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PHILIPPINE ELECTRICITY MARKET CORPORATION

13 March 2014
COR-INT-TC-14-01

MEMORANDUM

For : **The PEM Board**

Cc : **President Melinda L. Ocampo**
Atty. Claudette G. Ubaldo, Corporate Secretary
[redacted]

Thru : **Chrysanthus S. Heruela**, Market Assessment Group

From : **The Technical Committee**

Subject : **2013 Technical Committee Annual Report**

The Technical Committee (TC) respectfully submits the attached 2013 TC Annual Report covering the activities of the TC for the period January to December 2013.

For the Board's information.

For the Technical Committee,

[redacted]

Jordan Rel C. Orillaza
Acting Chairperson

Philippine Electricity Market Corp.
Office of the Corporate Secretary
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By: _____ Time: 3:46pm

Philippine Electricity Market Corporation

TC-ANREP-2013

Technical Committee 2013 Annual Report

March 2014

Philippine Electricity Market Corporation

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I. INTRODUCTION

The Technical Committee (TC) submits this Annual Report covering the activities undertaken and accomplished by the TC for the year 2013. This report also presents the proposed activities of the TC for the year 2014.

For 2013, the members of the Technical Committee ("TC") were as follows[1]:

1. Jordan Rel C. Orillaza
2. William C. Alcantara
3. Jaime V. Mendoza
4. Joseph Allan C. Baltazar
5. Santiago A. Dimaliwat IV
6. Meleusipo E. Fonollera

Engr. Meleusipo E. Fonollera was the TC Chairperson beginning 01 July 2010 until 31 June 2013.

The profiles of the members are provided in Annex B.

The Market Assessment Group ("MAG") acts as the Technical and Administrative Secretariat of the TC.

II. RESPONSIBILITIES

The main role and responsibilities of the TC are set out in the WESM Rules as follows:

- Monitor technical matters relating to the operation of the spot market;
- Provide a report to the PEM Board on any matter of a technical nature relating to any WESM member which in the reasonable opinion of the TC, causes:
  - the inability of the WESM Member to comply with the WESM Rules; or
  - unintended or distortionary effects to the WESM operation.
- Assist the Board by providing expertise in relation to information and metering technology including any matter of technical nature relating to the spot market; and
- Propose amendments to the WESM Rules, as necessary and appropriate, with respect to the following:
  - Improving the efficiency and the effectiveness of the WESM operation; and
  - Improving or enhancing the prospects for the achievement of the WESM Objectives.

[1] With the expiration of the term of Engr. Meleusipo E. Fonollera, Prof. Jordan Rel C. Orillaza was appointed as independent member of the TC on 01 July 2013 and is currently the TC acting chairman. Engr. Fonollera was appointed to the TC on 27 April 2007. He served two consecutive terms as TC Chair until the expiration of his term in July 2013.

Engr. William C. Alcantara was appointed as independent member of the TC on 01 August 2013; Engr. Joseph Allan C. Baltazar as GMC representative on 01 August 2011; Engr. Santiago A. Dimaliwat IV as SO representative on 05 March 2011; and Jaime V. Mendoza as DMC representative on 24 June 2010.

III. 2013 ACCOMPLISHMENTS

The TC conducted eighteen (18) meetings[2] in 2013. The following matters were discussed and deliberated during said meetings:

A. Review of Findings and Recommendations during the 3rd Independent Operational Market Audit

A.1. On Load Forecasting Methodology

The TC finalized its review of the External Auditor's findings on the Load Forecasting Methodology with the aim of enhancing the current forecasting methodology.

In summary, the TC recommended the following:

- For Luzon load forecast to be aggregated into a number of areas such as regional area;
- For Visayas load forecast be on an island basis; and
- For the MO to explore for the possibility of using extended weather forecast of PAGASA on selected local government units on both Luzon and Visayas.

The TC submitted the results of its review and recommendations to PEMC for its information and consideration on 06 February 2013. The PEMC-TOD in its memo dated 18 March 2013 informed the TC that the PEMC concurs with the TC recommendations and have completed several studies as part of the PEMC's action plan to address the audit issues on Load Forecasting.

A.2. On Constraint Violation Coefficient Pricing

One of the carried-over activities of the TC in its 2013 Work Plan is the review of the Constraint Violation Coefficient Pricing in relation to the findings and recommendations during the 3rdIndependent Operational Market Audit relative to the matter. The TC continued its review of the provisions of the price determination methodology particularly on the Constraint Violation Coefficient (CVC) Pricing and included the review of SO Actions listed in the CVC Table.

In its review, the TC noted that corresponding SO Actions are associated with the CVC pricing as indicated in the said CVC Table.

With its review of the SO Actions in the CVC Table, the TC noted the following:

[2]At any time and as may be practicable, the TC may conduct meetings more than once a month.

- Some of the SO actions listed are valid except for the Over Generation which instructs the SO to identify MRUs and shut down other units to eliminate excess capacity;

- Allowable Marginal Overloads (i.e. <10% for 1 hour) for Base Case Constraint and Nodal Value of Lost Load must be harmonized with the PGC since the SO bases its actions in the PGC.

Considering the above points, the TC agreed to harmonize the SO actions listed in the CVC Table with the current actions done by the SO and with the PGC. Noting the (a) need to review the basis of the one (1) hour duration limit of the allowable Marginal Loading specified in the CVC Table and (b) that the CVC must be linked with the MRU actions, the TC agreed to refer the CVC table to the SO for their comments specifically on the applicability of the SO actions listed in the table vis-à-vis the MRU actions and other security-related actions currently done by the SO. On 17 May 2013, the TC transmitted a letter to NGCP-SO requesting for the SO's comments on the CVC table.

