Philippine Electricity Market Corporation

MINUTES OF THE 90th MEETING OF THE RULES CHANGE COMMITTEE Regular Meeting No. 2014-09	
Meeting Date& Time:	06 August 2014
Meeting Venue:	18th Floor PEMC Board Room

Attendance List

In-Attendance	Not In-Attendance
Committee Members: Rowena Cristina L. Guevara --Chairperson/ Independent Francisco L. R. Castro, Jr. --Independent Maila Lourdes G. De Castro –Independent Concepcion I. Tanglao --Independent Ambrocio R. Rosales --System Operator --NGCP Joselyn D. Carabuena --Generation -- PSALM Jose Ferlino P. Raymundo --Generation -- SMC Global Theo Cruz Sunico -- Generation -- 1590 EC Jose P. Santos --Distribution –INEC Gilbert A. Pagobo -- Distribution –MECO Lorreto H. Rivera --Supply --TPEC Isidro E. Cacho, Jr. -- Market Operator --PEMC **Alternate Members:** Beatriz Irina Denise C. Calazas - PSALM Ermelindo R. Bugaoisan - System Operator	Ciprinilo C. Meneses --Distribution, MERALCO Sulpicio C. Lagarde, Jr. --Distribution – CENECO

PEMC – Market Assessment Group (MAG):
Chrysanthus S. Heruela
Geraldine A. Rodriguez
Ma. Delia B. Arenos
Bienvenido C. Mendoza
Romellen C. Salazar
Hiyasminh Aleia D. Dagum
Dece Marwil M. Bongcawel

Others: (MO/ SO/ DOE/ ERC Representatives):
Ferdinand B. Binondo - DOE
Caryl Miriam Y. Lopez-Mateo - PEMC-Legal
Arturo P. Pintado- PEMC-TOD
Edward I. Olmedo- PEMC-TOD
Renato B. Afurong- PEMC-BSMD
John Paul Grayda- PEMC-BSMD
Gonzalo Julian- AES
Rey Cale Jr. -AES
Dixie Banzon- AES

There being a quorum, Chairperson Dr. Rowena Cristina L. Guevara called the meeting to order at around 9:00 AM.

I. AGENDA:

The Proposed Agenda for the 90th RCC Meeting was approved as amended.

II. REVIEW, CORRECTION AND APPROVAL OF THE *MINUTES OF THE 89TH RCC MEETING*

The RCC reviewed the Minutes of the previous meeting, and upon motion duly made and seconded, approved the same as amended. Below are the amendments made on the subject Minutes of meeting.

- ✓ Page 9, line 33: "Mr. Cacho responded that the accuracy is **probably** high, about 95%."
- ✓ Page 27, Line 9: "Mr. Cacho shared that per Secretary Jericho L. Petilla, ~~the matter will be discussed further with the Power Bureau befor ethe DOE decides on whether or not the DOE will reject the proposal~~ **he has further questions regarding the matter that he wanted to discuss with the Power Bureau."**

III. BUSINESS ARISING FROM THE PREVIOUS MEETING

1. Proposed Amendments to the WESM Rules on the Adoption of the Disconnection Policy--MERALCO Comments

The discussion on the matter was deferred for the next RCC meeting.

2. Proposed Amendments to the WESM Rules and Various Market Manuals relative to the Must-Run Units (MRU) --Comments from PIPPA, APC, SNAP, and PEMC

The body noted that there were four separate submissions of comments on the proposed amendment to the MRU Manual from the Philippine Independent Power Producers Association (PIPPA), Aboitiz Power Corporation (APC), SN Power Aboitiz (SNAP), and the Philippine Electricity Market Corporation (PEMC). Said comments were incorporated in the consolidated matrix of comments prepared by the Secretariat. Dr. Guevara requested the following RCC Members to lead the discussions on the comments received: Mr. Theo Sunico--PIPPA; Ms. Lorreto Rivera--APC; Mr. Jose Ferlino Raymundo--SNAP; and Mr. Isidro Cacho--PEMC. The RCC reviewed and discussed the comments, beginning with the general comments from APC.

One of the main points of APC in its comments is that the RCC's proposed amendments on the MRU are not consistent with the DOE directive. Ms. Rivera explained that the APC comments stated that the MRU, per DOE directive, *should be dispatched only after all the ancillary services have been exhausted*, while the RCC's proposal effectively treats the MRU as another type of ancillary. Ms. Geraldine Rodriguez expressed that the difference between the RCC proposal and the DOE directive lies in the RCC's agreement to re-define the MRU and the must-stop unit

(MSU). Reading from the APC's comments, Dr. Rowena Cristina Guevara opined that what the APC seemed to oppose may be the phrase "to augment the ancillary service," which effectively makes the MRU as a type of ancillary. At this point, Dr. Guevara inquired whether or not it would make sense to retain the DOE's definition of MRU. Mr. Ferdinand Binondo opined that the comment of APC is focused on the term "come on-line," expressing further that it would perhaps be more proper to include in the definition, that the MRU is a plant that was instructed to provide additional energy rather than limiting it to a plant that was instructed to come on-line.

Mr. Ambrocio Rosales explained that the reason why the RCC changed the definition of MRU is that currently, real-time MRU is not part of the criteria for MRU. Based on the System Operator's (SO) operational requirement, there are instances that plants are called to run out of merit, and these plants should be compensated as MRU. The compensation for these plants, however, is not clear in the DOE's definition of the MRU and if the RCC will retain the DOE's MRU definition, generators that were dispatched or instructed to run out of merit due to security reasons cannot be properly compensated. He explained further that out-of-merit dispatch by the System Operator can be explained by the need to re-dispatch fast ramp generators in order to address system security.

Mr. Raymundo added that SNAP proposes, for clarity, to include two types of MRU: one is coming online (or coming from a shut-down), and the other one is real time (or already on-line) MRU. He noted that the RCC's proposal did not consider real time MRU. Ms. Concepcion Tanglao likewise suggested specifying in the provision a reference to the non-exhaustive list of criteria for the designation of MRU listed in Appendix A of the MRU Manual, as indicated in the DOE directive. Following the discussions and noting the comments and suggestions, the RCC revised the MRU definition, as follows:

Must-Run Unit (MRU) *– a generating unit identified* ***and instructed, on real time or scheduled basis,*** *by the System Operator* ***(SO)*** *to either a)* ***come*** *on-line,* ***or b) provide additional energy*** *on a particular Trading Interval* ***but the dispatch of which is said to be Out of Merit, to address*** *System Security requirements.* ***For clarity, MRU shall be utilized only after the System Operator has exhausted all available Ancillary Services. MRUs are classified as follows:***

4.1.1 Scheduled MRU – MRU designated by the System Operator before the trading interval and included in the RTD schedule through the imposition of Security Limit as defined in the WESM Dispatch Protocol Manual.

