



Republic of the Philippines  
**DEPARTMENT OF ENERGY**

DEPARTMENT CIRCULAR NO. DC 2016-10-0014

**ADOPTING FURTHER AMENDMENTS TO THE WESM RULES**  
**(Enhancements to WESM Design and Operations)**

**WHEREAS**, Sections 30 and 37(f) of the Electric Power Industry Reform Act (EPIRA) provides that the Department of Energy (DOE), jointly with the electric power industry participants, shall establish the Wholesale Electricity Spot Market (WESM) and formulate the detailed rules governing the operations thereof;

**WHEREAS**, on 28 June 2002, the DOE, jointly with the electric power industry participants, promulgated the WESM Rules through Department Circular No. DC2002-06-003;

**WHEREAS**, any changes, amendments, and modifications to the WESM Rules and its Market Manuals shall be undertaken in accordance with the provisions of Chapter 8 thereof;

**WHEREAS**, on 05 November 2015, the DOE issued Department Circular No. DC2015-10-0015 providing the policies for further enhancement of the design and operations of the WESM, which were based on the WESM Design Study commissioned on 02 April 2013 and results of the yearly independent audits of the system and procedures of the market operations;

**WHEREAS**, on 01 December 2015, pursuant to the said policies of the DOE, the Philippine Electricity Market Corporation (PEMC) submitted to the Rules Change Committee (RCC) the Proposed Changes to the WESM Rules for the Implementation of Enhancements to Market Design and Operations;

**WHEREAS**, on 02 December 2015, the RCC during its 107<sup>th</sup> RCC Meeting initially discussed the said proposal, which thereafter approved its posting in the WESM website to solicit comments from market participants and other interested parties;

**WHEREAS**, on 03 February 2016 and 02 March 2016, the RCC during its 109<sup>th</sup> and 110<sup>th</sup> RCC Meetings, respectively, deliberated on the said proposal giving due course to the comments received from market participants and the DOE;

**WHEREAS**, on 03 March 2016, the RCC during its 111<sup>th</sup> RCC Meeting further deliberated on and finalized the said proposals, which thereafter approved its endorsement to the PEM Board;

**WHEREAS**, on 31 March 2016, after due evaluation and deliberation, the PEM Board during its 115<sup>th</sup> PEM Board Meeting approved for endorsement to the DOE the above stated RCC proposed amendments to the WESM Rules;

**WHEREAS**, on 08 April 2016, the above stated amendments to the WESM Rules were submitted to the DOE for final approval, in compliance with Chapter 8 of the WESM Rules;

WHEREAS, the DOE thoroughly reviewed the abovementioned PEM Board-approved amendments to the WESM Rules, made further revisions and deemed it consistent with the objectives of the WESM and the DOE policies on the enhancement of WESM design and operations; and

NOW THEREFORE, pursuant to its authority under the EPIRA and the WESM Rules, the DOE hereby adopts, issues, and promulgates the following amendments to the WESM Rules:

**Section 1. Amendments to the WESM Rules.** The following provisions in the WESM Rules are hereby amended:

(a) Clause 1.3.1.2 under Responsibilities of the Market Operator is amended to read as -

"1.3.1.2 In performing Clause 1.3.1.1 (d), the *Market Operator* shall:

xxx            xxx    xxx

(b) Identify any significant variations in accordance with the guidelines to be developed in Clause 1.3.1.3; and

xxx            xxx    xxx"

(b) Clause 1.3.1.3 under Responsibilities of the Market Operator is amended to read as -

"1.3.1.3 The *Market Operator* shall, in consultation with *WESM Participants*, develop, review and update, as may be necessary, guidelines as to what constitutes a significant variation."

(c) Clause 1.4.2.4 under Composition of the PEM Board is amended to read as -

"1.4.2.4 The *PEM Board* shall consist of:

xxx            xxx    xxx

(b) One (1) *Director* representing the *TRANSCO* or its concessionaire;

xxx            xxx    xxx"

(d) Clause 2.3.1.8 under Generation Company is amended to read as -

"2.3.1.8 A *Generation Company* is required to operate *scheduled generating units* and *priority dispatch generating units* in accordance with the scheduling and dispatch procedures described in Chapter 3, and in accordance with the *dispatch conformance standards* specified in accordance with Clause 3.8.5."

(e) Clause 2.3.3 under Trading Participant is amended to read as -

"2.3.3 Trading Participant

xxx    xxx    xxx



2.3.3.5 If at any time a *Trading Participant* ceases to be eligible to be registered as a *Trading Participant* in accordance with Clause 2.3.3.4, that *Trading Participant* shall inform the *Market Operator* accordingly and, as soon as practicable after the *Market Operator* becomes aware that a *Trading Participant* is no longer eligible to be registered, the *Market Operator* shall issue a *suspension notice* in respect of that *Trading Participant* in accordance with Clause 3.15.8."

- (f) Clause 2.3.5.3 under Ancillary Services Provider is amended to read as -

"2.3.5.3 Prior to the registration of a *Trading Participant* or a *Network Service Provider* as an *Ancillary Services Provider* eligible to provide *reserves* in accordance with Clause 2.3.5.1, the *System Operator* shall:

xxx      xxx      xxx

- (d) Provide certification to the *Market Operator* which sets out the relevant information determined under Clause 2.3.5.3 (a), (b) and (c)."

- (g) Clause 2.3.5.5 is added as a new provision under Ancillary Services Provider to read as -

"2.3.5.5 *Ancillary Services Providers* shall comply with the *dispatch conformance standards* developed pursuant to Clause 3.8.5."

- (h) Clause 2.7.2 under Suspension is amended to read as -

"2.7.2 Effect of a Suspension Notice

If a *Trading Participant* who is either a *Direct WESM Member* or an *Indirect WESM Member* receives a *suspension notice* from the *Market Operator* in accordance with any provision of the *WESM Rules*, that *Trading Participant* is suspended from participation in the *spot market* unless and until the *Market Operator* declares the *suspension notice* to be revoked in accordance with Clause 3.15.8."

- (i) Clause 3.1 under The Market is amended to read as -

"3.1 Scope of Chapter 3

This Chapter 3 sets out the rules which govern the operation of the *spot market* and related matters, including but not limited to:

- (a) The definition of the *market network model*, *Customer pricing zones*, *reserve categories* and *reserve regions*, *dispatch interval*, *settlement interval* and *timetable*;

xxx                      xxx      xxx

- (d) The procedures for provision of *ancillary services* and for determining payment for *reserves*;

- (e) The procedures for preparing *week ahead projections*, *day-ahead projections*, and *hour-ahead projections*;

xxx                      xxx                      xxx

(i) The procedures for determining, paying and receiving *settlement amounts*;

xxx                      xxx                      xxx."

(j) Clause 3.2.1.1 under Market Network Model is amended to read as -

"3.2.1.1 The *Market Operator* shall maintain and *publish* a *market network model*, which will be used for the purpose of central scheduling and *dispatch*, pricing and *settlement*. The *Market Operator* shall also *publish* any adaptations or adjustments to the *market network model*."

(k) Clause 3.2.1.2 under Market Network Model is amended to read as -

"3.2.1.2 The *market network model* shall represent fairly, and in a manner which will facilitate consistent and reliable operation of the *power system*:

xxx                      xxx                      xxx

(b) The sub-transmission *network* under the control of the *Distribution Utility* and other aspects of the *power system* which may materially affect *dispatch* of *scheduled generating units* or pricing within the *spot market*."

(l) Clause 3.2.1.4 under Market Network Model is amended to read as -

"3.2.1.4 Where appropriate, the *Market Operator* in coordination with the *System Operator* or with other *Network Service Providers* shall make alterations to the *market network model*, so as to maintain:

(a) the relationship between the *market network model* and the transmission and/or the sub-transmission *network*; and

xxx                      xxx                      xxx."

(m) Clause 3.2.2 and its sub-clauses under Market Network Model, Trading Nodes, and Pricing Zones are amended to read as -

"3.2.2 Market Trading Node

3.2.2.1 A *market trading node* is a designated point in the *market network model* where *energy* is bought or sold based on the *dispatch schedules* and prices determined by the *market dispatch optimization model*.

xxx                      xxx                      xxx

3.2.2.3 If the *connection point* of the *Trading Participant* could not be represented in the *market network model* or if a particular *market trading node* must be assigned to more than one (1) *Trading Participant* because the conditions set in Clause 3.2.2.2 are not met, the affected *Trading Participants*, the *Metering Services Provider* and the



*Network Service Provider will mutually agree on adjustments that will be implemented by the Market Operator and the System Operator.*

3.2.2.4 Nodal prices at *market trading nodes* shall be used for the *settlement of energy* for both generators and *Customers*.

3.2.2.5 The *Market Operator* shall maintain, *publish*, and continuously update a register of *market trading nodes*, defined in accordance with Clause 3.2.2.1 so as to accurately reflect changes in the *market network model* and the *WESM Member* responsible for each *market trading node*."

(n) Clause 3.2.3.1 under Customer Pricing Zones is amended to read as -

"3.2.3.1 *Customer market trading nodes* may be grouped into *Customer pricing zones* in accordance with the procedures to be developed by the *Market Operator* and subject to the approval of the *PEM Board*. The *Market Operator* shall maintain and *publish* the *Customer pricing zones* to be used for the *settlement of energy* for *Customers*."

(o) Clause 3.3.1.1 under Introduction of Ancillary Services is amended to read as -

"3.3.1.1 *Ancillary services* are services that are essential to the management of *power system security*, that facilitate orderly trading in electricity and ensure that electricity supplies are of an acceptable quality as defined in the *Grid Code*."

(p) Clause 3.3.1.3 under Introduction of Ancillary Services is amended to read as -

"3.3.1.3 The requirements for *ancillary services* are to be met in the following ways:

xxx                      xxx      xxx

(b) By the *System Operator* procuring *ancillary services* in accordance with Clause 3.3.3."

