

**WHOLESALE ELECTRICITY SPOT MARKET
RULES CHANGE COMMITTEE**

RESOLUTION NO. 2016-07

**Proposed Amendments to WESM Manuals regarding the Implementation of
Preferential Dispatch, FIT-All Collection, and Non-Expiration of Standing
Submissions in the WESM**

WHEREAS, on 24 February 2016, the Rules Change Committee (RCC) received the PEMC-Market Operator's (PEMC-MO) Proposed Amendments to WESM Manuals regarding the Implementation of Preferential Dispatch, FIT-All Collection, and Non-Expiration of Standing Submissions in the WESM;

WHEREAS, the proposal intends to revise various WESM Market Manuals towards the following: (1) the implementation of must and priority dispatch in the WESM; (2) allowing the Feed-in Tariff Allowance (FIT-All) Administrator to facilitate the settlement of FIT-eligible generating units in accordance with the Feed-in Tariff Payment and Collection Guidelines; and (3) the removal of the expiration of standing submissions in the WESM; in line with the DOE directives issued through DC 2015-03-001 and DC 2016-01-0002 promulgated on 20 March 2015 and 12 January 2016 respectively;

WHEREAS, the affected WESM Market Manuals, numbering nine (9) are as follows:

- i. Billing and Settlement Manual Issue 4.0;
- ii. Dispatch Protocol Manual Issue 11.0;
- iii. Management Procedure on Excess Generation Issue 2.0;
- iv. Procedure for Determining Ex-Post Nodal Energy Prices Issue 2.0;
- v. Market Operator Information Disclosure and Confidentiality Manual Issue 3.0;
- vi. Load Forecasting Methodology Issue 2.0;
- vii. Metering Standards and Procedures Issue 10.0;
- viii. Registration, Suspension and De-Registration Criteria and Procedures Issue 1.0; and
- ix. Guidelines on Significant Variations In and Between Trading Intervals Issue 2.0;

WHEREAS, a new WESM Market Manual was also proposed, entitled Procedures for the Monitoring of Forecast Accuracy Standards for Must Dispatch Generating Units Issue 1.0, for the implementation of forecast accuracy standards in the WESM;

WHEREAS, the proposal was presented before the RCC during its 109th Meeting held on 03 March 2016, and was thereafter approved for posting to solicit comments from interested stakeholders;

WHEREAS, the proposal was published on 11 March 2016, with corresponding notice to participants;

WHEREAS, the DOE, Aboitiz Power Corporation, MERALCO, and the Technical Committee submitted their comments to the proposal;

WHEREAS, the RCC, on 28 April 2016 during its 114th Meeting, integrated the herein proposed amendments to the Dispatch Protocol Manual Issue 11.0 and the comments received thereto with the on-going deliberations on other proposals to amend the same WESM Manual related to addressing audit findings, market intervention, dispatch tolerance standards and co-generation systems;

WHEREAS, during the same meeting, the RCC also deliberated on the proposed amendments to the other eight (8) WESM Market Manuals and the proposed new WESM Manual on the Procedures for the Monitoring of Forecast Accuracy Standards for Must Dispatch Generating Units Issue 1.0 (FASMDG Issue 1.0), giving due consideration to the comments received and PEMC-MO's responses thereto;

WHEREAS, the RCC adopted the DOE's revisions and additional provisions regarding amendments, publication and effectivity of all the affected WESM Market Manuals;

WHEREAS, in the course of deliberating on the proposed new FASMDG Issue 1.0 Manual, the body recognized that the Grid Code only provides the standards [i.e. mean absolute percentage error (MAPE), percentile 95 of the forecasting error (Perc95)] for Solar and Wind plants, but not for Run-of-River Hydro power plants;

WHEREAS, due to lack of an approved basis, the RCC agreed to not indicate specific standards for Run-of-River Hydro power plants, pending the determination of the ERC or the Grid Management Committee;

WHEREAS, the agreements of the RCC regarding the proposed amendments to the WESM Market Manuals and the new Market Manual are approved for endorsement to the PEM Board;

NOW THEREFORE, we, the undersigned and in behalf of the sector we represent, hereby resolve as follows:

RESOLVED, that the Proposed Amendments to the WESM Manuals regarding the Implementation of Preferential Dispatch, FIT-All Collection, and Non-Expiration of Standing Submissions in the WESM, as revised, is hereby approved by the RCC;

RESOLVED FURTHER, that the attached matrices of the Proposed Amendments to the WESM Manuals regarding the Implementation of Preferential Dispatch, FIT-All Collection, and Non-Expiration of Standing Submissions in the WESM (Annex A) and the proposed new WESM Market Manual on the Procedures for the Monitoring of Forecast Accuracy Standards for Must Dispatch Generating Units Issue 1.0 (Annex B) are hereby endorsed to the PEM Board for approval and endorsement to the DOE.

Done this 01 June 2016, Pasig City.

<p>Approved by: RULES CHANGE COMMITTEE [Redacted] Maila Lourdes G. de Castro Chairperson Independent</p>	
<p>Members:</p>	
<p>[Redacted] Concepcion I. Tanglao Independent</p>	<p>[Redacted] Francisco L.R. Castro, Jr. Independent</p>
<p>[Redacted] Allan C. Nerves Independent</p>	<p>Isidro E. Cacho, Jr. Market Operator Philippine Electricity Market Corporation (PEMC)</p>
<p>[Redacted] Ambrosio R. Rosales Transmission Sector National Grid Corporation of the Philippines (NGCP)</p>	<p>[Redacted] Joselyn D. Carabuena Generation Sector Power Sector Assets and Liabilities Management Corporation (PSALM)</p>
<p>[Redacted] Jose Ferlino P. Raymundo Generation Sector SMC Global</p>	<p>Theo C. Sunico Generation Sector Vivant Corporation</p>
<p>[Redacted] Ciprinilo C. Meneses Distribution Sector (PDU) Manila Electric Company (MERALCO)</p>	<p>[Redacted] Jose P. Santos Distribution Sector (EC) Ilocos Norte Electric Cooperative, Inc. (INEC)</p>
<p>[Redacted] Gilbert A. Pagobo Distribution Sector Mactan Electric Company (MECO)</p>	<p>[Redacted] Ludovico D. Lim Distribution Sector Antique Electric Cooperative, Inc. (ANTECO)</p>
<p>[Redacted] Lorreto H. Rivera Supply Sector Team (Philippines) Energy Corporation (TPEC)</p>	<p>Certified True and Correct: [Redacted] Elaine D. Gonzales RCC Secretary PEMC</p>

Proposed Amendments to WESM Market Manuals for the Implementation of Preferential Dispatch, FIT-All Collection and Non-Expiration of Standing Submissions in the WESM

I. Billing and Settlement Manual Issue 4.0

Billing and Settlement Manual				
Title	Section	Provision	RCC Proposed Amendment	Rationale
Definitions	2.1		<u>Re-number 2.1.12-2.1.32 to 2.1.13-2.1.33</u>	To maintain alphabetical ordering of defined terms
Definitions	2.1.12	(Inserted)	<u>2.1.12 FIT All Administrator. The National Transmission Corporation as administrator of the FIT-All Fund, as designated in Resolution No. 15, Series of 2012, amending the FIT Rules.</u>	To define the FIT-All administrator, which would be referred to in proposed provisions
Responsibilities – Market Operator	3.1.1		<u>Re-number 3.1.1(b)-(f) to 3.1.1(c)-(g)</u>	To maintain order of responsibilities with the proposed provision
Responsibilities – Market Operator	3.1.1(b)	(Inserted)	<u>3.1.1(b) Provision of copies of the final and revised statements and supporting data of generation</u>	To establish the basis for issuing settlement statements of FIT-eligible generating units to the FIT All Administrator

Proposed Amendments to WESM Market Manuals
for the Implementation of Preferential Dispatch

Billing and Settlement Manual				
Title	Section	Provision	RCC Proposed Amendment	Rationale
Procedures Issuance of Final Statements	– of 4.2.2(c) (new)	(Blank)	<p><u>companies with FIT-eligible generating units to the FIT All Administrator;</u></p> <p><u>No later than eighteen (18) days after the end of each billing period, the Market Operator shall provide the FIT All Administrator with the final statements and supporting data of generation companies with FIT Eligible Generating Units as specified in WESM Rules Clause 5.3.2 (k)</u></p>	To provide the timeline for the issuance of settlement statement to the FIT-All Administrator
Procedures Payment by Trading Participant	– by 5.3.1(a)	<p>Each WESM Member shall pay to the Market Operator in cleared funds, the settlement amount (if any) stated to be payable to the Market Operator by that WESM member in that WESM member's final statement no later than 3.00 pm on the twenty-fifth day of the calendar month following the billing period, whether or not the WESM member disputes, or continues to dispute, the amount payable.</p> <p>If the twenty-fifth (25th) day of the calendar month following the billing period falls on a Non-Working Day, the payment due date shall be moved to the next immediate Working Day .</p>	<p><u>Subject to Section 5.3.4, each WESM Member shall pay to the Market Operator in cleared funds, the settlement amount (if any) stated to be payable to the Market Operator by that WESM member in that WESM member's final statement no later than 3.00 pm on the twenty-fifth day of the calendar month following the billing period, whether or not the WESM member disputes, or continues to dispute, the amount payable.</u></p> <p>If the twenty-fifth (25th) day of the calendar month following the billing period falls on a Non-Working Day, the payment due date shall be moved to the next immediate Working Day .</p>	To indicate that there are separate procedures for FIT-eligible generating units, which would be provided in Section 5.3.4.