4.1.2 Real Time MRU – MRU designated by the System Operator during the trading interval.

A Non-Exhaustive List of Criteria for the Designation of MRU is listed in Appendix A.

Following the discussions above on the general comments of APC, the RCC proceeded with the discussion on the specific comments submitted by the parties, as follows:

a. Section 1.0 Introduction

[redacted]

Comments/Suggested Provision		
PEMC	**PIPPA**	**SNAP**
For clarification, since the SO imposes the constraints, shouldn't they also be the one to relax them and not the MO?	Part of this guideline is the introduction of Must-Run Units (MRUs), **and** Nomination of MRUs by System Operator **whether scheduled or on real-time basis** to address the system security aspect of the grid. **In addition, Must-Stop Units (MSUs) and the use of MSUs were likewise introduced to address the same issues concerning the system security ~~and reliability~~ of the grid.~~, the use of Must Stop Units (MSU) was also introduced to tag a certain generator/s for the non-conformity to dispatch instructions as issued by the System Operator. to~~** PIPPA explained that the definition of a Must-Stop Unit is already provided in Section 4.0 Definition of Terms	**1.0 Introduction** xxx Part of this guideline is the introduction of Must-Run Units (MRUs)~~,~~ **and** Nomination of MRUs by System Operator ~~**whether scheduled or on real-time basis**~~ to address the system security aspect of the grid. **In addition, Must-Stop Units (MSUs) and the use of MSUs were likewise introduced to address the same issues concerning the system security ~~and reliability~~ of the grid.~~, the use of Must Stop Units (MSU) was also introduced to tag a certain generator/s for the non-conformity to dispatch instructions as issued by the System Operator~~** SNAP explained that the precondition on the use of MRU is the exhaustion of all available Ancillary Services. MRU therefore cannot be scheduled but rather designated after the available Ancillary Services are depleted.

RCC Discussions/Agreements:

The point of PIPPA's comments is that since the concept of Must-Stop is already defined in Section 4 (Definition of Terms) of the Manual, the reference to it in Section I is no longer necessary. However, Dr. Guevara stated that the reason for mentioning the same in Section I is for clarity as indicated in the "Rationale", further noting that in the same section, the term Must-Run was also mentioned. Thus, the RCC agreed to retain the RCC proposal, as previously discussed.

On SNAP's comment, Mr. Raymundo explained that perhaps the idea of SNAP as reflected in its comments is that MRUs are always real-time, meaning, they are not scheduled or foreseen. On the other hand, Mr. Raymundo opined that the MRUs can actually be scheduled in advance, as currently done for the ancillary service which is done on a day-ahead basis. Mr. Francisco Castro opined that SNAP's objections are already covered in the previous RCC discussions. With this, the RCC agreed to set aside SNAP's suggestion.

On PEMC's comment, Mr. Rosales stated that the constraints being referred to in the provision are the soft constraints being applied by the MO in cases of CVC violations to allow the MO to come up with a solution. He explained that the SO does not relax the constraints because it would lead to the SO violating its mandate relative to the security and reliability of the grid, as such relaxation would imply pushing the N-1 contingency to its limit. It was clarified, however, by MO that the consultation with the SO is still necessary but only during the development stage (of the criteria and procedures) and not anymore during an event of relaxation of constraint.

Relative to Mr. Gilbert Pagobo's concern on what would be the impact of such relaxation, Mr. Cacho responded that prices are generally dependent on offers. However, during congestion, prices tend to go up due to the need to re-dispatch a more expensive plant. A pricing error will take place during relaxation. He explained further that when a CVC is triggered, the CVC is not necessarily applied as the market price during settlement.

Following the discussions, the RCC agreed to revise its proposed amendment, as follows,

1.0 Introduction

In Section 6.6.1 of the WESM Rules, the System Operator was mandated to develop and periodically update the system security and reliability guidelines in consultation with WESM participants and **the** Market Operator. Part of this guideline is the introduction of Must-Run Units (MRUs), **and** ~~n~~**N**omination of MRUs by System Operator **whether scheduled or on real-time basis** ~~**shall be pre-qualified for dispatch**~~ to address the system security aspect of the grid. **Likewise, to address system security and reliability of the grid, the use of Must Stop Units (MSU) was also introduced to tag a certain generator/s for the non-conformity to dispatch instructions as issued by the System Operator.** This document discusses the criteria ~~**and additional considerations**~~ used in designating MRUs~~**, and their treatment**~~ during scheduling and dispatch. It also discusses the manner of settlement or compensation of MRUs.

WESM Rules clause 3.5.13.1, as amended, permits the System Operator, ~~to direct~~ in coordination with the Market Operator, to impose constraints on the power flow, ~~demand,~~ energy generation of a specific facility in the Grid to address system security and reliability of the Grid. ~~, among other things, the need to dispatch generating units to comply with systems, regulatory and commercial test requirements.~~ On the other hand, ~~R~~relaxation of constraints on power flows, ~~demand~~, energy generation and reserves may also be implemented ~~if~~ by the Market Operator ~~is if it is~~ unable to generate a feasible dispatch schedule. For this purpose, ~~the System Operator, in consultation with~~ the Market

Operator, in consultation with the System Operator, is directed to develop the criteria and procedures for dispatch of generating units that are required to run as a result of the imposition or relaxation of constraints.

b. Section 3

On section 3, PEMC commented that since Sections 8.2 and 8.3 were already deleted, the subject provision should be revised using active voice to make the provision clearer. Thus, the RCC agreed to carry the comments of PEMC and revise Section 3, as follows.