In view of the ongoing WESM Design Study, the TC endorsed the NGCP-SO's comments on the CVC[3] to the WESM Design Study-Technical Working Group (WDS-TWG) on 19 September 2013 for their information and consideration.

B. Review of the Report on the 1st Metering Arrangements Review

The TC continued its review of the Report on the 1st Metering Arrangements Review which the PEM Audit Committee (PAC) provided to the TC on 15 March 2013. As part of its Work Plan for 2013, the TC intended to provide its comments and recommendations on the results of the Metering Arrangements Review and if necessary, recommend possible rules change to the Rules Change Committee (RCC). The TC aimed to also recommend possible revisions to the Terms of Reference for the conduct of the next Metering Review.

The TC discussed the report and drafted its comments and recommendations on the External Auditor's Report and also provided inputs and suggestions on the Terms of Reference (TOR) for the next Metering Arrangements Review to be conducted by the PAC. The TC subsequently finalized its comments and recommendations on possible areas for improvements that may be included in the next Review by the PAC and submitted the same to the PAC on 26 July 2013[4].

[3]SO-TSD2013-07-126 *Comments on the Constraint Violation Coefficient (CVC) Table in the CVC Manual*
[4]Document Reference Number: COR-INT-TC-13-07 *TC Recommendations on the External Auditor's Report on Metering Arrangements Review*

C. Comments on the Proposed Amendments to the WESM Rules and Market Manuals

C.1. On Registration, Suspension and De-Registration Criteria and Procedures Issue 1.0

The TC provided its comments on the RCC proposed amendments to the WESM Manual on the Registration, Suspension and De-Registration Criteria and Procedures. The proposed changes allow the provisional approval of request for change in the generator's maximum available capacity within a prescribed timetable. The rationale for the change is to make the additional capacity available to the grid at the soonest possible time to support the grid thus increasing its stability and reliability.

- **Registration of Maximum and Minimum Ramp Rates**

  The TC did not pose any objection to the proposal noting that the additional data requirement as proposed will enhance the provision of additional information for the Market Operator (MO). Further, the TC suggested that a copy of the application (together with all supporting documents) for a new or amended Certificate of Compliance (COC) submitted by a Generator to the Energy Regulatory Commission (ERC) and stamp-received by the latter be included as part of the Generator's submission to the MO.

- **Provisional Authority for the Change of Maximum Available Capacity (Pmax)**

  The TC noted that the proposal seeks to enable the grant of a provisional authority for trading participants requesting for a change in their maximum available capacity (Pmax).

  The TC commented on the proposal as follows:

  - The conduct of generator capability test of the trading participants wishing to change its maximum registered capacity, as proposed in the new provision Section 3.1.5, shall be based on the internationally-accepted testing procedures as required in the COC and consistent with the pertinent provision of the PGC;

  - In relation to the provisions stated in Sections 3.1.1, 3.1.2, and 3.1.3, the submission of the complete documents to the MO must already be supported with a copy of the plant's submission to the ERC requesting for the said change, with proof of receipt thereof by the ERC.

  - The complete documents submitted by the trading participant to the ERC must also be the same documents submitted to the MO.

- Any trading participant wishing to increase its registered maximum available capacity (Pmax) shall submit a request in writing to the MO attaching the complete documents submitted to ERC as evidence of the change.

The TC incorporated its comments to the above proposals and submitted the same to the RCC on 18 March 2013[5].

C.2. On Cancellation of Offers

The TC received a letter dated 11 March 2013 from the Rules Change Committee requesting for a consultative meeting, together with the Market Surveillance Committee (MSC), on the proposal regarding the Cancellation of Offers. The RCC proposed amendments on the Cancellation of Offers is a joint output of the RCC subcommittees which were created on 19 June 2011 to address the following: (1) PEM Board directive issued on 27 April 2013 for the RCC to review the provisions of the Must Offer Rule and (2) the audit findings stated in Section 2.2.3 of PA Consulting's Process and Compliance Review Report on the Pmin Rules and Procedures.

The TC reviewed and presented its comments during the joint consultative meeting among the RCC, MSC and TC on 03 April 2013. The TC presented the following points during the said consultative meeting:

- Plants with lead time requirements – timeline provided may not be suited for all plants;
- Basis for cancellation is on offers in the market and not on the fuel variable cost as listed in the WESM Merit Order Table (MOT) *(unconstrained);*
- Given the cancellation of offers, availability problems may arise while the generator is ramping up;
- Conflict on the interpretation of the WESM Rules on the Must-Offer Rule; (WESM Rules clause 3.5.5 Generation Offers and Data in relation to Appendix A1.1; Dispatch Protocol Manual: Section 4.3 Submission of Bids & Offers);
- The WESM Rule clause 3.5.5 establishes the competitive environment in the market but Cancellation of Offers, on the other hand, negates the said rule. It would seem that the Cancellation of Offers legalizes the act for the TPs not to offer their maximum available capacity;
- The proposed 10% supply margin may not be a good basis since WESM currently only operates an energy market; and
- the reserve capacity being nominated by the generators is presently not sufficient for system requirements.

[5]Document Reference Number: COR-INT-TC-13-02 *TC Comments on the RCC Proposed Amendments to the WESM Manual on the Registration, Suspension and De-Registration Criteria and Procedures Issue 1.0*

C.3. On Business Continuity Plan and Disaster Recovery Procedures

The TC reviewed the proposed amendment to WESM Rules on Business Continuity Plan and Disaster Recovery Procedures. Essentially, the proposed amendment involves the inclusion of the obligation of the MO to develop, implement and simulate a business continuity plan and disaster recovery procedures.

The amendment likewise provides that any interruption to the software processes of the MO as a result of such simulation shall be included as a ground for Market Intervention. Further, the amendment provides the obligation of the MO to inform the Trading Participants and the SO prior the conduct of such simulations.