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Billing and Settlement Manual				
Title	Section	Provision	RCC Proposed Amendment	Rationale
Procedures – Payment to Trading Participants	5.3.2	The Market Operator shall pay to each WESM Member in cleared funds the settlement amount (if any) stated to be payable in that WESM member's final statement on the following Working Day after the Market Operator is to be paid under Section 5.3.1 of this Manual, and in accordance with the schedule set in the Appendix A of this Manual .	Subject to Section 5.3.4 , the Market Operator shall pay to each WESM Member in cleared funds the settlement amount (if any) stated to be payable in that WESM member's final statement on the following Working Day after the Market Operator is to be paid under Section 5.3.1 of this Manual, and in accordance with the schedule set in the Appendix A of this Manual.	To indicate that there are separate procedures for FIT-eligible generating units, which would be provided in Section 5.3.4.
Procedures – Payment of Adjustment	5.3.3(a)	Each WESM Member shall pay to the Market Operator in cleared funds the net amount (if any) stated to be payable by that WESM member in the revised statement issued to it under Section 4.2.4of this Manual, no later than the time and date specified by the Market Operator pursuant to Section 4.2.4(c)of this Manual .	Subject to Section 5.3.4 , each WESM Member shall pay to the Market Operator in cleared funds the net amount (if any) stated to be payable by that WESM member in the revised statement issued to it under Section 4.2.4of this Manual, no later than the time and date specified by the Market Operator pursuant to Section 4.2.4 (c) of this Manual.	To indicate that there are separate procedures for FIT-eligible generating units, which would be provided in Section 5.3.4.
Procedures – Payment of Adjustment	5.3.3(b)	The Market Operator shall pay to each WESM Member in cleared funds the net amount (if any) stated to be payable to that WESM member in the revised statement issued to it under Section 4.2.4of this Manual, on the following Working Day on which the Market Operator is to be paid under Section a)of this Manual .	Subject to Section 5.3.4 , the Market Operator shall pay to each WESM Member in cleared funds the net amount (if any) stated to be payable to that WESM member in the revised statement issued to it under Section 4.2.4of this Manual, on the following Working Day on which the Market Operator is to be paid under Section 5.3.3 (a) of this Manual.	To indicate that there are separate procedures for FIT-eligible generating units, which would be provided in Section 5.3.4.

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Billing and Settlement Manual				
Title	Section	Provision	RCC Proposed Amendment	Rationale
Heading	5.3.4 (new)	(Blank)	<u>Payment Procedures for FIT-Eligible Generating Units</u>	New section to provide the procedures for FIT-eligible generating units
Payment Procedures for FIT-Eligible Generating Units	5.3.4(a) (new)	(Blank)	<u>An aggregated settlement amount of all FIT-eligible generating units shall be calculated by aggregating all settlement amounts of all FIT-eligible generating units for that billing period.</u>	To specify that all receivables and payables of all FIT-eligible generating units are aggregated by the Market Operator before remitting to the FIT All Administrator.
Payment Procedures for FIT-Eligible Generating Units	5.3.4(b) (new)	(Blank)	<u>The Market Operator shall pay to the FIT All Administrator in cleared funds the aggregated settlement amount as calculated in accordance with Section 5.3.4(a) on the following Working Day after the Market Operator is to be paid under Section 5.3.1 of this Manual, and in accordance with the schedule set in the Appendix A of this Manual.</u>	To specify that receivables of FIT-eligible generating units shall be paid to the FIT All Administrator
Payment Procedures for FIT-Eligible Generating Units	5.3.4(c) (new)	(Blank)	<u>In the event that the aggregated settlement amount of all FIT-Eligible Generating Units indicate a settlement amount payable to the Market Operator, the said aggregated settlement amount, plus interest calculated in accordance with Section 6.2.1(e), shall be offset from the amount payable to the FIT-All</u>	To indicate that any outstanding net payable by FIT-eligible generating in final statements units would be offset to receivables in succeeding payment due dates with applicable interest

Proposed Amendments to WESM Market Manuals
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Billing and Settlement Manual				
Title	Section	Provision	RCC Proposed Amendment	Rationale
			<u>administrator in succeeding payment due dates following the issuance of the final settlement statement until the same is fully paid.</u>	
Payment Procedures for FIT-Eligible Generating Units	5.3.4(d) (new)	(Blank)	<u>If a revised statement is issued in accordance with Section 4.2.4, the aggregated settlement amounts for FIT-eligible generating units shall be calculated. If it results to an amount payable to the Market Operator, the amount due shall be offset from the amount payable to the FIT-All administrator in succeeding payment due dates following the issuance of the revised settlement statements until the same is fully paid. If it results to an amount payable by the Market Operator, the FIT All Administrator shall be paid in cleared funds on the following Working Day after the Market Operator is to be paid under Section 4.2.4(c) of this Manual.</u>	To indicate that any outstanding net payable by FIT-eligible generating in revised statements units would be offset to receivables in succeeding payment due dates with applicable interest
Amendments	9.1.1	9.1.1 Any amendments to this Manual shall be approved by the PEM Board.	9.1.1 Any amendments to this Manual shall be approved by the PEM Board <u>DOE, following the procedures for changes to Market Manual set out in</u>	To be consistent with the WESM Rules.

Proposed Amendments to WESM Market Manuals
for the Implementation of Preferential Dispatch

Billing and Settlement Manual				
Title	Section	Provision	RCC Proposed Amendment	Rationale
			<u>the WESM Rules and in the relevant Market Manual.</u>	
Publication And Effectivity	9.1.2	9.1.2 Upon approval by the PEM Board, this Manual shall take effect immediately or on such later date as the PEM Board determines, in accordance with the provisions in the Manual of Procedures for Changes to the WESM Rules.	<p>9.1.2 <u>This Market Manual, as it may be amended from time to time, shall be published in the market information website maintained by the Market Operator.</u></p> <p>Upon approval by the PEM Board, this Manual shall take effect immediately or on such later date as the PEM Board determines, in accordance with the provisions in the Manual of Procedures for Changes to the WESM Rules.</p> <p><u>This Market Manual or any amendments thereto shall become effective upon approval of the DOE in accordance with the WESM Rules Clause 8.6.4. The date of effectivity shall be indicated in this document.</u></p>	For clarity and consistency with the WESM Rules.
Billing and Settlement Timetable	Section 10	Issuance of Drawdown Notice – As soon as practicable, after	Issuance of Drawdown Notice – As soon as practicable, after	For clerical correction

Billing and Settlement Manual				
Title	Section	Provision	RCC Proposed Amendment	Rationale
Issuance of Final & Revised Statement Flowchart	Appendix C	<p>WESM-BS-004 Effective Date: 09 July 2015</p> <p>MARKET OPERATOR</p> <pre> graph TD Start1{{1}} --> Issue[Issue Final Statement] Issue --> Validate[Validate Final Statement] Validate --> End1((())) </pre>	<p>WESM-BS-004 Effective Date: 09 July 2015</p> <p>MARKET OPERATOR FIT ALL ADMINISTRATOR</p> <pre> graph TD Start2{{1}} --> Issue2[Issue Final Statement] Issue2 --> Receive[Receive Final Statements] Receive --> Validate2[Validate Final Statement] Validate2 --> End2((())) </pre>	<p>To include the provision of final statements of FIT-eligible generating units to the FIT All Administrator.</p>

II. Dispatch Protocol Manual Issue 11.0

Title	Section	Provision	RCC Proposed Amendment	Rationale
The proposed amendments to this Manual in relation to Preferential Dispatch were incorporated in the on-going deliberations on the Proposed Amendments to the Dispatch Protocol Manual Issue 11.0 addressing audit findings, market intervention, dispatch tolerance standards and co-generation systems.				