Thise ~~procedures~~ Manual **sets out ~~in this document shall be enforced in~~ the** procedures of the System Operator and Market Operator for the **preparation of the Dispatch Schedules for Luzon, Visayas and Mindanao Power Systems, and for the settlement of generation units designated as MRUs following the criteria and procedures in this manual.**

c. Section 4. Definition of Terms

Comments/Suggested Provision	
PIPPA: a generating unit identified and instructed by the System Operator **out of merit dispatch** to reduce the provision of energy **specified in its RTD instruction ~~due to its non-compliance of the Dispatch Schedule~~** to address or prevent possible threat to the System Security requirements of the Grid. Explanation: The original intent for using MSUs was not captured in the proposed provision. A MSU is a unit asked by the SO to reduce dispatch, which can either be caused by another Generating Unit at fault or the System Operator . Since the MRU only provides for additional energy, the original intent of the MSU is for the reduction of energy, with the same criteria for designation as the MRU. **In addition, the proposed provision is inconsistent with the definition of MSU provided by the DOE, which is not the Generating Unit that did not comply with the Dispatch Schedule.**	SNAP: 4.2 Must-Stop Unit (MSU) – a generating unit identified and instructed by the System Operator to reduce the provision of energy **in a manner that the sequence deviates from the WESM Merit Order Table (WMOT) ~~due to its non-compliance of the Dispatch Schedule to address or prevent possible threat~~** to **maintain** the System Security requirements of the Grid. Explanation: The concept of Must Run is that the SO has to decide when to let generators run or generate more to support the system security. The concept of Must stop was defined previously in the same vein, which is an SO dictated state where a generator must stop producing energy since the actual demand is now lower than forecast and therefore some generators should not generate at their scheduled capacity and they must be ordered to stop or reduce their output so as NOT to make the system unreliable. It was clear in the DOE directive that MSU is just the opposite of MRU. If the intention is to tag non-complying

	generators, the concept is misplaced in this Manual. Existing Rules and Manuals already provide penalties for non-compliance to dispatch schedule (RTD). Defining MSU to penalize non-complying generators constitute double penalty on the part of the generator participants. Why not use the penalties collected to compensate for the affected generators? **The discussion paper mentions that one of the problems encountered by the System Operator during dispatch implementation is the non-compliance of generators to their dispatch schedules. Did the SO present statistics supporting this claim? Was there an evaluation done whether these are valid or justifiable non-compliances? Non-compliance to dispatch schedule can also be caused by SO re-dispatch and MOT calls.**

RCC Discussions/Agreements:

Relative to PIPPA's comments, it was noted that the RCC previously agreed to re-define must-stop, defining it differently from the DOE directive that must stop is exclusively caused by excess generation due to the non-compliance of other generators. The RCC proposal, on the other hand, refers to the must stop as the generator that was asked to stop but did not stop, and will thus be tagged as must-stop for its non-compliance. Effectively, the must-stop unit in the RCC proposal is the plant that will be penalized for such non-compliance.

Mr. Theo Sunico opined that the concept of the MSU as it is worded in the RCC proposal is confusing, as it does not seem to be parallel with the MRU concept where the MRU is being referred to as the unit asked to run to address system security, even if it does not clear the market. He added that there are units that in some instances are asked to reduce their output because of over-generation and not because they were tagged as non-compliant to their dispatch schedule. Thus, he suggested retaining the DOE directive on Must-Stop Unit to avoid confusion on the concept of MRU and MSU.

To clarify the concern, Mr. Rosales explained that the RCC previously agreed to redefine the MSU in order to easily identify the non-complying generators with respect to their dispatch schedule and report these generators to the Market Surveillance Committee and subject them to possible investigation. To avoid confusion, he pointed out that the MSU shall refer to the following:

- ✓ A plant that did not follow dispatch instructions, meaning it generated an output that is beyond its dispatch schedule (because of this non-complying generator, another generator in the MOT was asked to reduce its output);
- ✓ During a security threat, a plant that was asked to reduce its output but did not do so, further aggravating the security threat to the grid; and

- ✓ During over-generation, a plant that was asked to reduce its output but which did not follow SO instruction.

Mr. Rosales explained that with the new MSU definition, the non-complying plants, which caused the other plants to reduce their output, are easily identifiable, and can thus be easily penalized upon establishing during investigation that they are indeed non-compliant.

Mr. Sunico further inquired on what would be the term for the plants that were complying with their dispatch schedule but were asked to reduce their output due to other non-complying generators. Dr. Guevara responded that these plants are the "displaced generators" as pointed out by PEMC in its comments. Thus, to address the concern raised by Mr. Sunico, the RCC agreed to include/insert the definition of displaced generator in the proposal which should now refer to the generator as defined by the DOE in its directive as must-stop unit (see definition under 4.3 below). The succeeding sub-sections were also re-numbered as an effect of this insertion.

Sec. 4.3

Displaced Generator -- a generating unit identified and instructed by the SO in an out of merit dispatch to reduce the provision of energy specified in its RTD instruction exclusively caused by excess generation due to non-compliance of generators to dispatch instructions and use of reactive support reserve.

Based on the suggestion of Mr. Cacho and noting that the "Out of Merit Dispatch" is currently not defined, the RCC likewise agreed to define the "*Out of Merit Dispatch*" as follows,

Sec. 4.4

Out of Merit Dispatch -- dispatch instructions issued by the SO that is not in accordance with the WESM Merit Order Table to address system security.

The other concerns of SNAP were also clarified by the RCC.

- ✓ SNAP inquired whether the SO presented statistics relative to the non-compliance of generators with their dispatch schedules. Mr. Rosales responded that the SO submits a report to the MSC on RTD non-compliance by generators, which the MSC validates against a separate RTD non-compliance report produced by the MO. He emphasized that the Rules provide that non-compliance with dispatch instructions shall be reported to the MSC, and such non-compliance may be subject to investigation. The decision on whether or not a non-compliance is justifiable is within the authority of the MSC and not the SO.

- ✓ On the SNAP's comment that non-compliance to dispatch schedule can also be caused by the SO re-dispatch and MOT calls, Mr. Raymundo explained that the MSC as a matter of procedure, sends out letters of inquiry on the basis of the non-compliance reports submitted by the SO and MO. Generators are not penalized assuming they are able to justify that a non-compliance is based on SO re-dispatch and that such are reported by the SO to the MSC. However, he pointed out that there are instances that the SO

fails to report the same to the MSC. This concern, as mentioned by Ms. Rodriguez, is the subject of the coordination meeting being requested by PIPPA with the concerned parties namely MSC and the SO.