After due deliberation, the TC finalized its comments and recommendations and transmitted the same to the RCC on 11 September 2013[6].

D. TC Studies

D.1. On Technical Limitations of Malaya Thermal Power Plant

The TC received a request for study dated 03 September 2013 from the MSC requesting the TC to conduct a study on the technical limitations of Malaya Thermal Power Plant (TPP) to assist the MSC in assessing the validity of the technical reasons cited by its trader, the Power Sector Assets and Liabilities Management (PSALM), in failing to comply with the must-offer rule (MOR).

The TC started its review of the technical limitations of Malaya TPP as requested by the MSC. In the course of its review, the TC was informed that a study on the same was also being conducted by the MAG. In view of the parallel study being conducted by the MAG on Malaya TPP, the TC drafted its response to the MSC regarding said plantbased on its discussions during its various meetings on the same and referred the MSC to the on-going study of the MAG.

As requested by the MSC in its letter, the TC included in its response the definition of 'open breaker status', infrastructure, design and limitations of the plant and the plant's adaptability to either Energy Market or Ancillary Services. The TC recommended the strict requirement for the TPs to have valid offers when trading energy in the market and for the WESM Rules to clearly specify that the generating plant should be on 'closed breaker' to avoid any ambiguity in the must-offer rule provision.

The TC submitted its response to the MSC on 20 November 2013.

[6]Document Reference Number: COR-INT-TC-13-08 *TC Comments to the RCC Proposed Amendments on the BCP and DRP*

D.2. On Luzon Hydroelectric Power Plants

The TC continued its study on the water elevation of hydroelectric plants in Luzon grid. Said study was requested by the MSC on 14 December 2011 for the TC to conduct a study that would assist the MSC in assessing the validity of technical reasons cited by TPs with hydroelectric plants in failing to comply with the must-offer-rule and in verifying the capability declaration of hydroelectric plants.

In the course of its review, the TC invited other agencies to discuss matter related to the study on Luzon hydroelectric power plants such as PAG-ASA and NIA. The TC also conducted meetings with the plant operators and their traders to discuss the operational protocol of their dams.

After a thorough review, the TC completed its study and submitted its report on Luzon hydroelectric power plants to the MSC on 27 December 2013 for their consideration.

E. Conduct of Power Systems 101

On 06 February 2013, the TC conducted the last part of the two-part seminar on Power System 101 entitled "Introduction to Power System Engineering – Power System Engineering for Non-Engineers" the first leg of which was conducted on 21 December 2012 during the fourth quarter of 2012. Said seminar was organized by the TC, spearheaded by Engr. Jaime V. Mendoza who served as the resource person during the seminar.

The TC conducted the said seminar for Independent Members of the WESM Governance Committees and PEMC employees to broaden the basic knowledge of the non-electrical engineer independent members of WESM Committees as well as PEMC personnel i.e. staff of MAG, ECO, Legal, HRAS and BSMD on matters relating to electricity.

IV. 2014 ACTIVITIES

Annex A provides the details of the Work Plan of the Technical Committee for 2014. The said Work Plan contains carried over activities from 2013 as follows:

A. Review of Rules related to Renewable Energy

During the second quarter, the TC agreed to revisit the pending rules change proposal submitted by the previous TC in the year 2009 on the inclusion of Maximum Threshold Capacities for RE Resources that will qualify for "Must Dispatch" and "Priority Dispatch" and re-submit the same to the RCC once revised.

In the course of its review, the TC instead proceeded its review of the proposal with a view to harmonizing the provisions in the WESM Rules with the Electric Power Industry

Reform Act of 2001 (EPIRA), Renewable Energy Law (RE Law) and its Implementing Rules and Regulation (RE IRR), as well as consider the impact of RE resource to the system and to the whole market.

In view of the developments on Renewable Energy, the TC agreed to carry over the *Harmonization of the Terminologies used in the WESM Rules, RE Law & Other Relevant Rules,* one of the unfinished tasks in the TC 2013 Work Plan for 2014 as the *Review of Rules related to Renewable Energy*.

B. TC Study on Dispatch Tolerance Limit

On 14 November 2013, the TC received a request for study from the Market Surveillance Committee (MSC) requesting the TC for simulation and further review of the reasonability of the rule allowing ±3% deviation in real time dispatch (RTD) in accordance with the PEM Board Resolution No. 2005-15. Said study is in connection with the monitoring of the MSC on the possible non-compliances by generator TPs to the RTD schedule/ instruction. Specifically, the MSC requested to include the RTD deviations below 10 MW and conduct simulations as necessary with a view to amend the above rule as applicable.

The TC noted the request for study and advised the MSC in its letter dated 02 December 2013 that the TC will inform its acceptance of the study and the estimated length of time it will be completed pending the review of additional information. Said study was set for Q1 of TC 2014 Work Plan.

Submittedd By:

Technical Committee

[redacted]

Jaime V. Mendoza
Member

[redacted]

Joseph Allan C. Baltazar
Member

[redacted]

Santiago A. Dimaliwat IV
Member

[redacted]

Jordan Rel C. Orillaza
Member

[redacted]

William C. Alcantara
Member

ANNEX A: 2014 TC WORK PLAN

Item	Activity	Requested by	DEADLINE	Responsible Lead Person/s	Status	Remarks/Deliverables
1.	Study on Dispatch Tolerance Limit	MSC	Q1	TC		Position Paper to be submitted to MSC.
2.	Review of WESM Metering Manual	TC	Q1	JVMendoza		Study, Recommend possible rules changes to the RCC and/or provide update to the PAC
3.	Review of the WESM Design Study Report on CVC	TC	Q1	JACBaltazar/GMC Representative		Provide comments
4.	Review of the 4th Independent Operational Market Audit Findings and Recommendations	TC	Q2	WCAlcantara		Study, Recommend possible rules changes to the RCC and/or provide update to the PAC (technical aspect only).
5.	Review the Load Forecasting Methodology used by PEMC in relation to the preparation of net load forecast (re: MAPE)	TC	Q2	JRCOrillaza		Submit comments to PEMC or proposed rules changes to the RCC
6.	Review of Rules related to Renewable Energy	TC	Q3	JRCOrillaza		Submit/recommend proposed rules changes to the RCC.

