same previous day of the same type (i.e. weekday or weekend); and 　iii. Average values during the previous days or last week of the same hour. XXX	6.3.1.2 Validation Checks XXX e. Review the historical meter readings which fall outside defined parameters max/min of the historical data. The historical data used are as follows: 　i. Value during the same ~~hour~~ ___dispatch interval___ last week; 　ii. Value during the same dispatch interval of the same previous day of the same type (i.e. weekday or weekend); and 　iii. Average values during the previous	The revision is being proposed for a minor enhancement to reflect the transition to five-minute metering upon the implementation of the enhanced WESM design and operations.	**Technical Committee:** For clarification: ii. Value during the same dispatch interval for the previous similar day (i.e. weekday or weekend) iii. Average values… *What do we do with these values? Do we use this to estimate the missing (or erroneous) values? Perhaps there is a more sophisticated procedure to impute missing values (e.g. as short-term forecasting algorithm).*	**Technical Committee:** ii. Value during the same dispatch interval ~~of the same previous day of the same type~~ **for the previous similar day** (i.e. weekday or weekend); and	**Technical Committee:** We are amenable to the revisions to item ii. Section 6.3.1.2 provides for validation procedures. Average values are used to check if there are outliers in the data.	Adopt TC's proposed revision

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			days or last week of the same ~~hour~~ ***dispatch interval***. XXX					

Meter Data Estimation and Editing	6.4.3	6.4.3.1
		
		XXX
		
		e. Historical Main Meter Data
		  i. An average 3-day historical data previously gathered from the main meter can be directly substituted
		
		  ii. Values of the same hour of the previous day or same day type (i.e. weekday or weekend)
		
		  iii. Values of the same hour of the same day from the past 3 weeks as
			6.4.3.1
			
			XXX
			
			e. Historical Main Meter Data
			  i. An average 3-day historical data previously gathered from the main meter can be directly substituted
			
			  ii. Values of the same ***dispatch interval*** ~~hour~~ of the previous day or same day type (i.e. weekday or weekend)
			
			  iii. Values of the same ***dispatch***
				The revision is being proposed for a minor enhancement to reflect the transition to five-minute metering upon the implementation of the enhanced WESM design and operations.	**Technical Committee:**
					
					What do we do with these values? Do we use this to estimate the missing (or erroneous) values? Perhaps there is a more sophisticated procedure to impute missing values (e.g. as short-term forecasting algorithm)
					
					NGCP:
					NGCP recommends not to consider the previous days with shutdown, previous
						NGCP:
						
						xxx
						
						*Values of the same **dispatch interval** ~~hour~~ of the same day from the past 3 weeks as recorded on the same meter **except for days with shutdown, previous***
							Technical Committee:
							
							The values are used to estimate data based on the order provided under Section 6.4.3.1.
							
							NGCP:
							
							We are amenable to NGCP's revision.
								Adopt NGCP's revision

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		recorded on the same meter (i.e. Saturday, Sunday, Holidays) XXX g. Use of Meter Register Reading in VEE XXX The meter register readings shall be treated by the *Market Operator* in the following manner: i. The hourly equivalent meter data shall be computed proportionately according to the load shape obtained from available RTU data corresponding to metering point for the time covered by the register	*interval* ~~hour~~ of the same day from the past 3 weeks as recorded on the same meter (i.e. Saturday, Sunday, Holidays) XXX g. Use of Meter Register Reading in VEE XXX The meter register readings shall be treated by the *Market Operator* in the following manner: i. The ~~hourly~~ **per dispatch interval** equivalent meter data shall be computed proportionately according to the load shape obtained from available RTU		estimation, and holidays	***estimation, holidays*** *(i.e. Saturday, Sunday, Holidays)*		

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		readings, or to the load shape obtained from the historical load profile data for a similar day and time; ii. The hourly equivalent meter data shall undergo site – specific loss adjustment for any equipment between the market trading node and the meter; XXX	data corresponding to metering point for the time covered by the register readings, or to the load shape obtained from the historical load profile data for a similar day and time; ii. The **_per dispatch interval_** ~~hourly~~ equivalent meter data shall undergo site – specific loss adjustment for any equipment between the market trading node and the meter; XXX					
SITE-SPECIFIC LOSS ADJUSTMENT	8.2	This procedure shall be used to adjust the Customer Trading Participant's meter data to compensate for the electrical losses in the	This procedure shall be used to adjust the ~~Customer~~ _Trading Participant's_ meter data to compensate for the electrical losses in the	The revision is being proposed to be consistent with the general principle that	**Technical Committee:** What is the unit of SSLA? If the adjustment to the Trading		**Technical Committee:** SSLA refers to the procedure. Since metered quantities will	Adopt IEMOP's proposal

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		components that come between the Metering Point and the MTN. The power and energy registered at the Metering Point shall be adjusted to reflect meter readings that would have been obtained if the revenue meter is physically located at the MTN.	components that come between the Metering Point and the MTN. The power and energy registered at the Metering Point shall be adjusted to reflect meter readings that would have been obtained if the revenue meter is physically located at the MTN.	the revenue metering equipment for the market trading node shall be installed no more than 500 meters from the connection point. The application of SSLA methodology shall be applied therefore to all Trading Participants	Participant's meter reading is additional kWh, it is better to retain the Site-Specific Loss Factor. This has been an issue with ERC where the SSLA in kWh is treated as additional input energy of the Trading Participant. Adjusting the Meter Data has implications on the DU's performance.		be adjusted to the connection point of the grid customers, the losses reflected in the metered quantities of the grid customers will be appropriately allocated..	
Loss Factor	8.3	There shall be a Site – Specific Loss Factor (SSLF) for every Metering Point, and for every dispatch interval, which represents the adjusted meter data of a Metering Point. The SSLF is a unit-less number that shall be multiplied to the original meter data corresponding	8.3 Loss Factor There shall be a Site – Specific Loss Factor (SSLF) for every Metering Point, and for every dispatch interval, which represents the adjusted meter data of a Metering Point. The SSLF is a unit-less number that shall be multiplied to	The proposed harmonized methodology does not include the use of an SSLF.	**Technical Committee:** Same comment as above		**Technical Committee:** SSLA refers to the procedure. Since metered quantities will be adjusted to the connection point of the grid customers, the losses reflected in the metered quantities of the grid customers	Adopt IEMOP's proposal

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		to the dispatch interval. The product of the SSLF and the original meter data is the adjusted power or energy of the Trading Participant as seen from the MTN.	~~the original meter data corresponding to the dispatch interval. The product of the SSLF and the original meter data is the adjusted power or energy of the Trading Participant as seen from the MTN.~~				will be appropriately allocated.	
Scope	8.4	This procedure applies to all Revenue Metering Installations of *Trading Participants* in the *WESM*, where the Metering Point is not physically located at the MTN.	8.4**3** SCOPE This procedure applies to all Revenue Metering Installations of *Trading Participants* in the *WESM*, where the Metering Point is ~~not~~ physically **located more than 500m from** ~~at~~ the MTN **as determined by the *Metering Services Provider*.**	In view of the amendment to Clause 3.2.2.2(c) of the WESM Rules under DOE DC2018-05-0015, it is proposed that SSLA only be applied if the metering point is more than the prescribed distance of 500 meters from the connection point. The MSP will determine the list of Trading Participants that will be	**Technical Committee:** Same comment as above **NGCP:** ▪ MSP is not privy to the location of MTN. NGCP recommends using	**NGCP:** 8.4**3** SCOPE This procedure applies to all Revenue Metering Installations of *Trading Participants* in the *WESM*, where	**Technical Committee:** SSLA refers to the procedure. Since metered quantities will be adjusted to the connection point of the grid customers, the losses reflected in the metered quantities of the grid customers will be appropriately allocated. **NGCP:** MTN is defined to be located at the connection point of the	Adopt NGCP's revision

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
				subject to the application of SSLA. Re-numbered with the deletion of Section 8.3	Connection point as reference, instead. For embedded generators, mechanism should be established on how to determine the distance from the Connection point based on PDC definition	the Metering Point is ~~not~~ physically **located more than 500m from** ~~at~~ the ~~MTN~~ **Connection Point as determined by the _Metering Services Provider_**.	trading participant.	
WESM MEMBERS INVOLVED IN PERFORMING SSLA	8.5	8.5 XXX	8.~~5~~**4** XXX	Re-numbered with the deletion of Section 8.3		**Technical Committee:** 8.5.2 Metering Service**s** Provider	**Technical Committee:** We are amendable to the proposed revision.	Adopt TC's revision
ROLES AND RESPONSIBILITIES	8.6	8.6. Roles and Responsibilities The involvement of the Metering Services Provider, Network Service Providers and	8.~~6~~**5**. Roles and Responsibilities The involvement of the Metering Services Provider, Network Service Providers and	Since the MSP is responsible for installing the meter and will make the decision on its location, it	**PEMC-LEGAL:** **For 8.5.2.1** a. The Metering Service Provider (MSP) should furnish the		**PEMC-Legal:** Immediate submission of the pertinent data is recommended to ensure	Adopt consolidation of Sections as proposed by the NGCP. For the proposed

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		Trading Participants are as follows: 8.6.1. Network Service Provider: 8.6.1.1. The Network Service Provider shall submit to the Market Operator every six months all significant conductor and power transformer data between the metering point and the market trading node and as often as it implements significant changes in the actual physical configuration of the conductor and power transformer between the metering point and the market trading node. a. Conductor Data 　i. Conductor size 　ii. Conductor Type 　iii. Number of conductors per circuit 　iv. Line Length (km)	Trading Participants are as follows: 8.~~6~~**5**.1. Network Service Provider: 8.~~6~~**5**.1.1. The *Network Service Provider* shall submit to the ***Metering Services Provider*** ~~Market Operator~~ every six months all significant conductor and power transformer data between the metering point and the market trading node and as often as it implements significant changes in the actual physical configuration of the conductor and power transformer between the metering point and the market trading node. 　a. **Transformer Resistance, R**	is proposed that the MSP provide the relevant inputs for the calculation of the SSLA. Consequently, it is proposed that the NSP support the MSP in the preparation of the required data. This will also apply for embedded generators. Re-numbered with the deletion of Section 8.3	Network Service Provider (NSP) or Trading Participant (TP), as may be applicable, copies of the pertinent data that would be submitted to the Market Operator (MO). This will give the NSP/TP the chance to validate the said data and determine whether it has still issues/concerns on said data. b. The MSP should also be required to state in the data for submission to MO any pending/unsettled issues/concerns on said data between the MSP and NSP/TP. **NGCP:**	**NGCP:** 8.~~6~~**5**. Roles and Responsibilities The involvement of the Metering Services Provider, Network Service Providers and Trading Participants are as follows:	accuracy of metered quantities for settlement. It is suggested that any review be performed upon submission to the Market Operator. **NGCP:** We are amenable to the consolidation of the sections.	timelines on the submission of data, apply the following revisions: • Submission of data from NSP to MSP: 20 calendar days • Submission of data from MSP to MO: 10 calendar days