On a related matter, Ms. Rodriguez stated that effective December 2013 the MSC no longer sends out letters of inquiry to trading participants asking them to explain deviations relative to the following: a) actual generation against RTD instructions/schedules; and b) offers against maximum available capacity, following a directive from the PEM Board to streamline the MSC process. Based on the new procedure, the MSC identifies the possible non compliances in the Must Offer Rule and RTD Instructions through the MO and SO reports and it would be up to the Enforcement and Compliance Office (ECO) to validate the justifications that will be provided by the generators in the course of investigation. In the process, all non-compliances due to SO calls (with corresponding justifications) shall be filtered out and shall no longer be subject to requests for investigation. Mr. Raymundo, commenting on the issue regarding the differences between the SO and generator reports, explained that during instances of late issuance of dispatch instructions, such can only be reflected in the operator log and not in the SO log, and that such instances can only be explained by the generator once it receives a letter from the MSC. Thus, he opined that the MSC should continue sending out letters of inquiry to generators for the generators to be able to explain their non-compliances in those instances, so as to already filter the same from the intervals subjected to investigation by the ECO. Dr. Guevara however noted that such concern is already being addressed by the PEM Board Directive and the on-going coordination between PEMC and the generators.

- ✓ On the issue on double penalty relative to the MSU, Mr. Sunico opined that such may not be possible. He explained that breaches of the RTD schedules are penalized based on the P100,000 penalty being imposed by the PEM Board, while the penalties for MSUs apply the concept of causer's pay, where the displaced generators are compensated by the other non-complying generators. The RCC agreed that the explanation given by Mr. Sunico is sufficient to address the concern of SNAP. The RCC likewise agreed that a formal response to the various parties that gave their comments is no longer necessary as the Minutes of the Meeting would already reflect the discussions on the matter. The RCC, nonetheless, requested the generators to relay to their sector what have been discussed by the RCC.

d. Sections 4.3 and 4.4

PIPPA Comment/Suggested Provision:

~~**Constrain-on. In respect of a generating unit, the output of that generating unit is limited above the level to which it would otherwise have been dispatched by the Market Operator on the basis of its energy offer.**~~

Explanation:

As stated in our comments for the RCC-proposed changes to the WESM Rules, the System Operator is allowed to Constrain-on or Constrain-off a Generation Company in two instances only:

[redacted]

(1) *Intervention Due to Emergency* (Section 6.5.2.1 [d]); and
(2) *Intervention Due to System Security Threat* (Section 6.6.5.1 [d])

There must be the requisite declaration of Market Intervention first before the System Operator can Constrain-on or Constrain-off a Generation Company, hence the terms have no application in the Manual for Management of MRUs.

RCC Discussions/Agreements:

The RCC noted that the PIPPA's concern is on the use of the terminologies constrain-on and constrain-off. Mr. Binondo stated that these terms were also used in the Manuals on Administered Price and Price Substitution Methodology. Mr. Cacho opined, however, that the intent for the use of the terms constrained on in the PEN-MRR Manual and in the provisions cited by PIPPA are different.

Ms. Joselyn Carabuena commented that while the terms constrain-on and constrain-off are mentioned only in the WESM Rules under the Clauses on intervention, the WESM Rules does not necessarily limit the use of these concepts to intervention. To clarify things, Ms. Rodriguez suggested that the RCC review the subject provisions in the WESM Rules cited by PIPPA in its comment.

Mr. Sunico opined that the comment of PIPPA can be related to the issue on settlement. He explained that the settlement of constrained-on and constrained-off generators is different from the settlement of MRUs. He added that the settlement of the same is being incorporated in the MRU Manual, which creates the confusion.

The RCC clarified that the PIPPA comment questions the use of the terms constrain-on and constrain-off during regular/normal (as against emergency) operations, because these terms are relevant only during emergency (market intervention) and during the occurrence of a threat to security.

Mr. Rosales explained that market intervention may be initiated either by the MO or the SO. However, the declaration or implementation of market intervention is declared unilaterally only by the SO. In cases of MO-initiated market intervention (e.g no solution to RTD), the MO will notify the SO who will subsequently implement the market intervention. He explained further that relative to market intervention due to emergency, the RTD is no longer relevant. But with respect to the concept of constrain-on and constrain-off as proposed in the MRU Manual, the same will still have reference to the RTD, because the actions of SO to constrain-on or constrain-off a generator means increasing or decreasing a generator's output relative to its RTD. Additionally, he clarified that constrained-on and constrained-off generators are different from MRUs because the dispatch of MRUs are out-of-merit.

In regard to the comment raised by PIPPA therefore, RCC agreed that the use of constrain-on and constrain-off are not necessarily limited to the relevant Clauses in the WESM Rules as cited by PIPPA because as stated, constrain-on and constrain-off are options that the System Operator may take to address emergencies or threats to system security.

However, to address the concern on clearly differentiating the term MRU with generators that have been constrained-on or constrained-off and to respond to the suggestion of Mr. Sunico to rephrase the definitions for clarity, the RCC agreed to

revise the following terms in the RCC proposal, and to make the corresponding changes to the WESM Rules definition.

4.3 Constrain-on. In respect of a *generating unit*, the output of that *generating unit* is re-dispatched by the System Operator above its Real-Time Dispatch schedule in accordance with the WESM Merit Order Table.

4.4 Constrain-off. In respect of a generating unit the output of that *generating unit is* re-dispatched by the System Operator below its Real-Time Dispatch schedule in accordance with the WESM Merit Order Table.

The RCC likewise agreed to include a definition of the WESM Merit Order Table (WMOT) as suggested by PEMC. The RCC agreed to check whether such changes on the definitions would have an impact on related provisions in the Dispatch Protocol Manual.

e. Section 5.2

Comments/Suggested Provision	
PIPPA: The System Operator (SO) shall ~~issue~~ dispatch ~~instructions to Must Run Unit/s (MRUs)~~ **based on the submitted hour-ahead generation schedule by the Market Operator** to come on-line, on real-time or scheduled basis on a particular Trading Interval whenever all applicable Ancillary Services are exhausted in order to maintain system security requirements of the Grid. Based on the definition adopted and proposed by PIPPA, a MRU is a unit identified and instructed by the SO to either come on-line or provide additional power in an interval. It may be a Generating Unit already dispatched and running or one that is yet to come on-line.	SNAP: 5.2 The System Operator (SO) shall issue instructions to Must Run Unit/s (MRUs) to come on-line **or increase its/their generation output**, ~~on real-time or scheduled~~ basis on a particular Trading Interval whenever all applicable Ancillary Services are exhausted in order to maintain system security requirements of the Grid. **Refer to comment on 4.1**

RCC Discussions/Agreements

On the comment of PIPPA, the RCC agreed that the concerns raised were already addressed in the previous discussions on the use of the WMOT in the constrain-on and -off of generators. It was emphasized that the basis of the MRU is not the RTD but rather, the criteria for the MRU as already established by the RCC in its proposal.