(q) Clause 3.3.2.1 under Ancillary Services Contracting by the System Operator is amended to read as -

"3.3.2.1 The *System Operator* shall use reasonable endeavors to ensure that sufficient facilities are available and operable to provide for:

xxx                      xxx      xxx

(c) availability, at all times, of the number of independent power sources able to provide *black start-up facilities*, determined in accordance with the procedures developed by the *System Operator* to ascertain the quantities of *ancillary services* which the *System Operator* shall procure."

(r) Clause 3.3.3 and its sub-clauses under Ancillary Services are amended to read as -

"3.3.3 Ancillary Services Agreements

xxx                      xxx      xxx

3.3.3.2 The *System Operator* shall arrange for the provision of adequate *ancillary services* for each region through any or a combination of the following:

- (a) by entering into contracts with *Ancillary Services Providers*; or
- (b) by competitive *spot market* trading in accordance with Clause 3.3.4.

3.3.3.3 Payment for *ancillary services* purchased under an *ancillary services agreement* may include:

- (a) A payment for both contracted capabilities and a measure of the *ancillary services* provided;
- (b) A demonstrable *spot market opportunity cost*, that is lost *spot market* revenue or *opportunity costs* incurred by the *Ancillary Services Provider* as a result of providing the *ancillary services*;
- (c) A fair return to the *Ancillary Services Provider* in respect of any additional direct costs associated with providing the *ancillary service*; and
- (d) When applicable, subject to Clause 3.3.4.1, a price for that *ancillary service* established by a competitive *spot market* mechanism.

3.3.3.4 Payments for *ancillary services* that are provided under Clause 3.3.3.2 (b) are to be made by the *Market Operator* via the *settlements system* in accordance with Clause 3.13.13.

3.3.3.5 *Ancillary services agreements* shall contain a provision pursuant to which the capability of the relevant *Ancillary Services Provider* to provide *ancillary services* shall be demonstrated from time to time to the satisfaction of the *System Operator* according to the standard test procedures established under the *Grid Code* and *Distribution Code*."

- (s) Clause 3.3.4.3 is added as a new provision under Reserve Market Arrangements to read as -

"3.3.4.3 The *Market Operator*, in consultation with the *System Operator*, shall determine an appropriate set of *reserve regions* that will be used for the purpose of setting *reserve* requirements, and determining *reserve* prices and *reserve cost recovery charges*."

- (t) Clause 3.3.4.4 is added as a new provision under Reserve Market Arrangements to read as -

"3.3.4.4 The *Market Operator* shall maintain and *publish* the set of *reserve categories*, as well as the defined *reserve regions*, that shall be traded in the *spot market*."

- (u) Clause 3.3.5 under Ancillary Services is amended to read as -

"3.3.5 Reserve Market Cost Recovery"

- (v) Clause 3.3.5.1 under Reserve Market Cost Recovery is amended to read as -



"3.3.5.1 The Market Operator shall maintain and publish reserve cost recovery zones within which reserve cost recovery charges may be recovered to meet each locationally specific requirement."

(w) Clause 3.3.5.2 under Reserve Market Cost Recovery is amended to read as -

"3.3.5.2 The costs of reserves are to be recovered through the settlement amounts calculated by the Market Operator under Clause 3.13.9 in accordance with the cost recovery formula to be developed by the Market Operator for each reserve category."

(x) Clause 3.3.5.4 under Reserve Market Cost Recovery is amended to read as -

"3.3.5.4 When allocating reserve cost recovery charges to Trading Participants in a particular reserve cost recovery zone as published in Clause 3.3.5.1, the Market Operator may recover the cost of reserves from Trading Participants and Network Service Providers."

(y) Clause 3.3.7 and its sub-clauses under Ancillary Services are amended to read as -

"3.3.7 Approval, Periodic Review and Evaluation of Reserve Market Arrangements

3.3.7.1 The Market Operator, in consultation with System Operator and WESM Participants shall conduct a periodic review and evaluation of the following:

- (a) Reserve categories, reserve regions, reserve market cost recovery formula, and locationally specific reserve requirements; and
- (b) Procedures developed under this Clause 3.3 with a view to refining these procedures to promote the WESM objectives and better meet the requirements of the power system operation.

3.3.7.2 Any proposed changes in the procedures reviewed under this Clause 3.3.7 shall be approved in accordance with the rules change process set out in Chapter 8."

(z) Clause 3.4 under The Market is amended to read as -

"3.4 Market Dispatch Interval, Settlement Interval and Timetable"

(aa) Clause 3.4.1 and its sub-clauses under Market Dispatch Interval, Settlement Interval and Timetable are amended to read as -

"3.4.1 Dispatch Interval

3.4.1.1 A dispatch interval is defined to be a five (5) minute period.

3.4.1.2 The market dispatch optimization model defined in Clause 3.6 will be run by the Market Operator for each dispatch interval. If the market dispatch optimization model is not successfully run for any dispatch interval, then the results of the hour-ahead projection shall be used for that dispatch interval in accordance with the relevant Market Manual.

3.4.1.3 *Nodal energy dispatch prices for energy and dispatch interval prices for each reserve category and each reserve region will be determined for each dispatch interval.*"

- (bb) Clause 3.4.2 and its sub-clauses under Market Dispatch Interval, Settlement Interval and Timetable are amended to read as -

"3.4.2 Settlement Interval

3.4.2.1 A *settlement interval* is defined to be a period of one (1) hour, commencing on the hour.

3.4.2.2 *Energy settlement prices and energy settlement quantities* shall be determined for every *settlement interval*, in accordance with Clauses 3.10.6 and 3.13, respectively.

3.4.2.3 *Reserve settlement prices and reserve settlement quantities for each reserve region and reserve category* shall be determined for every *settlement interval*, in accordance with Clauses 3.10.7 and 3.13.5, respectively."

- (cc) Original Clause 3.4.2 and its sub-clauses under Market Dispatch Interval, Settlement Interval and Timetable are renumbered and amended accordingly to read as -

"3.4.3 Timetable

XXX                      XXX      XXX

3.4.3.2 The *timetable* shall include the schedule and procedure for the following:

- (a) Determining and publishing *week ahead projections* for each hour including precise specification of the *market horizon* to be used for such *projections*;
- (b) Determining and publishing *day-ahead projections* for each hour including precise specification of the *market horizon* to be used for such *projections*;
- (c) Submitting offers, bids and data;
- (d) If necessary, for any other action to be taken by the *Market Operator*, the *System Operator*, or any *WESM Member* during the operation of the *spot market*;
- (e) Determining and publishing *hour-ahead projections* for each *dispatch interval* including precise specification of the *market horizon* to be used for such *projections*; and
- (f) Determining and publishing *load forecasts*, *real-time dispatch schedules*, and *market prices*.

XXX                      XXX      XXX "

- (dd) Clause 3.5.2 and its sub-clauses under Submission of Offers, Bids, and Data are amended to read as -

"3.5.2 Network Service Provider Data

3.5.2.1 Each *Network Service Provider* shall submit to the *System Operator* *standing network data* relating to all *network elements* which are under that *Network Service*



Provider's control, which the Market Operator shall include in the market network model, in accordance with Clause 3.5.2.6, and the Grid Code and Distribution Code.

3.5.2.2 Each Network Service Provider shall submit to the System Operator any planned outages of network elements which are under that Network Service Provider's control and that are included in the market network model.

3.5.2.3 Each Network Service Provider shall submit to the System Operator, in real time, information on the present state of its network including status of switches or circuit breakers and all available measurements for all network elements which are under that Network Service Provider's control and that are included in the market network model.

3.5.2.4 If there is any material long term change in the status or configuration of a network under the control of a Network Service Provider, the standing network data relevant to that network shall be revised by the relevant Network Service Provider, and submitted to the System Operator.

3.5.2.5 Each Network Service Provider shall submit period-specific network data variations to the System Operator as soon as any material change in previously submitted network data becomes apparent with respect to the expected state of any of its networks in any dispatch interval of any trading day in the current week ahead market horizon.

3.5.2.6 The standing network data and any variations to that data submitted in accordance with Clause 3.5.2.5 shall be provided by Network Service Providers in a form which allows the System Operator to readily derive and verify the information specified in Appendix A2, as it may pertain to any dispatch interval of any trading day in the week ahead market horizon.

3.5.2.7 Each Network Service Provider shall immediately advise the System Operator of any circumstances which threaten a significant probability of material adverse change in the state of its network in any dispatch interval of any trading day in the current week ahead market horizon."

(ee) Clause 3.5.3.1 under System Operator Data is amended to read as -

"3.5.3.1 The System Operator shall submit to the Market Operator standing network data relating to all network elements which are under a Network Service Provider's control and included in the market network model, in accordance with the timetable."

(ff) Clause 3.5.3.2 under System Operator Data is amended to read as -

"3.5.3.2 Where necessary, the System Operator shall, in accordance with the timetable, promptly advise the Market Operator to:

- (a) Vary the market network model representation employed for any dispatch interval to take account of information received from Network Service Providers; and
- (b) Apply, or vary, any system security constraints, overriding constraints or reserve requirements constraints to be applied in any dispatch interval to take account of current, or projected, system conditions."

- (gg) Clause 3.5.3.5 under System Operator Data is amended to read as -

"3.5.3.5 In accordance with the *timetable*, any revision under Clause 3.5.3.2 to the system representation or *constraints* to be employed with respect to any market *dispatch interval* shall take effect the next time a *market dispatch optimization model* run is initiated."

- (hh) Clause 3.5.3.6 under System Operator Data is amended to read as -

"3.5.3.6 The *System Operator* shall advise the *Market Operator* of any circumstances which threaten a significant probability of material adverse change in the state of the *network*, or *system*, in any *dispatch interval* of any *trading day* in the current week ahead *market horizon*."

