Republic of the Philippines
ENERGY REGULATORY COMMISSION
San Miguel Avenue, Pasig City

IN THE MATTER OF THE APPLICATION FOR THE APPROVAL OF SETTLEMENT FOR DISPLACED GENERATORS FOR THE PHILIPPINE WHOLESALE ELECTRICTY SPOT MARKET (WESM)

ERC CASE NO. 2016-159 RC

PHILIPPINE ELECTRICITY MARKET CORPORATION,
Applicants.
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NOTICE OF PUBLIC HEARING

TO ALL INTERESTED PARTIES:

Notice is hereby given that on 04 August 2016, Philippine Electricity Market Corporation (PEMC) filed an Application for Approval the Approval of Settlement for Displaced Generators for the Philippine Wholesale Electricity Spot Market (WESM).

In the said Application, PEMC alleged the following:

1. PEMC is a non-stock, non-profit private corporation duly organized and existing in accordance with Philippine laws, with principal office at the 9th Floor, Robinsons-Equitable Tower, ADB Avenue corner Poveda Street, Ortigas Center, Pasig City. Applicant is represented herein by its President, Ms. Melinda L. Ocampo, who is duly authorized by PEMC's Board of Directors as evidenced by the Secretary's Certificate attached as *Annex "A"* and made integral part of this Application.

2. This Application is filed pursuant to Section 30 of Republic Act No. 9136 ("EPIRA") which reads in part:

> xxx Jointly with the electric power industry participants, the DOE shall formulate the detailed rules for the wholesale electricity spot market. Said rules shall provide the mechanism for determining the price of electricity not covered by bilateral contracts between sellers and purchasers of electricity users. The price determination methodology contained in said rules shall be subject to the approval of the ERC. xxx

1. The authority of Applicant to file herein instant case is based on Section 2 of Department Circular No. DC2014-10-0021 which provides:

> Section 2. Pricing and Settlement Methodology. In relation to WESM Rules Clause 3.13.14.3, the Philippine Electricity Market Corporation (PEMC) is hereby directed to file a petition before the Energy Regulatory Commission (ERC) for approval of the pricing and settlement methodology and the corresponding recovery mechanism for the utilization of MRU based on the PEM Board approval.

2. WESM Rules Section 3.13.14.3, as amended, provides:

> The Market Operator shall develop and implement subject to the approval by the ERC, the appropriate pricing and settlement methodology for compensation of trading participants whose generating units are designated as Must Run Units and the corresponding mechanism for the Displaced Generators, and the corresponding recovery mechanism for the same.

3. This Application was published in a newspaper of general circulation, as certified in the Affidavit of Publication attached as *Annex "B"*. Copies of this Application and its annexes are likewise served to the Office of the Sangguniang Panglungsod of Pasig City and of Taguig City, as shown in *Annexes "C" and "D"*.

Background

4. The Price Determination Methodology ("PDM") of the Philippine Wholesale Electricity Spot Market ("WESM") was approved by the Honorable Commission on 20 June 2006 in ERC Case No. 2006 – 007 RC. The decision together

with the WESM Rules and its WESM Market Manuals became the framework for the principles and the detailed operations of the pricing, scheduling and settlement in the WESM.

5. The WESM provides for a merit order dispatch of generating plants and dispatchable load to come up with the optimum scheduling of energy and reserves that will maximize economic gains for trading participants. The WESM operates with the submission of generators together with dispatchable load of their offers in the market. The offers submitted by generators are ranked from lowest to highest while customer demand bids are ranked from highest to lowest price offer. Generating facilities and dispatchable load are stacked based on their price offer until the total generation matches the total load requirement for a particular trading interval. From the stacking of bids and offers, the Market Dispatch Optimization Model ("MDOM") – the infrastructure engine of the WESM, generates a Dispatch Schedule that takes into account the physical limitations of the transmission network, facilities of the trading participants and all other constraints in the system for the relevant interval to maintain the power balance in the grid.

6. The Dispatch Schedule[1], as defined in the WESM Rules, as amended is "the target loading levels in MW for each scheduled generating unit, must dispatch generating unit, non-scheduled generating unit, scheduled load and reserve facility for the end of that trading interval, determined by the Market Operator through the use of market dispatch optimization model in accordance with Clause 3.8.1". From the Dispatch Schedule generated by the Market Operator ("MO"), the System Operator ("SO") issues Dispatch Instructions to all trading participants for the relevant trading interval. The Dispatch Instruction issued by the SO must be complied with by all trading participants to ensure at all times the balancing of demand and generation. Failure to do so will result to over-frequency or under-frequency which can result to equipment damage, load tripping or generator tripping and even, total blackout.

