Wholesale Electricity Spot Market

PUBLIC

WESM Manual

Administered Price Determination Methodology
Issue 6.0

Abstract	This document contains the concept and procedures for determining the administered price that will be used in the Philippine Wholesale Electricity Spot Market during market suspension and intervention.

Document Identity:	WESM-AP-006
Issue No.:	6.0
Reason for Issue:	Amendments providing specific timelines within which additional claims for payments for trading participants which complied with dispatch instructions during market intervention or suspension may be filed and thereafter paid by PEMC
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Document Change History

Issue No.	Proponent	Reason for Amendment
0.0	PEMC-MO	Original document
	WESM IRCC	Revised to include provision to allow weekly submission of Default Dispatch Offer
	PEMC-MO	Revised in compliance with ERC Decision in ERC Case No. 2005-056 RC *In the Matter of the Application for Approval of the Administered Price Determination Methodology for the Philippine Wholesale Electricity Spot Market*, 22 June 2006.
2.0		RCC approved Revision 1.0 and endorsed to PEM Board for approval
3.0	PEMC	Revised clause 4.1 (f) and Section 4.2.5 to include guidelines on regional application and methodology for settlement of export and import quantities Revised clause 4.2.1.3 to include substitute prices determined under relevant pricing error or price substitution methodologies in determining administered prices Revised Section 4.4 to provide for interim administered price for Visayas *(approved by the PEM Board as Urgent Amendments on 27 October 2010 and General Amendments on 28 April 2011)*
4.0	RCC	Revised section 3 Background to clarify that the administrative price applies when the Market is not able to determine the price for **energy for a grid or island grid** for any given trading interval that the intervention or suspension is in effect. Revised section 3.1 to indicate that Market Intervention is also permitted when **an island grid** is in extreme state condition. Revised section 3.1 to include the inability of the market system hardware or software to produce market schedules due to erroneous real-time status input data as part of force majeure events. Included a new section 4.2.7 regarding new provisions on the Application of Market Intervention during Grid Islanding.
5.0	PEMC	Addition of terms in the formula for calculating the customer administered settlement amounts of Section 4.2.2.1 to include the consideration of bilateral contracts for consistency with Section 4.2.4 of the APDM Manual *Note: The following amendments are still subject to the approval of the ERC, hence not yet reflected in the Manual:*

Issue No.	Proponent	Reason for Amendment
		1. *Addition of Section 4.2.1.4 in the Manual to correct the utilization of zero values in the calculation of prices based on the previous four weeks, same day, same hour in order to ensure appropriate calculation of administered price when MQ is zero;* 2. *Revisions of 4.2.5.2 and Appendix A to ensure appropriate settlement in trading intervals when regional administered pricing is applied and the administered region exports energy to the non-administered region; and* 3. *Amendment of Sections 4.2.6, 4.2.7.2, and 4.2.7.3 for the integration of costs attributable to bilateral contract quantities of the customer administered settlement amounts.*
6.0	PEMC-MO	Provides specific timelines within which additional claims for payments for trading participants which complied with dispatch instructions during market intervention or suspension may be filed and thereafter paid by PEMC

Document Approval

Issue No.	RCC Approval	RCC Resolution No.	PEM Board Approval	PEM Board Resolution No.	DOE Approval	DOE DC No.
1	08 November 2005	2005-08	10 November 2005	2005-07		
2	07 September 2006	2006-34	14 September 2006	2006-39		
3	13 October 2010 *(As Urgent Proposal)*		27 October 2010 *(As Urgent Proposal)*	2010-73		
	06 April 2011 *(As General Proposal)*		28 April 2010 *(As General Proposal)*	2011-26		
4	10 September 2014	2014-15	29 September 2014	2014-45		
5	08 April 2015	2015-05	28 April 2015	2015-18		
6	01 June 2016	2016-08	10 November 2016	2016-31	20 April 2017	2017-04-0006

Reference Documents

Document ID	Document Title
	WESM Rules
	Price Determination Methodology
	Dispatch Protocol
	Management of Must-Run and Must-Stop Units
	Decision in ERC Case No. 2005-056 RC *In the Matter of the Application for Approval of the Administered Price Determination Methodology for the Philippine Wholesale Electricity Spot Market*, 22 June 2006.
	DOE Directive to the RCC relative to the management of Must Run Units

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SECTION 1 PURPOSE

The purpose of this document is to specify the procedure for the establishment of the administered price that will be used by the Market Operator for the settlement of energy transactions during intervention by the System Operator in or suspension of the market.