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		v. Line Voltage vi. Line Configuration b. Power Transformer Data i. Rated kVA ii. Core Loss (Open Circuit Test result) iii. Full-load Copper Loss (Short-Circuit Test result) iv. Percent Impedance (% Z) v. xr ratio 8.6.2.1. The Metering Provider shall submit to the Operator all significant line transformer parameters between the metering point and the connection point upon registration of the Metering Installation.	b. **Transformer Reactance, X** c. **Transmission Line Circuit Branch Resistance, R** d. **Transmission Line Circuit Branch Reactance, X** e. **Transmission Line Circuit Total Branch Susceptance, B** a. Conductor Data i. Conductor size ii. Conductor Type iii. Number of conductors per circuit		• To minimize the number of sections, NGCP suggests unifying the following section: ▪ 8.5.1 & 8.5.2; and ▪ 8.5.2.1 & 8.5.2.2. • NGCP would like to recommend that the timeline for submission of the required information shall not be later than 30 calendar	8.65.1. Network Service Provider: 8.65.1.1. The *Network Service Provider* shall submit to the ***Metering Services Provider*** Market Operator **all data necessary in the preparation of the following information that may affect the SSLA computation** every six months all significant conductor and power transformer data between the metering point and the market trading node and **not later than 30 calendar days, upon implementation** of as often as it implements significant changes **modification** in the actual physical configuration of the conductor and power transformer between the metering point and	We recommend to retain the current timeline for the MSP to submit the pertinent information as soon as possible in order to ensure accuracy of metered quantities in the market. -not later than 20 calendar days MTN is defined to be located at the connection point of the trading participant. MSP to MO – not later than 10 calendar days	

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		a. Transformer Winding Resistance, R b. Transformer Winding Reactance, X c. Transmission Line Circuit Branch Resistance, R d. Transmission Line Circuit Branch Reactance, X e. Transmission Line Circuit Total Branch Susceptance, B	iv. ~~Line Length (km)~~ v. ~~Line Voltage~~ vi. ~~Line Configuration~~ b. ~~Power Transformer Data~~ i. ~~Rated kVA~~ ii. ~~Core Loss (Open Circuit Test result)~~ iii. ~~Full-load Copper Loss (Short-Circuit Test result)~~ iv. ~~Percent Impedance (% Z)~~ v. ~~xr ratio~~ 8.6**5**.1.**2**. **The Network Service Provider shall assist the *Metering Services Provider* with additional data necessary in the preparation of the information to be submitted to the *Market Operator* under Section 8.5.2.1, Section 8.5.2.2 and Section**		days upon implementation of modification. • Same comment in 8.4	the ~~market trading node~~ **Connection Point:** a. **Transformer Resistance, R (ohms)** b. **Transformer Reactance, X(ohms)** c. **Transmission Line Circuit Branch Resistance, R (ohms)** d. **Transmission Line Circuit Branch Reactance, X (ohms)** e. **Transmission Line Circuit Total Branch Susceptanc**		

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		8.6.2.2 The Metering Services Provider shall submit to the Market Operator the meter data containing the daily energy consumption or delivery of all Trading Participants.	**8.5.2.3.** ~~In coordination with the Metering Services Provider, single-line diagrams that show the significant changes in the actual physical configuration of the conductor and power transformer shall also be submitted by the Network Service Provider(s) to the Market Operator.~~ 8.6**5**.2. Metering Service Provider 8.6**5**.2.1 The *Metering Services Provider* shall submit to the *Market Operator* all significant line and transformer parameters between the *metering point* and the *connection point*, **including the single line diagram,** upon registration of the *Metering Installation* **and as often as it implements**			**e, B (siemens)** **f. Single Line Diagram showing metering point location and distance from the connection point** ~~a. Conductor Data~~ ~~i. Conductor size~~ ~~ii. Conductor Type~~ ~~iii. Number ofs conductors per circuit~~ ~~iv. Line Length (km)~~ ~~v. Line Voltage~~ ~~vi. Line Configuratio n~~ ~~b. Power Transformer Data~~ ~~i. Rated kVA~~ ~~ii. Core Loss (Open~~		

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			significant changes in the actual physical connections between the *metering point* and the *market trading node*. a. Transformer Winding Resistance, R b. Transformer Winding Reactance, X c. Transmission Line Circuit Branch Resistance, R d. Transmission Line Circuit Branch Reactance, X e. Transmission Line Circuit Total			Circuit Test result) iii. Full-load Copper Loss (Short-Circuit Test result) iv. Percent Impedance (% Z) v. *xr* ratio 8.65.1.2. The Network Service Provider shall assist the *Metering Services Provider* with additional data necessary in the preparation of the information to be submitted to the *Market Operator* under Section 8.5.2.1, Section 8.5.2.2 and Section 8.5.2.3. In coordination with the Metering Services Provider, single-line diagrams that show the significant changes in the actual physical configuration of the conductor and power transformer		

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			Branch Susceptance, B **8.5.2.2 The *Metering Services Provider* shall submit to the *Market Operator* the list of the *metering points* that will be subject to the computation of Site-Specific Loss Adjustment (SSLA) and provide updates as often as it implements significant changes in the actual physical connections of *metering points*.** 8.**5**.2.2**3** The Metering Services Provider shall submit to the Market Operator the meter data **from all**			~~shall also be submitted by the Network Service Provider(s) to the Market Operator.~~ 8.**6**5.2. Metering Service Provider 8.**6**5.2.1 The *Metering Services Provider* shall submit to the *Market Operator* **the list of the *metering points* that will be subject to the computation of Site-Specific Loss Adjustment (SSLA) including associated single line diagrams,** ~~all~~ significant line and transformer parameters, between the *metering point* and the *connection point*~~, including the single line diagram.~~ upon registration of the *Metering Installation* **and as often as it implements significant**	**MERALCO**: Retain the current application	

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			metering points **where the *Metering Services Provider* are responsible for in accordance with the format and timeline of submission prescribed in this *Market Manual*** ~~containing the daily energy consumption or delivery of all Trading Participants~~.		**MERALCO:** We strongly recommend limiting this section to transmission-connected trading participants. Embedded generators and other trading participants that are connected to a distribution network share it with other end-users. Hence, losses are for the account of the DU to be allocated and recovered from all distribution	**changes in the actual physical connections between the *metering point* and the *market trading node.*** a. Transformer Winding Resistance, R b. Transformer Winding Reactance, X c. Transmission Line Circuit Branch Resistance, R d. Transmission Line Circuit Branch Reactance, X e. Transmission Line Circuit Total		

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
					system users using a methodology and rate approved by ERC, as provided for by Section 5.4 of the Amended Distribution Services and Open Access Rules (DSOAR), which state: *"The DU is responsible for procuring all energy related to distribution system losses and will be allowed to recover such costs through ERC approved System Loss Charges, subject to a System Loss Cap."* In addition to our proposed revised wording, please see new section 8.5.1.1,	Branch Susceptance , B ~~8.5.2.2 The *Metering Services Provider* shall submit to the *Market Operator* the list of the *metering points* that will be subject to the computation of Site-Specific Loss Adjustment (SSLA) and provide updates as often as it implements significant changes in the actual physical connections of *metering points.*~~ **MERALCO:** 8.**5**.2.~~2~~**3** The Metering Services		

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
					which we propose to add.	Provider shall submit to the Market Operator the meter data **from all _metering points_ where the _Metering Services Provider_ are responsible for in accordance with the format and timeline of submission prescribed in this _Market Manual_** ~~containing the daily energy consumption or delivery of all Trading Participants~~. _.5.1.1_ **_Losses incurred within the distribution system, to which some Trading Participants are connected, shall be for the account of the Distribution Utility, in accordance with the Distribution Services and Open Access Rules and other relevant issuances._**		

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
						8.5.1.2 Except for Network Service Providers and Metering Service Providers serving trading participants connected to the distribution network, the *Network Service Provider* shall submit to the *Metering Services Provider* every six months all significant conductor and power transformer data between the metering point and the market trading node and as often as it implements significant changes in the actual physical configuration of the conductor and power transformer between the metering point and the market trading node. a. Transformer		

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
						Resistance, R b. Transformer Reactance, X c. Transmission Line Circuit Branch Resistance, R d. Transmission Line Circuit Branch Reactance, X e. Transmission Line Circuit Total Branch Susceptance, B 8.5.1.**3**. _**Except for Network Service Providers and Metering Service Providers serving trading**_		

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
						participants connected to the distribution network, the Network Service Provider shall assist the *Metering Services Provider* with additional data necessary in the preparation of the information to be submitted to the *Market Operator* under Section 8.5.2.1, Section 8.5.2.2 and Section 8.5.2.3. 8.5.2.1 **Except for Metering Service Providers serving trading participants connected to the distribution network,,** *the Metering Service Provider shall submit to the Market Operator all significant line and transformer parameters between the metering point and the connection point*, including the		

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
						single line diagram, *upon registration of the Metering Installation* and as often as it implements significant changes in the actual physical connections between the *metering point* and the *market trading node.* a. Transformer Winding Resistance, R b. Transformer Winding Reactance, X c. Transmission Line Circuit Branch Resistance, R d. Transmission Line Circuit Branch Reactance, X e. Transmission Line Circuit Total Branch Susceptance, B **8.5.2.2 *Except for Metering Service Providers serving trading participants connected to the***		

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
						distribution network, *the Metering Services Provider* shall submit to the *Market Operator* the list of the *metering points* that will be subject to the computation of Site-Specific Loss Adjustment (SSLA) and provide updates as often as it implements significant changes in the actual physical connections of *metering points*. 8.5.2.3 **_Except for Metering Service Providers serving trading participants connected to the distribution network,_** *the* Metering Services Provider shall		

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
						submit to the Market Operator the meter data from all *metering points* where the *Metering Services Provider* are responsible for in accordance with the format and timeline of submission prescribed in this *Market Manual*		
ROLES AND RESPONSIBILITIES – Trading Participant	8.6.3	8.6.3 XXX The *Trading Participant*, in coordination with the *Network Service Provider*, shall submit to the *Market Operator* all significant conductor and power transformer data between its metering point and the market trading node upon its registration in the WESM, and as often as it notices significant changes in the actual physical configuration of the conductor and power transformer between	8.6~~5~~.3 XXX The *Trading Participant* ~~, in coordination with the Network Service Provider, shall submit to the Market Operator~~ **shall coordinate with its *Metering Services Provider* for the submission by the *Metering Services Provider* of** all significant conductor and power transformer data between its metering point and the market trading node upon its registration in the WESM, and as often	Since the MSP is responsible for installing the meter and will make the decision on its location, it is proposed that the MSP provide the relevant inputs for the calculation of the SSLA. It is proposed that the trading participant ensure the submission of the required data.	**Technical Committee:** What is the unit of SSLA? If the adjustment to the Trading Participant's meter reading is additional kWh, it is better to retain the Site-Specific Loss Factor. This has been an issue with ERC where the SSLA in kWh is treated as additional input energy of the Trading Participant. Adjusting the		**Technical Committee:** SSLA refers to the procedure. Since metered quantities will be adjusted to the connection point of the grid customers, the losses reflected in the metered quantities of the grid customers will be appropriately allocated.	Adopt IEMOP's proposal

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		its metering point and the market trading node. The *Trading Participant* shall submit the same type of data stated in Section 8.6.1.	as it notices significant changes in the actual physical configuration of the conductor and power transformer between its metering point and the market trading node. ~~The Trading Participant shall submit the same type of data stated in Section 8.6.1.~~	Re-numbered with the deletion of Section 8.3	Meter Data has implications on the DU's performance.			
ROLES AND RESPON SIBILITIE S – Market Operator	8.6.4.1	8.6.4 XXX 8.6.4.1 The *Market Operator* shall reconcile the data submitted by the *Network Service Provider, the Metering Services Provider,* and the *Trading Participant.* The reconciled data shall be agreed by the *Market Operator, Network Service Provider* and the *Trading Participants.* The *Market Operator* shall use the reconciled data starting on the current billing month only, then progressively for the	8.6**5**.4 XXX 8.6**5.**4.1 The *Market Operator* shall ~~reconcile the data submitted by the Network Service Provider, the Metering Services Provider, and the Trading Participant. The reconciled data shall be agreed by the Market Operator, Network Service Provider and the Trading Participants~~ **use the latest conductor and power transformer data, and list of metering points that will be subject to SSLA submitted**	Since the MSP is responsible for installing the meter and will make the decision on its location, it is proposed that the MSP be included in the determination of the data to be used for the calculation of the SSLA of trading participants. For clarity of process	**PEMC-Legal:** Under the other proposed revisions (Sections 8.5.1.1 and 8.6.3), the NSP or TP will no longer directly provide the conductor/transf ormer data or other relevant data to the MO. The MSP will be the one in-charge of provision of said data subject to coordination and assistance of NSP/TP. With	**PEMC-Legal** The Market Operator shall use the latest conductor and power transformer data and list of metering points **submitted by the Metering Service Provider that will be subject to SSLA. In case the MSP, NSP or TP has informed the MO regarding any discrepancies/ unsettled issues/concerns on the required data for submission,** the MO shall conduct	**PEMC-Legal:** Immediate submission of the pertinent data is recommended to ensure accuracy of metered quantities for settlement. It is suggested that any review be performed upon submission to the Market Operator. Retain wording	Adopt IEMOP's proposal