Item	Activity	Requested by	DEADLINE	Responsible Lead Person/s	Status	Remarks/Deliverables
7.	PAC-TC Joint Conduct of the 2nd Metering Arrangements Review	PAC /TWG	Continuing	TC		Assist PAC in the conduct of Metering Arrangements Review
8.	Review of RCC Proposed Rules Changes on various WESM Manuals	RCC	Continuing	TC		Submit/recommend proposed rules changes to the RCC.
9.	Others *(as may be directed by DOE or PEM Board, or as may be requested by PEMC, other Governance Committees or Trading Participants)*	DOE/ PEM Board or any requesting party	Continuing	TC		

ANNEX B: TC MEMBERSHIP PROFILE

1. **Prof. Jordan Rel C. Orillaza**
   Acting Chairman, Independent

   Prof. Orillaza is a Registered Electrical Engineer and currently an Assistant Professor in Electrical & Electronics Engineering Institute, UP Diliman. He earned his Ph.D. in Electrical and Electronics Engineering from the University of Canterbury, Christchurch, New Zealand.

2. **Engr. William C. Alcantara**
   Member, Independent

   Engr. Alcantara is a Licensed Mechanical Engineer and currently the Senior Manager of Manila Water Company, Inc. (from March 2012 – present). Previous to this, he held various jobs some of which are as follows: General Manager, Greenergy Power Systems, Inc. (2010 - 2012); Clean Development Mechanism (CDM) Consultant/Business Development Manager, ESave Transport (2009 - 2010); Operations Director for Partnership Development, Every Nation Philippines (2001 - 2010); Entrepreneur, Technopoint Services; Process and Quality Engineer, Intel Philippines (1992 - 1997).

   He finished, BS Mechanical Engineering, Dela Salle University Manila (1987 - 1991); Master of Applied Business Economics, University of Asia and Philippines (2005 - 2009); Master in Energy Efficiency and Climate Change, Universidad Complutense de Madrid Spain (2008 - 2009): Full Scholar, Agencia Espanol Coooperacion Internacional.

3. **Engr. Jaime V. Mendoza**
   Member, Distribution Management Committee (DMC) Representative

   Engr. Mendoza is a Professional Electrical Engineer and currently member of the Board of Electrical Engineering, Professional Regulation. He is also the Chairman of the Distribution Management Committee and a Fellow of the Institute of Integrated Electrical Engineering of the Philippines, Inc.

   He earned his diploma in Electric Power Distribution System from the University of Trondheim and Master in Technology Management from UP-Diliman. He is a candidate of Master of Science in Electrical Engineering and currently taking his Ph.D. in Energy Engineering at UP-Diliman.

4. **Engr. Santiago A. Dimaliwat IV**
   Member, System Operator (SO) Representative

   Engr. Dimaliwat is a Professional Electrical Engineer and currently the Deputy Assistant, Chief Technical Officer for System Operations of the National Grid Corporation of the Philippines. He earned his graduate studies in Operations Research from the University of the Philippines, Diliman and will resume his MS in Electrical Engineering at the same university.

5. **Engr. Joseph Allan C. Baltazar**
Member, Grid Management Committee (GMC) Representative

Engr. Baltazar is a Professional Electrical Engineer and is currently the Senior Manager and Head Network Asset Planning of the Manila Electric Company (MERALCO). His field of expertise is in the area of planning, development and operation of electric power systems covering Substations, Subtransmission and Distribution.

ANNEX C: REFERENCE DOCUMENTS

NGCP
Stronger transmission
for a stronger nation

SO-TSD2013-07-126
24 July 2013

ENGR. MELEUSIPO E. FONOLLERA SR
Chairperson, Technical Committee
Philippine Electricity Market Corporation
9/F Robinsons Equitable Tower, ADB Avenue
Ortigas Center, Pasig City

Dear Engr. Fonollera:

In response to your request for a review of the information listed in the CVC Table particularly in the application of 'SO Actions', herewith are our comments and concerns as indicated in the attached CVC Table.

We hope our comments and concerns will suffice your request.

Very truly yours,

HENRY SY, JR
President and CEO

PHILIPPINE ELECTRICITY MARKET CORP.
RECEIVED
AUG 05 2013
MARKET ASSESSMENT GROUP
BY: _____ TIME: 4:15PM

SYSTEM OPERATOR (SO) COMMENTS ON CONSTRAINT VIOLATION COEFFICIENTS TABLE

Priority	Constraint Violation Coefficient Name	Price (P/MW)	Definition	SO Action	Comments
10	Deficit Interruptible Load Reserve	100,000	Insufficient Interruptible demand to meet Reserve Requirement	This is not a problem if Dispatchable reserve is met. Otherwise resort to mandatory load dropping.	Interruptible Load Reserve in the current setup is not applicable; however this CVC can be addressed by Manual Load Dropping and MRU. Issue a planned MRU so that the next interval will cover the necessary scheduling of other plants.
9	Deficit Dispatchable Reserve	200,000	Insufficient capacity to meet Reserve Requirements (n-2)	This is not a problem if Interruptible reserve is met. Otherwise resort to mandatory load dropping.	CVC can be addressed by Manual Load Dropping or MRU. Issue a planned MRU so that the next interval will cover the necessary scheduling of other plants.
8	Over Generation	(800,000)	the total minimum generation in the system exceeds the total demand	Identify "Must-Run Units" and shut down other units to eliminate excess capacity.	Shutdown generators under test. Require generators to operate on house load. Shutdown generators with Fast Start Capability. Require Gas Turbine to operate on simple cycle. Require Coal Thermal to operate on oil support. Execute generator remote tripping.
7	Deficit Regulating Reserve	400,000	Insufficient capacity to meet Reserve Requirements	Larger frequency excursions are expected without regulating reserve. Lower quality of service.	Automatic load dropping scheme of SO will be triggered once the frequency setting is breached. Issue dispatch order using MOT to balance supply and demand. The level of priority should be higher than Deficit Contingency Reserve.