- (ii) Clause 3.5.3.7 under System Operator Data is amended to read as -

"3.5.3.7 The *System Operator* shall submit to the *Market Operator* a *variable renewable energy aggregated generation forecast* for each of the *dispatch intervals* within the next *trading day* and update the same once every *dispatch interval* in accordance with the relevant *Market Manuals* and the relevant provisions of the *Grid Code*."

- (jj) Clause 3.5.3.10 is added as a new provision under System Operator Data to read as -

"3.5.3.10 The *Market Operator* shall publish the *market network model* representation, all *network status data*, any *system security constraints*, *overriding constraints* or *reserve requirements constraints* used in any *market projections*, *dispatches*, *prices* and *settlements*."

- (kk) Clause 3.5.3.11 is added as a new provision under System Operator Data to read as -

"3.5.3.11 The *System Operator* shall be responsible for taking measures to ensure that the *Market Operator* is provided with data in a timely and reliable manner, and which has undergone a process of quality checking by the *System Operator* and cross-quality checking by the *Market Operator*, and, if required and feasible, substitution from alternative primary sources."

- (II) Clause 3.5.4 and its sub-clauses under Submission of Offers, Bids and Data are amended to read as -

#### "3.5.4 Load Forecasting

All *load forecasts* at each *Customer market trading node* in the *market network model* shall be specified in units of *megawatt (MW)* and will apply to the end of the relevant *dispatch interval* unless otherwise stated.

3.5.4.1 Each *Customer* may submit a forecast in respect of each *dispatch interval* for each of its registered *load facilities* for each *trading day* of the week in accordance with the *timetable*.



3.5.4.3 The unrestrained *net load forecast* shall be prepared so as to represent the net load as it would be, or would have been, in the absence of *load shedding*.

3.5.4.4 If loss of load is expected to occur in any *dispatch interval*, a restrained *net load forecast* for that *dispatch interval* shall be prepared on the same basis, but accounting for *load shedding* to the extent that it is expected to occur.

3.5.4.5 The Market Operator shall annually review the performance of its nodal load forecasts used for *week ahead projections*, *day-ahead projections*, *hour-ahead projections*, and determining *dispatch schedules*.

3.5.4.6 The Market Operator shall periodically review the methodologies for performing nodal load forecasts used for *week ahead projections*, *day-ahead projections*, *hour-ahead projections*, and determining *dispatch schedules*."

(mm) Clause 3.5.5.1 under Generation Offers and Data is amended to read as -

"3.5.5.1 Each *Scheduled Generation Company* including *Generation Companies* with *bilateral contracts* shall submit a *standing generation offer* for each of its *scheduled generating units* for each *dispatch interval* in each *trading day* of the week in accordance with the *timetable*. The *standing generation offer* shall apply until revised or updated by the *Scheduled Generation Company*."

(nn) Clause 3.5.5.3 under Generation Offers and Data is amended to read as -

"3.5.5.3 Each *Generation Company* shall submit *check data* to be used by the Market Operator, in accordance with Clause 3.5.12, to assist in determining the validity of any *generation offer* which may be submitted by the *scheduled generator*."

(oo) Clause 3.5.5.4 under Generation Offers and Data is amended to read as -

"3.5.5.4 Each *Non-Scheduled Generation Company* shall submit a *standing nomination of loading levels* for each of its *non-scheduled generating units* for each *dispatch interval* in each *trading day* of the week in accordance with the *timetable*. The *standing nomination of loading levels* shall apply until revised or updated by the *Non-Scheduled Generation Company*."

(pp) Clause 3.5.5.5 under Generation Offers and Data is amended to read as -

"3.5.5.5 *Generation Companies* shall provide to the Market Operator and the System Operator *standing projected outputs* in respect of their *must dispatch generating units* and *priority dispatch generating units* for each *dispatch interval* in each *trading day* of the week in accordance with the relevant *Market Manuals* and provisions of the *Grid Code*. The *standing projected outputs* shall apply until revised or updated by the relevant *Generation Company*."

(qq) Clause 3.5.6.1 under Customer Demand Bids is amended to read as -

"3.5.6.1 Each *Customer* may submit a standing *demand bid* in respect of each *dispatch interval* for each of its registered *scheduled load facilities* for each *trading day* of the week in accordance with the *timetable*."

(rr) Clause 3.5.7.2 under Generation Company Reserve Offers is amended to read as -

"3.5.7.2 When applicable, subject to Clause 3.3.4.2, each scheduled generator registered as an *Ancillary Services Provider* in respect of a *reserve facility* in a particular *reserve region* shall submit a standing *reserve offer* for each of its relevant *reserve facilities* in respect of that *reserve region* for each *dispatch interval* for each day of the week in accordance with the *timetable*. The standing *reserve offer* shall apply until revised or updated by the scheduled generator registered as an *Ancillary Services Provider*."

(ss) Clause 3.5.8.1 under Customer Reserve Offers is amended to read as -

"3.5.8.1 This section shall apply only upon commencement of the *spot market* for *ancillary services* established under Clause 3.3.4 with the *ancillary service* certification by the *System Operator* and upon approval of *ERC* for other types of *ancillary reserves*."

(tt) Clause 3.5.8.2 under Customer Reserve Offers is amended to read as -

"3.5.8.2 When applicable, subject to Clause 3.3.4.2, each *Customer* registered as an *Ancillary Services Provider* in respect of a *reserve facility* in a particular *reserve region* may submit a standing *reserve offer* for each of its *interruptible load facilities* in respect of that *reserve region* for each *dispatch interval* for each day of the week in accordance with the *timetable*."

(uu) Clause 3.5.8.3 under Customer Reserve Offers is amended to read as -

"3.5.8.3 Each *reserve offer* submitted by a *Customer* under Clause 3.5.8.2 shall:

xxx                      xxx                      xxx

(c) Include the information specified in Appendix A1.2."

(vv) Clause 3.5.9.1 under Revision of Standing Offers/Bids is amended to read as -

"3.5.9.1 A standing *generation offer*, a standing *reserve offer*, a standing nomination of *loading levels*, a standing *projected output*, or a standing *demand bid* for any *dispatch interval* in any day of the week may be revised by the relevant *Generation Company* or *Customer* in accordance with the *timetable*."

(ww) Clause 3.5.10 under Submission of Offers, Bids and Data is amended to read as -

"3.5.10 Initial Setting of Market Offers/ Bids



When the Market Operator updates a market projection under Clause 3.7, the standing offers, standing nomination of loading levels, standing projected outputs, and standing bids shall be effective in the absence of revised market offers, nomination of loading levels, projected outputs, and market bids for the corresponding dispatch interval and day of the week."

- (xx) Clause 3.5.11.1 under Revision of Market Offers/Bids, Nomination of Loading Levels, and Projected Outputs is amended to read as -

"3.5.11.1 Each scheduled Trading Participant which has submitted standing offers or bids may revise any of its market offers or market bids for any dispatch interval in any trading day of the current week ahead market horizon in accordance with the timetable, and subject to Clause 3.5.11.4 and each revised market offer or market bid submitted shall provide the information set out in Appendix A1."

- (yy) Clause 3.5.11.5 under Revision of Market Offers/Bids, Nomination of Loading Levels, and Projected Outputs is amended to read as -

"3.5.11.5 Market bids or market offers for any dispatch interval may be revised by Trading Participants prior to gate closure if they no longer represent a reasonable estimate of:

- (a) the expected availability of the relevant generating unit or scheduled load for that dispatch interval; or
- (b) the demand bids or offers likely to apply for the real-time dispatch optimization of that dispatch interval."

- (zz) Clause 3.5.11.6 under Revision of Market Offers/Bids, Nomination of Loading Levels, and Projected Outputs is amended to read as -

"3.5.11.6 In submitting market bids or market offers for any dispatch interval, Trading Participants shall also take into account the following:

- (a) The time remaining until the occurrence of the relevant dispatch interval involved; and

xxx                      xxx                      xxx"

- (aaa) Clause 3.5.11.7 under Revision of Market Offers/Bids, Nomination of Loading Levels, and Projected Outputs is amended to read as -

"3.5.11.7 Trading Participants 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 dispatch interval of any trading day in the current week ahead market horizon.

xxx                      xxx                      xxx"

- (bbb) Clause 3.5.11.8 under Revision of Market Offers/Bids, Nomination of Loading Levels, and Projected Outputs is amended to read as -

"3.5.11.8 Prior to the spot market commencement date, the System Operator shall provide the Market Operator, for publication, a non-exhaustive list of events that will be

deemed to be or to cause a material adverse change in circumstances for the purposes of Clause 3.5.11.7."

- (ccc) Clause 3.5.11.9 under Revision of Market Offers/Bids, Nomination of Loading Levels, and Projected Outputs is amended to read as -

"3.5.11.9 Each *market offer*, nomination of loading level, projected output, or market bid for a particular *dispatch interval* is deemed to stand with effect from the time it is initiated under Clause 3.5.10 or revised under Clause 3.5.11 and will be used in preparing all market forecasts, *dispatch targets* or prices for that *dispatch interval*, unless and until a valid revision to the *market offer*, nomination of loading level, projected output, or market bid is accepted by the Market Operator."

- (ddd) Clause 3.5.13 and its sub-clauses under Submission of Offers, Bids and Data are amended to read as -

"3.5.13 Overriding Constraints

3.5.13.1 Subject to Clause 3.5.13.2, the System Operator may require the Market Operator to impose constraints on the power flow, energy generation of a specific facility in the grid to address system security threat, to mitigate the effects of a system emergency, or to address the need to dispatch generating units to comply with systems, regulatory and commercial tests requirements.