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		succeeding billing months until a new conductor and power transformer data is submitted. 8.6.4.2 XXX 8.6.4.3 XXX	**by the *Metering Services Provider.* For any data discrepancy raised by the *Network Service Provider* or *Trading Participant,* the *Market Operator* shall conduct reconciliation to determine the corrected data agreed by the *Market Operator, the Network Service Provider,* the *Metering Services Provider* and the *Trading Participant.* The** *Market Operator* shall use the reconciled data starting on the current billing month only, then progressively for the succeeding billing months until a new conductor and power transformer data is submitted. 8.6̶5.4.2 XXX 8.6̶5.4.3 XXX	during conductor or power transformer data discrepancy. Re-numbered with the deletion of Section 8.3	the proposed revisions, the MSP and NSP/TP should already be required to settle any issues/concerns on the relevant data prior to the provision thereof by the MSP to the MO. Only the unsettled data issues/concerns should be subject to reconciliation of MO.	reconciliation to determine the corrected data and **by the *Market Operator, the Network Service Provider,* the *Metering Services Provider* and the *Trading Participant*.XXX.**		

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
Site Specific Loss Factor Calculation	8.7	8.7 Site Specific Loss Factor Calculation	8.~~7~~**6** Site Specific Loss ~~Factor~~ **Adjustment** Calculation 8.~~7~~**6**.1 XXX	The proposed harmonized methodology does not include the use of an SSLF. Re-numbered with the deletion of Section 8.3	**Technical Committee:** Same comment as above		**Technical Committee:** SSLA refers to the procedure. Since metered quantities will be adjusted to the connection point of the grid customers, the losses reflected in the metered quantities of the grid customers will be appropriately allocated.	Adopt IEMOP's proposal
SITE SPECIFIC LOSS FACTOR CALCULATION – Historical Load Share	8.7.2	8.7.2. Historical Load Share Historical Load Share (HLS) is the fraction or ratio of a *metering point's* total energy, against the total energy of all *metering*	~~8.7.2. Historical Load Share~~ ~~Historical Load Share (HLS) is the fraction or ratio of a *metering point's* total energy, against the total energy of all *metering*~~	With the designation of connection points as market trading nodes, transmission facilities will not be shared by multiple metering points for the purpose of SSLA calculation. In view of this, loss sharing will not be	**Technical Committee:** In the meantime that the connection point isn't yet the MTN, what is the option in re-allocating the SSLA? **NGCP:** Variant 6 of ERC Resolution No. 23 Series of 2016		**Technical Committee:** Application of the current methodologies will be employed while the market network model is being updated. **NGCP:** IEMOP will follow the information	Adopt IEMOP"s proposal

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		points under the same transformer. The HLS for the current billing month shall be based on the energy of the last twelve (12) billing months.	*points* under the same transformer. The HLS for the current billing month shall be based on the energy of the last twelve (12) billing months.	performed anymore.	*(Connection to the Grid of one or more substations of the same DU or an end-user)* prescribes the installation of totalizer meter at the Connection Point. Accordingly, the metering point of the Directly Connected Customer (DCC) will be embedded by the totalizer metering point for the DU. While the DCC is not yet a customer of the DU, will the DU absorb all the losses computed through SSLA? (including the share of DCC) What is IEMOP's proposal in handling Variant 6 cases relative		submitted by the MSP.	

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
					to SSLA application?			
SITE SPECIFIC LOSS FACTOR CALCULATION – Loss Sharing	8.7.3	8.7.3. Loss Sharing 8.7.3.1. In cases where a single transformer supplies power to multiple *metering points*, the Transformer Load Loss and No-load Loss (e.g. Core loss) shall be shared by all	~~8.7.3. Loss Sharing~~ ~~8.7.3.1. In cases where a single transformer supplies power to multiple *metering points*, the Transformer Load Loss and No-load Loss (e.g.~~	With the designation of connection points as market trading nodes, transmission facilities will not be shared by multiple metering points for the purpose of SSLA calculation. In view of this, loss sharing will not be performed anymore.	**NGCP:** Same comment in 8.7.2		**NGCP:** IEMOP will follow the information submitted by the MSP.	Adopt IEMOP's proposal

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		meters proportionately according to: a. the energy consumed from each metering point, for the No-load Loss b. the accumulated energy as each *metering ring*	~~Core loss) shall be shared by all meters proportionately according to:~~ ~~a. the energy consumed from each metering poi~~					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		point reaches the Transformer, for the Load Loss 8.7.3.2. If a meter registers a zero value, Loss Share shall be based on the Historical Load Share. 8.7.3.3. In cases where a line is shared	~~nt, for the No – load Loss~~ ~~b. the accumulated energy as each~~ *~~metering point~~* ~~reaches the Transf~~					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		among multiple metering points, the losses across the line shall be shared by all meters proportionately according to the energy consumed from each metering point plus the accumulated losses of each	~~or meter, for the Load Loss~~ ~~8.7.3.2. If a meter registers a zero value, Loss Share shall be based on the Historical Load Share.~~ ~~8.7.3.3. In cases where~~					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		metering point before the line being shared.	~~a line is shared among multiple metering points, the losses across the line shall be shared by all meters proportionately according to the energ~~					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			~~y consumed from each metering point plus the accumulated losses of each metering point before the line being shared.~~					
SITE SPECIFIC LOSS FACTOR CALCULATION	8.7.4	Detailed loss calculations for sample cases are included in the Appendix of this Manual under "Site	**8.7.4**6.2 Detailed loss calculations for sample cases are included in the Appendix of this Manual under "Site	Re-numbering with the proposed removal of Sections 8.3,			[]	Adopt IEMOP's proposal

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		Specific Loss Adjustment"	Specific Loss Adjustment"	8.7.2 and 8.7.3.				
PROCEDURAL STEPS FOR SSLA	8.8	8.8 PROCEDURAL STEPS FOR SSLA XXX	~~8.8 PROCEDURAL STEPS FOR SSLA~~ ~~XXX~~	The procedural steps for SSLA is proposed to be deleted to provide flexibility on the detailed processes involved. The detailed processes are reflected in the internal business process being maintained by the market operator.	**Technical Committee:** The manner/procedure for SSLA calculation should be transparent to the Trading Participants.		**Technical Committee:** The manner / procedure for SSLA calculation is clearly provided in the manual. The procedural steps only include additional information on the data exchange between MSP and the MO.	Adopt IEMOP's proposal
Site – Specific Loss Adjustment	Appendix K	A. General Equations The following are the equations to be used for calculating the Site Specific Loss Factor (SSLF): $Line_{kW-Loss} = (I_{Line})\,2 * R_{Line} \div 1000$	A. General Equations The following are the equations to be used for ~~calculating~~ **performing** the Site Specific Loss ~~Factor~~ **Adjustment** (SSL~~F~~**A**): ~~$Line_{kW-Loss} = (I_{Line})\,2 * R_{Line} \div 1000$~~	The revisions are being proposed to harmonize the WESM's calculation of the Site-Specific Loss Adjustment with the method of NGCP in determining point-to-point losses	**Technical Committee:** See previous comments **NGCP:** ▪ Under the existing NGCP Guidelines, transformer		**Technical Committee:** SSLA refers to the procedure. Since metered quantities will be adjusted to the connection point of the grid customers, the losses reflected in the metered quantities of the grid customers	Adopt NGCP's proposed procedure for all cases specified in the appendices from this here on

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		$R_{Line} = r_a * L$ $Line_{kVar-Loss} = (I_{Line})2 * X_{Line} \div 1000$ $X_{Line} = X_l * L$ $Transformer_{kW-}$	~~$R_{Line} = r_a * L$~~ ~~$Line_{kVar-Loss} = (I_{Line})2 * X_{Line} \div 1000$~~ ~~$X_{Line} = X_l * L$~~ ~~$Transformer_{kW-Loss}$~~		loss factor adjustment shall be computed based on the transformer data found in the Factory Test Reports (FTR). However, for transformer where FTR data are not available, the following TLF will be used to translate the metered power and energy across the power		will be appropriately allocated. **NGCP:** Since the objective of this proposal is to harmonize calculation procedures with the WMSP, we suggest to adopt NGCP's procedures for determining transformer losses.	

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		$Total_{kW\text{-}Loss} =$ $Line_{kW\text{-}Loss} + Transformer_{kW\text{-}Loss}$ SSLF = 1 + $(Total_{kW\text{-}Los}$	~~Total~~$_{kW\text{-}Loss}$ ~~=~~ ~~Line$_{kW\text{-}Loss}$ + Transformer$_{kW\text{-}Loss}$~~ ~~SSLF = 1 +~~ ~~(Total$_{kW\text{-}Loss}$ ÷ kW Meter)~~		transformer: <table><tr><td>**Capacity (kVA)**</td><td>**Tranorm Los Fact (%**</td></tr><tr><td>**1000**</td><td>**1.9**</td></tr><tr><td>**2000**</td><td>**1.8**</td></tr><tr><td>**3000**</td><td>**1.7**</td></tr><tr><td>**4000**</td><td>**1.6**</td></tr><tr><td>**5000**</td><td>**1.5**</td></tr><tr><td>**10000**</td><td>**1.4**</td></tr></table> For in between capacities, NGCP uses interpolation to calculate the TLF. Since the aforementioned table is not the same as that of IEMOP's proposal, NGCP prepared the attached			

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		$\dots s \div kW_{Meter})$ $Adjusted_k W = SSLF * kW_{Meter} = Total\ kW - Loss + k\dots$	~~$Adjusted_k W = SSLF * kW_{Meter} = Total\ kW - Loss + kW_{Met\dots}$~~		simulation (Annex A) illustrating differences in the adjusted demand (kW) and energy (kWh) between the existing NGCP guidelines and IEMOP's proposal. Based on the result of simulation, variances in the adjusted Billing Determinant (BDs) were observed. The active and reactive billing determinant energies will be increased which may have an impact on the customers' energy-based charges.			