Priority	Constraint Violation Coefficient Name	Price (P/MW)	Definition	SO Action	Comments
6	Deficit Contingency Reserve	500,000	Insufficient capacity to meet Reserve Requirements (n-1)	Automatic load dropping will cover for loss of generation if contingency reserve is insufficient.	SO action is to restore Regulating Reserve to its operational level by either use the MRU or implement load dropping in order to balance the supply and demand. The order of priority is lower than the Deficit in Regulating Reserve.
5	Contingency	600,000	Violation in pre-defined contingency limits during single-outage conditions (n-1)	If risk involves system collapse or islanding, implement necessary re-dispatch and load dropping.	SO action is to issue re-dispatch to meet the N-1 criterion. Also, SO may resort utilization of MRU or implement System Re-configuration or implement Manual Load Dropping.
4	Under Generation	800,000	The demand exceeds the total maximum generation in the system	Immediately implement mandatory load dropping as necessary	SO to utilize MRU or implement Manual Load Dropping.
3	Base Case Constraint	900,000	Thermal loading limit violations of lines or transformers	Marginal overloads (i.e., <10% for 1 hour) should be allowed. Re-dispatch generation and drop load.	SO may issue re-dispatch, utilize MRU, implement System Re-configuration or implement Manual Load Dropping.
2	TCG Constraint	1,000,000	Import/Export constraints between areas.	Immediately implement re-dispatch and/or load dropping as necessary.	SO may issue re-dispatch, utilize MRU, implement System Re-configuration or implement Manual Load Dropping.
1	Nodal Value of Lost Load	1,100,000	Localized deficiency in supply due to line or transformer loading limitation	Marginal overloads (i.e., <10% fr 1 hour) should be allowed. Otherwise drop local loads.	SO may issue re-dispatch, utilize MRU, implement System Re-configuration or implement Manual Load Dropping.

Philippine Electricity Market Corporation

OFFICE OF THE PRESIDENT
AUG 12 2013
PHILIPPINE ELECTRICITY MARKET CORPORATION

26 July 2013
COR-INT-TC-13-07

MEMORANDUM

To	:	**Felixberto U. Bustos, Jr.** **Chairman, PEM Audit Committee**
Cc	:	**Pres. Melinda L. Ocampo** **Criselda S. Martin-Funelas**, COS-OP and VP-Legal
Thru	:	**Chrysanthus S. Heruela**, VP-MAG
From	:	**Technical Committee**
Subject	:	**TC Recommendations on the External Auditor's Report on Metering Arrangements Review**

Pursuant to its mandate under the WESM Rules to assist the PEM Board by providing expertise in relation to (1) Information technology, (2) *Metering* technology and *metering data* and (3) any other matter of a technical nature relating to the *spot market*, the TC reviewed the result of the recently-concluded Metering Arrangements Review undertaken by an External Auditor.

The review was undertaken with the objective of recommending improvements and additions in the metering procedures and on the Terms of Reference (TOR) for subsequent Metering Arrangements Review to be conducted through the PEM Audit Committee (PAC).

In this regard, the TC hereby submits its recommendations, herein attached, for the PEM Audit Committee's consideration.

Thank you.

For the Technical Committee,

Meleusipo E. Fonollera, Sr.
Chairperson

Technical Committee Review of External Auditor's Report on Metering Arrangements Review

Upon review of the report on metering arrangements review, the Technical Committee (TC) identified some areas for possible enhancement and herein provides its recommendations, as follows:

A.1. On the Procedures and Documentation

a. Enhance the current metering manual or establish a new manual which specifies the standard design for metering equipment and facilities such as type of perimeter fence required, structure of metering equipment, etc., for the Auditor's guide in the conduct of the Audit.

b. Prescribe a clear set of procedures in the processes on testing, maintenance, sealing control, etc. to be followed by the Metering Service Provider (MSP). This would also be the Auditor's guide in checking the compliance of MSPs to the standard processes to ensure necessary controls.

A.2. Inclusion of Current Transformer and Potential Transformer

Noting that the accuracy of the meter reading depends on the instrument transformer, the TC recommends the inclusion of the current transformers (CT) and potential transformers (PT) in the Metering Arrangements Review as these are significant parts of the metering facilities.

The accuracy of information/ specifications of the CT and PT needs to be checked . In doing so, the Auditor must conduct the following:

b. Check for compliance with the number of Current Transformers (CT) and Potential Transformers (PT), i.e. three CTs and three PTs as stated in the PGC 8.3.2.1

c. Check or assess the ratio of the installed CTs and PTs. Indicate any observation on the correctness of the Potential Transformers Ratio (PTR) or Current Transformer Ratio (CTR) of the instrument transformer based on the nameplate.

   As a guide, metering sites with high voltage levels have better accuracy since it has a different CT ratio, i.e. the higher the CT ratio, the higher the accuracy level of the CTs.

d. Inspect the nameplate of the equipment installed for consistency particularly the serial numbers and meter seals – as found and as left, etc. Mismatched serial numbers are causes for concern and triggers suspicion for pilferage.

A.3. Sampling of Metering Sites

Improve the sampling of metering sites of the Metering Audit to consider voltage level, participant type, etc.