On the comment of SNAP, Mr. Rosales agreed that real-time MRU should be incorporated in the provision. He suggested that the provision be revised to be

consistent with the earlier discussions and the revisions made on the MRU definition. The RCC agreed to revise the provision, as follows,

> ***5.2 The System Operator (SO) shall issue dispatch ~~MRU/s based on the submitted hour-ahead generation schedule by the Market Operator~~ instructions to Must Run Unit/s (MRUs) to a) come on-line or b) provide additional energy, on real-time or scheduled basis on a particular Trading Interval whenever all applicable Ancillary Services are exhausted in order to maintain system security requirements of the Grid.***

Related to the above, Mr. Raymundo posed several questions as follows: a) When will the SO issue a dispatch instruction?; b) Can the schedule issued by the SO already be considered as dispatch instruction?; c) Is a direct communication (e.g. voice call) by the SO with the plant required for a schedule to be considered as a dispatch instruction?. Relatedly, he commented that not all MRUs are "not in accordance with the WMOT" because there are instances where a security limit is imposed upon generators, thus, the RTD constitutes an MRU that is based on the WMOT.

In response to the concerns raised, Mr. Rosales clarified that once a generator is called to run (i.e voice call), that is already considered a dispatch instruction. However, if there is no direct communication from the SO, but the schedule provided to the generator indicates that it is called to run as MRU, the same can already be considered as a dispatch instruction. Additionally, Mr. Rosales expressed his opinion that any form of writing (e.g dispatch instruction) asking the generator to run on a particular day in a particular trading interval, can already be considered as a dispatch instruction, even if the schedule is given a month ahead or week-ahead or day-ahead. He likewise clarified that dispatch instructions are not necessarily limited to real-time dispatch instructions. Mr. Rosales explained that when a generator is put under security limit, it is automatically included in the RTD, however, the plant's RTD is not necessarily in accordance with the WMOT. He clarified that only the generators that make offers are considered in the WMOT.

Following the discussion and noting the changes made on the relevant definition of terms, the RCC agreed to revise Section 5.2, as follows:

> 5.2 **The System Operator** (SO) **shall** issue **dispatch** ~~MRU/s based on the submitted hour-ahead generation schedule by the Market Operator~~ instructions to Must Run Unit/s (MRUs) to a) come on-line or b) provide additional energy, on real-time or scheduled basis on a particular Trading Interval whenever all applicable Ancillary Services are exhausted in order to maintain system security requirements of the Grid.

At this point, the RCC agreed to defer further discussions on the matter for the next RCC meeting to give way to the discussion of the other items lined up in the RCC's Agenda. The Secretariat was requested to send to the RCC copy of the consolidated matrix of comments, so that the RCC can review them and make further comments in time for the next meeting.

3. Proposed Amendments to the WESM Manual on Administered Price Determination Methodology

[redacted]

The discussion on the matter was deferred for the next RCC meeting.

4. Proposed General Amendment to the Manuals on Dispatch Protocol and CVC: Re-submission by PEMC of Urgent Amendments as General Amendments

Mr. Edward Olmedo of PEMC-TOD made a presentation before the RCC on the PEMC's subject proposal, for the RCC's approval of the posting in the website for comments. As a background, Mr. Olmedo stated that PEMC previously submitted sometime in February 2014 its Proposed Urgent Amendments on the same Manuals, in preparation for the integration of the Reserve Market in the commercial operations of the WESM, as directed by the DOE. Said urgent amendments were approved by the RCC and subsequently by the PEM Board on 27 February 2014, and rendered effective for a period of six months until 26 September 2014. Mr. Olmedo further explained that the Proposed General Amendment on the Manuals is essentially a re-submission of the Urgent Amendment as General Amendments, following the procedures as prescribed in the Rules Change Manual. He likewise explained that per the Rules Change Manual, the effectivity of an Urgent Amendment is only for a period of six months, within which period the Proponent or the RCC shall initiate the re-submission of the Urgent Amendment as a General Amendment.

a. Proposed General Amendment on the Dispatch Protocol Manual

Mr. Olmedo stated that the PEMC did not make any changes from its original submission of Proposed Urgent Amendments in February. The Proposed General Amendments contain the same Appendix A.12 that was added in the Manual. Appendix A.12 clarifies the following:

- ✓ Responsibilities of the Market Operator (MO) and System Operator (SO);
- ✓ Determination of the Reserve Requirement and Associated Timelines; and
- ✓ Submission of nominations and offers from Trading Participants (TP)

Mr. Olmedo highlighted the following salient features of the proposed amendments in the Manual:

- ✓ Submission of one type of reserve for each generating unit per interval (this means that even if a generator is certified for multiple types of reserve, it can only submit one offer per unit per type of reserve);
- ✓ MO Determination of MW level of Regulating Reserve based on 1200H DAP results for D+1; Regulating Reserve Requirement based on DAP of Day "D";
- ✓ Regulating Reserve equivalent to 4% of hourly Demand Forecast based on 1200H DAP run (aggregate of the 2% upward regulation and 2% downward regulation);
- ✓ Updating of the requirement for the Dispatchable and Contingency Reserve every 4 hours

b. Proposed General Amendment on the Manual on Constraint Violation Coefficient

Mr. Olmedo stated that further changes were made from the PEMC's original submission of Proposed Urgent Amendments in the Manual. It was recalled that in the RCC's meeting in May 2014, PEMC raised that it had no issues with regard to the CVC priorities as previously approved by the RCC in February. However, it was also raised that certain changes on the CVC values should be revised to facilitate further

separation of the CVCs, particularly the N-1 Contingency and Nodal VoLL to provide a clear distinction between the two. As an effect of said changes, adjustments to the other CVC types of higher priorities were also made.

Below are the proposed new CVCs (in red font) as part of the General Amendments:

Priority	Constraint Violation Coefficient Name	CVC Value	
		Issue 3.0	Proposed
9	Deficit Interruptible Load Reserve	100,000	100,000
8	Deficit Dispatchable Reserve	200,000	200,000
7	Deficit Contingency Reserve	300,000	300,000
6	Contingency (N-1)	400,000	400,000
5	Nodal Value of Lost Load	500,000	800,000
4	Under Generation	600,000	1,000,000
	Over Generation	(600,000)	(1,000,000)
3	Deficit Regulating Reserve	1,200,000	1,300,000
2	TCG Constraint	1,300,000	1,400,000
1	Base Case Constraint	1,400,000	1,500,000

As part of the justification on the need to further adjust the CVCs, Mr. Olmedo cited the MO's observation that given the different impedances of the transformers or radial sub-stations as in the current modeling of the MERALCO network, there are instances that the sensitivity of the LMP reaches as high as 1.5, and multiplying this with the CVC for N-1 gives a value of 600,000 which is already higher than the Nodal VoLL CVC equivalent to 500,000. As such, load shedding would occur even if there is enough supply, and thus, the need to adjust the CVCs.