7. Moreover, for the SO to manage intra hour system balance and reliability requirements, the WESM Rules required generators to comply with its linear ramp rate during the trading interval. Thus, it provided:

> 3.8.4.1 *Scheduled generating units* and *priority dispatch generating units* who are dispatched shall use reasonable endeavors to achieve a linear *ramp rate* over the *trading*

[1]Dispatch Schedule is also known as Real Time Dispatch Schedule ("RTD Schedule"). Real Time Dispatch defied under the Dispatch Protocol Issue No. 11 as "otherwise known as RTD. It is the Hour -Ahead Dispatch Schedule which determines the target loading of facilities at the end of the trading interval. RTD calculates the Ex-Ante Nodal Prices.

> *interval* to reach the target loading level by the end of that *trading interval* and within the *dispatch tolerances* specified in Clause 3.8.7 and those *Trading Participants* should not be required to operate in any different fashion unless required to:
>
> (a) Respond in accordance with reserve or ancillary service contracts; or
>
> (b) Respond to a direction in accordance with Clauses 6.3 and 6.5.[2]
>
> 3.8.4 Ramp Rate of Trading Participant
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> Where applicable, *Trading Participants* will be assumed to have a *linear ramp rate* over that *trading interval* to reach the target *loading levels* by the end of that *trading interval.*

8. Throughout the operations of the WESM in Luzon and Visayas, there have been occurrences of non-compliance with the RTD Schedule and linear ramping rate wherein on-line generators fail or refuse to lower their generation output both intra hour and at the end of the trading interval. Because of the refusal of on-line generators to comply, other generators who are scheduled to run to meet their Dispatch Schedule are prevented from doing so and are unable to reach their respective target loading levels or are constrained off within the trading interval. In this instance, these generators that cannot run to meet their dispatch targets are economically prejudiced with the refusal of instructed generators to comply with the instructions of the SO. Generators that cannot run despite being scheduled loose the opportunity to generate energy as planned and, consequently, paid lower settlement amounts as a result of the decrease in the provision for energy from its RTD Schedule as reflected in its metered quantities.

9. This non-compliance by generators is also detrimental to consumers since frequently these generators have been directed to reduce its injection into the grid or, in certain instances, instructed to shut down, in view of the fact that it has submitted a more expensive offer as computed by the WESM MDOM. This contravenes the WESM objectives of supplying energy at least cost since the erring generator's continued actions results in higher cost of electricity in the spot market representing the differential amount between the generator which has been displaced and that of the non-compliant generator.

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[2] As amended in DOE DC No. 16-01-0002 dated 12 January 2016

10. Moreover, the refusal to comply with dispatch instructions of the SO to implement the Dispatch Schedule causes a threat to system security with the depletion of operating reserves and results to over frequency (i.e above 60Hz).

11. In view of the threat to system security and financial loss to the displaced generator/s, the DOE and the PEM Board has approved a mechanism that will serve as a deterrent to this occurrence by imposing a penalty against generators that refuse to comply with their RTD/Dispatch Schedule or to comply with linear ramp during the trading interval.

12. On 24 October 2014, the DOE issued Department Circular No. DC2-14-10-0021 which adopted further amendments to the WESM Rules. This Department Circular directed the imposition of sanctions against Trading Participants not compliant with the Dispatch Schedule and linear ramping assumptions to meet target loading levels. As stated in the DC, Section 3.8.8.1 and 3.8.8.2 of the WESM Rules was amended to read:

> "Any Trading Participant who consistently fails to use its reasonable endeavors to act in accordance with the Dispatch Instructions issued under Clause 3.8.3, or who breaches the Dispatch Tolerance standards published under Clause 3.8.7.2, may be liable for sanction imposed under Clause 7.2.
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> Trading Participants that are not compliant to the Dispatch Schedule or linear ramping assumptions that have been identified by the System Operator to cause the constraining-off of other generating units shall compensate Displaced Generator or Generators in accordance with the mechanism under Clause 3.13.14.3."

13. Moreover, the amendments under the stated department circular, emphasized compliance with the linear ramp rate of scheduled generators as evidenced by the incorporation of the following provisions:

> 3.8.5 Deviations from the Ramp Rate
>
> If *Trading Participants* in some part of the *power system* deviate in aggregate from the assumed *Linear Ramp Rate* for any reason or as a result of any cause including the initiation of *Load Shedding* under Clause 3.9.3, these deviations shall be dealt with by the *System*

Operator, utilizing the *Reserves,* or other *Ancillary Services* scheduled to deal with such circumstances, in accordance with Clause 3.3.