A.4. Classification of Meters Tested

a. Consider classifying the meters tested based on the type of customer and the voltage level of customer in the conduct of Metering Arrangements Review.

b. Provide in the report the quantity of the meters on the generator side, the load side, and the NGCP (substation).

A.5. Encourage local engineers to conduct the Metering Audit

Provincial engineers with metering expertise are encouraged to conduct the Metering Audit guided by clear Audit procedures, rules, manuals and internal procedures. This would likewise minimize the cost of the Audit.

A.6. Develop Standard Specification Design of Metering Facilities

There is a need to develop standard specifications/ design of metering facilities per customer type and voltage level. The Philippine Grid Code (PGC) and Philippine Distribution Code (PDC), as references of the Metering Audit Manual, only have generic provisions with regard to metering.

Standard specifications/design of metering facilities should include the following:

I. Civil/Structure Design
   i Structure for Metering Equipment
   ii Perimeter Fence
   iii Perimeter Lighting
   iv CCTV, if possible
   v Minimum Area per customer/voltage class
II. Mechanical Design
III. Electrical Design
IV. Material Specification (e.g. use of stainless or aluminum for metering cabinets; use of rigid steel conduit for conductor wiring and color coding for wiring; and use of hot dip/ galvanized steel structure for metering structure)
V. For proper grounding method, grounding wire sizes, connections, standard measurement, etc. should be properly noted/ recorded.

Furthermore, other than the PGC, PDC, and the WESM Metering Manual, the standard design must also comply with the requirements of the Philippine Electrical Code (PEC), Institute of Electrical and Electronics Engineer (IIEEE) and other international standards such as the American National Standard Institute (ANSI) and National Electrical Manufacturers Association (NEMA).

A.7. Inclusion of a performance standard for MSPs

The Metering Service Providers (MSP) should ensure the reliability and security of the metering facilities. The MSPs must faithfully and accurately carry out its function in accordance with the Metering Manual, PDC and PGC.

As a way forward, the TC recommends that the ERC (who has jurisdiction over the MSPs) come up with performance standards with a corresponding performance incentive scheme for the MSPs.

In view of all of the above, the TC likewise suggests that the aforementioned recommendations be incorporated to the succeeding TOR on Metering Arrangements Review, as may be applicable.

COR-INT-TC_13_02

Philippine Electricity Market Corporation

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OFFICE OF THE PRESIDENT
MAR 19 2013
PHILIPPINE ELECTRICITY MARKET CORPORATION

MEMORANDUM

For: **Rowena Cristina L. Guevara**, Chairperson, Rules Change Committee

Cc: **Pres. Melinda L. Ocampo**
Criselda S. Martin-Funelas, COS-OP and VP-Legal

Thru: **Chrysanthus S. Heruela**, VP, Market Assessment Group

From: **Technical Committee**

Date: 18 March 2013

Subject: **TC Comments on the Proposed Amendments to WESM Rules and WESM Manual on Registration, Suspension, De-Registration Criteria and Procedures Issue 1.0 regarding Ramp Rates and Additional Requirements for Changes in Registered Capacity**

This refers to the invitation of the Rules Change Committee (RCC) to all WESM members and other interested parties to submit comments on the proposed amendments relating to the following: (a) submission of Minimum and Maximum Ramp up and Ramp Down Rates and Ramping Capability Curves of Generating Units and (b) Additional Requirements for Changes in the Registered Capacity.

The Technical Committee (TC) discussed the abovementioned proposals during its meeting on 07 March 2013 and herein submits its comments as follows:

a) On the Submission of Additional Data on Ramp Rates

The TC noted that the proposed revisions shall require all offers of a generator to include data on its maximum ramp up/down rate consistent with its registered maximum ramp up and ramp down rate and minimum ramp up and ramp down rate and ramp rate capability curve which the generators will submit upon registration. The TC noted that the above requirement just provides additional information for the Market Operator (MO) to help it in its internal validation of submitted values and will accordingly assist the Systems Operator (SO) in gauging the response of a generator to certain dispatch instructions and thus, its ability to comply with the instruction.

Noting that the proposal will be beneficial for the Wholesale Electricity Spot Market (WESM), the TC poses no objection on the proposed rules change. In this regard, it is the view of the TC that the same requirements should also be part of the data requirements to be submitted by the generators to support their application for a Certificate of Compliance (COC).

b) On the Additional Requirements for Changes in the Registered Capacity

The TC noted that the proposed rules change calls for the provisional approval of the request for change in maximum available capacity to make the additional capacity immediately available to the grid to increase the stability and reliability of the grid.

The TC likewise, noted that the provisional authority to be given by the MO, only requires the submission of complete documents as may be required by the MO. The TC opined that any trading participant wishing to increase the registered maximum available capacity (PMax) of its generating unit/s should submit a request in writing to the Market Operator already attaching thereto either the latest COC supporting the change or in the absence of such, a copy of the duly received application for a new COC to the ERC evidencing the change. This is to show evidence that the trading participant has already applied for a new COC with the ERC.

The TC also added that the conduct of generator capability test of the trading participants wishing to change the registered capacities of its generating unit/s, other than increasing its Pmax, as proposed in the new provision Section 3.1.5, must also be consistent with the test requirements (i.e. system tests, generating unit capability tests, etc.) of the Philippine Grid Code (PGC) Amendment No. 1.