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		W_{Meter} $Adjusted_{kWh} = Adjusted_{kW} * t$ Where: kW_{Meter}: active power derived from the meter registration I_{Line}: current	~~or~~ ~~$Adjusted_{kWh} = Adjusted_{kW} * t$~~ ~~Where:~~ ~~$kW_{Meter}$: active power derived from the meter registration~~ ~~I_{Line}: current~~					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		$Line_{kW-Loss}$: the active loss (kW) along the line $Line_{kVar-Loss}$: the reactive loss (kVar) along the line R_{Line}: total	~~$Line_{kW-Loss}$: the active loss (kW) along the line~~ ~~$Line_{kVar-Loss}$: the reactive loss (kVar) along the line~~ ~~R_{Line}: total~~					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		X_{Line}: total inductive reactance (ohm) of the line r_a: resistance per unit length (ohm/km) of the line X_l: total inductive reactance per unit length	~~X_{Line}: total inductive reactance (ohm) of the line~~ ~~r_a: resistance per unit length (ohm/km) of the line~~ ~~X_l: total inductive reactance per unit length (ohm/km) of the line~~ ~~L: total line~~					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		(ohm/km) of the line L: total line Transformer$_{kW}$	~~Transformer$_{kW}$~~					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		Total$_{kW}$ Loss: total active loss (k	~~Total$_{kW}$~~ ~~Loss: total active loss (kW) for a~~					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		W) for a metering point $kW_{CoreLoss}$: constant loss (kW)	~~metering point~~ ~~$kW_{CoreLoss}$:~~ ~~constant loss (kW) from the op~~					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		from the open-circuit test Adjusted$_{kW}$: adjusted (kW) active power SSLF: Site –	~~en-circuit test~~ ~~Adjusted kW : adjusted (kW) active power~~ ~~SSLF: Site Specific Loss Factor~~ **Calculation of Line Losses** $$kW_{Meter} = \frac{kWh_{Meter}}{t}$$ $$kVAR_{Meter} = \frac{kVARh_{Meter}}{t}$$					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			pf $$= \frac{kW_{Me}}{\sqrt{(kW_{Meter})^2 + (}}$$ I_{Line} $$= \frac{kW_{Meter}}{\sqrt{3} \times V_{Rated} \times p}$$ $Line_{kW-Loss}$ $$= \frac{(I_{Line})^2 \times R_T}{1000}$$ **Calculation of Transformer Losses:** **For the calculation of the transformer losses, the following transformer loss factors (%Transformer$_{Loss}$) shall be used to determine the total transformer losses.**					

| Capacity (kVA), x	
x < 2000	
2000 ≤ x < 3000	
3000 ≤ x < 4000	

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			4000 ≤ x < 5000	**1.6**				
			5000 ≤ x < 10000	**1.5**				
			x ≥ 10000	**1.4**				

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

$$kW_{P-Meter} = \frac{kW_{Meter}}{(1 - \%Transfo}$$

$$kVAR_{P-Meter} = \frac{kVAR_{Me}}{(1 - \%Transfo}$$

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

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

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$kW_{S-Meter}$ $= kW_{Meter} (1$ $- \%Transformer$ $kVAR_{S-Meter}$ $= kVAR_{Meter} (1$ $- \%Transformer$ $Transformer_{kW-}$ $= kW_{Meter}$ $- kW_{S-Meter}$ **Calculation of Adjusted Energy** $Total_{kW-Loss}$ $= Line_{kW-Loss}$ $+ Transformer_{k}$ $Adjusted_{kW}$ $= kW_{Meter}$ $\pm Total_{kW-Loss}$ **(+) = if the** **_connection_** **_point_ is** **located** **before the** **metering** **point (i.e., the** **line current** **initially**					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			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**					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			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					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$Line_{kW-Loss}$ = the active loss along the line, in kW $kW_{P-Meter}$ = Translated *active power* at the primary side of transformer, in kW $kVAR_{P-Meter}$ = 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 $\%Transformer_{L}$ = Transformer Loss Factor					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		$Transformer_{kW-L}$ = 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						
Site – Specific Loss Adjustment	Appendix K	B. Cases for Loss Calculation (Customer) Customer Case 1: A metering point is located after the market trading node (Figure L1)	B. Cases for Loss	The revisions are being proposed to reflect the application of the proposed new SSLA methodology to different cases for Loss calculation in the WESM.	**Technical Committee:** See previous comments **NGCP:** Same as previous comment in General Equations		**Technical Committee:** SSLA refers to the procedure. Since metered quantities will be adjusted to the connection point of the grid customers, the losses reflected in the metered quantities of the grid customers	

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		Figure L1 $Line_{kW-Loss} = (I_{Line})^2 * R_{Line}$ $R_{Line} = r_a * L$ $Line_{kVar-Loss} = (I_{Line})^2 * X_{Line}$ $X_{Line} = X_l * L$ $Transformer_{kW-Loss} = kW_{Mi} * \%Transformer_{Loss}$ $Total_{kW-Loss} = Line_{kW-Loss} + Transformer_{kW-Loss}$ $SSLF = 1 + (Total_{kW-Loss} + kW_{Mi})$ [Note: $Total_{kW-Loss}$ and kW_{Mi} will	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 ~~market trading node~~ (Figure L1 **and G1**) **(In this case, the line current initially passes through the _connection_**				will be appropriately allocated. **NGCP:** Since the objective of this proposal is to harmonize calculation procedures with the WMSP, we suggest to adopt NGCP's procedures for determining transformer losses.	

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		have positive values in this case] Adjusted$_{kW}$ = Total$_{kWLoss}$ + kW$_{Mi}$ = SSLF * kW$_{Mi}$ Adjusted$_{kWh}$ = Adjusted$_{kW}$ * t	*point* then the metering point) Figure L1 **a. Loads:** Figure L1 **b. Generators:** Figure G1					
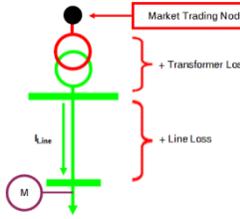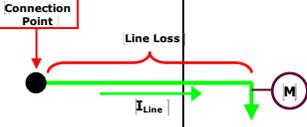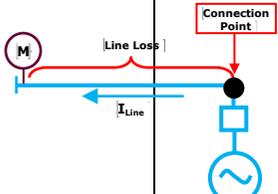
Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$Line_{kW\,Loss} = (I_{Line})^2 * R_{Line}$ $R_{Line} = r_a * L$ $Line_{kVar\,Loss} = (I_{Line})^2 * X_{Line}$ $X_{Line} = X_l * L$ $Transformer_{kW\,Loss} = kW_{Mi} * \%Transformer_{Loss}$ $Total_{kW\,Loss} = Line_{kW\,Loss} + Transformer_{kW\,Loss}$ $SSLF = 1 + (Total_{kW\,Loss} + kW_{Mi})$ [*Note: $Total_{kW\,Loss}$ and kW_{Mi} will have positive values in this case*] $Adjusted_{kW} = \dfrac{Total_{kW\,Loss} + kW_{Mi}}{SSLF * kW_{Mi}}$ $Adjusted_{kWh} = Adjusted_{kW} * t$					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			kW_{Meter} $= \dfrac{kWh_{Meter}}{t}$ $kVAR_{Meter}$ $= \dfrac{kVARh_{Meter}}{t}$ pf $= \dfrac{kW_{Me}}{\sqrt{(kW_{Meter})^2 + }}$ I_{Line} $= \dfrac{kW_{Meter}}{\sqrt{3} \times V_{Rated} \times p}$ $Line_{kW-Loss}$ $= \dfrac{(I_{Line})^2 \times R_T}{1000}$ $Total_{kW-Loss}$ $= Line_{kW-Loss}$ $Adjusted_{kW}$ $= kW_{Meter}$ $+ Total_{kW-Loss}$ $Adjusted_{kWh}$ $= Adjusted_{kW}$ $\times t$					

| Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
Site – Specific Loss Adjustment	Appendix K	Case 2: A *metering point* is located before the *market trading node* (Figure L2) **Figure L2** $Line_{kW-Loss} = (I_{Line})^2 * R_{Line}$ $R_{Line} = r_a * L$ $Line_{kVar-Loss} = (I_{Line})^2 * X_{Line}$ $X_{Line} = X_l * L$ $Transformer_{kW-Loss} = kW_{Mi} * \%Transformer_{Loss}$	Case 2: A **connection point** is located after the *metering point* ~~market trading node~~ (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**	The revisions are being proposed to reflect the application of the proposed new SSLA methodology to different cases for Loss calculation in the WESM.	**Technical Committee:** See previous comments **NGCP:** Same as previous comment in General Equations		**Technical Committee:** SSLA refers to the procedure. Since metered quantities will be adjusted to the connection point of the grid customers, the losses reflected in the metered quantities of the grid customers will be appropriately allocated. **NGCP:** Since the objective of this proposal is to harmonize calculation procedures with the WMSP, we suggest to adopt NGCP's procedures for determining transformer losses.	
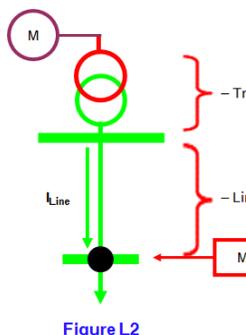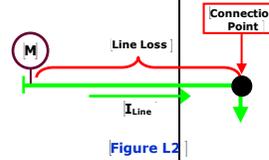
Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		$Total_{kW\text{-}Loss} = Line_{kW\text{-}Loss} + Transformer_{kW\text{-}Loss}$ $SSLF = 1 + (Total_{kW\text{-}Loss} + kW_{Mi})$ [*Note: $Total_{kW\text{-}Loss}$ and kW_{Mi} will have negative values in this case*] $Adjusted_{kW} = Total_{kWLoss} + kW_{Mi}$ $= SSLF * kW_{Mi}$ $Adjusted_{kWh} = Adjusted_{kW} * t$	**b. _Generators_:** Connection Point Line Loss I_{Line} M **Figure G2** ~~$Line_{kW\text{-}Loss} = (I_{Line})^2 * R_{Line}$~~ ~~$R_{Line} = r_a * L$~~ ~~$Line_{kVar\text{-}Loss} = (I_{Line})^2 * X_{Line}$~~ ~~$X_{Line} = X_t * L$~~ ~~$Transformer_{kW\text{-}Loss} = kW_{Mi} * \%Transformer_{Loss}$~~ ~~$Total_{kW\text{-}Loss} = Line_{kW\text{-}Loss} + Transformer_{kW\text{-}Loss}$~~ ~~$SSLF = 1 + (Total_{kW\text{-}Loss} + kW_{Mi})$ [*Note: $Total_{kW\text{-}Loss}$ and kW_{Mi} will have*~~					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			~~negative values in this case~~] ~~Adjusted~~$_{kW}$ ~~=~~ ~~Total~~$_{kWLoss}$ ~~+ kW~~$_{Mi}$ ~~=~~ ~~SSLF * kW~~$_{Mi}$ ~~Adjusted~~$_{kWh}$ ~~=~~ ~~Adjusted~~$_{kW}$ ~~* t~~ $kW_{Meter} = \dfrac{kWh_{Meter}}{t}$ $kVAR_{Meter} = \dfrac{kVARh_{Meter}}{t}$ $pf = \dfrac{kW_{Me}}{\sqrt{(kW_{Meter})^2 + ($ $I_{Line} = \dfrac{kW_{Meter}}{\sqrt{3} \times V_{Rated} \times p}$ $Line_{kW-Loss} = \dfrac{(I_{Line})^2 \times R_T}{1000}$					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$Total_{kW-Loss}$ $= Line_{kW-Loss}$ $Adjusted_{kW}$ $= kW_{Meter}$ $- Total_{kW-Loss}$ $Adjusted_{kWh}$ $= Adjusted_{kW}$ $\times t$					
Site – Specific Loss Adjustment	Appendix K	B. Cases for Loss Calculation (Customer) Generator Case 1: A *metering point* is located after the *market trading node* (Figure G1)	B. Cases for Loss Calculation (Customer) Generator **Transformer Loss Only** Case 1: A **connection point** is located before the *metering point market trading node* (Figure **L3 and G3**G1) **(In this case, the line current initially passes through the connection point then the metering point)**	The revisions are being proposed to reflect the application of the proposed new SSLA methodology to different cases for Loss calculation in the WESM.	**Technical Committee:** See previous comments **NGCP:** Same as previous comment in General Equations		**Technical Committee:** SSLA refers to the procedure. Since metered quantities will be adjusted to the connection point of the grid customers, the losses reflected in the metered quantities of the grid customers will be appropriately allocated. **NGCP:** Since the objective of this	

| Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		Figure G1 $Line_{kW\text{-}Loss}$ $= (I_{Line})^2 * R_{Line}$ $R_{Line} = r_a * L$ $Line_{kVar\text{-}Loss} = (I_{Line})^2 * X_{Line}$ $X_{Line} = X_l * L$ $Transformer_{kW\text{-}Loss} = kW_{Mi} * \%Transformer_{Loss}$ $Total_{kW\text{-}Loss} = Line_{kW\text{-}Loss} + Transformer_{kW\text{-}Loss}$	Figure G1 **a. Loads:** Figure L3 $$kW_{Meter} = \frac{kWh_{Meter}}{t}$$ $$kW_{P-Meter} = \frac{kW_{Mete}}{(1-\%Transfo}$$				proposal is to harmonize calculation procedures with the WMSP, we suggest to adopt NGCP's procedures for determining transformer losses.	
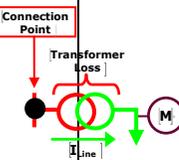
Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		SSLF = 1 + (Total$_{kW-Loss}$ + kW$_{Mi}$) [*Note: Total$_{kW-Loss}$ and kW$_{Mi}$ will have negative values in this case*] Adjusted$_{kW}$ = Total$_{kWLoss}$ + kW$_{Mi}$ = SSLF * kW$_{Mi}$ Adjusted$_{kWh}$ = Adjusted$_{kW}$ * t	$Transformer_{kW-}$ $= kW_{P-Meter}$ $- kW_{Meter}$ $Total_{kW-Loss}$ $= Transformer_{k}$ $Adjusted_{kW} =$ $kW_{Meter} +$ $Total_{kW-Loss}$ $Adjusted_{kWh}$ $= Adjusted_{kW}$ $\times t$ **b. *Generators*:** **Figure G3** ~~Line$_{kW Loss}$~~ ~~= (I$_{Line}$)~~ ^{2} ~~*~~ ~~R$_{Line}$~~ ~~R$_{Line}$~~ ~~= r$_a$~~ ~~* L~~ ~~Line$_{kVar-Loss}$~~ ~~=~~ ~~(I$_{Line}$)~~ ^{2} ~~* X$_{Line}$~~					
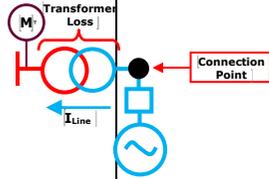
| Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			~~X~~_{Line} = ~~X~~_t * L ~~Transformer~~_{kW-Loss} = kW_{Mi} * %Transformer_{Loss} ~~Total~~_{kW-Loss} = Line_{kW-Loss} + Transformer_{kW-Loss} SSLF = 1 + (Total_{kW-Loss} + kW_{Mi}) [*Note: Total_{kW-Loss} and kW_{Mi} will have negative values in this case*] Adjusted_{kW} = Total_{kWLoss} + kW_{Mi} = SSLF * kW_{Mi} Adjusted_{kWh} = Adjusted_{kW} * t $$kW_{Meter} = \frac{kWh_{Meter}}{t}$$ $$kW_{P-Meter} = \frac{kW_{Mete}}{(1 - \%Transfo}$$					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$Transformer_{kW-}$ $= kW_{P-Meter}$ $- kW_{Meter}$ $Total_{kW-Loss}$ $= Transformer_{k}$ $Adjusted_{kW} =$ $kW_{Meter} +$ $Total_{kW-Loss}$ $Adjusted_{kWh}$ $= Adjusted_{kW}$ $\times t$					
Site – Specific Loss Adjustment	Appendix K	Case 2: A *metering point* is located before the *market trading node* (Figure G2) Figure G2	Case 2: A **connection point** is located after the *metering point* ~~market trading node~~ (Figure **L4 and G4**~~G2~~) **(In this case, the line current initially passes through the metering point then the connection point)**	The revisions are being proposed to reflect the application of the proposed new SSLA methodology to different cases for loss calculation in the WESM.	**Technical Committee:** See previous comments **NGCP:** Same as previous comment in General Equations		**Technical Committee:** SSLA refers to the procedure. Since metered quantities will be adjusted to the connection point of the grid customers, the losses reflected in the metered quantities of the grid customers will be appropriately allocated.	

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
		$Line_{kW-Loss} = (I_{Line})^2 * R_{Line}$ $R_{Line} = r_a * L$ $Line_{kVar-Loss} = (I_{Line})^2 * X_{Line}$ $X_{Line} = X_l * L$ $Transformer_{kW-Loss} = kW_{Mi} * \%Transformer_{Loss}$ $Total_{kW-Loss} = Line_{kW-Loss} + Transformer_{kW-Loss}$ $SSLF = 1 + (Total_{kW-Loss} + kW_{Mi})$ [*Note: $Total_{kW-Loss}$ and kW_{Mi} will have positive values in this case*] $Adjusted_{kW} = Total_{kWLoss} + kW_{Mi}$ $= SSLF * kW_{Mi}$ $Adjusted_{kWh} = Adjusted_{kW} * t$	 **Figure G2** **a. Loads:** **Figure L4** $kW_{Meter} = \dfrac{kWh_{Meter}}{t}$ $kW_{S-Meter} = kW_{Meter}(1 - \%Transformer_L$ $Transformer_{kW-} = kW_{Meter} - kW_{S-Meter}$ $Total_{kW-Loss} = Transformer_k$				**NGCP:** Since the objective of this proposal is to harmonize calculation procedures with the WMSP, we suggest to adopt NGCP's procedures for determining transformer losses.	
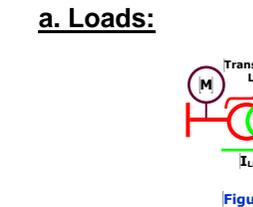
| Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$$Adjusted_{kW} = kW_{Meter} - Total_{kW-Loss}$$ $$Adjusted_{kWh} = Adjusted_{kW} \times t$$ **b. _Generators_:** [Figure G4] $$kW_{Meter} = \frac{kWh_{Meter}}{t}$$ $$kW_{S-Meter} = kW_{Meter}(1 - \%Transformer$$ $$Transformer_{kW-} = kW_{Meter} - kW_{S-Meter}$$ $$Total_{kW-Loss} = Transformer_{k}$$					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$$Adjusted_{kW} = kW_{Meter} - Total_{kW-Loss}$$ $$Adjusted_{kWh} = Adjusted_{kW} \times t$$					
Site – Specific Loss Adjustment	Appendix K	N/A	**Line Loss and Transformer Loss** **Case 1: A connection point is** located before the **metering point (Figure L5, L6, G5 and G6) (In this case, the line current initially passes through the connection point then the metering point)** **a. Loads: (Metering Point at the Transformer)**	Provide new sample cases	**NGCP:** Same as previous comment in General Equations		**NGCP:** Since the objective of this proposal is to harmonize calculation procedures with the WMSP, we suggest to adopt NGCP's procedures for determining transformer losses.	
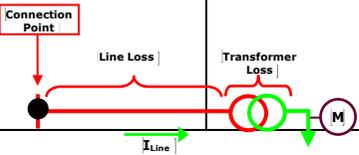
Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			Figure L5 $$kW_{Meter} = \frac{kWh_{Meter}}{t}$$ $$kVAR_{Meter} = \frac{kVARh_{Meter}}{t}$$ $$kW_{P-Meter} = \frac{kW_{Mete\ldots}}{(1 - \%Transfo\ldots}$$ $$kVAR_{P-Meter} = \frac{kVAR_{Me\ldots}}{(1 - \%Transfo\ldots}$$ $$Transformer_{kW-\ldots} = kW_{P-Meter} - kW_{Meter}$$ $$pf = \frac{kW_{P-\ldots}}{\sqrt{(kW_{P-Meter})^2 + \ldots}}$$ $$I_{Line} = \frac{kW_{P-Meter}}{\sqrt{3} \times V_{Rated} \times \ldots}$$					

| Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$Line_{kW-Loss}$ $= \dfrac{(I_{Line})^2 \times R_T}{1000}$ $Total_{kW-Loss}$ $= Line_{kW-Loss}$ $+ Transformer_{kW}$ $Adjusted_{kW}$ $= kW_{Meter}$ $+ Total_{kW-Loss}$ $Adjusted_{kWh}$ $= Adjusted_{kW}$ $\times t$ **b. Loads:** **(_Connection_** **_Point_ at the** **Transformer)** [Figure L6] kW_{Meter} $= \dfrac{kWh_{Meter}}{t}$					
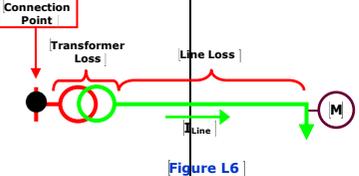
Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$kVAR_{Meter}$ $= \dfrac{kVARh_{Meter}}{t}$ pf $= \dfrac{kW_{Me}}{\sqrt{(kW_{Meter})^2 + (}}$ I_{Line} $= \dfrac{kW_{Meter}}{\sqrt{3} \times V_{Rated} \times p}$ $Line_{kW-Loss}$ $= \dfrac{(I_{Line})^2 \times R_T}{1000}$ kW'_{Meter} $= kW_{Meter}$ $+ Line_{kW-Loss}$ **(Note: For this case, $kW'_{Meter} = kW_{S-Meter}$)** $kW_{P-Meter}$ $= \dfrac{kW_{S-Me}}{(1 - \%Transfo}$					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$Transformer_{kW-}$ $= kW_{P-Meter}$ $- kW_{S-Meter}$ $Total_{kW-Loss}$ $= Line_{kW-Loss}$ $+ Transformer_{k}$ $Adjusted_{kW} =$ $kW_{Meter} +$ $Total_{kW-Loss}$ $Adjusted_{kWh}$ $= Adjusted_{kW}$ $\times t$ **c. Generators:** **(_Connection_** **_Point_ at the** **Transformer)** [Figure G5]					
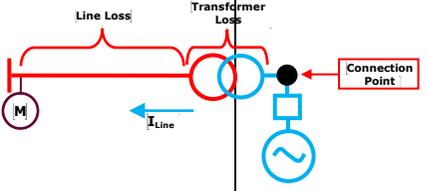
Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			kW_{Meter} $= \dfrac{kWh_{Meter}}{t}$ $kVAR_{Meter}$ $= \dfrac{kVARh_{Meter}}{t}$ pf $= \dfrac{kW_{Me}}{\sqrt{(kW_{Meter})^2 + (}}$ I_{Line} $= \dfrac{kW_{Meter}}{\sqrt{3} \times V_{Rated} \times p}$ $Line_{kW-Loss}$ $= \dfrac{(I_{Line})^2 \times R_T}{1000}$ kW'_{Meter} $= kW_{Meter}$ $+ Line_{kW-Loss}$ **(Note: For this case, $kW'_{Meter} = kW_{S-Meter}$)**					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$kW_{P-Meter}$ $= \dfrac{kW_{S-Me}}{(1-\%Transfo}$ $Transformer_{kW-}$ $= kW_{P-Meter}$ $- kW_{S-Meter}$ $Total_{kW-Loss}$ $= Line_{kW-Loss}$ $+ Transformer_{k}$ $Adjusted_{kW} =$ $kW_{Meter} +$ $Total_{kW-Loss}$ $Adjusted_{kWh}$ $= Adjusted_{kW}$ $\times t$ **d. Generators: (Metering Point at the Transformer)**					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			[Figure G6] $$kW_{Meter} = \frac{kWh_{Meter}}{t}$$ $$kVAR_{Meter} = \frac{kVARh_{Meter}}{t}$$ $$kW_{P-Meter} = \frac{kW_{Mete}}{(1-\%Transfo}$$ $$kVAR_{P-Meter} = \frac{kVAR_{Me}}{(1-\%Transfo}$$ $$Transformer_{kW-} = kW_{P-Meter} - kW_{Meter}$$ $$pf = \frac{kW_P}{\sqrt{(kW_{P-Meter})^2}}$$ $$I_{Line} = \frac{kW_{P-Meter}}{\sqrt{3} \times V_{Rated} \times}$$					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$$Line_{kW-Loss}$$ $$= \frac{(I_{Line})^2 \times R_T}{1000}$$ $$Total_{kW-Loss}$$ $$= Line_{kW-Loss}$$ $$+ Transformer_{kW}$$ $$Adjusted_{kW} =$$ $$kW_{Meter} +$$ $$Total_{kW-Loss}$$ $$Adjusted_{kWh}$$ $$= Adjusted_{kW}$$ $$\times t$$ **Case 2: A _connection point_ is** located after the **_metering point_ (Figure L7, L8, G7 and G8) (In this case, the line current initially passes through the metering point then the _connection point_)**					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			a. Loads: (_Connection Point_ at the Transformer) [Figure 7] $$kW_{Meter} = \frac{kWh_{Meter}}{t}$$ $$kVAR_{Meter} = \frac{kVARh_{Meter}}{t}$$ $$pf = \frac{kW_{Me\ldots}}{\sqrt{(kW_{Meter})^2 + \ldots}}$$ $$I_{Line} = \frac{kW_{Meter}}{\sqrt{3} \times V_{Rated} \times \ldots}$$ $$Line_{kW-Loss} = \frac{(I_{Line})^2 \times R_T}{1000}$$				