This document implements the directive of the Energy Regulatory Commission (ERC) in its Decision dated 22 June 2006 in ERC Case No. 2005-056 RC entitled *In the Matter of the Application for Approval of the Administered Price Determination Methodology for the Philippine Wholesale Electricity Spot Market*.

SECTION 2 REFERENCES

The determination of the administered price shall be in accordance with the following documents:

(a) Wholesale Electricity Spot Market Rules (Chapter 6)
(b) Dispatch Protocol
(c) WESM Emergency Procedures
(d) System Security and Reliability Guidelines
(e) Energy Regulatory Commission Decision, ERC Case No. 2005-056 RC entitled *In the Matter of the Application for Approval of the Administered Price Determination Methodology for the Philippine Wholesale Electricity Spot Market* (22 June 2006).

SECTION 3 BACKGROUND

Under the WESM Rules, the administered price shall be used for settlement in cases where there is intervention in the market by the System Operator or where the market is suspended by the ERC (WESM Rules Clauses 6.2.3 and 6.8.3.1). The administered price applies when the Market Operator is not able to generate or determine the price for energy for a grid or island grid for any given trading interval that intervention or suspension is in effect.

During market suspension or intervention, the System Operator assumes responsibility for giving directions and coordinating the actions to be taken by the Market Operator and the WESM participants (WESM Rule Clause 6.2.1.1). Among other actions, the System Operator takes over the scheduling function during these periods.

The ERC authorized the imposition of an administered price based on the administered pricing scheme of the Ontario Electricity Market as determined in the following modified manner –

a) The price and schedule for a given price schedule or trading interval shall be equivalent to the load weighted average ex-post energy price of the corresponding trading interval of the four (4) preceding similar days, that have not been administered.

   In case any of the prices covered by the four preceding same days have been administered, said prices shall be excluded and replaced with the prices that have not been administered from the most recent earlier same or similar day.

b) The Trading Participant which has complied with the instructions during market suspension or intervention may be entitled to additional compensation upon determination and sufficient proof that the administered price is not sufficient to cover the following –

   1) fuel costs incurred in complying with the dispatch instructions; and
   2) variable operating and maintenance costs incurred in complying with the dispatch instructions.

c) During the first month of WESM commercial operations, the ERC-approved National Power Corporation effective rates for Luzon for the current period shall be adopted as the interim administered price.

3.1. Conditions for Market Intervention

Market intervention by the System Operator is permitted in Clause 6.2.1.2 of the WESM Rules when a grid or island grid is in extreme state condition arising from (a) an emergency (b) a threat to system security or (c) an event of force majeure.

In Clause 6.3.1.1 of the WESM Rules, emergency is defined as the existence of a situation which has an adverse material effect on electricity supply or which poses as a significant threat to system security. As enumerated in clause 6.3.1.2 of the WESM Rules, emergency events may include the following:

a) a significant supply capacity shortfall, being a condition where there is insufficient generation or supply options available to securely supply in one or more regions of the power system likely to be affected by the event;

b) a power system disturbance due to an outage in the transmission network or generating system for which market processes are inadequate for recovery;

c) a significant environmental phenomenon, including weather, storms or fires which are likely to or are significantly affecting the power system for which market processes are inadequate for recovery;

d) a system blackout or significant power system under-voltage condition;

e) material damage to a distribution system which has or is likely to adversely affect the operation of the transmission system or to render the spot market ineffective; and

f) a situation in which the Government proclaims or declares an emergency.

The WESM Dispatch Protocol more specifically classifies emergency events based on their nature and origin. Emergency events can either originate from failures in the grid or from failures in the market mechanism itself.

In the document “Emergency Procedures” (Ref. c), three types of system disturbances or emergency events that may require market intervention are enumerated. These are a) transmission line overloading, b) system over-frequency and c) system under-voltage condition.

Force majeure event is defined in Section 6.7.1 of the WESM Rules as the occurrence in a trading interval of an event or events not within the reasonable control, directly or indirectly, of the Market Operator and the WESM member, to the extent that such event, despite the exercise of the reasonable diligence, cannot be or be caused to be prevented, or removed and has resulted in a reduction in the normal capacity of part or all of the power transmission system during the trading interval and such reduction is likely to materially affect the operation of the spot market or materially threaten system security. Included in the list of force majeure events enumerated in clause 6.7.2 of the WESM Rules are: a) major network trouble that caused partial or system-wide blackout, b) market system hardware or software failure that makes it impossible to receive or process market offer/bid information or produce market schedules due to erroneous real-time status input data or dispatch the system in accordance with the WESM Rules and c) any other event, circumstance or occurrence in nature of, or similar in effect to any of the foregoing.