Mr. Rosales commented that the example cited in the presentation clearly indicates the impact in prices of radial connections in the network such as the current model of the MERALCO network.

The RCC noted the presentation and thereby approved the posting in the WESM Website of the Proposed Amendments to the Manuals on Dispatch Protocol and CVC, for comments of participants and interested parties.

IV. NEW BUSINESS

1. PEMC's Proposed Amendment to the Manual on Metering Standards and Procedures

Mr. Renato Afurong of PEMC-BSMD presented before the RCC the PEMC's proposed amendments to the Metering Manual, which is a separate but parallel submission along with the Technical Committee's Proposed Amendment on the Manual. The presentation sought the RCC's approval for the posting for comments of said PEMC's Proposed Amendment.

Moving forward, Mr. Afurong provided a background on the proposal. He mentioned that the new provisions were agreed upon by both the MO and MSP, in consultation with Trading Participants, and consistent with the WESM Rules, Philippine Distribution Code, and Philippine Grid Code. He stated that the Proposed Amendments aim to address the Audit Findings of PA Consulting and comply with its recommendations to reflect the industry best practice and improve the documentation for the metering processes. The major findings and recommendations of PA are to: 1) Incorporate the 12 WESM Rules obligations that are not reflected in the Manual; 2) Provide a high-level summary of the contents of the Manual in the Introduction Section and in the subsequent chapters; 3) Revise the Manual to reflect the actual process of the end to end meter test which is actually conducted by the MSP before the registration application; and 4) Provide a Section for metering installation de-registration.

The major amendments to the Manual being proposed by PEMC are summarized as follows:

Chapter	Major Changes
I – Introduction	• Provided a high-level summary of the contents of the Manual • Defined Back-up Meter • Included WESM Rules Chapter 4.10 which directs the MO to periodically review Chapter 4 of the WESM Rules
2 – Metering Installation Standards	• Updated Metering Installations requirements and standards based on present metering practice • Prescribed back-up metering installation requirements • Included proper connection schemes of Instrument Transformers • Prescribed redundant metering installations • Updated references in accordance to latest amendments of the Philippine Grid Code (Amendment No. 1, April 2007) • Prescribed the maximum difference between the meter data registration of Main and Back-up Meters. • Provided the maximum period for non-compliant metering installations registered in the WESM
3 – Site Equipment Identification	• Specify the responsibility of MSP in assigning Site Equipment Identification Number (SEIN) for metering installations • Updated references in accordance to latest amendments of the Philippine Grid Code (Amendment No. 1, April 2007) • Revised introductory sections for clarity
4 – Metering Services Provider	• Deletion of Section 4 - Registration of WESM Metering Service Provider since this process is already incorporated in the WESM Manual on

Chapter	Major Changes
	Registration, Suspension and De-Registration Criteria and Procedures Issue 1.0
5 – Metering Installation Registration	• Clarify the process of end-to-end tests for registration of metering installations • Described the responsibility of the MSP in the documentation and maintenance of new and updated MIRFs. • Prescribed rules on notifying the Market Operator in relation to the modifications of the electrical requirements of the Trading Participants • Added introductory sections to provide a brief summary
6 – Meter Data Collection	• Prescribed the current procedures on the daily and monthly submission of meter data by the MSP • Included entities which are eligible to have access of the metering data per WESM Rules 4.8.3. • Updated meter data collection and retrieval process • Added introductory sections to provide a brief summary
7 – Data Validation, Estimation and Editing	• Updated the estimation of meter data based on the experience by the MO with the agreement of the trading participants and MSP • Defined daily and monthly validation process of meter data • Included the procedure of reconciliation and approval of meter data prior to settlement • Added introductory sections to provide a brief summary
8 – Meter Trouble Report	• Revised the procedure of initiation, timeline and issuance of Meter Trouble Report • Updated the process for unresolved Meter Trouble Report
9 – Site-Specific Loss Adjustment	• Revised to emphasize that SSLA only applies to Customers
11 – Metering Installation Deregistration	• New section to be included in the manual as recommended by PA

Following the presentation, the RCC approved the publication, of the PEMC's Proposed Amendments to the Manual on Metering Standards and Procedures in the WESM website, to solicit comments of Participants and interested parties.

The RCC agreed that the proposal will be deliberated upon together with the TC's proposal, to harmonize the proposed changes to the Manual as submitted by the two parties.

2. AES' Proposed Amendment to the WESM Rules on Generation Company Reserve Offers

Mr. Gonzalo Julian of the AES made a presentation before the RCC on the AES' proposed amendments to relevant sections in the WESM Rules. His presentation consisted of two parts: a) Overview of the AES Battery Energy Systems (BES); and b) the AES' Proposed Revisions to the WESM Rules. Said presentation was made to seek the RCC's approval for the posting in the WESM Website of the proposed amendment, to solicit comments.

a. Overview of the Battery Energy System

Following are the highlights of the presentation:

- AES has been operating Battery Energy Storage Systems for more than 8 years now.
- AES serves utility markets with around 200MW of power plant grid scale equivalent resources serving globally recognized markets. Its projects include the 64MW total resource providing spinning reserves in Northern Chile (Los Andes and Angamos).
- In the US, it has been operating a 40MW resource for Frequency Regulation reserves in Ohio; a 64 MW battery resource in Laurel Mountain, West Virginia; and a 16 MW project in Johnson City, New York.
- In the Philippines, two projects are being developed with completion target date set in 2015: a 40MW Project at Kabankalan, Negros Occidental and a 10MW project at Masinloc.