III. Management Procedure on Excess Generation Issue 2.0

Management Procedure on Excess Generation Manual				
Title	Section	Provision	RCC Proposed Amendment	Rationale
Introduction – Background	1.6	<p>XXX</p> <p>Excess Generation is normally encountered during off-peak condition in the power system. Off-Peak conditions are normally between 0000 hours (12 midnight) and 0800 hours (8 AM) of the day for Luzon. However, excess generation maybe encountered also during peak conditions in the power system if a considerable amount of demand is tripped due to adverse weather condition or abnormal sub-transmission system condition.</p> <p>XXX</p> <p>To provide a transparent and level playing field for all generators, should it really be necessary to shut down a generator, during imminent and existing excess generation condition, the MO will provide a generator merit order to the SO based on the offered price of their first block offer used in the last DAP run prior to the interval with possible and indicated excess generation condition.</p>	<p>XXX</p> <p>Excess Generation is normally encountered during off-peak condition in the power system and during holidays. Off-Peak conditions are normally between 0000 hours (12 midnight) and 0800 hours (8 AM) of the day for Luzon. However, excess generation maybe encountered also during peak conditions in the power system if a considerable amount of demand is tripped due to adverse weather condition or abnormal sub-transmission system condition.</p> <p>XXX</p> <p>To provide a transparent and level playing field for all generators, should it really be necessary to shut down a generator, during imminent and existing excess generation condition, the MO will provide a generator merit order WESM Merit Order Table to the SO based on the offered price of their first block offer used in the last DAP run prior to the interval with</p>	<p>To cite additional instances when excess generation may be encountered</p> <p>To include the priority order to be established in the merit order as prescribed in the DOE DC2015-03-0001</p>

Management Procedure on Excess Generation Manual				
Title	Section	Provision	RCC Proposed Amendment	Rationale
			possible and indicated excess generation condition.	
Criteria and Pre-Conditions for impending and existing Excess Generation	4.5	The system or regional generation level is approaching the Regulating reserve requirement band of the minimum generating limit (Pmin) of synchronized generators.	The system or regional generation level is approaching the Regulating reserve requirement band of the aggregated minimum generating limit (Pmin) of synchronized generators.	To reflect operational practice
Criteria and Pre-Conditions for impending and existing Excess Generation	4.6	(new)	<u>Projected outputs from must-dispatch and priority dispatch generating units, and nominations of loading level from non-scheduled generating units that have been submitted by Trading Participants and received by the Market Operator in accordance with the WESM timetable.</u>	To add the projected output and nominations from non-scheduled and preferential dispatch generating units
Real-Time Dispatch (with Excess Generation Intervals)	6.2.1	If excess generation is encountered in the real-time dispatch, then the System Operator shall issue Dispatch Instructions to generators to constrain-off their MW output based on the WESM Merit-Order Table provided by the Market Operator if the scheduled regulating reserve has been depleted (i.e. at Pmin) and the grid frequency breached the 60.3Hz. However, if over-frequency exists (i.e. grid frequency is greater than 60.6Hz), the following	If excess generation is encountered in the real-time dispatch, then the System Operator shall issue Dispatch Instructions to generators to constrain-off their MW output based on the WESM Merit-Order Table provided by the Market Operator if the scheduled regulating reserve has been depleted (i.e. at Pmin) and the grid frequency breached the 60.3Hz. However, if over-frequency exists (i.e. grid frequency is	To reflect hierarchy of generating units when restricting output in accordance with WESM Rules Clause 3.6.1.8

Management Procedure on Excess Generation Manual				
Title	Section	Provision	RCC Proposed Amendment	Rationale
		corrective actions, in the order of priority, shall be followed until the frequency returns to normal: a. "Constrain-off" generator/s with fast ramp rate. b. Effect shutdown of generator/s under test. c. Effect shutdown of generator/s with fast start capability. d. Require gas turbine generator/s at combined cycle to operate at simple cycle mode. e. Require coal fired thermal power plants to operate on oil support mode. f. Require generator/s to operate on house load.	greater than 60.6Hz), the following corrective actions, in the order of priority, shall be followed until the frequency returns to normal: a. "Constrain-off" generator/s with fast ramp rate. b. Effect shutdown of generator/s under test. c. Effect shutdown of generator/s with fast start capability. <u>d. Effect shutdown of non-scheduled generating units.</u> <u>e. Effect shutdown of priority dispatch generating units.</u> <u>f. Effect shutdown of must dispatch generating units.</u> g. Require gas turbine generator/s at combined cycle to operate at simple cycle mode. h. Require coal fired thermal power plants to operate on oil support mode. i. Require generator/s to operate on house load.	
Real-Time Dispatch (with Excess)	6.2.2	In such cases where the grid frequency breached the normal range due to excess generation as a result of loss of large load or over supply capacity in real time, the System	In such cases where the grid frequency breached the normal range due to excess generation as a result of loss of large load or over supply capacity in	To clarify condition for remote-tripping generating units tagged as Must Stop Unit

Management Procedure on Excess Generation Manual				
Title	Section	Provision	RCC Proposed Amendment	Rationale
Generation Intervals)		Operator shall issue dispatch instructions to generators to constrain-off their output to mitigate the effect of the imbalance in supply and demand. However, if the generator/s failed to comply to the dispatch instructions issued by System Operator, the System Operator shall tag the generator as Must Stop Unit and shall report the non-conformance to dispatch instruction to the Market Surveillance Committee, Grid Management Committee and the Department of Energy. The System Operator may ultimately remote-trip a certain generating unit tagged as Must Stop Unit if the high risk is at stake that would eventually affect the security and reliability of the grid.	real time, the System Operator shall issue dispatch instructions to generators to constrain-off their output to mitigate the effect of the imbalance in supply and demand. However, if the generator/s failed to comply to the dispatch instructions issued by System Operator, the System Operator shall tag the generator as Must Stop Unit and shall report the non-conformance to dispatch instruction to the Market Surveillance Committee, Grid Management Committee and the Department of Energy. The System Operator may ultimately remote- trip a certain generating unit tagged as Must Stop Unit if the high risk is at stake that would eventually affect the security and reliability of the grid <u>is at stake</u> .	
Provision for Non-Reliability Must Run Dispatch Auction	9.0	The WESM Rules at present has no provision for any auctioning process to be applied for managing excess generation. In this regard, the following will be taken into consideration by the WESM: 9.1 The MO and SO will coordinate with the Market Surveillance Committee in assessing the following:	The WESM Rules at present has no provision for any auctioning process to be applied for managing excess generation. In this regard, the following will be taken into consideration by the WESM: 9.1 The MO and SO will coordinate with the Market	To remove provision not necessary for the manual

Management Procedure on Excess Generation Manual

Title	Section	Provision	RCC Proposed Amendment	Rationale
		9.1.1 Occurrence of trading intervals with excess generation. 9.1.2 Impact of occurrence of excess generation to Trading Participants and the application of the above procedures to mitigate excess generation condition. 9.1.3 Nomination of generating plants for reliability must-run. 9.1.4 Applicability of Dispatch Auction for generating plants not declared as reliability must run for periods where there is imminent threat of excess generation. 9.2 The assessment will make recommendation as to the feasibility and viability of incorporating Must Run Dispatch Auction in the WESM.	<u>Surveillance Committee in assessing the following:</u> 9.1.1 Occurrence of trading intervals with excess generation. 9.1.2 Impact of occurrence of excess generation to Trading Participants and the application of the above procedures to mitigate excess generation condition. 9.1.3 Nomination of generating plants for reliability must-run. 9.1.4 Applicability of Dispatch Auction for generating plants not declared as reliability must run for periods where there is imminent threat of excess generation. 9.2 The assessment will make recommendation as to the feasibility and viability of incorporating Must Run Dispatch Auction in the WESM.	
Amendments Publication And Effectivity	NEW		10. AMENDMENTS <u>Any amendments to this Manual shall be approved by the DOE, following the procedures for changes to Market</u>	For clarity and consistency with the WESM Rules.