The System Operator, the Market Operator and the Trading Participants, shall develop the criteria and procedures for dispatch of generating units that are required to run as a result of the imposition or relaxation of constraints stated in the preceding paragraph, and the manner for compensating said units.

xxx                      xxx    xxx

3.5.13.2 Prior to the spot market commencement date, the System Operator, in consultation with Trading Participants and the Market Operator, shall publish a general description of the nature of circumstances which will cause it to recommend imposition or relaxation of constraints and the type of action which may be taken.

3.5.13.3 When acting under Clause 3.5.13.1, the System Operator shall:

- (a) Notify the relevant Trading Participant of the situation as soon as practicable; and
- (b) Record appropriate details of the incident.

3.5.13.4 At the request of the Market Operator or any WESM Member, the Market Surveillance Committee may review any decision by the System Operator or the Market Operator to impose or relax constraints, as the case may be.

3.5.13.5 If a review conducted under Clause 3.5.13.4 concludes that a Trading Participant or the Market Operator or the System Operator has acted inappropriately, and has thereby imposed significant costs on other parties, the Market Surveillance Committee may refer that matter to the Enforcement and Compliance Officer under Clause 7.2 or require that Trading Participant or the Market Operator or the System Operator (as the case may be) to pay compensation in accordance with Clause 7.2."



(eee) Clause 3.6.1.1 under Model Definition is amended to read as -

"3.6.1.1 The market dispatch optimization model simultaneously determines dispatch targets for the end of a dispatch interval, reserve allocations for the dispatch interval, associated nodal energy dispatch prices at all trading nodes in the power system and when applicable reserve prices for all reserve regions."

(fff) Clause 3.6.1.2 under Model Definition is amended to read as -

"3.6.1.2 The Market Operator shall maintain and publish the detailed formulation of the market dispatch optimization model in accordance with the WESM objectives."

(ggg) Clause 3.6.1.4 under Model Definition is amended to read as -

"3.6.1.4 In formulating the market dispatch optimization model, the Market Operator and System Operator shall ensure that the dispatch for each dispatch interval is made subject to:

xxx                      xxx      xxx

- (b) Constraints representing the technical characteristics of reserve facility categories, including joint energy and reserves capacity limits and joint energy and reserves ramping limits, where applicable;
- (c) Energy balance equations for each node in the market network model ensuring that the net load forecast for the end of the dispatch interval at each market trading node as determined by the Market Operator is met;
- (d) Constraints representing limitations on the ramp rates from the plants statuses or standing data deemed to apply prior to the commencement of the dispatch interval;
- (e) Constraints defining power system reserve requirements as provided by the System Operator under Clause 3.5.3 including co-optimized dispatch and applicable ancillary services requirements;
- (f) Network constraints, as implied by the market network model and any system security constraints provided by the System Operator under Clause 3.5.3;

xxx                      xxx      xxx

- (l) Any additional constraints that pertain to the operational modes of generators, loads or similar facilities."

(hhh) Clause 3.6.1.5 under Model Definition is amended to read as -

"3.6.1.5 The market dispatch optimization model shall be designed so that, subject to the approximations and adjustments provided for by Clause 3.6.4:

xxx                      xxx      xxx

- c) It will produce nodal energy dispatch prices for each market trading node, and when applicable reserve prices for each reserve category and reserve region, so that the recommended dispatch targets for each individual Trading Participant would be optimal for that participant at those prices, given their offers and demand bids and

- after accounting for other *constraints* which may affect that *Trading Participant*; and
- (d) It will perform its functions in accordance with the performance standards approved by the *PEM Board* in accordance with Clauses 1.3.2.3 and 10.4.10.2."

(iii) Clause 3.6.1.8 under Model Definition is amended to read as -

"3.6.1.8 When restricting *dispatch* targets under Clause 3.6.1.7, the *market dispatch optimization model* shall consider the following hierarchy when a combination of the groups are to be restricted:

- (a) *Market offers of scheduled generating units*;
- (b) *Non-scheduled generating units*;
- (c) *Priority dispatch generating units*; and
- (d) *Must dispatch generating units*."

(jjj) Clause 3.6.2 and its sub-clauses under Market Dispatch Optimization Model are amended to read as -

#### "3.6.2 Constraint Violation Variables and Coefficients

*Constraints* that may be relaxed in the *market dispatch optimization model* shall be set up with one (1) or more non-negative violation variables and associated *constraint violation coefficients* to ensure that the *market dispatch* model will always find a solution which satisfies all *constraints*, if such a solution exists.

The *constraint violation coefficients* shall be set for:

- (a) *market dispatches*; and
- (b) *market pricing re-runs* when the *market dispatch* has resulted in a non-zero violation variable.

3.6.2.1 The *constraint violation coefficients* shall be set for *market dispatches* so as to ensure that:

- (a) the *market dispatch* model will always find a solution which satisfies all *constraints*, if such a solution exists; and
- (b) the violated *constraints* are prioritized, such that the *dispatches* of *network elements*, *loads* and *generating units* are physically feasible and reflect the priorities or how the *System Operator* should manage *system security* and *reliability*.

3.6.2.2 The *constraint violation coefficients* shall be set for *market pricing re-runs* so as to ensure that:

- (a) the *dispatches* of all *network elements*, *loads* and *generating units* produced by the *market optimization algorithm* are approximately the same as the original *market dispatches*; and
- (b) the prices produced by the *market optimization algorithm* will be appropriate in all the circumstances, taking into consideration the processes defined in Clause 3.10 to adjust or override those prices for *market projection*, *dispatch* and *settlement* purposes when there are instances of non-zero *constraint violation* variable values.

3.6.2.3 The *constraint violation coefficients* may:



xxx

xxx

xxx

- (b) Increase progressively as the *constraint violation* becomes more severe; and
- (c) Increase or decrease as a function of the length of time for which the *constraint* has been violated.

3.6.2.4 The *constraint violation coefficients* for the nodal energy balance equations referred to in Clause 3.6.1.4 (c):

- (a) will be known as the *nodal value of loss load (nodal VoLL)*; and
- (b) may vary from *node* to *node* and/or be set so as to reflect application of nodal loss load priorities.

3.6.2.5 The *Market Operator*, in coordination with the *System Operator*, and in consultation with the *WESM Members* shall regularly review the appropriateness and applicability of *constraint violation* variables and their associated *constraint violation coefficients* levels in accordance with Clause 10.4.11.1; and revise as may be necessary to ensure that it reflects the actual conditions of the *network*. Such revisions shall be approved by the *PEM Board* and shall be *published* in accordance with the *timetable*.

3.6.2.6 For *constraints* which use two (2) or more violation variables, all violation variables must have upper bounds other than the violation variable corresponding to the highest *constraint violation coefficient*."

- (kkk) Clause 3.6.3 under Market Dispatch Optimization Model is amended to read as -

#### "3.6.3 Interpretation of Model Outputs

The output of the *market dispatch optimization model* is to be interpreted as providing energy and when applicable *reserve dispatch* targets for the end of each *dispatch interval* to which the *market dispatch optimization model* is applied."

- (III) Clause 3.6.6 under Market Dispatch Optimization Model is amended to read as -

#### "3.6.6 Market Settlement

The market shall be cleared, prices determined, and *dispatch* determined according to the model results for each *dispatch interval*, in the form that is written. The model results shall not be challenged ex-post.

xxx

xxx

xxx"

- (mmm) Clause 3.6.7 with sub-clauses are added as new provisions under Market Dispatch Optimization Model to read as -

#### "3.6.7 Automatic Pricing Re-runs

3.6.7.1 Should the *market dispatch optimization model* result in one (1) or more non-zero *constraint violation* variable values then the *dispatch schedules* shall remain the same

but the prices for *energy* and *reserves* shall be determined from an automatic re-run of the *market dispatch optimization model* with relaxed constraints.

3.6.7.2 The purpose of the automatic market pricing re-runs is to ensure that the *energy* and *reserve* prices reflect:

- (a) the marginal costs of supplying *energy* at each *node*;
- (b) the marginal costs of supplying *reserves*;
- (c) shortage pricing when there is a shortage of *supply* at a *node* or regional level; and
- (d) excess pricing when there is an excess of *supply* at a *node* or regional level.

Such methodology for shortage pricing and excess pricing shall be approved by the DOE and ERC.

3.6.7.3 The automatic re-run of the *dispatch optimization* shall use the following changes to any of the *constraints* that had non-zero *constraint violation* variable values:

- (a) For each nodal *energy* balance *constraint* that was violated, the *constraint violation coefficient* for the new violation variable shall be set; and
- (b) For all other *constraints* that were violated, each *constraint's* requirement shall be reduced by the minimum amount to a level that prevents a violation of that requirement.

3.6.7.4 The automatic re-run shall solve the *market dispatch optimization model* with the reduced nodal *energy* and other violated *constraint's* requirements.

3.6.7.5 The prices determined from the *automatic pricing re-run* shall be the prices used for *projections*, *dispatch schedules* and *settlements*.

3.6.7.6 The automatic re-run process of detecting non-zero *constraint violation* variable values, setting up the relaxed *dispatch optimization* and solving it shall occur as quickly as possible or the time nominated in the *Market Operator's published* performance standards as required in Clause 1.3.2.3.

3.6.7.7 Subject to the procedures *published* in accordance with Clause 3.6.7.8, the *Market Operator* may implement *automatic pricing re-runs* even where the *market dispatch optimization model* does not reflect non-zero *constraint violation* variable values.

3.6.7.8 Subject to the procedures approved by the DOE, the *Market Operator* shall develop and *publish* the procedures of the *automatic pricing re-runs*. Such procedures shall provide the criteria and conditions for performing the *automatic pricing re-runs*."

(nnn) Clause 3.7 under The Market is amended to read as -

#### "3.7 Market Projections

The *Market Operator* shall prepare and *publish week ahead projections*, *day-ahead projections*, and *hour-ahead projections* using the *market dispatch optimization model*, in accordance with the *timetable*."