Trading Participants are required to comply with linear ramping in any trading interval; otherwise, the *Market Operator* or the *System Operator* shall report the generator to the *Market Surveillance Committee.*

3.9.8.3 During a *Trading Interval,* if *Excess Generation* is imminent or is detected in the *Power System* by the *System Operator* in accordance with the *Grid Code* and it is established that the *Excess Generation* is being caused by a *Generating System* that is not following its dispatch schedule or observing a linear ramp rate, then the *Generation Company* representing the *Generating System* in the market may be liable of a sanction under Clause 7.2. The Generation Company representing the Generating System that is not following its *Dispatch Schedule* or observing linear ramp rate, however, shall compensate other *Generation System* that has been constrained-off by the *System Operator.* Such conditions shall also be considered in the procedures to be developed under Clause 3.9.8.2.

14. Subsequently, on 12 November 2015, the DOE promulgated Department Circular No. DC2015-11-0016 approving WESM Market Manual Management of Must Run and Must Stop Unit Issue No. 7 ("MRU and MSU Manual"). A copy of the stated circular and the MRU and MSU Manual are attached herewith as Annexes "E" and "F".

The Settlement Mechanism

15. The proposed mechanism for settlement of Displaced Generators provides for the -

a) incorporation in the existing processes of the WESM (e.g. Dispatch Protocol, MRU and MSU Market Manual) the procedure with which the System Operator (SO) shall identify units as MSUs;

b) compensation of Displaced Generator/s; and,

c) payments by MSUs.

16. An MSU, as defined, is a generating unit identified and instructed by the SO to reduce the provision of energy due to its non-compliance with the SO instructions for generator to comply with the Dispatch Schedule to address or prevent possible threat to System Security requirements of the grid.[3] The SO, pursuant to its role in maintaining the reliability of the grid, shall continuously monitor the compliance of Trading Participants to its dispatch instructions.

16. If during the course of its monitoring, the SO identifies that a generating unit is not following its Dispatch Schedule or with its linear ramping assumptions within the trading interval, the SO will direct the generating plant to reduce its loading level. In the event the generating unit fails to comply with the instructions of the SO, the SO shall tag the generating unit as an MSU and shall log and report to the MO thru a Dispatch Deviation Report. In the meantime, in order to prevent any breach in system frequency arising from excess generation, the SO shall be constrained to direct other generators scheduled to run under the Dispatch Schedule to lower its energy output. This generator/s shall be the Displaced Generator.

18. A Displaced Generator is a "generating unit identified and instructed by the System Operator in an Out of Merit Dispatch to reduce the provision of energy specified in the Real Time Dispatch instruction exclusively caused by excess generation due to non-compliance of generators to dispatch instructions and use of reactive support service."[4]

19. Once identified by the MO as Displaced Generator, payment shall be made to the Displaced Generator through the WESM's settlement processes equivalent to the difference between the Ex – Ante Quantity and Metered Quantity of the Displaced Generator for the trading interval net of the- dispatch tolerance multiplied by the ex-post price provided ex-post price is positive. If the ex-post price is negative, there will be no settlement due to the Displaced Generators and correspondingly, no amount will be collected from the Must Stop Units. Furthermore, there will be no payment to the Displaced Generator if the difference between the Ex–Ante Quantity and the adjusted Metered Quantity is less than the approved dispatch tolerance, in accordance with the WESM Rules, of its Ex-ante Quantity.

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3 Chapter 11WESM Rules, as amended
4 Chapter 11, WESM Rules, as amended

In formula:

$$DG_{TA_i} = \begin{cases} [(EAQ_i - b_i * MQ_i) - t * (EAQ_i)] * EPP_i, & if\ EAQ_i - b_i * MQ_i > t * EAQ_i \\ 0, & if\ EAQ_i - b_i * MQ \leq t * EAQ_i \end{cases}$$

Where,

DG_{TA_i}	Total amount that will be received by the Displaced Generator i
EAQ_i	Ex-Ante Quantity of the Displaced Generator i
MQ_i	Metered Quantity of the Displaced Generator i
EPP_i	Ex-Post Price at the node of the Displaced Generator i
t	Dispatch Tolerance
b_i	Is the factor multiplied to the metered quantity of the Generator i to account the difference between location of RTU and Meter.

20. The formula takes into account situations wherein the RTU points of the Displaced Generator is not situated near its metering points, hence, the incorporation of the term "b" as the factor multiplied to the metered quantity of the Displaced Generator. Under Section 10.3 of the MRU and MSU Market Manual, this shall be calculated as the average ratio between the interpolated RTU readings and metered quantities of Displaced Generator for one year.