Proposed Amendments to WESM Market Manuals
for the Implementation of Preferential Dispatch

Management Procedure on Excess Generation Manual

Title	Section	Provision	RCC Proposed Amendment	Rationale
			<p><u>Manual set out in the WESM Rules and in the relevant Market Manual.</u></p> <p><u>11. PUBLICATION AND EFFECTIVITY</u></p> <p><u>This Market Manual, as it may be amended from time to time, shall be published in the market information website maintained by the Market Operator.</u></p> <p><u>This Market Manual or any amendments thereto shall become effective upon approval of the DOE in accordance with the WESM Rules Clause 8.6.4 The date of effectivity shall be indicated in this document.</u></p>	

IV. Procedure for Determining Ex-Post Nodal Energy Prices Issue 2.0

Procedure for Determining Ex-Post Nodal Energy Prices Manual				
Title	Section	Provision	Proposed Amendment	Rationale
Definition of Terms	2.0	<p>XXX</p> <p>Market Offer - A generation offer for a particular trading interval of a particular trading day in the current market horizon, whether formed from a standing offer in accordance with WESM Rules clause 3.5.10 or revised by the relevant trading participant in accordance with WESM Rules clause 3.5.11.</p> <p>XXX</p> <p>Outage Schedules - Schedule for shutting down or de-rating of generation and transmission facilities.</p> <p>XXX</p>	<p>XXX</p> <p>Market Offer - A generation offer for a particular trading interval of a particular trading day in the current market horizon, whether formed from a standing offer in accordance with WESM Rules clause 3.5.10 or revised by the relevant trading participant in accordance with WESM Rules clause 3.5.11.</p> <p><u>Must Dispatch Generating Unit - A generating unit or group of generating units connected at a common connection point that is intermittent renewable energy resource-based, whether or not under the Feed-in Tariff system, such as wind, solar, run-of-river hydro or ocean energy with the corresponding DOE certification in accordance with WESM Rules clause 2.3.1.5.</u></p> <p>XXX</p> <p>Outage Schedules - Schedule for shutting down or de-rating of generation and transmission facilities.</p>	<p>To reflect the changes associated with the revision of the Rules with respect to the Must Dispatch and Priority Dispatch.</p>

Procedure for Determining Ex-Post Nodal Energy Prices Manual				
Title	Section	Provision	Proposed Amendment	Rationale
			<p><u>Priority Dispatch Generating Unit - A generating unit or group of generating units connected at a common connection point that uses biomass as fuel that is under the FIT system, with the corresponding Feed-In Tariff Certificate of Compliance in accordance with WESM Rules clause 2.3.1.6.</u></p> <p>XXX</p>	
Real Time Dispatch Process	4.0	<p>XXX</p> <p>The RTX or Ex-Post process uses the same offers and bid that are submitted by the trading participants for the ex-ante dispatch process of each trading interval; the latest EMS snapshot to determine system configuration and state (generation and load levels) and any updated system condition and requirements as provided by the SO on any relevant over-riding constraints in the power system. However, the RTX process uses the actual load as determined from the power system snapshot instead of the LDP load forecast.</p> <p>XXX</p>	<p>XXX</p> <p>The RTX or Ex-Post process uses the same offers and bid that are submitted by the trading participants for the ex-ante dispatch process of each trading interval; the latest EMS snapshot to determine <u>the schedule of must dispatch generating units, priority dispatch generating units and non-scheduled generating units</u>, system configuration and state (generation and load levels) and any updated system condition and requirements as provided by the SO on any relevant over-riding constraints in the power system. However, the RTX process uses the actual load as determined from the</p>	<p>To reflect that the ex-post shall consider the actual dispatch of must dispatch and priority dispatch generating units instead of their nominations</p>

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for the Implementation of Preferential Dispatch

Procedure for Determining Ex-Post Nodal Energy Prices Manual				
Title	Section	Provision	Proposed Amendment	Rationale
			power system snapshot instead of the LDP load forecast.	
			XXX	
AMENDMENTS PUBLICATION AND EFFECTIVITY		NEW	<p><u>8. AMENDMENTS</u></p> <p><u>Any amendments to this Manual shall be approved by the DOE, following the procedures for changes to Market Manual set out in the WESM Rules and in the relevant Market Manual.</u></p> <p><u>9. PUBLICATION AND EFFECTIVITY</u></p> <p><u>This Market Manual, as it may be amended from time to time, shall be published in the market information website maintained by the Market Operator.</u></p> <p><u>This Market Manual or any amendments thereto shall become effective upon approval of the DOE in accordance with the WESM Rules Clause 8.6.4 The date of effectivity shall be indicated in this document.</u></p>	For clarity and consistency with the WESM Rules.

V. Market Operator Information Disclosure and Confidentiality Manual Issue 3.0

Market Operator Information Disclosure and Confidentiality Manual												
Title	Section	Provision	Proposed Amendment	Rationale								
Confidential or Protected Information – Information considered as confidential	4.3	XXX k) Information on real-time system condition contained in advisories and notices received by the Market Operator from the System Operator. This list is a non-exhaustive list.	XXX k) Information on real-time system condition contained in advisories and notices received by the Market Operator from the System Operator; <u>l) Projected Output provided by trading participants in respect of their Must Dispatch Generating Units or Priority Dispatch Generating Units that are identifiable to that trading participant; and</u> <u>m) nomination of loading levels for non-scheduled generating units.</u> This list is a non-exhaustive list.	To include the submission of must, priority, and non-scheduled generating units for clarity.								
Confidential or Protected 4.5.Expiration of confidentiality	4.5	The following information will lose their confidentiality classification after the expiration of the following periods – <table border="1" data-bbox="472 1166 1084 1374"> <thead> <tr> <th>Information</th> <th>Expiry Period</th> </tr> </thead> <tbody> <tr> <td>Bids and offers identifiable to a trading participants, including any and all information contained in the bids</td> <td>seven (7) days after the relevant trading day</td> </tr> </tbody> </table>	Information	Expiry Period	Bids and offers identifiable to a trading participants, including any and all information contained in the bids	seven (7) days after the relevant trading day	The following information will lose their confidentiality classification after the expiration of the following periods – <table border="1" data-bbox="1111 1166 1644 1374"> <thead> <tr> <th>Information</th> <th>Expiry Period</th> </tr> </thead> <tbody> <tr> <td>Bids and offers identifiable to a trading participants, including any and all information contained in the bids</td> <td><u>Seven</u> (7) days after the relevant trading day</td> </tr> </tbody> </table>	Information	Expiry Period	Bids and offers identifiable to a trading participants, including any and all information contained in the bids	<u>Seven</u> (7) days after the relevant trading day	To add expiry periods for the confidentiality of the submissions of must, priority, and non-scheduled generating units.
Information	Expiry Period											
Bids and offers identifiable to a trading participants, including any and all information contained in the bids	seven (7) days after the relevant trading day											
Information	Expiry Period											
Bids and offers identifiable to a trading participants, including any and all information contained in the bids	<u>Seven</u> (7) days after the relevant trading day											

Proposed Amendments to WESM Market Manuals
for the Implementation of Preferential Dispatch

Market Operator Information Disclosure and Confidentiality Manual										
Title	Section	Provision			Proposed Amendment			Rationale		
		and offers submissions of the relevant market participant			and offers submissions of the relevant market participant					
		Hourly energy or reserve dispatch schedules and dispatch instructions identifiable to a trading participant, and the dispatch schedules of must run units	One (1) day after the relevant trading day ¹		Hourly energy or reserve dispatch schedules and dispatch instructions identifiable to a trading participant, and the dispatch schedules of must run units	One (1) day after the relevant trading day ²				
		Security limits and contingency limitations imposed by the System Operator and which are submitted to the Market Operator, including but not limited to instructions issued to generating units designated as must run units, and to system advisories	One (1) day after the relevant trading day		Security limits and contingency limitations imposed by the System Operator and which are submitted to the Market Operator, including but not limited to instructions issued to generating units designated as must run units, and to system advisories	One (1) day after the relevant trading day				
		From time to time, the PEM Board may declare certain confidential information as having lost its confidentiality status.			<u>Projected output provided by trading participants in respect of their Must Dispatch Generating</u>	<u>One (1) day after the relevant trading day</u>				

¹ WESM Rules clause 3.11.1.3

² WESM Rules clause 3.11.1.3

Proposed Amendments to WESM Market Manuals
for the Implementation of Preferential Dispatch

Market Operator Information Disclosure and Confidentiality Manual					
Title	Section	Provision	Proposed Amendment		Rationale
			<u>Units or Priority Dispatch Generating Units that are identifiable to that trading participant</u>		
			<u>The nomination of loading levels for non-scheduled generating units identifiable to a Trading Participant.</u>	<u>One (1) day after the relevant trading day</u>	
			From time to time, the PEM Board may declare certain confidential information as having lost its confidentiality status.		
Amendments Publication And Effectivity	NEW		<u>7. AMENDMENTS</u> <u>Any amendments to this Manual shall be approved by the DOE, following the procedures for changes to Market Manual set out in the WESM Rules and in the relevant Market Manual.</u> <u>8. PUBLICATION AND EFFECTIVITY</u> <u>This Market Manual, as it may be amended from time to time, shall be published in the market information</u>		For clarity and consistency with the WESM Rules.