(ooo) Clause 3.7.1.2 under Week Ahead Projections is amended to read as -

*"3.7.1.2 Week ahead projections shall be prepared for all one (1) hour intervals within the relevant market horizon as defined in the timetable."*

(ppp) Clause 3.7.1.3 is added as a new provision under Week Ahead Projections to read as -

*"3.7.1.3 Week ahead projections shall be based on the market dispatch optimization model defined in Clause 3.6 based on input data prepared by the Market Operator over the appropriate time horizon in accordance with Clause 3.7.4."*

(qqq) Clause 3.7.2.2 under Day-Ahead Projections is amended to read as -

*"3.7.2.2 Day-ahead projections shall be prepared for all one (1) hour intervals starting from the succeeding interval for up to the end of the next trading day, with load scenarios, within the relevant market horizon as defined in the timetable."*

(rrr) Clause 3.7.2.3 is added as a new provision under Day-Ahead Projections to read as -

*"3.7.2.3 Day-ahead projections shall be determined by running the market dispatch optimization model defined in Clause 3.6 with input data prepared by the Market Operator over the appropriate time horizon in accordance with Clause 3.7.4."*

(sss) Clause 3.7.3 and its sub-clauses under Market Projections are amended to read as -

#### *"3.7.3 Hour-Ahead Projections*

*3.7.3.1 Hour-ahead projections shall be prepared using the market dispatch optimization model by the Market Operator and published at every dispatch interval, in accordance with the timetable, to assist Trading Participants to anticipate and respond to spot market conditions which might reasonably be expected to occur over the next hour.*

*3.7.3.2 Hour-ahead projections shall be prepared for all dispatch intervals within the relevant market horizon as defined in the timetable.*

*3.7.3.3 Hour-ahead projections shall be determined by running the market dispatch optimization model defined in Clause 3.6 with input data prepared by the Market Operator over the appropriate time horizon in accordance with Clause 3.7.4."*

(ttt) Original Clause 3.7.3 and its sub-clauses under Market Projections are renumbered and amended accordingly to read as -

#### *"3.7.4 Preparation of Market Projections*

xxx                      xxx      xxx

3.7.4.3 The Market Operator shall prepare a market projection corresponding to each load scenario developed under Clause 3.7.4.2.

xxx xxx xxx

3.7.4.5 Market projections shall be prepared by the Market Operator through the application of the market dispatch optimization model to all one (1) hour intervals or dispatch intervals, as applicable, within the relevant market horizon as defined in the timetable.

3.7.4.6 When preparing week ahead projections and day-ahead projections, the starting conditions for each successive one (1) hour interval shall be determined in respect of:

- (a) the first one (1) hour interval, as the actual, or expected, power system conditions at the time of the commencement of the market projection; and
- (b) subsequent one (1) hour intervals, as the projected power system conditions determined by the market dispatch optimization model for the end of the previous one (1) hour interval in that market projection.

xxx xxx xxx

3.7.4.9 When preparing hour-ahead projections, the starting conditions for each successive dispatch interval shall be determined as follows:

- (a) In respect of the first dispatch interval, as the projected power system conditions determined by the market dispatch optimization model that was used to determine targets for the end of the current dispatch interval; and
- (b) In respect of subsequent dispatch intervals, as the projected power system conditions determined by the market dispatch optimization model for the end of the previous dispatch interval executed as part of the hour-ahead projection."

(uuu) Original Clauses 3.7.4 and 3.7.4.1 under Market Projections are renumbered and amended accordingly to read as -

"3.7.5 Published Information

3.7.5.1 Based on the information referred to in Clause 3.7.4, each market projection published by the Market Operator in accordance with the timetable specified in the relevant Market Manuals shall contain the following information for each dispatch interval or one (1) hour interval, as applicable, in the period covered by the market projection:

xxx xxx xxx

- (e) Projected reserve schedules for reserve region and reserve facility categories;

xxx xxx xxx

- (h) Identification and quantification of:



- (i) projected nodal loss of load requirement;

xxx                      xxx      xxx

- (iv) one (1) hour intervals or *dispatch intervals* for which low or inadequate capacity margins are projected to apply;
- (v) projected congestion on *market network lines*; and
- (vi) non-zero *constraint violation variables* and their associated *constraint violation coefficients*."

- (vvv) Clause 3.8.1 under Scheduling and Dispatch Implementation is amended to read as -

"3.8.1 Responsibilities of the Market Operator

Prior to commencement of each *dispatch interval*, the *Market Operator* shall, in consultation with the *System Operator*, and in accordance with the *timetable* prescribed in the *relevant Market Manuals*:

- (a) Determine, or estimate, the *status* of all *generation facility* for that *dispatch interval*;
- (b) Prepare a forecast of the unrestrained net load expected at each *market trading node* for the end of that *dispatch interval*;
- (c) Adjust that unrestrained *net load forecast* to account for nodal loss of load, if required, in accordance with Clause 3.9.5;
- (d) Determine the most appropriate *network configuration* and state to be assumed for the end of that *dispatch interval*;
- (e) Use the *market dispatch optimization model* to determine the *target loading level* in MW for each *scheduled generating unit*, *must dispatch generating unit*, *priority dispatch generating unit*, *non-scheduled generating unit*, *scheduled load* and *reserve facility* for the end of that *dispatch interval* using the latest data from the *System Operator* and *Trading Participants*;
- (f) Submit to the *System Operator* the *dispatch schedule* containing the *target loading levels* to be achieved at the end of that *dispatch interval*, determined in accordance with Clause 3.8.1 (e).
- (g) Send to all *Trading Participants* a *dispatch schedule* that contains *target loading levels* in respect of their *scheduled generating unit*, *must dispatch generating unit*, *priority dispatch generating unit* and *non-scheduled generating units* calculated under Clause 3.8.1 (e) for each *dispatch interval* prior to the commencement of that *dispatch interval* in accordance with the *relevant Market Manuals*;
- (h) Ensure that the *dispatch schedule* issued to a *must dispatch generating unit* or *priority dispatch generating unit* includes the information on whether or not the scheduled output of the *generating unit* has been restricted in accordance with Clause 3.6.1.7; and
- (i) Submit to the *System Operator* the hour-ahead Merit-Order Table ranked from lowest to highest which shall be based on the offers prior the start of a one (1) hour *settlement interval*."

- (www) Clause 3.8.2.1 under Responsibilities of the System Operator is amended to read as -

"3.8.2.1 During each five (5) minutes *dispatch interval*, the *System Operator* shall use its reasonable endeavors to:

- (a) Monitor the implementation of the *dispatch targets* as determined by the *Market Operator* at the end of that *dispatch interval*;
- (b) Implement the hour-ahead Merit-Order Table provided by the *Market Operator*;
- (c) Maintain *system security* consistent with the requirements of the *Grid Code*;
- (d) Implement *load shedding*, if necessary, as provided by Clause 3.9;
- (e) *Dispatch constrain-on or constrain-off* generators or *must-run units* if all available reserves are exhausted during a *dispatch interval*. The *System Operator* may also *dispatch* generators as *must-run units* in specific *grid areas* which have become isolated from the rest of the *grid* and in which the *Market Operator* cannot determine the generator schedules;
- (f) In relation to (d) above, the *System Operator* shall incorporate to its *ancillary service* procurement plan *must-run units* as an additional type of *ancillary service*. For this purpose, the criteria and procedures developed under Clause 3.5.13 shall be revised accordingly; and
- (g) Intervene, where necessary, as provided by Clauses 6.3 and 6.5."

(xxx) Clause 3.8.2.2 under Responsibilities of the *System Operator* is amended to read as -

"3.8.2.2 After each one (1) hour interval, in accordance with the *timetable*, the *System Operator* shall advise the *Market Operator* of:

- (a) situations in which it became necessary for *dispatch instructions* to deviate from the *dispatch targets* determined by the *Market Operator*;
- (b) *load shedding* or other directions issued by the *System Operator* during that one (1) hour interval;
- (c) significant incidents in which *ancillary services* was called upon during that one (1) hour interval;
- (d) *network constraints* which affected *dispatch* during that one (1) hour interval;
- (e) binding security constraints which affected *dispatch* during that one (1) hour interval;
- (f) operational irregularities arising during that one (1) hour interval including but not limited to any circumstances in which there was *prima facie* evidence of a failure to follow *dispatch instructions*; and

xxx                      xxx      xxx.

The *System Operator* shall likewise provide a *dispatch deviation report* to the *Market Operator*, in accordance with the *timetable* and the *dispatch conformance standards* in Clause 3.8.5, detailing among others the circumstances and *dispatch levels* of units that were *constrained-on or constrained-off* or put on *must-run* during that one (1) hour interval."

(yyy) Clause 3.8.2.3 under Responsibilities of the *System Operator* is amended to read as -

"3.8.2.3 Before each *dispatch interval*, in accordance with the *timetable* prescribed in the relevant *Market Manuals*, the *System Operator* shall submit to the *Market Operator*



the *variable renewable energy aggregated generation forecast* for each interconnected system it operates in accordance with the *Grid Code*."

(zzz) Clause 3.8.3 and its sub-clauses under Scheduling and Dispatch Implementation are renumbered and amended accordingly to read as -

"3.8.3 System Operator Implementation of Real-Time Dispatch

3.8.3.1 All *dispatch targets* shall be specified in units of *megawatt (MW)* and will apply to the end of the relevant *dispatch interval* unless otherwise stated.

3.8.3.2 The *Market Operator* shall communicate the *target loading levels* to the *Trading Participants* through the market participant interface in accordance with the *timetable*.

3.8.3.3 All *scheduled generating units* and *priority dispatch generating units* shall follow all instructions from the *System Operator*, in accordance with the *Grid Code*, the *WESM Rules* and pertinent *Market Manuals*.