In formula:

$$b_j = \frac{Average\ Interpolated\ RTU\ Reading}{Average\ Metered\ Quantity}$$

where,

b_j	is the factor multiplied to the metered quantity of the Generator j to account the difference between location of its RTU and Meter.
Average Interpolated RTU Readings	is the average of the positive interpolated RTU readings or snapshots of the generator for one year
Average Metered Quantity	is the average of the positive Metered Quantity (MQ) of the generator for one year

21. On the other hand, payment by the MSUs shall be on a pro rata basis relative to each non-complying generator's MSU quantity.

In formula:

$$MSU_{TA_j} = \begin{cases} -\dfrac{MSU_{Q_j}}{\sum_{j=1}^{n} MSU_{Q_j}} \sum_{i=1}^{m} DG_{TA_i}, & if \sum_{j=1}^{n} MSU_{Q_j} \neq 0 \\ -\dfrac{b_j * MQ_j}{\sum_{j=1}^{n}(b_j * MQ_j)} \sum_{i=1}^{m} DG_{TA_i}, & if \sum_{j=1}^{n} MSU_{Q_j} = 0 \end{cases}$$

$$MSU_{Q_j} = \begin{cases} b_j * MQ_j - EAQ_j, & if\ b_j * MQ_j - EAQ_j \geq 0 \\ 0, & if\ b_j * MQ_j - EAQ_j < 0 \end{cases}$$

Where,

MSU_{TA_j}	Total amount to be paid by the Must Stop Unit j
EAQ_j	Ex-Ante Quantity of the Must Stop Unit j
MQ_j	Metered Quantity of the Must Stop Unit j
MSU_{Q_j}	The energy displaced of the Must Stop Unit j or Must Stop Unit Quantity
n	Number of Must Stop Units
m	Number of Displaced Generators
$-\sum_{i=1}^{m} DG_{TA_i}$	Grand total of the amounts that will be paid to the Displaced Generators
b_j	is the factor multiplied to the metered quantity of the Generator j to account the difference between location of its RTU and Meter.

22. Noteworthy, the second term of the above stated formula addresses instances where an erring generator refuses to comply with its linear ramp rate as instructed by the SO but at the end of the trading interval managed to meet its Dispatch Schedule.

The Commission has set the application for initial hearing, expository presentation, pre-trial conference, and evidentiary hearing on the following dates and venues:

Date and Time	Venue	Hearing Coverage
20 October 2016 (Thursday) **Ten o'clock in the afternoon (10:00 A. M.)**	**ERC Hearing Room, 15F Pacific Center Building, San Miguel Avenue, Ortigas Center, Pasig City**	**Jurisdictional and Expository Presentation**
03 November 2016 (Thursday) **Ten o'clock in the morning (10:00 A.M.)**	**Visayas Field Office St. Mary's Drive, Banilad, Cebu City**	**Expository Presentation**
17 November 2016 (Thursday) **Ten o'clock in the morning (10:00 A.M.)**	**ERC Hearing Room, 15F Pacific Center Building, San Miguel Avenue, Ortigas Center, Pasig City**	**Pre-trial Conference and Evidentiary Hearing**

All persons who have an interest in the subject matter of the proceeding may become a party by filing, at least five (5) days prior to the initial hearing and subject to the requirements in the ERC's Rules of Practice and Procedure, a verified petition with the Commission giving the docket number and title of the proceeding and stating: (1) the petitioner's name and address; (2) the nature of petitioner's interest in the subject matter of the proceeding, and the way and manner in which such interest is affected by the issues involved in the proceeding; and (3) a statement of the relief desired.

All other persons who may want their views known to the Commission with respect to the subject matter of the proceeding may file their opposition to the application or comment thereon at any stage of the proceeding before the applicant concludes the presentation of its evidence. No particular form of opposition or comment is required, but the document, letter or writing should contain the name and address of such person and a concise statement of the opposition or comment and the grounds relied upon.

All such persons who wish to have a copy of the application may request from the applicant that they be furnished with the same, prior to the date of the initial hearing. The applicant is hereby directed to furnish all those making such request with copies of the application and its attachments, subject to the reimbursement of reasonable photocopying costs. Any such person may likewise examine the application and other pertinent records filed with the Commission during the standard office hours.

WITNESS, the Honorable Chairman **JOSE VICENTE B. SALAZAR,** and the Honorable Commissioners **ALFREDO J. NON, GLORIA VICTORIA C. YAP-TARUC, JOSEFINA PATRICIA A. MAGPALE-ASIRIT,** and **GERONIMO D. STA. ANA, Energy Regulatory Commission,** this 30th day of August 2016 at Pasig City.

ATTY. NATHAN J. MARASIGAN
Chief of Staff
Office of the Chairman and CEO

LS: LSP/ICG/APV/ERC CASE No. 2016-159 RC.NPH