In view of the above, the TC proposes instead the following amendments to the requirements for changes in registration data:

	Original Provision	Proposed Amendment	TC Proposed Amendment
3.1.1	The *Trading Participant* wishing to change the registered capacities of its generating unit/s shall make a request in writing to the *Market Operator*. Such changes shall be in accordance with either the latest Certificate of Compliance (COC) issued by the ERC or a certification of generator capability test to be issued jointly by the DOE, ERC and SO. The conduct of testing shall be based on the internationally-accepted testing procedures as required in the COC, and the cost of testing shall be the responsibility of the applicant.	The *Trading Participant* wishing to ~~change the registered capacities~~ **increase the registered maximum available capacity (PMax)** of its generating unit/s shall submit a request in writing to the Market Operator. ~~Such changes shall be in accordance with either the latest Certificate of Compliance (COC) issued by the ERC or a certification of generator capability test to be issued jointly by the DOE, ERC and SO. The conduct of testing shall be based on the internationally-accepted testing procedures as required in the COC, and the cost of testing shall be the responsibility of the applicant.~~	The *Trading Participant* wishing to ~~change the registered capacities~~ **increase the registered maximum available capacity (PMax)** of its generating unit/s shall submit a request in writing to the Market Operator, **attaching thereto a copy of the Trading Participant's latest Certificate of Compliance (COC) issued by the ERC evidencing the change or in the absence of the latest said COC indicating the change, the Trading Participant's application for a new COC duly received by ERC.**
3.1.2			**Requests for** changes **supported by the latest**

	Changes shall be approved by the *Market Operator* and confirmed by the PEM Board.	~~Changes shall be approved by the Market Operator and confirmed by the PEM Board.~~ **The *Market Operator* shall approve the changes provisionally upon submission of complete documents as may be required by the MO, and the changes shall be effective eight (8) days after receipt of the request or at a later date indicated in the request (Effective Date of Change).**	**COC evidencing the change** shall be approved by the Market Operator and confirmed by the PEM Board~~.~~ **Requests which are, on the other hand, supported by the submission of proof of application with the ERC for a new COC, shall be approved by the Market *Operator* provisionally upon submission of complete documents as may further be required by the MO, and the changes shall be effective eight (8) days after receipt of the request and complete documents or at a later date indicated in the request (Effective Date of Change).**
3.1.3	New Provision	**The *Trading Participant* shall submit all the documents required by the ERC to effect changes in the Certificate of Compliance (COC) within fifteen (15) days from the Effective Date of the Change in registered data. Proof of submitted required documents to ERC shall be provided by the *Trading Participant* to the *Market Operator*. Once the approved/updated COC from the ERC has been received, the *Trading Participant* shall immediately submit to the *Market Operator* the ERC updated COC in order to effect the requested changes as final. Trading Participants will be informed by the MO of the change in registered data through system messages and the market information website.**	~~**The *Trading Participant* shall submit all the documents required by the ERC to effect changes in the Certificate of Compliance (COC) within fifteen (15) days from the Effective Date of the Change in registered data. Proof of submitted required documents to ERC shall be provided by the *Trading Participant* to the *Market Operator*.**~~ Once the approved/updated COC from the ERC has been received, the *Trading Participant* shall immediately submit to the *Market Operator* the ERC updated COC in order to effect the requested changes as final. Trading Participants will be informed by the MO of the change in registered data through system messages and the market information website.

3.1.4	New Provision	**The *Market Operator* may revoke or modify the provisional approval if there is a proof that the new registered data cannot be attained**	
3.1.5	New Provision	**The *Trading Participant* wishing to change the registered capacities of its generating unit/s, other than increasing its Pmax, shall make a request in writing to the *Market Operator*. Such changes shall be in accordance with either the latest Certificate of Compliance (COC) issued by the ERC or a certification of generator capability test to be issued jointly by the DOE, ERC and SO. The conduct of testing shall be based on the internationally-accepted testing procedures as required in the COC, and the cost of testing shall be the responsibility of the applicant.**	The *Trading Participant* wishing to change the registered capacities of its generating unit/s, other than increasing its Pmax, shall make a request in writing to the *Market Operator*. Such changes shall be in accordance with either the latest Certificate of Compliance (COC) issued by the ERC or a certification of generator capability test to be issued jointly by the DOE, ERC and SO. The conduct of testing shall be based on the internationally-accepted testing procedures as required in the COC **and consistent with the pertinent provisions of the Philippine Grid Code Amendment No. 1 or any subsequent amendments**, and the cost of testing shall be the responsibility of the applicant."
3.1.6	(originally Section 3.1.2)	**Changes shall be approved by the *Market Operator* and confirmed by the PEM Board.**	

We hope that the TC's comments will be useful to the RCC in its ongoing deliberations on the abovementioned proposed amendments.

Thank you.

For your consideration.

For the Technical Committee,

[redacted]

Meleusipo E. Fonollera, Sr.
Chairman

Philippine Electricity Market Corporation

OFFICE OF THE PRESIDENT
SEP 11 2013
PHILIPPINE ELECTRICITY MARKET CORPORATION

11 September 2013
COR-INT-TC-13-08

MEMORANDUM

To	:	**Rowena Cristina L. Guevara, PhD** **Chairman, Rules Change Committee**
Cc	:	**Pres. Melinda L. Ocampo** **Criselda S. Martin-Funelas**, COS-OP and VP-Legal
Thru	:	**Chrysanthus S. Heruela**, VP-MAG
From	:	**Technical Committee**
Subject	:	**TC Comments to the RCC Proposed Amendments on the Business Continuity Plan and Disaster Recovery Procedures**

This is with regard to the invitation of the Rules Change Committee (RCC) to all WESM Members and other interested parties to submit comments on the proposed amendments to Chapter 6 of the WESM Rules, for the inclusion of simulation of the Business Continuity Plan (BCP) and Disaster Recovery Procedures (DRP) of the Market Operator (MO) as a ground for Market Intervention (MI).

In view of this, the Technical Committee (TC) subsequently discussed the proposed amendments and commented on the same, which the TC submits, herein attached, for the RCC's consideration.

Thank you.