3.8.3.4 Subject to Clause 3.8.3.5, if, in real time, the available generation from a *must dispatch generating unit* differs from the available generation assumed in the *dispatch schedule* provided to the *System Operator*, the *System Operator* shall allow the *must dispatch generating unit* to generate at its *maximum available output*, and, if all available frequency regulation is exhausted during a *dispatch interval*, shall adjust the *dispatch* of other *generating units*, to compensate as required in accordance with relevant *Market Manuals*.

3.8.3.5 The *System Operator* shall instruct a *must dispatch generating unit* or a *priority dispatch generating unit* to restrict its output or constrain its *ramp rate* to a level specified by the *System Operator*, but only while the grid is not operating in normal state, in accordance with the *Grid Code* and the relevant *Market Manuals*."

3.8.3.6 If the *System Operator* has instructed a *must dispatch generating unit* or a *priority dispatch generating unit* to restrict its output, the *System Operator* shall instruct the *generating unit* to remove the restriction as soon as practicable after the actual or potential *system security issue* has been resolved."

(aaaa) Clause 3.8.4.1 under Dispatched Trading Participants is amended to read as -

"3.8.4.1 *Scheduled generating units* and *priority dispatch generating units* who are *dispatched* shall use reasonable endeavors to reach the *target loading level* by the end of that *dispatch interval* and within the *dispatch conformance standards* specified in Clause 3.8.5 and those *Trading Participants* should not be required to operate in any different way unless required to respond to a direction in accordance with Clauses 6.3 and 6.5."

(bbbb) Clause 3.8.4.4 under Dispatched Trading Participants is amended to read as -

"3.8.4.4 A *must dispatch generating unit* shall generate at its *maximum available output* at all times, unless the *Market Operator* or *System Operator* has instructed the *generating unit* to restrict output under Clauses 3.8.1 (h) or 3.8.3.5."

(cccc) Clause 3.8.5 under Scheduling and Dispatch Implementation is amended to read as -

*"3.8.5 Dispatch Conformance Standards"*

(dddd) Clause 3.8.5.1 is added as a new provision under Dispatch Conformance Standards to read as -

*"3.8.5.1 The Market Operator, in consultation with the System Operator and Trading Participants, shall develop dispatch conformance standards to be set forth in the relevant Market Manual."*

(eeee) Clause 3.8.5.2 is added as a new provision under Dispatch Conformance Standards to read as -

*"3.8.5.2 The dispatch conformance standards shall be consistent with the Grid Code and Distribution Code and shall be set for each type of plant."*

(ffff) Clause 3.8.5.3 is added as a new provision under Dispatch Conformance Standards to read as -

*"3.8.5.3 The Market Operator, in consultation with the System Operator and Trading Participants, shall establish the procedures for the:*

- (a) application of the dispatch conformance standards for registered generating units or scheduled load facilities;*
- (b) development and application of dispatch conformance standards for Intending WESM Members;*
- (c) monitoring and reporting of non-compliances; and*
- (d) events that a facility has been identified to be non-conforming."*

(gggg) Clause 3.8.5.4 is added as a new provision under Dispatch Conformance Standards to read as -

*"3.8.5.4 Checking for non-conformance shall take into account any ancillary service schedule, ancillary service responses, or emergency directions issued to dispatched Trading Participants, or the operation of a generation unit at its minimum stable level."*

(hhhh) Clause 3.8.5.5 is added as a new provision under Dispatch Conformance Standards to read as -

*"3.8.5.5 The Market Operator shall implement the procedures in Clauses 3.8.5.1 and 3.8.5.3 through a system to automatically check for non-conformance."*

(iiii) Clause 3.8.5.6 is added as a new provision under Dispatch Conformance Standards to read as -

*"3.8.5.6 The Market Operator, in consultation with the System Operator and Trading Participants, shall periodically review the application and the appropriateness of the procedures in Clauses 3.8.5.1 and 3.8.5.3."*



(jjjj) Clause 3.8.5.7 is added as a new provision under Dispatch Conformance Standards to read as -

"3.8.5.7 The *Market Operator* shall maintain and publish the *dispatch conformance standards* in Clauses 3.8.5.1 and 3.8.5.3."

(kkkk) Original Clauses 3.8.6 and 3.8.7, 3.8.7.1 and 3.8.7.2 under Scheduling and Dispatch Implementation are hereby deleted.

(llll) Original Clause 3.8.8 and its sub-clauses under Scheduling and Dispatch Implementation is renumbered and amended accordingly to read as -

"3.8.6 Sanctions of Trading Participants

3.8.6.1 Any *Trading Participant* who consistently fails to use its reasonable endeavors to act in accordance with *dispatch schedules* issued under Clause 3.8.1 (g), *dispatch instructions* issued by the *System Operator*, or who breaches the *dispatch conformance standards* published under Clause 3.8.5.7, may be liable of a sanction imposed under Clause 7.2.

xxx                      xxx      xxx"

(mmmm) Clause 3.9.1 under Treatment of Load Shedding, Excess Generation and Reserve Violation is amended to read as -

"3.9.1 Direction to Conduct Load Shedding

The *System Operator* may direct a *WESM Member* to conduct *load shedding* in response to:

- (a) an overall shortage of *supply capacity* to meet the demand in a region as specified by the *System Operator*; or
- (b) other *network conditions*, as determined by the *System Operator* in accordance with the security and reliability guidelines established under the *Grid Code* and *Distribution Code*."

(nnnn) Clause 3.9.2 under Treatment of Load Shedding, Excess Generation and Reserve Violation is amended to read as -

"3.9.2 Market Operator Advice on Nodal Loss of Load

In the event that:

xxx                      xxx      xxx

- (b) *dispatch optimization* performed under Clause 3.8 indicates that nodal loads are expected to be reduced by the presence of non-zero nodal energy constraint violation variables or nodal energy dispatch prices which are expected to be equal to, or exceed, nodal value of lost load at any Customer market trading node in the market network model, then the *Market Operator* shall immediately inform the *System Operator* of the presence of nodal loss of load."

(oooo) Clause 3.9.3 under Treatment of Load Shedding, Excess Generation and Reserve Violation is amended to read as -

"3.9.3 System Operator Responsibility to Initiate Load Shedding

The *System Operator*:

- (a) shall, if informed by the *Market Operator* under Clause 3.9.2, act immediately in accordance with the security and reliability guidelines to mitigate the effects of the presence of the nodal loss of *load* or any other considerations which the *System Operator* considers relevant under the *Grid Code* and *Distribution Code* and any other applicable regulatory instrument; and
- (b) shall initiate *load shedding* in response to any other circumstances which it reasonably considers necessitates such action under the *Grid Code* and *Distribution Code* or any other applicable regulatory instrument."

(pppp) Clause 3.9.4 under Treatment of Load Shedding, Excess Generation and Reserve Violation is amended to read as -

"3.9.4 Advising of Load Shedding

If it is anticipated that *load shedding* will occur in a *dispatch interval* during the one (1) hour interval, the *System Operator* shall, as soon as possible, advise its *load shedding* plans to:

xxx                      xxx    xxx"

(qqqq) Clause 3.9.5 under Treatment of Load Shedding, Excess Generation and Reserve Violation is amended to read as -

"3.9.5 Revising Forecasts

If advised by the *System Operator* of the likelihood of *load shedding* in any *dispatch interval* under Clause 3.9.4, the *Market Operator* shall, as soon as possible:

- (a) If practical within the time frame remaining before the start of that *dispatch interval*, revise the *load forecasts* to be used to determine the *dispatch schedule* for that *dispatch interval* in accordance with Clause 3.5.4.4, to account for those *load shedding* plans; and

xxx                      xxx    xxx"

(rrrr) Clause 3.9.7 under Treatment of Load Shedding, Excess Generation and Reserve Violation is amended to read as -

"3.9.7 Management of Load Shedding

The *System Operator* shall manage all aspects of dispatching while the *Market Operator* shall manage *dispatch pricing* during periods when *load shedding* is required in accordance with the detailed procedures to be developed by the *System Operator*



and the Market Operator with WESM Participants, and subject to approval by the PEM Board, consistent with the Grid Code and Distribution Code."

- (ssss) Clause 3.9.8.2 under Management Procedures for Excess Generation is amended to read as -

"3.9.8.2 Where necessary to shut down *generating systems* under Clause 3.9.8.1, the System Operator shall manage all aspects of dispatching while the Market Operator shall manage pricing in accordance with the procedures to be developed by the Market Operator, in consultation with the System Operator and WESM Participants, and subject to approval by the PEM Board. The procedures shall also take into account the occurrence of *excess generation* during *hour-ahead projection* and/or *dispatch interval* when the System Operator has exhausted all mitigating measures to address the *excess generation*."

- (tttt) Clause 3.9.8.3 under Management Procedures for Excess Generation is amended to read as -

"3.9.8.3 During the *hour-ahead projection* and/or *dispatch interval*, if *excess generation* is imminent or is detected in the *power system* by the System Operator in accordance with the Grid Code and it is established that the *excess generation* is being caused by a *generating system* that is not following its *dispatch schedule* or observing a linear ramp rate, then the *Generation Company* representing the *generating system* in the market may be liable of a sanction under Clause 7.2. The *Generation Company* representing the *generating system* that is not following its *dispatch schedule* or observing linear ramp rate, however, shall compensate other *generation system* that has been *constrained-off* by the System Operator. Such conditions shall also be considered in the procedures to be developed under Clause 3.9.8.2."

- (uuuu) Clause 3.9.9.1 under Management Procedures for Reserve Violation is amended to read as -

"3.9.9.1 Should either the *dispatch optimization* or any *market projection* indicate a violation of a *reserve requirement*, the Market Operator shall:

- (a) Promptly inform the System Operator that there is a reduction in the level of the *reserve requirement*.

xxx                      xxx                      xxx"

- (vvvv) Clause 3.9.9.2 under Management Procedures for Reserve Violation is amended to read as -

"3.9.9.2 Thereafter, the Market Operator shall provide a regular report to the PEM Board, the DOE and ERC regarding the violation of the *reserve requirement*."