Proposed Amendments to WESM Market Manuals
for the Implementation of Preferential Dispatch

Market Operator Information Disclosure and Confidentiality Manual				
Title	Section	Provision	Proposed Amendment	Rationale
			<p><u>website maintained by the Market Operator.</u></p> <p><u>This Market Manual or any amendments thereto shall become effective upon approval of the DOE in accordance with the WESM Rules Clause 8.6.4 The date of effectivity shall be indicated in this document.</u></p>	
Market Information Catalogue	7. Appendices	7. Appendices Market Information Catalogue	<p>7. 9. Appendices</p> <p>Market Information Catalogue</p> <p><i>Note: Add the following rows –</i></p> <p><u>After Hour-Ahead, Day-Ahead and Week-Ahead Demand Forecast and Reserve requirement</u></p> <p><u>Category: Energy Forecast and Reserve Information</u></p> <p><u>Specific Information: VRE Aggregated Generation Forecast</u></p> <p><u>Information/Data Source: System Operator</u></p> <p><u>Classification: Public</u></p>	To include the submission of must, priority, and non-scheduled generating units for clarity.

Market Operator Information Disclosure and Confidentiality Manual

Title	Section	Provision	Proposed Amendment	Rationale
			<p><u>Recipient: Public</u> <u>Means of Provision: WESM website</u> <u>Publication Timeline: Daily</u></p> <p><u>After Energy and reserve offers and demand bids including all information contained in the submitted offers</u></p> <p><u>Category: Generation Offers and Demand Bids</u> <u>Specific Information: Projected Output of Must Dispatch and Priority Dispatch generating units</u></p> <p><u>Information/Data Source: Market Participants</u> <u>Classification: Confidential with expiration (Confidentiality expires after a day)</u> <u>Recipient: Prior to expiration of confidentiality: data owner and exceptions under WESM Rules 5.3.2; Public after expiration</u> <u>Means of Provision: Electronic or printed copies on request; WESM website</u></p>	

Market Operator Information Disclosure and Confidentiality Manual				
Title	Section	Provision	Proposed Amendment	Rationale
			<p><u>Publication Timeline: N/A; Updated Daily (after expiration of confidentiality)</u></p> <p><u>Category: Generation Offers and Demand Bids</u></p> <p><u>Specific Information: Nominated loading levels of non-scheduled generating units</u></p> <p><u>Information/Data Source: Market Participants</u></p> <p><u>Classification: Confidential with expiration (Confidentiality expires after a day)</u></p> <p><u>Recipient: Prior to expiration of confidentiality: data owner and exceptions under WESM Rules 5.3.2; Public after expiration</u></p> <p><u>Means of Provision: Electronic or printed copies on request; WESM website</u></p> <p><u>Publication Timeline: N/A; Updated Daily (after expiration of confidentiality)</u></p>	

VI. Load Forecasting Methodology Manual Issue 2.0

Load Forecasting Methodology Manual				
Title	Section	Provision	Proposed Amendment	Rationale
Introduction – Background	1.1.2 (d)	Furthermore, WESM Rules Clause 3.5.4.2 states that each net load forecast shall be prepared in such a way as to represent the net load to be met by scheduled generation, including losses occurring outside the system represented by the market network model, but excluding any scheduled load, and less non-scheduled generation, and generation from new and renewable energy (NRE) generating units with intermittent energy resource.	Furthermore, WESM Rules Clause 3.5.4.2 states that each net load forecast shall be prepared in such a way as to represent the net load to be met by scheduled <u>generation</u> generating units, must dispatch generating units, priority dispatch generating units, and non-scheduled generating units, including losses occurring outside the system represented by the market network model, but excluding any scheduled load, and less non-scheduled generation, and generation from new and renewable energy (NRE) generating units with intermittent energy resource.	For consistency with the recently approved revision to the WESM Rules Clause 3.5.4.2
Net Load Forecasts	6.1.3	The base load values shall consider the contributions from non-scheduled generation and generation from NRE generating units with intermittent energy resource.	The base load values shall consider the contributions from non-scheduled generation, and must dispatch and priority dispatch generation from NRE generating units with intermittent energy resource.	To consider the re-classification of NRE generating units to must dispatch and priority dispatch generating units
Amendments To This Manual	10.1	10.1. Any amendment to, or revision to this Manual shall be approved by the PEM Board.	10.1. AMENDMENTS TO THIS MANUAL	For clarity and consistency with the WESM Rules.

Load Forecasting Methodology Manual				
Title	Section	Provision	Proposed Amendment	Rationale
			<p>Any amendment to, or revision to this Manual shall be approved by the PEM Board.</p> <p><u>Any amendments to this Manual shall be approved by the DOE, following the procedures for changes to Market Manual set out in the WESM Rules and in the relevant Market Manual.</u></p>	
Publication And Effectivity	10.2	10.2. Upon approval of the PEM Board, this Manual shall take effect fifteen (15) days from its publication, or such later date as the PEM Board determines, in accordance	<p>10.2. PUBLICATION AND EFFECTIVITY</p> <p>Upon approval of the PEM Board, this Manual shall take effect fifteen (15) days from its publication, or such later date as the PEM Board determines, in accordance</p> <p><u>This Market Manual, as it may be amended from time to time, shall be published in the market information website maintained by the Market Operator.</u></p> <p><u>This Market Manual or any amendments thereto shall become effective upon approval of the DOE in accordance with the WESM Rules Clause 8.6.4 The date of effectivity shall be indicated in this document.</u></p>	For clarity and consistency with the WESM Rules.

VII. Metering Standards and Procedures Issue 10.0

Metering Standards and Procedures Manual				
Title	Section	Provision	Proposed Amendment	Rationale
Amendments Publication And Effectivity	NEW		<p><u>1.4 AMENDMENTS</u></p> <p><u>Any amendments to this Manual shall be approved by the DOE, following the procedures for changes to Market Manual set out in the WESM Rules and in the relevant Market Manual.</u></p> <p><u>1.5 PUBLICATION AND EFFECTIVITY</u></p> <p><u>This Market Manual, as it may be amended from time to time, shall be published in the market information website maintained by the Market Operator.</u></p> <p><u>This Market Manual or any amendments thereto shall become effective upon approval of the DOE in accordance with the WESM Rules Clause 8.6.4 The date of effectivity shall be indicated in this document.</u></p>	For clarity and consistency with the WESM Rules.
Interface and Data Flow	6.4.3 (new)	(Blank)	<p><u>The Metering Services Provider shall submit the metering data in meter data exchange format or any other secured</u></p>	To specify that metering data may be provided in a different secured data format besides meter data exchange format

Proposed Amendments to WESM Market Manuals
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Metering Standards and Procedures Manual				
Title	Section	Provision	Proposed Amendment	Rationale
			<u>format as required by the Market Operator.</u>	

VIII. Registration, Suspension and De-Registration Criteria and Procedures Issue 2.0
Registration, Suspension and De-Registration Criteria and Procedures Manual