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$kW'_{Meter} = kW_{Meter} - Line_{kW-Loss}$ (Note: For this case, $kW'_{Meter} = kW_{P-Meter}$) $kW_{S-Meter} = kW_{P-Meter}(1 - \%Transformer$ $Transformer_{kW-} = kW_{P-Meter} - kW_{S-Meter}$ $Total_{kW-Loss} = Line_{kW-Loss} + Transformer_{k}$ $Adjusted_{kW} = kW_{Meter} - Total_{kW-Loss}$ $Adjusted_{kWh} = Adjusted_{kW} \times t$ b. Loads: (Metering					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			Point at the Transformer) Transformer Loss / Line Loss / Connection Point / I_{Line} / M **Figure L8** $kW_{Meter} = \dfrac{kWh_{Meter}}{t}$ $kVAR_{Meter} = \dfrac{kVARh_{Meter}}{t}$ $kW_{S-Meter} = kW_{Meter}(1 - \%Transformer$ $kVAR_{S-Meter} = kVAR_{Meter}(1 - \%Transformer$ $Transformer_{kW-} = kW_{Meter} - kW_{S-Meter}$					
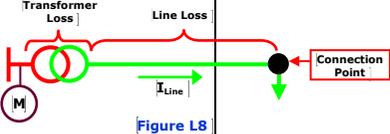
Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$$pf = \frac{kW_S}{\sqrt{(kW_{S-Meter})^2 \cdots}}$$ $$I_{Line} = \frac{kW_{S-Meter}}{\sqrt{3} \times V_{Rated} \times p}$$ $$Line_{kW-Loss} = \frac{(I_{Line})^2 \times R_T}{1000}$$ $$Total_{kW-Loss} = Line_{kW-Loss} + Transformer_{k}$$ $$Adjusted_{kW} = kW_{Meter} - Total_{kW-Loss}$$ $$Adjusted_{kWh} = Adjusted_{kW} \times t$$					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			c. Generators: (Metering Point at the Transformer) Connection Point Line Loss Transformer Loss I_{Line} M [Figure G7] $$kW_{Meter} = \frac{kWh_{Meter}}{t}$$ $$kVAR_{Meter} = \frac{kVARh_{Meter}}{t}$$ $$kW_{S-Meter} = kW_{Meter}(1 - \%Transformer$$ $$kVAR_{S-Meter} = kVAR_{Meter}(1 - \%Transformer$$ $$Transformer_{kW-} = kW_{Meter} - kW_{S-Meter}$$					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$pf = \dfrac{kW_S}{\sqrt{(kW_{S-Meter})^2}}$ $I_{Line} = \dfrac{kW_{S-Meter}}{\sqrt{3} \times V_{Rated} \times p}$ $Line_{kW-Loss} = \dfrac{(I_{Line})^2 \times R_T}{1000}$ $Total_{kW-Loss} = Line_{kW-Loss} + Transformer_{k}$ $Adjusted_{kW} = kW_{Meter} - Total_{kW-Loss}$ $Adjusted_{kWh} = Adjusted_{kW} \times t$ **d. _Generators_:** (_**Connection Point** at the **Transformer**_) Connection Point					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			Transformer Loss Line Loss I_{Line} [Figure G8] $kW_{Meter} = \dfrac{kWh_{Meter}}{t}$ $kVAR_{Meter} = \dfrac{kVARh_{Meter}}{t}$ $pf = \dfrac{kW_{Me\ldots}}{\sqrt{(kW_{Meter})^2 + (\ldots}}$ $I_{Line} = \dfrac{kW_{Meter}}{\sqrt{3} \times V_{Rated} \times p\ldots}$ $Line_{kW-Loss} = \dfrac{(I_{Line})^2 \times R_T}{1000}$					

Title	Section	Provision	Proposed Amendment	Rationale	Comments	Proposed Revised Wording	Proponent's Response	RCC Decision
			$kW'_{Meter} = kW_{Meter} - Line_{kW-Loss}$ **(Note: For this case, $kW'_{Meter} = kW_{P-Meter}$)** $kW_{S-Meter} = kW_{P-Meter}(1 - \%Transformer$ $Transformer_{kW-} = kW_{P-Meter} - kW_{S-Meter}$ $Total_{kW-Loss} = Line_{kW-Loss} + Transformer_k$ $Adjusted_{kW} = kW_{Meter} - Total_{kW-Loss}$ $Adjusted_{kWh} = Adjusted_{kW} \times t$					

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330   **II.**   Proposed Amendment to the WESM Rules and WESM Manual on Information Disclosure and Confidentiality Issues 5.0 Regarding Exceptions
331   for Confidentiality Undertakings for Oversight Bodies
332
333   A. WESM Rules
334

Title	Clause	Provision	Proposed Amendment	Rationale
CONFIDENTIALITY – Conditions	5.3.3.2	In the case of a disclosure under clause 5.3.2(c), 5.3.2(f) or 5.3.2(i), the *WESM member* or the *Market Operator* (as the case may be) who wishes to make the disclosure, shall prior to making the disclosure, inform the proposed recipient of the information that it is confidential information and shall take appropriate precautions, including at the very least securing a written undertaking from the recipient that such recipient will keep the information confidential to ensure that the recipient keeps the information confidential in accordance with the provisions of this clause 5.3 and does not use the information for any purpose other than that permitted under clause 5.3.2.	In the case of a disclosure under clause 5.3.2(c)~~,~~ **or** 5.3.2(f) ~~or 5.3.2(i)~~, the *WESM member* or the *Market Operator* (as the case may be) who wishes to make the disclosure, shall prior to making the disclosure, inform the proposed recipient of the information that it is confidential information and shall take appropriate precautions, including at the very least securing a written undertaking from the recipient that such recipient will keep the information confidential to ensure that the recipient keeps the information confidential in accordance with the provisions of this clause 5.3 and does not use the information for any purpose other than that permitted under clause 5.3.2.	The regulatory framework of the WESM under Section 1.2.3 of the WESM Rules provides that the DOE "promulgates the detailed rules for the WESM" while the ERC "enforces the rules and regulations governing the operations of the electricity spot market and the activities of the spot Market Operator and other participants in the spot market". In view of the existing authority of both agencies over the WESM, it is proposed that the DOE and ERC not be required to execute confidentiality and non-disclosure undertakings for WESM data. The clause proposed to be deleted (i.e., WESM Rules Clause 5.3.2(i)) provides confidentiality exceptions to DOE and ERC and any other government authority having jurisdiction over a WESM Member as follows: "5.3.2(i) The disclosure of information to the *ERC* and *DOE* and any other government authority having jurisdiction over a *WESM member*, pursuant to the *WESM Rules* or otherwise."

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339   B. WESM IDC Manual

Title	Section	Provision	Proposed Amendment	Rationale
Protection of Permitted Disclosures	5.4.2	The Market Operator shall require the recipient to execute confidentiality and non-disclosure agreements or undertaking with terms and conditions consistent with this Manual and the WESM Rules. Such terms and conditions will include the undertaking to – a. keep the information provided confidential, and not to disclose the same to any other person or entity; b. to use the information only for the purpose for which it is provided or for purposes permitted by the WESM Rules clause 5.3.2.	The Market Operator shall require the recipient**, except for the *DOE* and *ERC*,** to execute confidentiality and non-disclosure agreements or undertaking with terms and conditions consistent with this Manual and the WESM Rules. Such terms and conditions will include the undertaking to – a. keep the information provided confidential, and not to disclose the same to any other person or entity; b. to use the information only for the purpose for which it is provided or for purposes permitted by the WESM Rules clause 5.3.2.	The regulatory framework of the WESM under Section 1.2.3 of the WESM Rules provides that the DOE "promulgates the detailed rules for the WESM" while the ERC "enforces the rules and regulations governing the operations of the electricity spot market and the activities of the spot Market Operator and other participants in the spot market". In view of the existing authority of both agencies over the WESM, it is proposed that the DOE and ERC not be required to execute confidentiality and non-disclosure undertakings for WESM data.

ISSUE….

1. WESM Metering Manual (WMM) is prescribing to use Current Transformer with rated burden of **5VA** only.

2. Mactan Electric Corp. used a higher burden (25VA). This issue was referred to PEMC-TC and responded last April 2019 saying that it is compliant to the accuracy requirement and in fact performs better.

3. Last September 2019 MERALCO was supposed to install a 12.5VA CT at Malolos Bank 2 but was considered non-compliant by both the IEMOP and NGCP, and was hence put on hold resulting in the delay in the replacement and energization.

PROPOSAL….

1. Allow the use of CT with rated burden **higher than 5VA** as long as it is within standard and **meets required accuracy performance.**

2. Remove Table 1 in the WMM and refer only to standard IEC, IEEE or their latest equivalent.

COMMENTS FROM OTHERS....

Technical Committee:

To avoid any possible confusion, since the manual is referring to two separate standards, we suggest that we **do not affix Table 1** in this WESM manual. Likewise, any revision in either standard will be automatically adopted in this manual, without the need to revise the specific section.

CEBECO III:

Totally agree with the arguments presented by MECO and MERALCO because as trading participant in the market and as MSP, the costs of replacing all the existing instrument transformers which are on line are huge. Besides, **why change standards** (or specifications) to a more stringent in the Philippine setting which are **already compliant to international standards** in terms of accuracy and burden. Amenable to the proposed amendment.

CEDC:

Agree with the proposal that the burden of current transformers **should be based on the rated burden as specified in the latest revision of IEC 61869-2 or IEEE C57.13**. Our primary concern is the accuracy of the CTs and since the proposed amendment maintains the CT accuracy within specified limits, we fully support the proposed amendment.

Tarlac Electric, Inc.

The proposed amendment is agreeable to DUs with installed current transformers having the standard rated burden greater than 5 VA.

IEC 61869 should be adapted in the latest WESM Metering Standards and Procedure.