For the Technical Committee,

[redacted]

Jordan Raf C. Orillaza, PhD
Acting Chairperson

III. Proposed Amendment

Title	Section	Provision	Proposed Amendment	Rationale	TC Comments/ Recommendations
6.1. SCOPE OF CHAPTER 6	6.1	This chapter 6 sets out: (a) The procedures which shall be established by the Market Operator, System operator and WESM Participants to ensure that they are able to take all necessary actions in an emergency; (b) The procedures to be followed by the Market Operator, System operator and WESM Participants in an emergency; (c) The procedures which are to take effect in the event of a threat to system security; and (d) The circumstances and manner in which the ERC through the Market Operator may intervene or suspend the spot market.	This chapter 6 sets out: (a) The procedures which shall be established by the Market Operator, System operator and WESM Participants to ensure that they are able to take all necessary actions in an emergency; (b) The procedures to be followed by the Market Operator, System operator and WESM Participants in an emergency; (c) The procedures which are to take effect in the event of a threat to system security; and (d) The circumstances and manner in which the ERC through the Market Operator may intervene or suspend the spot market;**and;** **(e) The responsibilities of the Market Operator to develop, simulate and implement business continuity plan and disaster recovery procedures.**	The rationale behind the proposed amendments is to ensure operational continuity of the WESM in cases of emergencies, any unplanned event or disaster that can shut down or disrupt critical business processes of the Market Operator.	Roles/functions and responsibilities of the TPs, SO and MO must be defined. The TC noted the MO's point of view as regards the continuity of market operations. However, the TC would like to point out the need to also enumerate what would be obliged from the other participants to ensure the continuity of operation.

Title	Section	Provision	Proposed Amendment	Rationale	TC Comments/ Recommendations
	6.2.1.3	(new)	**Intervention is likewise warranted when the Market Operator simulates the business continuity plan and disaster recovery procedures developed under Clause 6.8.8.1, which may result in the interruption of the operations of market software used by the Market Operator to support various processes in the WESM.**	The simulation of the business continuity plan and disaster recovery procedures may cause interruption of certain market processes resulting in the inability of Market Operator to generate a schedule, resulting in Market Intervention. The Market Operator has not been able to simulate its business continuity plan and disaster recovery procedures since under the current WESM Rules, the simulation is not a ground for Market Intervention.	• What would be the conditions that would warrant the intervention when the MO simulates the BCP and DR? • The simulation or implementation of BCP should not result in the interruption of the operations of the market.
6.8 BUSINESS CONTINUITY PLAN AND DISASTER RECOVERY PROCEDURES OF THE MARKET OPERATOR	6.8.1	(new)	**6.8.1 Development of Business Continuity and Disaster Recovery Procedures**		
	6.8.1.1	(new)	**6.8.1.1 In consultation with the System Operator, the Market Operator shall develop and implement business continuity plan and disaster recovery procedures to ensure operational continuity of the WESM in cases of emergencies and force**		The TPs have respective roles to perform and the MO's BCPs might also impact the TPs' own BCPs. As such, it would be prudent to include the TPs in the consultation process in developing and implementing the BCP and DRP.

Title	Section	Provision	Proposed Amendment	Rationale	TC Comments/ Recommendations
			majeure events.		
	6.8.1.2	(new)	6.8.1.2 The Market Operator shall review and update the business continuity plan and disaster recovery procedures as may be necessary.		
	6.8.2	(new)	6.8.2 Simulations		
	6.8.2.1	(new)	6.8.2.1 The Market Operator shall regularly simulate the procedures set forth in the business continuity plan as well as the disaster recovery procedures to ensure the preparedness of the Market Operator, System Operator and Trading Participants in the event of emergencies affecting market operations. An evaluation of the simulation exercise shall be performed and deficiencies in procedures and responses shall be identified and corrected.		• Who will conduct the evaluation of the simulation exercise? • The duration of the Market Intervention (MI) Event during the simulation of the BCP must be set or defined.
	6.8.2.2		6.8.2.2 The Market Operator shall inform the Trading Participants and the System Operator of the simulations at least thirty (30) days prior to the conduct of the same.		

Title	Section	Provision	Proposed Amendment	Rationale	TC Comments/ Recommendations
	6.8.2.3		6.8.2.3 The Market Operator shall also notify all Trading Participants and the System Operator as soon as reasonably possible if the simulation or implementation of its business continuity plan and disaster recovery procedures may interrupt the operations of market software used by the Market Operator to support various processes in the WESM. The Market Operator shall use all efforts to minimize any possible market interruption in the conduct of the simulation or implementation.		*Same comment on Section 6.2.1.3* The simulation or implementation of BCP should not result in the interruption of the operations of the market.
CHAPTER 11 GLOSSARY		(new)	Business continuity. Refers to the activity performed by the Market Operator to ensure that critical business functions will be available to the Trading Participants, System operator, Metering Services Provider, ERC, DOE, and other entities that must have access to those		

Title	Section	Provision	Proposed Amendment	Rationale	TC Comments/ Recommendations
			functions.		
		(new)	**Disaster recovery. Refers to a subset of business continuity. This is the process, policies and procedures that are related to preparing for recovery or continuation of technology infrastructure which are vital to the Market Operator after a natural or human-induced disaster.**		Define "disaster".
		Intervention. A measure taken by the System operator when the grid is in extreme state condition as established in the Grid Code arising from a threat to system security, force majeure or emergency. During such event, the administered price cap shall be used for settlements.	Intervention. A measure taken by the System operator when the grid is in extreme state condition as established in the Grid Code arising from a threat to system security, force majeure or emergency., **or by the Market Operator in relation to the simulation or implementation of the business continuity or disaster recovery procedures developed in accordance with Clause 6.8.1.** During such event, the administered price cap shall be used for settlements.		