Title	Section	Provision	Proposed Amendment	Rationale
Classification of generating units	Chapter II, 2.5.4.1.a	<p>An Applicant wishing to register as Generation Company shall, upon application, classify each of the generating unit or group of generating units which form part of the generation system it owns or operates or controls or from which it otherwise sources electricity as either –</p> <p>XXX</p> <p>NRE Generating Unit with intermittent energy resource for unit/s connected to a common connection point whose energy resource is location-specific and has natural variability that renders its output inherently controllable. However, the Generation Company may also elect to have such unit/s classified as scheduled generating units.</p>	<p>An Applicant wishing to register as <i>Generation Company</i> shall, upon application, classify each of the generating unit or group of generating units which form part of the generation system it owns or operates or controls or from which it otherwise sources electricity as either –</p> <p>XXX</p> <p><u>NRE Generating Unit with intermittent energy resource for unit/s connected to a common connection point whose energy resource is location-specific and has natural variability that renders its output inherently controllable. However, the Generation Company may also elect to have such unit/s classified as scheduled generating units.</u></p> <p><u>A must dispatch generating unit for a generating unit or group of generating units connected at a common connection point that is intermittent renewable energy resource-based, whether or not under the <i>Feed-in Tariff</i></u></p>	<p>To align the taxonomy of renewable generating resources with the changes in the WESM Rules.</p>

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Registration, Suspension and De-Registration Criteria and Procedures Manual

Title	Section	Provision	Proposed Amendment	Rationale
			<p><u>system, such as wind, solar, run-of-river hydro or ocean energy with the corresponding DOE certification. However, the Generation Company may also elect to have such unit/s classified as <i>scheduled generating unit/s</i> or <i>non-scheduled generating unit/s</i> subject to this Section.</u></p> <p><u>A <i>priority dispatch generating unit</i> for a generating unit or group of generating units connected at a common connection point that uses biomass as fuel, that is under the <i>Feed-in Tariff system</i>, with the corresponding <i>Feed-in Tariff Certificate of Compliance</i> issued by the ERC.</u></p> <p><u>However, the Generation Company may also elect to have such unit/s classified as <i>scheduled generating unit/s</i> or <i>non-scheduled generating unit/s</i> subject to this Section.</u></p>	
Classification of generating units	Chapter II, 2.5.4.1.c	The Market Operator shall approve the classification of a generating unit/s as either non-scheduled or NRE generating unit, subject to prevailing relevant rules, regulations and	The Market Operator shall approve the classification of a <i>generating unit/s</i> as either <u>a <i>non-scheduled generating unit</i> or a <i>must dispatch generating unit</i> or a</u>	To align the taxonomy of renewable generating resources with the changes in the WESM Rules

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Registration, Suspension and De-Registration Criteria and Procedures Manual				
Title	Section	Provision	Proposed Amendment	Rationale
		issuances. An Applicant may appeal the decision of the Market Operator to the PEM Board.	<u>priority dispatch generating unit</u> , subject to prevailing relevant rules, regulations and issuances. An Applicant may appeal the decision of the <i>Market Operator</i> to the <i>PEM Board</i> .	
Dispatch tolerances	Chapter II, 2.5.4.3.	Prior to application, a Generation Company may seek a ruling from the System Operator with respect to dispatch tolerances to be applied for the generating unit/s it intends to be classified as scheduled generating unit/s. The System Operator may also make a ruling upon endorsement by the Market Operator of the application. The System Operator may, at any time, review any ruling it has made in the light of further information or experience. A Generation Company may appeal the ruling issued by the System Operator to the PEM Board.	Prior to application, a <i>Generation Company</i> may seek a ruling from the <i>System Operator</i> with respect to <i>dispatch tolerances</i> to be applied for the generating unit/s it intends to be classified as <i>scheduled generating unit/s</i> or <u>priority dispatch generating unit/s</u> . The <i>System Operator</i> may also make a ruling upon endorsement by the <i>Market Operator</i> of the application. The <i>System Operator</i> may, at any time, review any ruling it has made in the light of further information or experience. A <i>Generation Company</i> may appeal the ruling issued by the <i>System Operator</i> to the <i>PEM Board</i> .	To align classification in Registration Manual of generating units requiring dispatch tolerances.
Reclassification of generating units	Chapter III, 3.3.2.1.	The Trading Participant under whom a generating unit is registered in the WESM may request for the reclassification of such unit (i.e., scheduled, non-scheduled or NRE) by submitting to the Market Operator a request in writing supported by documents and information as would enable the Market Operator to evaluate the request .	The <i>Trading Participant</i> under whom a <i>generating unit</i> is registered in the <i>WESM</i> may request for the reclassification of such unit (i.e., <i>scheduled, non-scheduled, must dispatch or priority dispatch</i>) by submitting to the <i>Market Operator</i> a request in writing supported by documents and information as would	To align the classification of generating units with the WESM Rules taxonomy.

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Registration, Suspension and De-Registration Criteria and Procedures Manual				
Title	Section	Provision	Proposed Amendment	Rationale
			enable the <i>Market Operator</i> to evaluate the request.	
Amendments	1.5.2.	1.5.2. Amendments Amendments to this Manual shall be submitted to the WESM Rules Change Committee and shall be acted upon pursuant to Chapter 8 of the WESM Rules and relevant market manuals.	1.5.2. Amendments <u>Any amendments to this Manual shall be approved by the DOE, following the procedures for changes to Market Manual set out in the WESM Rules and in the relevant Market Manual.</u>	For clarity and consistency with the WESM Rules.
EFFECTIVITY AND PUBLICATION	1.6	1.6. EFFECTIVITY AND PUBLICATION This Manual shall take effect upon approval by the PEM Board. Thereafter, it shall be published in the market information website.	1.6. EFFECTIVITY AND PUBLICATION This Manual shall take effect upon approval by the PEM Board. Thereafter, it shall be published in the market information website. <u>This Market Manual, as it may be amended from time to time, shall be published in the market information website maintained by the Market Operator.</u> <u>This Market Manual or any amendments thereto shall become effective upon approval of the DOE in accordance with the WESM Rules</u>	For clarity and consistency with the WESM Rules.

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for the Implementation of Preferential Dispatch

Registration, Suspension and De-Registration Criteria and Procedures Manual				
Title	Section	Provision	Proposed Amendment	Rationale
			<u>Clause 8.6.4 The date of effectivity shall be indicated in this document.</u>	

IX. Guidelines on Significant Variations In and Between Trading Intervals Issue 2.0

Guidelines on Significant Variations In and Between Trading Intervals				
Title	Section	Provision	Proposed Amendment	Rationale
Guidelines and Criteria – Monitoring Criteria	4.1.1	XXX g) Customer Load Forecast	XXX g) Customer Load Forecast <u>h) Nomination of loading levels from non-scheduled generating units</u> <u>i) Projected outputs from must-dispatch and priority dispatch generating units</u>	To consider the nominations and projected output from non-scheduled and preferential dispatch generating units
Amendments To This Manual	5.1	5.1 Any amendment to, or revision to this Manual shall be approved by the PEM Board.	5.1 AMENDMENTS TO THIS MANUAL <u>Any amendments to this Manual shall be approved by the DOE, following the procedures for changes to Market Manual set out in the WESM Rules and in the relevant Market Manual.</u>	For clarity and consistency with the WESM Rules.
Publication And Effectivity	5.2	5.2 Upon approval of the PEM Board, this Market Manual shall take effect fifteen (15) days from its publication, or such later date as the PEM Board determines, in accordance with the provisions in the Manual of Procedures for Changes to the WESM Rules.	5.2 PUBLICATION AND EFFECTIVITY Upon approval of the PEM Board, this Market Manual shall take effect fifteen (15) days from its publication, or such later date as the PEM Board determines, in accordance with the provisions in the	For clarity and consistency with the WESM Rules.