The occurrence of an emergency event, force majeure or threat to system security does not automatically lead to System Operator intervention. Where there is threat to system security but the System Operator believes that there is sufficient time for the market to address the threat without intervention, it may advise the Market Operator to make changes to the pre-dispatch schedule of affected WESM participants in accordance with clause 6.6.4.2 of the WESM Rules. The Market Operator may invite trading participants to revise their bids and offers prior to the preparation of a new dispatch schedule using system information provided by the System Operator.

Intervention in the market by the System Operator is warranted only if the System Operator determines that there is insufficient time for the Market Operator to address an emergency or a threat to system security using the available market systems. In such case, the System Operator shall take all the necessary steps to overcome the emergency and shall take over the scheduling functions from the Market Operator.

3.2. Conditions for Market Suspension

Under clause 6.8.1 of the WESM Rules, only the ERC may suspend the operation of the spot market or declare a temporary market failure in cases of a) natural calamities or b) following official declaration of a national and international security emergency by the President of the Philippines.

The spot market shall be suspended at the start of the interval in which the ERC gives advice to the Market Operator to suspend the market. The suspension of the spot market shall remain in effect until such time that the ERC advices the Market Operator to resume operation of the market.

SECTION 4 ADMINISTERED PRICE DETERMINATION METHODOLOGY

4.1. Guiding Principles

The administered price will be established by the Market Operator in accordance with the following guiding principles:

a) The administered price shall be fair and reasonable to both the suppliers and consumers of electricity.

b) The administered price shall be the price that will be used for settlements during market suspension and intervention. Administered prices shall be determined for the energy market only pending co-optimization of energy and reserve in the WESM.

c) The process for determining the administered price shall be transparent to the trading participant and administratively simple to implement.

d) The process for determining the administered price shall be based on market-based information available prior to market intervention or suspension.

e) The administered price will be used for settlement of transactions in trading intervals during market intervention and suspension where the Market Operator is unable to generate a market schedule.

f) In the event that a market intervention or suspension is declared to be applied only to one region, the methodology described in this Manual shall apply only to the region where the suspension or intervention is declared. For this purpose, the regions are Luzon, Visayas or Mindanao.

4.2. Methodology

4.2.1. Generator Administered Prices - Average Ex-Post Nodal Energy Price

4.2.1.1. For each generator node, the administered price will be computed as the load weighted average of the ex-post nodal energy prices and meter quantity of the four most recent same-day (i.e., Monday to Sunday, Holidays)

same-hour trading intervals that have not been administered.

Thus, for any generator node *i*:

$$AP_{\text{Gen-i}} = \frac{\sum_{D=1}^{4} EPP_{\text{Gen-i,D}} * MQ_{\text{Gen-i,D}}}{\sum_{D=1}^{4} MQ_{\text{Gen-i,D}}}$$

Where:

EPP = Ex-Post Price
AP = Administered Price
D = number of historical trading days to be considered
i = Generator resources
MQ = Meter Quantity

4.2.1.2. In case any of the prices covered by the four (4) preceding same days have been administered, said prices shall be excluded and replaced with the prices that have not been administered from the most recent earlier same or similar day.

4.2.1.3. In cases where any of the prices in the four (4) preceding same days reflect constraint violation coefficient prices, or are subject of a pricing error notice or price substitution as a result of a pricing error, the substitute market prices used for settlement of WESM transactions by the Market Operator pursuant to relevant pricing error or price substitution methodologies under the WESM Rules or relevant market manual will be used.

4.2.2. Customer Settlement Amounts

4.2.2.1. The customer administered settlement amounts will be calculated by allocating the total generation payments based on the customers' actual energy metered quantities for the trading intervals during market suspension or intervention when the administered pricing is applied.