The features of the Battery Energy Storage of the AES are summarized as follows-

System Characteristics	AES's PowerCenter™ Flex
Fast Reserve Capacity	Modular, 10MW up to 400MW
Round Trip Efficiency	85%-90% (based on dispatch)
Operating Range	+/- full nameplate e.g. +40MW to -40MW
Availability	97% weighted annual equivalent availability
Operating Temperature	-20 C to 40 C
Power Factor	± 0.95 at full load
Ramp-Up/Down Rate	0% to 100% output in 200ms
Voltage Support	Voltage Droop Settings < 50ms response time
Automatic Generator Control	< 50ms response time after control latency
Ride Through	Low Voltage Ride Through (settable thresholds) Low Frequency Ride Through (settable thresholds)
Standards	IEEE 519, 1547, UL 1741, NEC
Start-up time	<1 second, continuously synchronized
Dispatch	PLC-SCADA, Modbus TCP
Minimum generation	No minimum to remain synchronized
PCS Technology	IGBT-based inverters
Storage Technology	Advanced Lithium-Ion Batteries or similar
Emissions	No air emissions, no water use

With regard to the charge and discharge of the battery, Mr. Julian stated that the battery that was given, for instance, an hour duty will be required to charge also for an hour. He expressed that although the requirement for Regulating Reserve is to

sustain the provision of regulation for 15 Minutes only (because after then, the Contingency Reserve shall pick up to provide the reserve requirement), the battery will always be synchronized with the grid, 24/7, and thus will be able to respond in milliseconds once required to provide reserve.

b. Proposed Amendment to the WESM Rules on Generation Company Reserve Offers

Mr. Julian stated that the proposal is in preparation for the implementation of the reserve market. He explained that the current WESM Rules require an independent registration for a grid-connected facility/Trading Participant to be a Generation Company/ Scheduled Generator and/or Ancillary Services Provider. Effectively, an Ancillary Services Provider may or may not be a registered Generation Company/ Scheduled Generator. Thus, Grid Energy Storage Systems registered as Ancillary Services Provider pursuant to WESM Rules Clause 2.3.5 may or may not be registered as a Generation Company / Scheduled Generator pursuant to WESM Rules Clause 2.3.2, considering the technical limitations of the system in providing energy.

Mr. Julian stated that the AES proposes to change the reference from Generation Company/Scheduled Generator to Ancillary Services Provider in the relevant sections in the WESM Rules. This way, Ancillary Services Providers that are not necessarily Generation Companies may be allowed to submit offers for ancillary services without being required to submit offers for energy in cognizance of its technical limitations. He explained that the proposed changes will widen the scope of the WESM Rules clauses at it would now cover both the ancillary services provider registered solely for the provision of ancillary services, as well as the generation company that is at the same time registered as Ancillary Services Provider. He added that a generation company providing ancillary services is pre-qualified through a certification issued by the National Grid Corporation of the Philippines (NGCP).

Upon inquiry from PEMC on the capabilities of the current Market Management System (MMS), Mr. Raymundo commented that even if the proposed amendment is approved, it cannot be implemented due to the limitations of the technical capabilities of the MMS.

Relative to its registration, it was noted that the AES' Battery Energy System has not yet obtained a Certificate of Compliance (COC) with the Energy Regulatory Commission (ERC), pending the NGCP's issuance of the Systems Impact Study (SIS) on the project to be able to start the project.

Noting the above, Ms. Rodriguez stated that should the RCC approve the publication of the Proposed Amendments, all the comments and concerns raised along with other comments which may possibly be received from other parties will be considered once the RCC deliberates on the matter.

Following the discussions, the RCC approved the publication in the WESM website, of the AES' Proposed Amendments to the WESM Rules on Generation Company Reserve Offers, for comments.

3. NGCP-SO's Presentation on the Removal of Marginal Plant to Mitigate Price Spikes

The discussion on the matter was deferred for the next RCC meeting.

V. OTHER MATTERS

1. PEMC's Presentation on the Simulation Results Relative to the Inclusion of MERALCO Network in the Market Network Model

Following a previous request from the RCC, Mr. Olmedo presented to the RCC the result of PEMC's simulation study on the modeling of MERALCO Network in the MNM. As a background, he explained that the MERALCO network, as it is currently modeled, is treated as a yellow box wherein the interconnections within its Network cannot be seen in the WESM MNM. The modeling of the MERALCO network is only up to the 115KV transmission line, with a single node representation for its six interchanges, namely, Araneta, Balintawak, Dolores, Sucat, Zapote, and Paco. The sub-transmission within these MERALCO interconnection points is not included in the MNM. He added that the MERALCO load comprises 70% of the total load in Luzon, with 50% coming from Metro Manila. While this is how the MERALCO network is currently modeled, it was noted from the data provided by MERALCO that there are actually interconnections within its network on normal operations.

Further, Mr. Olmedo mentioned that one of the audit findings of PA Consulting in its Audit conducted in 2011 relates to the need for the integration of the MERALCO network in the MNM, thus, the need for PEMC to conduct simulations before the PA recommendations can be implemented. In 2013, the PEMC was able to obtain from MERALCO the static data or the 24-hour load profile of a particular trading day which was used for the simulations. The study being presented is a continuation of the study previously made in 2012 concerning the evaluation of the MERALCO Network having material effect on pricing and scheduling.

The highlights of the presentation on the simulation results are as follows-

- Instead of using the radial connections of MERALCO, the simulation assumed that there are interconnections within the MERALCO network. The focus of the simulation however was on Sector 3 of the MERALCO interchange where the Zapote is situated since the Contingency CVCs are still frequently observed in this area.
- Based on the network diagram provided by MERALCO, Zapote and Sucat are interconnected in Sector 3.
- Isolating the demand profile of Sector 3 from the rest of the Luzon Grid, the results of the simulation showed that the minimum N-1 level for Sector 3 is around 1,180 MW (where N=six 600 MVA Transformers of Sector 3).
- At approximately 1,180MW, the Zapote sub-station will have a loading of 550 MW upon the imposition of the N-1 criterion.
- The actual loading of Zapote is beyond the 550MW Radial N-1 level at 37.3% of the time during the past 3 years (for the period 2011-2013). These coincided with the issuance of PENs in the WESM.
- During the same period, the sum of the forecasted loads of Sector 3 (through the Sucat and Zapote Market Trading Nodes) only went beyond 1,180 MW at 8.6% of the time, and only 5.4% of the time in 2013.
- It is then assumed that without the need for re-dispatch, 28.7% of the intervals in the past 3 years would have not reflected the N-1 violation if the MERALCO network was integrated in the MNM.
- For the periods that went beyond the N-1 level (1,180MW), which was 8.6% of the time from 2011 to 2013, the MDOM will find an alternative solution

which shall require the re-dispatch of generators away from the typical merit order solution.

- In such situations, generators will be constrained-on/-off to avoid the violation of the N-1 Contingency Criterion at the said sector.
- In the simulation, the market prices are reflective of the "spring-washer effect" as the MERALCO network is now fully reflected in the MNM even during "binding constraints."
- As such, it is expected that the Price Substitution Methodology (PSM) for the Congestion shall be frequently applied instead of the usual Pricing Error Notice (WESM Rules 3.10.5) since the N-1 Constrained Zapote Transformer is now part of the network and not radial anymore.
- The proposal on Local PEN may be forgone once the MERALCO network is integrated into the MNM.