Proposed Amendments to WESM Market Manuals
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Guidelines on Significant Variations In and Between Trading Intervals				
Title	Section	Provision	Proposed Amendment	Rationale
			<p>Manual of Procedures for Changes to the WESM Rules.</p> <p><u>This Market Manual, as it may be amended from time to time, shall be published in the market information website maintained by the Market Operator.</u></p> <p><u>This Market Manual or any amendments thereto shall become effective upon approval of the DOE in accordance with the WESM Rules Clause 8.6.4 The date of effectivity shall be indicated in this document.</u></p>	



WESM-FASMD-001

PUBLIC

WESM Manual

Procedures for the Monitoring of Forecast Accuracy Standards for Must Dispatch Generating Units Issue 1.0

Abstract	This manual establishes the procedures for the monitoring, reporting, and review of the forecast accuracy standards for compliance of must dispatch generating units.
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Document Identity: WESM-FASMD-001

Issue No.: 1.0

Reason for Issue: Initial Version

Approval Date:

Publication Date:

Effective Date:



Procedures for the Monitoring of Forecast Accuracy Standards
for Must Dispatch Generating Units

WESM-FASMD-001

Document Change History

Issue No.	Proponent	Date of Effectivity	Reason for Amendment
1.0	PEMC		Initial Version

Document Approval

Issue No.	RCC Approval	RCC Resolution No.	PEM Board Approval	PEM Board Resolution No.
1.0	01 June 2016	RCC-RESO-16-08		

Reference Documents

Document ID	Document Title
	WESM Rules (As amended)
ERC Resolution No.7 Series of 2013	A Resolution Adopting and Approving Addendum to Amendment No. 1 of the Philippine Grid Code (PGC), Establishing the Connection and Operational Requirements for Variable Renewable Energy (VRE) Generating Facilities
	Philippine Grid Code
WESM-MSDM-MM-10	WESM Manual on Metering Standards and Procedures: Issue 10.0
DC2016-01-0002	Adopting Further Amendments to the WESM Rules (Provisions for the Must Dispatch and Priority Dispatch Generating Units)



Procedures for the Monitoring of Forecast Accuracy Standards
for Must Dispatch Generating Units

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SECTION 1 INTRODUCTION

1.1 BACKGROUND

- 1.1.1 The *WESM Rules* require *generation companies* to submit to the *Market Operator* *projected outputs* in respect of their *must dispatch generating units* on an hourly basis¹.
- 1.1.2 Consistent with the *Grid Code*, the *WESM Rules* also require *must dispatch generating units* to comply with forecast accuracy standards in respect of their *projected outputs*².
- 1.1.3 A *Trading Participant* who fails to meet the requisite forecast accuracy standards in respect of *projected outputs* for a *must dispatch generating unit* may be liable for sanctions imposed under Clause 7.2 of the *WESM Rules*³.
- 1.1.4 Moreover, the *Market Operator* is required by the *WESM Rules* report to the *PEM Board* and *DOE* the annual compliance of each *must dispatch generating unit* to the forecast accuracy standards with respect to its *projected outputs*⁴.

1.2 PURPOSE

- 1.2.1 This *Market Manual* shall establish the forecast accuracy standards that *must dispatch generating units* are required to comply with.
- 1.2.2 This *Market Manual* shall provide the equations that will be used in determining the compliance of *must dispatch generating units* with the forecast accuracy standards.
- 1.2.3 This *Market Manual* shall specify the procedures for the monitoring and reporting of the compliance of *must dispatch generating units* with the forecast accuracy standards.

1.3 SCOPE

- 1.3.1 This *Market Manual* only provides the standards and procedures for *must dispatch generating units* registered in the *WESM*.

¹ Clause 3.5.5.5, *WESM Rules*

² Clause 3.5.5.8, *WESM Rules*

³ Clause 3.5.5.10, *WESM Rules*

⁴ Clause 3.5.5.11, *WESM Rules*



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- 1.3.2 This *Market Manual* covers the implementation of the forecast accuracy standards.

SECTION 2 DEFINITIONS, REFERENCES AND INTERPRETATION

2.1 DEFINITIONS

2.1.1 Unless otherwise defined in Section 2.1.2 **Error! Reference source not found.** of this document or unless the context provides otherwise, all terms used in this *Market Manual* that are defined in the *WESM Rules* shall take the meaning as so defined in the *WESM Rules*.

2.1.2 Glossary

- a) **Forecast percentage error.** Error (in %) of the *projected output* submitted by a *must dispatch generating unit* with respect to its *installed capacity* calculated in accordance with Section 4.2.3
- b) **Initial loading.** Loading (in MW) assumed for the beginning of the *trading interval* assumed in, or estimated by, the *dispatch optimization* performed prior to the beginning of that *trading interval* as indicated in Clause 3.13.5.1 of the *WESM Rules*
- c) **Installed capacity.** Refers to the *Nameplate Rating* of a *generating unit*
- d) **Installed capacity quantity.** *Generation* by a *generating unit* at its *installed capacity* for a *trading interval* calculated in accordance with Section 4.2.3
- e) **MAPE.** Abbreviation of *mean absolute percentage error*
- f) **Mean absolute percentage error.** Mean of the *forecast percentage errors* of a *must dispatch generating unit* over a certain period calculated in accordance with Section 4.2.1
- g) **Must dispatch generating unit.** A *generating unit* so designated by the *Market Operator* under clause 2.3.1.5 of the *WESM Rules* and is provided *Must Dispatch*. For brevity and when the context applies, this also refers to a *generation company* that operates a *must dispatch generating unit* in this *Market Manual*.
- h) **Perc95.** Abbreviation of *percentile 95 of the forecasting error*
- i) **Percentile 95 of the forecasting error.** The value (in %) not exceeding 95% of the *forecast percentage errors* of the *must dispatch generating unit* during a certain period (see Section 6, Appendix A of this Manual).
- j) **Projected quantity.** Estimated *generation* of a *must dispatch generating unit* over a *trading interval* based on its submitted *projected output* assuming linear ramping calculated in accordance with Section 4.2.4



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- k) **Transition Period.** The period specified by the *DOE* wherein the provisions under Section 4.5 shall apply.

2.2 REFERENCES

- 2.2.1 This *Market Manual* should be read in association with Chapter 3 of the *WESM Rules* and other *Market Manuals*, including but not limited to the reference documents listed in the Reference Documents table. Other references are also stated in relevant sections of this *Market Manual*.

2.3 INTERPRETATION

- 2.3.1 The rules on interpretation set out in Chapter 9 of the *WESM Rules*, as these may be amended from time to time, shall govern the interpretation of this *Market Manual*.

SECTION 3 RESPONSIBILITIES

3.1 MARKET OPERATOR

- 3.1.1 The *Market Operator* shall review annually the forecast accuracy standards in this *Market Manual*⁵.
- 3.1.2 The *Market Operator* shall report to the *PEM Board* and *DOE* the compliance of each *must dispatch generating unit* to the forecast accuracy standards in this *Market Manual* with respect to its *projected outputs*⁶. Furthermore, the *Market Operator* shall make available a copy of said report in the market information website.

3.2 SYSTEM OPERATOR

- 3.2.1 The *System Operator* shall advise the *Market Operator* of any output restrictions imposed by the *System Operator* on *must dispatch generating units* in accordance with the *WESM Rules*⁷ and the *Grid Code*.

3.3 METERING SERVICES PROVIDERS

- 3.3.1 *Metering Services Providers* of *must dispatch generating units* shall submit settlement-ready *metering data* of *must dispatch generating units* in accordance with the timeline provided in the relevant *Market Manual*⁸.

⁵ Clause 3.5.5.9, *WESM Rules*

⁶ Clause 3.5.5.11, *WESM Rules*

⁷ Clause 3.8.2.2(g)(i), *WESM Rules*

⁸ *WESM Manual on Metering Standards and Procedures*



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3.4 GENERATION COMPANIES

- 3.4.1 *Generation companies* shall comply with the forecast accuracy standards in this *Market Manual* in respect of the *projected outputs* of their *must dispatch generating units* submitted in accordance with the *WESM Rules*⁹.
- 3.4.2 *Generation companies* shall immediately advise the *System Operator* and *Market Operator* of any circumstances which threaten a significant probability of material adverse change in the state of their facilities in any trading interval of any trading day in the current *week-ahead market horizon*. After the occurrence of the significant event referred to above, the *Generation Company* shall submit a written report to the *Market Operator* with supporting data immediately within the following trading day.

SECTION 4 FORECAST ACCURACY STANDARDS AND PROCEDURES

4.1 STANDARDS

- 4.1.1 Each *must dispatch generating unit* shall comply with the following standards with respect to its *mean absolute percentage error (MAPE)* and *percentile 95 of the forecasting error (Perc95)* determined in accordance with Section 4.2 and calculated over the period specified in Section 4.1.2:

Technology	Standards	
	MAPE	Perc95
Solar	< 18%	< 30%
Wind		
Run of River Hydro*		

* subject to the determination of the ERC/Grid Management Committee

- 4.1.2 The *MAPE* and *Perc95* of each *must dispatch generating unit* shall be calculated over the period starting on the 26th of December of a year and ending on the 25th of December of the succeeding year.
- 4.1.3 Subject to Section 4.5 of this *Market Manual*, *must dispatch generating units* who fail to meet the requisite forecast accuracy standards set out in Section 4.1.1 of this *Market Manual* may be liable for sanctions imposed under Clause 7.2 of the *WESM Rules*¹⁰.