For any customer at load node *j*, the Settlement Amount (SA) is given by the following:

$$SA_{Load\text{-}j} = \frac{\sum_{i=1}^{n} AP_{Gen-i} \times MQ_{Gen-i}}{\sum_{j=1}^{m} MQ_{Load-i}} \times MQ_{Load-j} - \sum_{i=1}^{k} BCQ_{Gen-i,Load-j} \times P_{Gen-i}$$

Where:

AP	= Administered Price
SA	= Settlement Amount
n	= number of generator resources with positive meter quantity
m	= number of load resources with negative meter quantity
i	= Generator resources
BCQ	= Bilateral Contract Quantity
P	= Price of the generator counterparty of Load j wherein P is the Ex-Ante Price if the generator is from the non-administered region and P is the administered price if the generator is from the administered region

4.2.3. Additional Compensation

4.2.3.1. A Trading Participant which has complied with dispatch instructions during market intervention or suspension may be entitled to additional compensation. Additional compensation is allowed in cases where the Trading Participant submits sufficient proof that the administered price is not sufficient to cover the following costs that are incurred in complying with the dispatch instructions –

a) fuel costs
b) variable operating and maintenance costs, which may include start-up cost and shut-down costs

4.2.3.2. The additional compensation will not be more than the aggregate of the above costs less the amount of the administered price already paid or payable, subject to the determination and approval of the Market Operator.

4.2.3.3. The affected Trading Participant will submit to the Market Operator a claim for additional compensation with supporting documents justifying the requested additional compensation. The claim should be made not later than fourteen (14) working days from the end

of the billing period. Claims not filed within such period shall be deemed waived.

4.2.3.4. The Market Operator will inform the requesting Trading Participant of the approval or disapproval of the claim within fourteen (14) working days from receipt of the complete documents from the Trading Participant. Any claim not decided within fourteen (14) working days shall be deemed approved and shall be allocated and billed immediately in the succeeding billing period.

A non-exhaustive list of required documents to be submitted by the Trading Participants to support the claim for additional payment during market intervention or suspension is herein provided in Appendix B.

4.2.3.5. Should the Trading Participant not agree with the determination of the Market Operator, it may bring the matter for resolution through the WESM dispute resolution process.

4.2.3.6. If the Market Operator determines that additional compensation is warranted, it will allocate the same among the Customers in proportion to the volume of their transactions based on metered quantities for the relevant trading interval. The additional compensation will be collected and paid following the usual billing and settlements procedure.

4.2.4. Settlement of Bilateral Contracts

The administered price will apply only to energy transactions above the declared bilateral quantities. Quantities declared to the Market Operator as bilateral contracts quantities will be settled outside the market**.**

4.2.5. Regional Application of Market Suspension or Intervention

4.2.5.1. Where market suspension or intervention is declared in one region only, the administered prices determined according to this Manual shall be applied only to the generators in the region (“administered region”) where the suspension or intervention was declared. Subject to the settlement of export and import quantities, the resulting generator trading amounts will be allocated amongst the customers in the same region. For this purpose, export or import quantities refer to the

generation that passes through and are measured at the interconnection between regions.

4.2.5.2. Where generation quantity is exported from the administered region to the non-administered region, the following shall apply –

a) The generator trading amount corresponding to exported quantity ("export trading amount") shall be deducted from the generator total trading amounts that will be allocated and collected from the customers of the administered (i.e., exporting) region. The export trading amount will be collected from the customers of the non-administered (i.e., importing) region.

b) The export trading amount shall be determined by multiplying the export metered quantities by the nodal price at an assigned reference market trading node in the non-administered region. The appropriate reference market trading nodes shall be determined by the Market Operator and shall be published at the market information website.[1]

4.2.5.3. Where generation quantity is imported from non-administered region to administered region, the following shall apply –

a) The trading amount corresponding to such quantity ("import trading amount") will be added to the generator total trading amounts that will be allocated to and paid for by the customers in the administered (i.e., importing) region following the methodology provided for in this Manual.

b) The import trading amount shall be determined by multiplying the import metered quantities by the nodal price at an assigned reference market trading node in the non-administered region. The appropriate reference market trading nodes shall be determined by the Market Operator and shall be published at the market information website.

4.2.6. Computation of Line Rental

4.2.6.1. Where market suspension or intervention is declared in one region only, and the generator in that region has a bilateral contract quantity with the customer in the normal region, the administered prices determined according to this Manual shall be applied only to the suppliers Ex-Ante price while the Location Marginal Price (LMP) will be the basis for the Ex-Ante price of the customer.