Below are the conclusions drawn out of the simulation results-

- MERALCO network has a material effect on the pricing and scheduling in the WESM.
- Modeling of MERALCO sub-transmission network will result in an optimal set of schedules (security-constrained economic dispatch).
- To fully implement the integration of the MERALCO network into the MNM, real-time snapshot data should be provided from MERALCO to NGCP to PEMC.

Mr. Olmedo clarified that although the simulation results showed that MERALCO network has an impact in the WESM prices and scheduling, these data will need further evaluation to establish the actual values of prices. In order to do this, PEMC will need the real time snapshot data from MERALCO to determine the behavior of prices during different intervals.

Mr. Rosales commented that because of the imposition of the N-1 Contingency, there are cheaper plants that are constrained-off while the more expensive plants are constrained-on in order to produce a feasible RTD, which effectively increases the WESM prices. Thus, even if the simulation results did not show the actual figures relative to pricing, the difference of having and not having the MERALCO network in the MNM is already clear.

As a way forward, Mr. Olmedo likewise presented an estimated timeline for the integration of the MERALCO network into the MNM, which is expected to happen in March 2015. The timelines may still move depending on when the MERALCO data will be made available to PEMC.

Activities	2014				2015		
	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Coordination with NGCP/MERALCO							
Interfaces SCADA system of MERALCO with NGCP							
Protocol on MMS-EMS Interface							
Real Time Data Acquisition							
Integration of NGCP and MERALCO real-time data and submission to PEMC							
RTU Mapping							
Mapping of loads, breakers and generators							
Testing and Validation							
Testing of Real-time data accuracy, reliability and timeliness							
Uploading to Production System							
Adjustment and Finalization							

On the part of the DOE who will be involved in the implementation stage from the policy side, Mr. Binondo inquired on the possibility of the RCC expressing its acceptance of the simulation results by way of adopting a resolution. He opined that through the support of the stakeholders within the RCC, MERALCO can be better compelled to provide the relevant data needed for its modeling in the MNM. The RCC did not have any objections to the suggestion expressed by the DOE. The RCC, thus, agreed to discuss further the possibility of signing a resolution, expressing its acceptance of the simulation results and support for the modeling of the MERALCO network in the MNM, and further, its recommendation to the PEM Board to compel MERALCO to submit its real-time data as required for its modeling in the MNM.

At this point, the RCC thanked Mr. Olmedo for the presentation that was made.

2. NGCP-SO's Presentation on the Removal of Marginal Plant to Mitigate Price Spikes

The discussion on the matter was deferred for the next RCC meeting.

3. PEMC's Presentation on the Statics Regarding the Breaches of Threshold Level Relative to the Secondary Price Cap

The discussion on the matter was deferred for the next RCC meeting.

4. PEM Board Updates

Atty. Maila De Castro informed the RCC that the Proposed Amendments below were submitted and presented to the PEM Board during its meeting held on July 31.

- Proposed Amendment to the WESM Rules in the Inclusion of Offer Price Cap and Customer Price Dampener--for information;
- Proposed Amendment to the Manual on the Management of Net Settlement Surplus (NSS); and
- Proposed Amendment to the WESM Rules on the Approval of Alterations on the Market Network Model

The RCC noted, based on the information provided, that the second and third items above were approved by the PEM Board.

5. Updates on the 2014 RCC Work Plan

The PEMC informed the RCC of the following changes to the RCC Work Plan relative to the commitment/deliverables of PEMC:

Item 18: PEMC's withdrawal of the proposed rules change on the revision of provisions on MDOM performance standards. As explained by PEMC, the MDOM Performance Standards have already been referred to the Market Operator Performance Standards (MOPS) per PEMC's communication with the Department of Energy (DOE) regarding MOPS.

Item 19: Change in PEMC's timeline in the submission to RCC of the Proposed Changes to WESM Rules and the Rules Change Manual (as part of the Harmonization), from 2nd Quarter to 3rd Quarter. Correspondingly, the RCC adjusted its timeline to 4th Quarter for the subject Proposed Amendment.

VI. NEXT MEETING

Noting that several items in the Agenda were not tackled due to the limited time, the RCC agreed to meet twice in September on the following schedules-

September 3- 9:00 AM (Regular Meeting)
September 10- 9:00 AM (Special Meeting)

The RCC further agreed that the Meeting scheduled for September 3 will focus on the discussion of the MRU matter.

VII. ADJOURNMENT

The meeting was adjourned around 3:00 PM.

Prepared By:	Reviewed By:	Noted By:
[redacted]	[redacted]	[redacted]
Romellen C. Salazar	**Geraldine A. Rodriguez**	**Elaine D. Gonzales**
Analyst *– Market Governance Administration Unit*	***Assistant Manager*** *– Market Governance Administration Unit*	***Manager*** *– Market Data and Analysis Division*
Market Assessment Group	***Market Assessment Group***	***Market Assessment Group***

Approved by: RULES CHANGE COMMITTEE [redacted] **Rowena Cristina L. Guevara** Chairperson Independent University of the Philippines (UP)	
Members:	
[redacted] **Concepcion J. Tanglao** Independent	[redacted] **Francisco L.R. Castro, Jr.** Independent Tensaiken Consulting
[redacted] **Maila Lourdes G. de Castro** Independent	[redacted] **Lorreto H. Rivera** Supply Sector TeaM (Philippines) Energy Corporation
[redacted] **Jose P. Santos** Distribution Sector (EC) Ilocos Norte Electric Cooperative, Inc. (INEC)	**Ciprinilo C. Meneses** Distribution Sector (PDU) Manila Electric Company (MERALCO)
Sulpicio C. Lagarde Jr. Distribution Sector (EC) Central Negros Electric Cooperative, Inc. (CENECO)	**Gilbert A. Pagobo** Distribution Sector Mactan Electric Company (MECO)
[redacted] **Jose Ferlino P. Raymundo** Generation Sector SMC Global	[redacted] **Joselyn D. Carabuena** Generation Sector Power Sector Assets and Liabilities Management Corporation (PSALM)
Ambrocio R. Rosales Transmission Sector National Grid Corporation of the Philippines (NGCP)	[redacted] **Theo C. Sunico** Generation Sector 1590 Energy Corporation
[redacted] **Isidro E. Cacho, Jr.** Market Operator Philippine Electricity Market Corporation (PEMC)	