⁹ Clause 3.5.5.8, WESM Rules

¹⁰ Clause 3.5.5.10, WESM Rules



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4.2 CALCULATIONS

4.2.1 The *MAPE* of a *must dispatch generating unit* for a period shall be calculated using the following formula:

$$MAPE_{i,p} = \frac{\sum_{t=1}^{n_p} FPE_{i,t}}{n_p}$$

Where,

$MAPE_{i,p}$ *mean absolute percentage error* (in %) of *must dispatch generating unit i* for period *p*

n_p number of *trading intervals* within period *p* wherein *forecast percentage errors* were calculated

$FPE_{i,t}$ *forecast percentage error* (in %) of *must dispatch generating unit i* for *trading interval t* calculated in accordance with Section 4.2.3

4.2.2 The *Perc95* of a *must dispatch generating unit* for a period shall refer to the value (in %) not exceeding 95% of the *forecast percentage errors* of the *must dispatch generating unit* during the period and shall be calculated using the NIST method¹¹.

4.2.3 The *forecast percentage error* for a *trading interval* of a *must dispatch generating unit* shall be calculated using the following formula:

$$FPE_{i,t} = \left| \frac{PQ_{i,t} - MQ_{i,t}}{ICQ_i} \right| \times 100\%$$

Where,

$FPE_{i,t}$ *forecast percentage error* (in %) of *must dispatch generating unit i* for *trading interval t*

$PQ_{i,t}$ *projected quantity* (in MWh) of *must dispatch generating unit i* for *trading interval t* calculated in accordance with Section 4.2.4

$MQ_{i,t}$ *metered quantity* (in MWh) of *must dispatch generating unit i* for *trading interval t* as provided by the *Metering Services Provider*

ICQ_i *installed capacity quantity* (in MWh) of *must dispatch generating unit i* calculated by multiplying the *installed capacity* (in MW) of *must dispatch generating unit i* provided during registration in the *WESM* by the duration of a *trading interval* (in hours)

¹¹ Refer to Appendix A for a detailed discussion on the NIST method



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4.2.4 The *projected quantity* for each *trading interval* of a *must dispatch generating unit* shall be calculated using the following formula:

$$PQ_{i,t} = \frac{IL_{i,t} + PO_{i,t}}{2}$$

Where,

- $PQ_{i,t}$ *projected quantity* (in MWh) of *must dispatch generating unit i* for *trading interval t*
- $IL_{i,t}$ *initial loading* (in MW) of *must dispatch generating unit i* used during the scheduling process for *trading interval t*
- $PO_{i,t}$ *projected output* (in MW) of *must dispatch generating unit i* used during the scheduling process for *trading interval t*

4.3 EXCLUSIONS

4.3.1 *Forecast percentage errors* occurring on the following conditions shall be excluded from the calculation of the *MAPE* and *Perc95* of *must dispatch generating units*:

- a) the *dispatch target* of the *must dispatch generating unit* was restricted below its *projected output*¹²;
- b) the output of the *must dispatch generating unit* was restricted by the *System Operator*¹³ as indicated in the *System Operator's* report submitted to the *Market Operator* in accordance with the *WESM Rules*¹⁴;
- c) a *market suspension* or *market intervention* was declared for the *trading interval*;
- d) an *outage* resulted in its derating; or
- e) a natural calamity (e.g., typhoon, landslide) affected the ability of the *must dispatch generating unit* to forecast accurately.

4.4 MONITORING, REPORTING, AND REVIEW

4.4.1 The *Market Operator* shall report to the *PEM Board* and *DOE* the annual compliance of each *must dispatch generating unit* to the forecast accuracy standards with respect to its *projected outputs* within two (2) calendar months after the end of the period specified in Section 4.1.2.

4.4.2 The *Market Operator* shall report to the *PEM Board* and *DOE* the status of the compliance of each *must dispatch generating unit* to the *forecast*

¹² Clause 3.6.1.7, WESM Rules

¹³ Clause 3.8.3.4, WESM Rules

¹⁴ Clause 3.8.2.2(g)(i), WESM Rules



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accuracy standards as of the most recent *Billing Period* with a *final statement* on a monthly basis.

4.4.3 The *Market Operator* shall review annually the forecast accuracy standards set in Section 4.1.

4.5 TRANSITION PERIOD

4.5.1 A *transition period* covering the period specified by the *DOE* shall be implemented.

4.5.2 During the *transition period*, *must dispatch generating units* who fail to meet the requisite forecast accuracy standards set out in Section 4.1.1 of this *Market Manual* shall not be liable for sanctions imposed under this *Market Manual*.

4.5.3 Before the end of the *transition period*, the *Market Operator* shall submit to the *DOE* and other concerned government agencies a report on the compliance of *must dispatch generating units* to the forecast accuracy standards and the proposed forecast accuracy standards to be implemented after the *transition period*.

4.5.4 Unless otherwise specified, all other provisions in this *Market Manual* shall apply during the *transition period*.



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SECTION 5 AMENDMENT, PUBLICATION AND EFFECTIVITY

5.1 AMENDMENTS

- 5.1.1 The *Market Operator*, the *System Operator*, or any *WESM member*, or interested entity may propose amendments to this *Market Manual* by submitting proposals to the *WESM Rules Change Committee*, following procedures for changes to *Market Manuals* set out in the *WESM Rules* and in the relevant *Market Manual*.
- 5.1.2 Amendments to this *Market Manual* shall be approved by the *DOE* following the procedures for changes to *Market Manual* set out in the *WESM Rules* and in the relevant *Market Manual*.

5.2 PUBLICATION

- 5.2.1 This *Market Manual*, as it may be amended from time to time, shall be published in the *market information website* maintained by the *Market Operator*¹⁵.

5.3 EFFECTIVITY

- 5.3.1 This *Market Manual* or any amendments thereto shall become effective upon approval of the *DOE* in accordance with the *WESM Rules* Clause 8.6.4. The date of effectivity shall be indicated in this document.

SECTION 6 APPENDICES

Appendix A NIST Method for Calculating Percentiles

This appendix provides the NIST Method for calculating percentiles. The NIST Method estimates the percentile using the procedure below and may result to values that are not in the original set of values. The definition below is an excerpt from the following source:

7.2.6.2 Percentiles

(<http://www.itl.nist.gov/div898/handbook/prc/section2/prc262.htm>)

<i>Estimation of percentiles</i>	Percentiles can be estimated from N measurements as follows: for the p_{th} percentile, set $p(N+1)$ equal to $k+d$
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¹⁵ www.wesm.ph



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	<p>for k an integer, and d, a fraction greater than or equal to 0 and less than 1.</p> <ol style="list-style-type: none"> 1. For $0 < k < N$, $Y_{(p)} = Y_{[k]} + d(Y_{[k+1]} - Y_{[k]})$ 2. For $k=0$, $Y_{(p)} = Y_{[1]}$ <p>Note that any $p \leq 1/(N+1)$ will simply be set to the minimum value.</p> <ol style="list-style-type: none"> 3. For $k \geq N$, $Y_{(p)} = Y_{[N]}$ <p>Note that any $p \geq N/(N+1)$ will simply be set to the maximum value.</p>
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Example:

Sample list: $Y_{[k]} = \{3\%, 5\%, 12\%, 15\%, 20\%\}$; $N = 5$

To calculate for the 60th percentile ($p = 0.6$),

Step 1: Calculate $p \times (N + 1)$

$$0.6 \times (5 + 1) = 3.6$$

Step 2: Get k and d

From 3.6, $k = 3$ and $d = 0.6$

Step 3: Get P_{60}

$$P_p = Y_{[k]} + d \times (Y_{[k+1]} - Y_{[k]})$$

$$P_{60} = Y_{[3]} + d \times (Y_{[4]} - Y_{[3]})$$

$$P_{60} = 12\% + 0.6 \times (15\% - 12\%)$$

$$\mathbf{P_{60} = 13.8\%}$$