- (wwww) Clause 3.10.1 under Determination of Market Prices is amended to read as -

"3.10.1 Calculation of Prices

For each *dispatch interval*, the Market Operator shall calculate, and publish in accordance with the *timetable*:

- (a) *Ex-ante nodal energy dispatch prices* in accordance with Clause 3.10.2;
- (b) *Ex-ante zonal energy prices* in accordance with Clause 3.10.3; and
- (c) When applicable, *reserve prices* in accordance with Clause 3.10.7."

(xxxx) Clause 3.10.2 under Determination of Market Prices is amended to read as -

"3.10.2 Determination of Ex-Ante Nodal Energy Dispatch Price

The *ex-ante nodal energy dispatch price* for each market trading node in any dispatch interval shall, subject to Clause 3.10.5, be determined as the *ex-ante shadow price* on the *energy balance equation* or equivalent mathematical formulation for that market trading node formed in accordance with Clause 3.6.1.4 (c), in the market dispatch optimization performed for that dispatch interval in accordance with Clause 3.8.1."

(yyyy) Clause 3.10.4 under Determination of Market Prices is amended to read as -

"3.10.4 Publishing Ex-Ante Prices According to Timetable

The Market Operator shall publish the *ex-ante nodal energy dispatch prices* and the *ex-ante zonal energy prices*, prior to the commencement of the dispatch interval to which they apply in accordance with the *timetable*."

(zzzz) Clause 3.10.5 under Determination of Market Prices is amended to include new provisions to read as -

"3.10.5 Pricing Error Notice

3.10.5.1 In the event where no *ex-ante dispatch prices* can be determined or communicated within the timeframe specified by the *timetable*, or the calculated prices are believed to be in error, notwithstanding the application of *automatic pricing re-run* under Clause 3.6.7.1, as a result of *load shedding*, occurrence of *constraints violation coefficients*, or for any other reason, the Market Operator shall issue a *pricing error notice*.

3.10.5.2 Upon issuance of a *pricing error notice*, the Market Operator shall, as soon as practicable, implement a market pricing re-run.

3.10.5.3 The market pricing re-runs shall be performed through the *market dispatch optimization model* using appropriately revised inputs.

3.10.5.4 The Market Operator shall develop and publish the procedures for the determination of the market pricing re-run prices. Such procedures shall provide the criteria and conditions for the market pricing re-run and the *timetable* for implementation.

3.10.5.5 The procedures developed for the market pricing re-runs shall be designed to produce prices reflecting *supply shortages* at any nodes where there was *load shedding* and prices reflecting *excess supply* where there was *excess generation*."



(aaaaa) Original Clauses 3.10.6, 3.10.7 and 3.10.8 under Determination of Market Prices are hereby deleted.

(bbbbb) Original Clause 3.10.9 under Determination of Market Prices is renumbered and amended accordingly to read as -

*"3.10.6 Determination of Energy Settlement Prices*

*Subject to Clause 3.10.5, the energy settlement prices for each market trading node in each settlement interval shall be determined as:*

- (a) *For generators, the dispatch schedule-weighted average nodal energy dispatch prices for the set of dispatch intervals corresponding to that settlement interval determined for that generator market trading node in accordance with Clause 3.10.2;*
- (b) *For Customers, the dispatch schedule-weighted average of its nodal energy dispatch prices for the set of dispatch intervals corresponding to that settlement interval determined for that Customer market trading node in accordance with Clause 3.10.2; and*
- (c) *For Customers that have been approved by the ERC to use zonal pricing, the ex-ante dispatch schedule-weighted average of the zonal energy prices for the set of dispatch intervals within that settlement interval determined for that Customer market trading node in accordance with Clause 3.10.3, if that node is deemed to be a Customer market trading node within a defined Customer pricing zone."*

(ccccc) Original Clause 3.10.10 under Determination of Market Prices is renumbered and amended accordingly to read as -

*"3.10.7 Determination of Reserve Price and Reserve Settlement Price*

- (a) *When applicable, the reserve price for each market reserve zone and reserve category in each dispatch interval shall be determined as the shadow price on the relevant reserve requirement constraint, defined in accordance with Clause 3.6.1.4 (e), in the dispatch optimization for that dispatch interval and published by the Market Operator before the start of that dispatch interval.*
- (b) *When applicable, the reserve settlement price for each reserve zone and reserve category in each settlement interval shall be determined as the schedule-weighted average of the corresponding reserve prices for that reserve category."*

(ddddd) Clause 3.11.1.1 under Market Information is amended to read as -

*"3.11.1.1 The Market Operator shall publish the following:*

- (a) *Nodal energy dispatch prices for all dispatch intervals and for each market trading node;*
- (b) *Energy settlement prices for all settlement intervals and for each market trading node;*
- (c) *Zonal energy prices for all dispatch intervals and for each Customer pricing zone;*
- (d) *Zonal energy settlement prices for all settlement intervals and for each Customer pricing zone;*
- (e) *When applicable, reserve prices and reserve settlement prices and requirements for each reserve region and reserve category;*

- (f) Binding *network constraints*, for each *dispatch interval* in accordance with the *timetable*;
- (g) Violated *network* and other *constraints* and the corresponding non-zero *constraint violation variable* values;
- (h) The *status* of all elements of the *market network model* such as *network element outages*, *network switch* and *circuit breaker statuses*; and
- (i) *Settlement* information to enable a *WESM Participant* to recreate or independently verify its *settlements*."

(eeee) Clause 3.11.1.2 under Market Information is amended to read as -

"3.11.1.2 As part of the information record under Clause 5.2.5, the *Market Operator* shall retain details of:

xxx                      xxx      xxx

(c) actual availabilities of *generating units* and *scheduled load* including, for each *dispatch interval* and *dispatch offer* and *dispatch bid*:

xxx                      xxx      xxx"

(ffff) Clause 3.11.1.3 under Market Information is amended to read as -

"3.11.1.3 Each *trading day*, in accordance with the *timetable*, the *Market Operator* shall publish:

- (a) The *dispatch schedule* for each *scheduled generating unit*, *must dispatch generating unit*, *priority dispatch generating unit*, *non-scheduled generating unit* and *scheduled load* in each *dispatch interval* in the *settlement intervals* for the previous *trading day*; and
- (b) A summary of the information provided to it with respect to each *dispatch interval* by the *System Operator* in accordance with Clause 3.8.2.2."

(ggggg) Clause 3.11.1.4 is added as a new provision under Market Information to read as -

"3.11.1.4 All information available to all market participants shall be deemed to be publicly available information."

(hhhhh) Clause 3.12.7 is added as a new provision under Financial Transmission Rights to read as -

"3.12.7 Price Substitution Methodology for Congestion

Prior to the implementation of the *financial transmission rights*, the *Market Operator* shall develop and *publish* a *Market Manual* that details the methodology for price substitution in the event of extreme nodal price separation arising from *network congestion*."

(iiii) Clause 3.13.1 under Settlement Quantities and Amounts is amended to read as -



"3.13.1 Submission of Bilateral Contract Data for Energy"

- (jjjjj) Clause 3.13.1.1 under Submission of Bilateral Contract Data for Energy is amended to read as -

"3.13.1.1 *Trading Participants* who sell electricity pursuant to *bilateral contracts* and wish those *bilateral contracts* to be accounted for in *settlements* after each *trading day*, in accordance with the billing and *settlement timetable*, shall:

- (a) Submit a schedule to the *Market Operator* specifying the MWH bilateral sell quantities at each relevant *market trading node*, in each *settlement interval* of that *trading day*;

xxx                      xxx      xxx"

- (kkkkk) Clause 3.13.2 under Settlement Quantities and Amounts is amended to read as -

"3.13.2 Submission of Bilateral Contract Data for Reserves"

- (lllll) Clause 3.13.2.1 under Submission of Bilateral Contract Data for Reserves is amended to read as -

"3.13.2.1 When applicable, *Trading Participants* who sell *reserve capacities* pursuant to *bilateral contracts* with the *System Operator*, shall submit these *bilateral contracts* after each *trading day*, in accordance with the billing and *settlements timetable* to be accounted for in *settlements*."

- (mmmmm) Clause 3.13.2.2 under Submission of Bilateral Contract Data for Reserves is amended to read as -

"3.13.2.2 The *System Operator* shall also provide information on their contracted *reserve capacities* to the *Market Operator* for purposes of validating the capacities identified in Clause 3.13.2.1"

- (nnnnn) Original Clause 3.13.2 and its sub-clauses under Settlement Quantities and Amounts are renumbered and amended accordingly to read as -

"3.13.3 Submission of Transmission Right Data

3.13.3.1 This section shall apply only upon commencement of the *transmission rights* market established under Clause 3.12.1.

3.13.3.2 *Trading Participants* who hold *transmission rights* and wish to have those *transmission rights* accounted for in *settlements* shall, after each *trading day*, in accordance with the *timetable*, submit to the *Market Operator* a schedule specifying:

xxx                      xxx      xxx

- (b) the MWH quantities of each *transmission right* in each *settlement interval* of that *trading day*, as they apply at the *sending node*;

- (c) the agreed *loss differential* associated with each *transmission right*, if any, as a proportion of the quantity specified in Clause 3.13.3.2 (b); and
- (d) that the *System Operator* is in agreement with the submission made under Clause 3.13.3 (and providing evidence of that agreement), and will cover any deficit in that *System Operator's settlements* position with the *spot market* arising as a result of honoring this *transmission right*."

(ooooo) Original Clause 3.13.3 under Settlement Quantities and Amounts is renumbered and amended accordingly to read as -

"3.13.4 Data for Bilateral Contracts and Transmission Rights

The Market Operator shall:

xxx                      xxx      xxx

- (b) If the data provided under Clause 3.13 is valid or complete, employ that data for *settlement* purposes in accordance with Clauses 3.13.7 and 3.13.12."