WHAT THE STANDARD SAYS….

IEEE STANDARD:

Table 10 —Standard metering burdens for current transformers with 5 A secondary windings[a]

Burdens	Burden designation[b]	Resistance (Ω)	Inductance (mH)	Impedance (Ω)[c]	Total Power (VA at 5 A)	Total Power (VA at 1 A)	Power factor
Electronic burdens	E0.04	0.04	0	0.04	1.0	0.04	1.0
	E0.2	0.2	0	0.2	5.0	0.2	
Metering burdens	B-0.1	0.09	0.116	0.1	2.5	0.1	0.9
	B-0.2	0.18	0.232	0.2	5.0	0.2	
	B-0.5	0.45	0.580	0.5	12.5	0.5	
	B-0.9	0.81	1.040	0.9	22.5	0.9	
	B-1.8	1.62	2.080	1.8	45.0	1.8	

[a] If a current transformer secondary winding is rated at other than 5 A, the impedance, the power factor, and the burden designation remain the same while the VA at rated current shall be adjusted by [5/(ampere rating)].[2]
[b] These standard burden designations have no significance at frequencies other than 60 Hz.
[c] The impedance tolerance is +5% and –0%.

"A Current Transformer for metering shall be given an accuracy rating for each standard burden for which it is rated. **The accuracy class may be stated for the maximum burden for which it is rated and will imply that all other lower burdens shall also be in that class**; e.g., 0.3 B-1.8 would imply 0.3 B-0.1, B-0.2, B-0.5, B-0.9, and B-1.8. If the accuracy class given is specific only to that burden it is assigned, e.g., 0.3 @ B-0.5, or a range of burdens, e.g., 0.3 @ B0.5-B0.9, then the accuracy class is not guaranteed for other burdens unless specifically stated."

COMMON TYPE OF CT:

Guaranteed Accurate

		1VA	2.5VA	5VA	12.5VA	22.5VA	45VA
1VA	E0.04						
2.5VA	B-0.1						
5VA	E0.2						
5VA	B-0.2						
12.5VA	B-0.5						
22.5VA	B-0.9						
45VA	B-1.8						

EXAMPLE CT #1
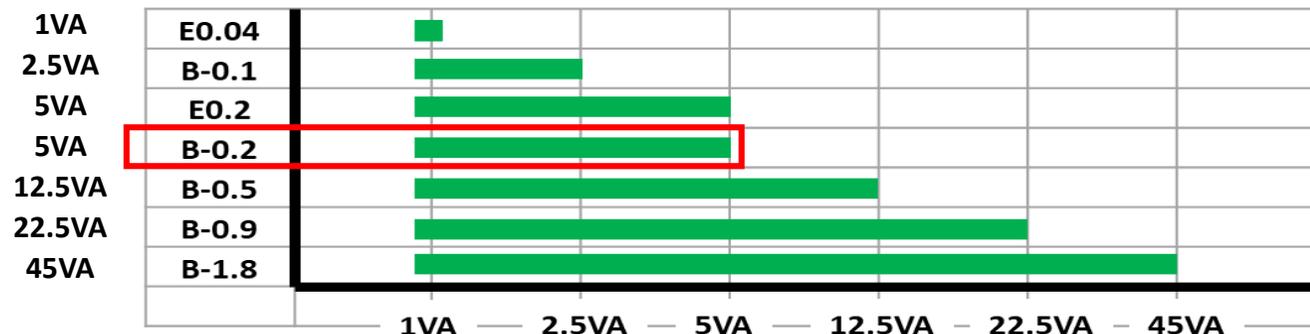
Picture of a 115kV CT Nameplate (CT installed at MERALCO-Abubot Delivery Point)
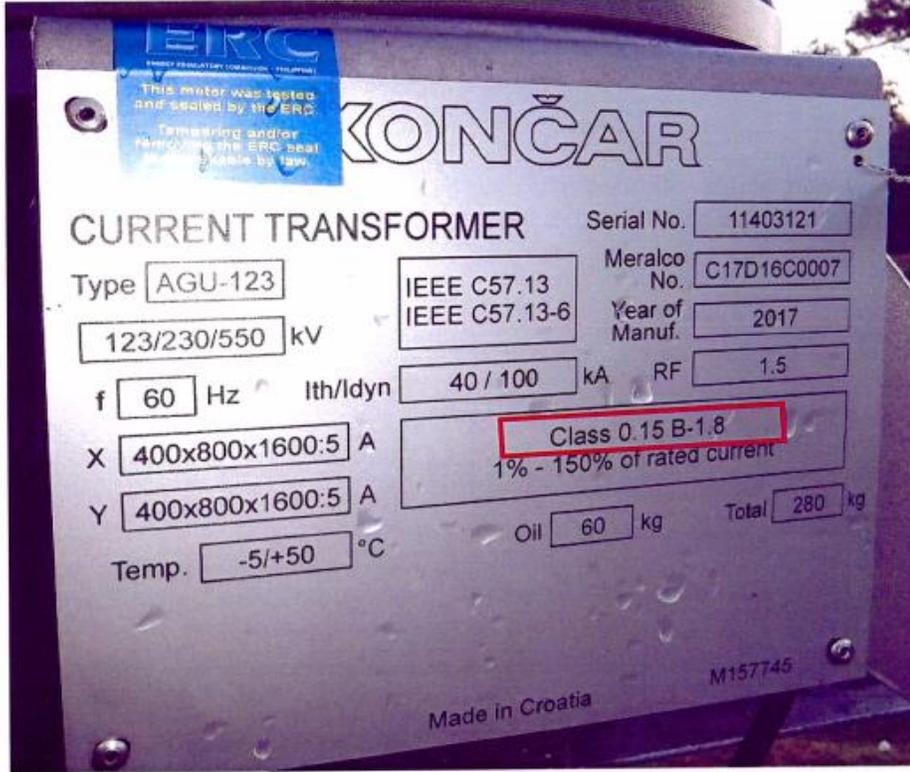
Accuracy Class 0.15 B-1.8 (45VA).

Having no "@" written before the letter "B" implies that its 0.15 accuracy is true rated VA and lower.

CT OWNERSHIP: MERALCO

FACTORY TESTING: **PASSED** 0.15 accuracy at from 1VA – 45VA burden.

MERALCO TESTING: **PASSED** 0.15 accuracy at from 1VA – 45VA burden.

Ratio Accuracy Class Test

Sec. Conn.	Burden (VA; cosPhi)	10% Load			100% Load		
		RCF	Phase Angle	Acc. Class	RCF	Phase Angle	Acc. Class
X1-X2 (400/5A)	45; 0.9	1.00041	3.62	0.04	1.00037	1.26	0.04
	22.5; 0.9	1.00015	2.34	0.02	1.00018	1.11	0.02
	12.5; 0.9	1.00003	1.70	0.00	1.00006	0.99	0.01
	5; 1	0.99989	1.22	0.01	0.99994	0.88	0.01
	5; 0.9	0.99994	1.17	0.01	0.99997	0.83	0.00
	2.5; 0.9	0.99992	0.99	0.01	0.99994	0.74	0.01
	1; 1	0.99989	0.89	0.01	0.99991	0.69	0.01
Y1-Y2 (400/5A)	45; 0.9	1.00038	3.44	0.04	1.00035	1.25	0.04
	22.5; 0.9	1.00013	2.17	0.01	1.00016	1.07	0.02
	12.5; 0.9	1.00002	1.54	0.00	1.00005	0.94	0.01
	5; 1	0.99988	1.07	0.01	0.99992	0.80	0.01
	5; 0.9	0.99994	1.02	0.01	0.99996	0.74	0.00
	2.5; 0.9	0.99991	0.84	0.01	0.99993	0.65	0.01
	1; 1	0.99988	0.74	0.01	0.99990	0.59	0.01

EXAMPLE CT #2

AT MERALCO MALOLOS BANK #2 DELIVERY POINT

Picture of 230kV CT Nameplate (For installation at MERALCO Malolos Bank #2 Delivery Point)

CT OWNERSHIP: MERALCO

RATIO (A/A)	TERMINALS	BURDEN (VA)	CLASS
400-800-1600/5	1S1-1S2	12.5	0.15 (1% to 150%)
400-800-1600/5	2S1-2S2	12.5	0.15 (1% to 150%)

FACTORY TESTING: **PASSED** 0.15 accuracy at from 2.5VA – 12.5VA burden.
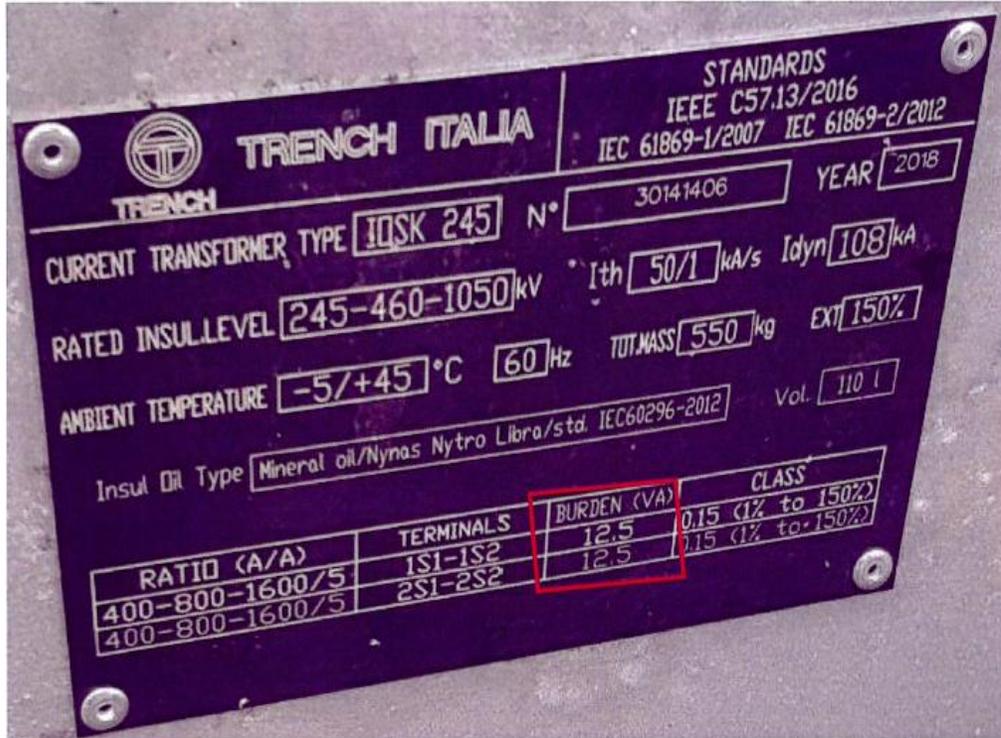
Serial number	Terminal markings	Ratio (A/A)	Burden (VA)	Power factor cosφ	150 % Ipr ε(%)	150 % Ipr Δφ(min)	100 % Ipr ε(%)	100 % Ipr Δφ(min)	20 % Ipr ε(%)	20 % Ipr Δφ(min)	10 % Ipr ε(%)	10 % Ipr Δφ(min)	5 % Ipr ε(%)	5 % Ipr Δφ(min)	1 % Ipr ε(%)	1 % Ipr Δφ(min)	150% γ(RCF)	150% ε(min)	100% γ(RCF)	100% ε(min)	10% γ(RCF)	10% ε(min)	5% γ(RCF)	5% ε(min)	1% γ(RCF)	1% ε(min)
30141404	1S1-1S2	400-800-1600/5	2,5	0,9	0,04	1,0	0,04	1,0					0,04	1,5	0,05	2,0	0,9996	1,0	0,9996	1,0			0,9996	1,5	0,9995	2,0
	"	"	12,5	0,9	0,01	1,0	0,01	1,0					0,01	3,0	0,01	3,5	0,9999	1,0	0,9999	1,0			0,9999	3,0	0,9999	3,5
	2S1-2S2	400-800-1600/5	2,5	0,9	0,04	0,5	0,04	1,0					0,04	1,5	0,05	1,5	0,9996	0,5	0,9996	1,0			0,9996	1,5	0,9999	1,5
	"	"	12,5	0,9	0,02	1,0	0,01	1,0					0,01	3,0	0,01	3,5	0,9998	1,0	0,9999	1,0			0,9999	3,0	0,9999	3,5
30141405	1S1-1S2	400-800-1600/5	2,5	0,9	0,04	0,5	0,04	1,0					0,04	2,0	0,05	2,0	0,9996	0,5	0,9996	1,0			0,9996	2,0	0,9995	2,0
	"	"	12,5	0,9	0,02	0,5	0,01	1,0					0,01	3,0	0,01	3,5	0,9998	0,5	0,9999	1,0			0,9999	3,0	0,9999	3,5
	2S1-2S2	400-800-1600/5	2,5	0,9	0,04	0,5	0,04	1,0					0,04	1,5	0,04	2,0	0,9996	0,5	0,9996	1,0			0,9996	1,5	0,9996	2,0
	"	"	12,5	0,9	0,02	0,5	0,01	1,0					0,01	3,0	0,01	3,5	0,9998	0,5	0,9999	1,0			0,9999	3,0	0,9999	3,5
30141406	1S1-1S2	400-800-1600/5	2,5	0,9	0,04	1,0	0,04	1,0					0,05	2,0	0,06	2,0	0,9996	1,0	0,9996	1,0			0,9995	2,0	0,9994	2,0
	"	"	12,5	0,9	0,01	1,0	0,01	1,0					0,01	3,0	0,01	4,0	0,9999	1,0	0,9999	1,0			0,9999	3,0	0,9999	4,0
	2S1-2S2	400-800-1600/5	2,5	0,9	0,03	1,0	0,04	1,0					0,04	2,0	0,04	2,0	0,9997	1,0	0,9996	1,0			0,9996	2,0	0,9996	2,0
	"	"	12,5	0,9	0,01	1,0	0,01	1,0					0,01	3,0	0,01	4,0	0,9999	1,0	0,9999	1,0			0,9999	3,0	0,9999	4,0