4.2.6.2. Where market suspension or intervention is declared in one region only, and the customer in that region has a bilateral contract quantity with the supplier in the normal region, no line rental amount is computed since the allocated settlement amount is inclusive of line rental.

4.2.7 Application of Market Intervention during Grid Islanding

4.2.7.1 Where market intervention is declared in an island grid ("grid islanding), the administered prices determined according to this Manual shall be applied only to the generators in the island grid where the intervention was declared. The resulting generator trading amounts will be allocated amongst the customers in that island grid.

4.2.7.2 Where market intervention is declared in an island grid, and the generator in that island grid has a bilateral contract quantity with the customer in the part of the grid or region without market intervention, the administered prices determined according to this Manual shall be applied only to the suppliers Ex-Ante price while the Location Marginal Price (LMP) will be the basis for the Ex-Ante price of the customer.

4.2.7.3 Where market intervention is declared in an island grid, and the customer in that island grid has a bilateral contract quantity with the supplier in the part of the grid or region without market intervention, no line rental amount is computed since the allocated settlement amount is inclusive of line rental.

4.3. Publication and Effectivity of Administered Prices

The Market Operator will publish the administered prices covering all days and trading intervals for one billing period. These will be posted in the Market Information website during the period of their effectivity.

4.4. Interim Administered Price

For the first month from the start of the WESM in Luzon, the administered price that will be applied will be the Time-of-use (TOU) effective rate of the National Power Corporation approved by the ERC for the Luzon. Similarly, for the first month from the start of the WESM operations in the Visayas, the administered price that will be applied will be the Time-of-use (TOU) effective grid rate approved for the Visayas.

Thereafter, the administered price will be determined based on the methodology set forth in this Manual. The first set of administered prices covering a one-month period will be determined by the Market Operator using the resulting ex-post nodal energy prices during the first month of WESM commercial operations in Luzon or the Visayas, as applicable.

SECTION 5 APPENDICES

APPENDIX A. REGIONAL APPLICATION OF MARKET SUSPENSION OR INTERVENTION

Where generation quantity is exported from the administered region to the non-administered region, the generator trading amount corresponding to exported quantity ("export trading amount") shall be deducted from the generator total trading amounts that will be allocated and collected from the customers of the administered (i.e., exporting) region. The export trading amount will be collected from the customers of the non-administered (i.e., importing) region.

Thus, the settlement amount of customer is allocated by the formula:

$$SA_{Load\text{-}j} = \frac{(\sum_{i=1}^{n} AP_{Gen-i} \times MQ_{Gen-i}) - (MQ_{HVDC} \times \boldsymbol{EPP_{NAR}})}{\sum_{j=1}^{m} MQ_{Load-j}} \times MQ_{Load-j}$$

Where:

$AP_{Gen\text{-}i}$= Administered Price of generator i
SA = Settlement Amount
D = number of historical trading days to be considered
n = number of generator resources with positive meter quantity
m = number of load resources with negative meter quantity
i = Generator resources
j = Load resources
MQ = Meter Quantity
EPP_{NAR} = Ex-Post Price of Non-Administered Region

Where generation quantity is imported from non-administered region, the trading amount corresponding to such quantity ("import trading amount") will be added to the generator total trading amounts that will be allocated to and paid for by the customers in the administered (i.e., importing) region following the methodology provided for in this Manual.

Thus, the settlement amount of customer is allocated by the formula:

$$SA_{Load-j} = \frac{(\sum_{i=1}^{n} AP_{Gen-i} \times MQ_{Gen-i}) + (MQ_{HVDC} \times EPP_{NAR})}{\sum_{j=1}^{m} MQ_{Load-j}} \times MQ_{Load-j}$$

Where:

AP_{Gen-i}= Administered Price of generator i
SA = Settlement Amount
D = number of historical trading days to be considered
n = number of generator resources with positive meter quantity
m = number of load resources with negative meter quantity
i = Generator resources
j = Load resources
MQ = Meter Quantity
EPP_{NAR} = Ex-Post Price of Non-Administered Region

APPENDIX B. NON-EXHAUSTIVE LIST OF REQUIRED DOCUMENTS IN FILING CLAIMS FOR ADDITIONAL COMPENSATION

1. Certified correct Fuel Consumption and Inventory Report
2. Purchases Invoices, Official Receipts and other supporting documents
3. ERC approved rate or List of Variable Operation and Maintenance Costs supported by photocopies of invoices/receipts