ACCURACY TEST (standard IEC) — Rated primary current Ipr (%); ACCURACY TEST (standard NBR or IEEE) — Rated primary current (%)

MERALCO TESTING: **PASSED** 0.15 accuracy at from 1VA – 12.5VA burden.

RATIO ACCURACY CLASS TEST

Secondary Connection	Ratio	Burden (VA/cosPhi)	10% RCF	10% Phase Angle	10% %Error	100% RCF	100% Phase Angle	100% %Error
1S1-1S2	400:5	12.5 VA/0.9	0.99964	2.685	-0.036	0.99968	0.846	-0.032
		5 VA/1	1.00003	1.954	0.003	0.99995	1.052	-0.005
		5 VA/0.9	0.99991	1.769	-0.009	0.99989	0.857	-0.011
		2.5 VA/0.9	1.00001	1.416	0.001	0.99998	0.804	-0.002
		1 VA/1	1.00009	1.228	0.009	1.00004	0.783	0.004
2S1-2S2	400:5	12.5 VA/0.9	0.99964	2.777	-0.036	0.99968	0.874	-0.032
		5 VA/1	1.00004	2.030	0.004	0.99996	1.088	-0.004
		5 VA/0.9	0.99992	1.841	-0.008	0.99990	0.891	-0.010
		2.5 VA/0.9	1.00002	1.479	0.002	0.99998	0.835	-0.002
		1 VA/1	1.00010	1.288	0.010	1.00005	0.814	0.005

Remarks:
ACCURACY TEST OK.

WHY USE HIGHER BURDEN?

Example Case 1: Gardner Taguig Line Delivery Point

Estimated total one-way wire length of the farthest CT is about 11.2m. Typical wire size used is #12 AWG.

Calculated Connected Burden:

Equiv. VA burden of wire   = 3.46 VA (rated)
Equiv. VA burden of Meter & Conn.   = 0.3 VA (rated)

**Total Connected Burden**   **= 3.76 VA (rated)**
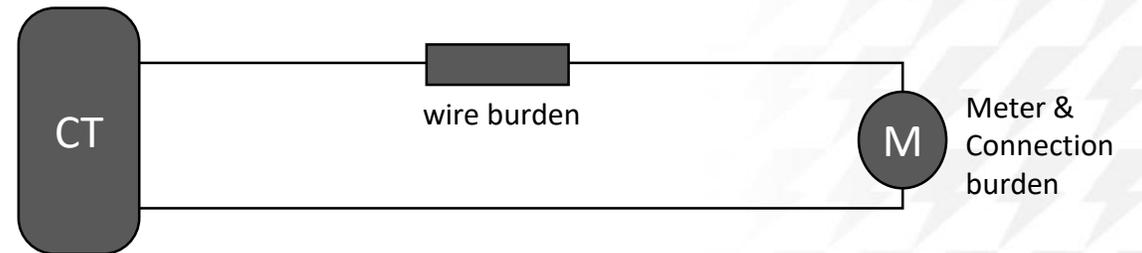
> ➤ *92% of the connected burden accounts for the **wire leads***

> ➤ *only **8%** of the connected burden accounts for the **meter and connection resistance***

CT ownership: NGCP-owned
Date Installed: September 1, 2013
Rated Burden: B-0.1 (2.5VA) to B0.5 (12.5VA)

Note: Based on estimates, the total connected burden exceeds the 50% of 5VA limit.

WHY USE HIGHER BURDEN?

Example Case 2: San Jose – Camarin Line Delivery Point
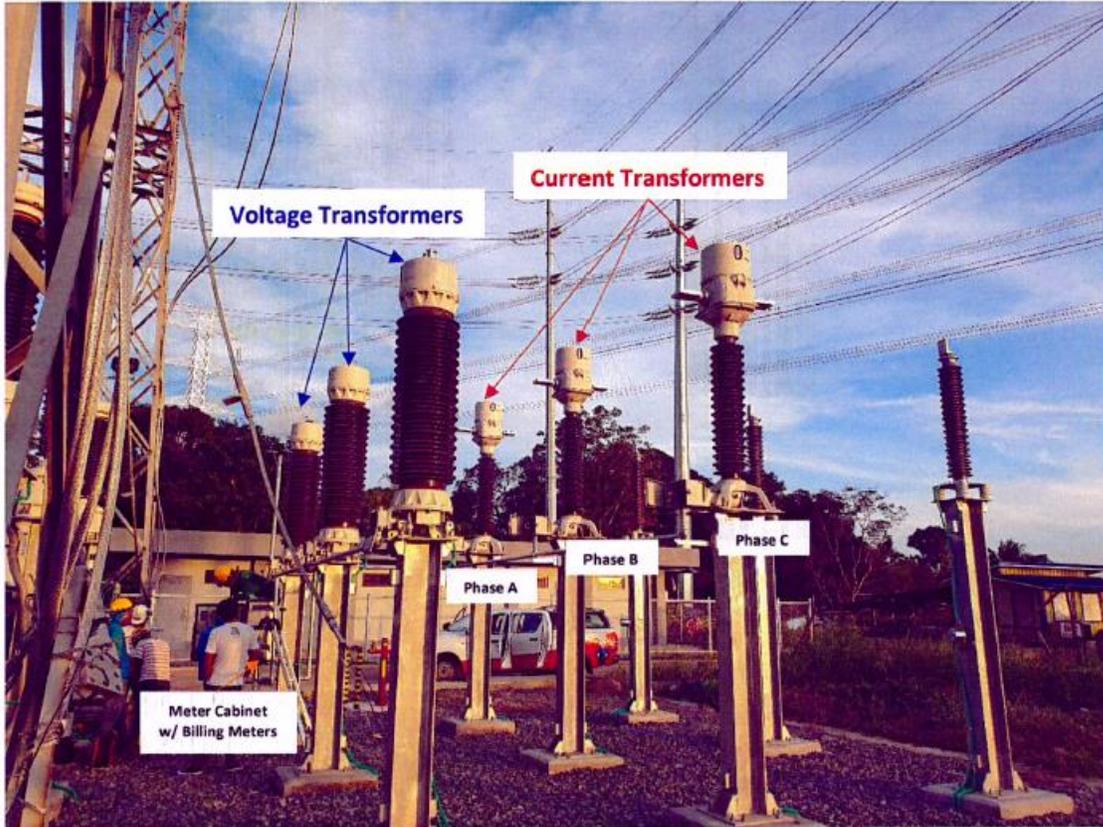
Date of Test: February 10, 2020
CT Ownership: NGCP
Rated Burden: 5VA
Tested by: NGCP

CURRENT TRANSFORMER	CT CORE	MEASURED CONNECTED BURDEN (at rated current)	
		MEASURED BURDEN	REMARKS
PHASE A	Core 1	1.7560 VA	Less than 50% of 5VA
	Core 2	1.7520 VA	Less than 50% of 5VA
PHASE B	Core 1	2.4550 VA	Less than 50% of 5VA
	Core 2	2.3940 VA	Less than 50% of 5VA
PHASE C	Core 1	3.2900 VA	Greater than 50% of 5VA
	Core 2	3.2020 VA	Greater than 50% of 5VA

Picture of a 115kV CT Nameplate of San Jose - Camarin Line Delivery Point
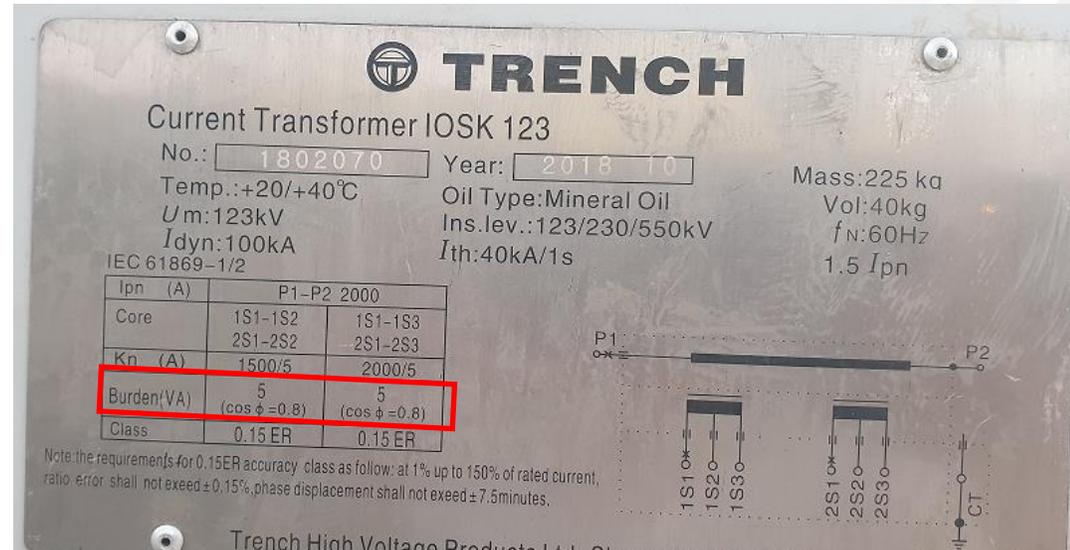
Note: Based on actual measurement, the total connected burden exceeds the 50% of 5VA limit.

THANK YOU!

- END OF PRESENTATION -