(ppppp) Original Clause 3.13.4 under Settlement Quantities and Amounts is renumbered and amended accordingly to read as -

"3.13.5 Reserve Settlement Quantity

"The *reserve settlement quantity* for each *Trading Participant* in each *settlement interval* shall be calculated as:

- (a) The average of the *reserve* schedule for each *facility*, less
- (b) The *reserve* contracted quantities in accordance with Clause 3.13.2.1, if any."

(qqqqq) Original Clauses 3.13.5 and 3.13.5.1 under Settlement Quantities and Amounts are hereby deleted.

(rrrrr) Clause 3.13.6 under Settlement Quantities and Amounts is amended to read as -

"3.13.6 Defining the Gross Energy Settlement Quantity for Market Trading Nodes

For each *settlement interval*, the *gross energy settlement quantity* before being adjusted for *bilateral contracts* for each *market trading node* shall be determined by the *Market Operator* as follows:

- (a) If the *market trading node* defined under Clause 3.2.2.1 is located on the boundary of the *power system* operated by the *System Operator*, the *gross energy settlement quantity* for the *market trading node* is the net metered flow into the *power system* operated by the *System Operator* through the associated *meter*, provided however, that if the *market trading node* is a *Customer market trading node*, and there is no ERC-registered embedded *generation facility* associated with that *node*, or the source of injection cannot be traced, any injection shall not be accounted for in determining the *gross energy settlement quantity* for that *node*;



- (b) If the *market trading node* defined under Clause 3.2.2.2 is a *generator market trading node* lying on the interface between *networks*, apparatus or equipment operated by parties other than the *System Operator*, the *gross energy settlement quantity* for the *market trading node* is the net metered flows through the associated *meter* from the *Generation Company* to the *Customer* side of the *meter*;
- (c) If the *market trading node* defined under Clause 3.2.2.2 is a *Customer market trading node* located on the interface between *networks*, or equipment operated by parties other than the *System Operator*, the *gross energy settlement quantity* for the *market trading node* is the negative of the amount determined for the corresponding *generator market trading node* in Clause 3.13.6 (b); and
- (d) If the net metered flows registered through a *meter* is inconsistent with the expected power flow to the *market trading node* to which that *meter* is associated, the *Metering Services Provider* shall determine and shall notify the *Market Operator* and the relevant *Trading Participant* the appropriate manner of determining the *gross settlement quantity* for that *market trading node*."

(sssss) Clause 3.13.7 under Settlement Quantities and Amounts is amended to read as -

"3.13.7 Energy Settlement Quantity Adjustments for Bilateral

For *settlement* purposes, the *energy settlement quantity* for any *market trading node* in any *settlement interval* shall be determined by the *Market Operator* by adjusting the *gross energy settlement quantity* for that *market trading node* and any *settlement interval*, as measured in accordance with Clause 3.13.6 for *bilateral contract* quantities notified to the *Market Operator* under Clause 3.13.1.1, or inferred by the *Market Operator* under Clause 3.13.1.1 and accepted as valid under Clause 3.13.1.2 by:

- (a) Subtracting all bilateral sell quantities notified for that *node* in that *settlement interval* from the measured or estimated *gross energy settlement quantity* for that *node* in that *settlement interval*; and
- (b) Adding all bilateral buy quantities inferred for that *node* in that *settlement interval* to the measured or estimated *gross energy settlement quantity* for that *node* in that *settlement interval*."

(ttttt) Clause 3.13.8 under Settlement Quantities and Amounts is amended to read as -

"3.13.8 Determining the Energy Trading Amount

For *settlement* purposes, the *energy trading amount* for each *market trading node* and *settlement interval* will be determined as the *energy settlement price* for that *node* in that *settlement interval* multiplied by the *energy settlement quantity* (in MWh) for that *node* in that *settlement interval*."

(uuuuu) Original Clause 3.13.9 under Settlement Quantities and Amounts is hereby deleted.

(vvvvv) Original Clause 3.13.10 and its sub-clauses under Settlement Quantities and Amounts are renumbered and amended accordingly to read as -

### "3.13.9 Determining the Reserve Trading Amount

3.13.9.1 For *settlement* purposes, the *reserve trading amount* for each *Trading Participant* who supplies *reserve* to a particular *reserve region* in a *settlement interval* will be determined as the *reserve price* for that *reserve region* in that *settlement interval* multiplied by the *reserve settlement quantity* for that *Trading Participant* in that *reserve region* for that *settlement interval*.

3.13.9.2 During the initial operation of the *interim WESM*, the *reserve trading amount* shall be calculated based on the cost of *reserves* contracted for by the *System Operator*."

(wwwww)Original Clause 3.13.11 under Settlement Quantities and Amounts is renumbered and amended accordingly to read as -

### "3.13.10 Determining the Reserve Cost Recovery Charge

The *reserve cost recovery charge* for *settlement* purposes will be determined for each *Trading Participant* in each *settlement interval* in accordance with the procedures developed under Clause 3.3.5."

(xxxxx) Original Clause 3.13.12 under Settlement Quantities and Amounts is renumbered and amended accordingly to read as -

### "3.13.11 Calculation of Line Rental Trading Amounts

The *Market Operator* shall calculate the *line rental trading amounts* for each *bilateral contract* associated with the delivery of the *bilateral contract quantities* through the *transmission line* in the *market network model* as:

- (a) The expected flow of *energy* out of the *receiving node* of the *market network line* as determined by the *market dispatch optimization model* multiplied by *nodal energy settlement price*; less
- (b) The expected flow of *energy* into the *sending node* multiplied by the *nodal energy settlement price* of the *market network line* as determined by the *market dispatch optimization model*."

(yyyyy) Original Clause 3.13.13 under Settlement Quantities and Amounts is renumbered and amended accordingly to read as -

### "3.13.12 Determining the Transmission Rights Trading Amount

For *settlement* purposes, the *transmission right trading amount* for each *transmission right* in each *settlement interval* is to be determined as:

- (a) The *MWh capacity* of that *transmission right* in that *settlement interval* as notified under Clause 3.13.2, multiplied by the *energy settlement price* for the *receiving node* in that *settlement interval*; minus the sum of
- (b) The *MWh capacity* of that *transmission right*, in that *settlement interval*, as notified under Clause 3.13.2, multiplied by the *energy settlement price* at the *sending node* in that *settlement interval*; plus



- (c) The MWh capacity of *that transmission right* in *that settlement interval*, as notified under Clause 3.13.2, multiplied by the *agreed loss differential* for *that transmission right*, as notified under Clause 3.13.2, multiplied by the *energy settlement price* at the *receiving node* in *that settlement interval*."

(zzzzz) Original Clause 3.13.14 and its sub-clauses under Settlement Quantities and Amounts are renumbered and amended accordingly to read as -

"3.13.13 Settlement Amounts for Trading Participants

3.13.13.1 For each *billing period*, the *Market Operator* shall determine the *settlement amount* for each *Trading Participant* as the sum of the *aggregate trading amounts* for the *settlement intervals* in *that billing period*, determined in accordance with Clause 3.13.13.2: plus

- (a) any amount payable by the *Market Operator* to that *Trading Participant* in respect of *that billing period* and not accounted for in Clause 3.13.13.2, including payment for any *ancillary services* purchased on behalf of the *System Operator*, less the sum of
- (b) any *market fees* which that *Trading Participant* is required to pay in respect of *that billing period* as determined in accordance with Clause 2.10; plus
- (c) any other amounts payable by that *Trading Participant* to the *Market Operator* in respect of *that billing period*, including any *reserves cost recovery charges*.

3.13.13.2 The *aggregate trading amount* for a *Trading Participant* for a *settlement interval* equals the sum of:

- (a) the *energy trading amounts* for each *market trading node* for which that *Trading Participant* is responsible calculated in accordance with Clause 3.13.8 (which may be positive or negative for any *Trading Participant*); plus
- (b) the *reserve trading amounts* for each *reserve region* into which that *Trading Participant* contributes *reserve* calculated in accordance with Clause 3.13.9 (which will always be positive for both *Generation Companies* and *Customers*); plus
- (c) the *transmission right trading amounts* for each *transmission right* held by the *WESM Participant* calculated in accordance with Clause 3.13.12 (which will typically be positive for any *Trading Participant*); less the sum of
- (d) the *reserve cost recovery charge* determined for that *Trading Participant* with respect to any *reserve cost recovery zone* within which it has any *facility connected* calculated in accordance with the procedures developed under Clause 3.3.5 (which will be positive for any *Trading Participant*); and
- (e) any other *reserve cost recovery charges* determined for that *Trading Participant* in accordance with the procedures developed under Clause 3.3.5 (which will be positive for any *Trading Participant*).

3.13.13.3 The *Market Operator* shall develop and implement, subject to approval by the *ERC*, the appropriate pricing and *settlement methodology* for compensation of *Trading Participants* whose *generating units* are designated as *must-run units* or identified as *displaced generators*, and the corresponding *recovery mechanism* for the same."

(aaaaaa) Original Clause 3.13.16 and its sub-clauses under Settlement Quantities and Amounts are renumbered and amended accordingly to read as -

*"3.13.14 Treatment of Remaining Settlement Surplus*

3.13.14.1 If the transactions required by Clause 3.13.13.2 (a), (b) and (d), in aggregate, result in a surplus or deficit remaining, this will be known as the *net settlement surplus*.

3.13.14.2 The *net settlement surplus*:

- (a) May be retained by the *Market Operator* to fund deficit as a result of transactions required in Clauses 3.13.13, or may be flowed back to the *WESM Participants* in accordance with the procedures to be developed under Clause 3.13.14.3, or may be used by the *Market Operator* to establish and support the market for financial *transmission rights* subject to the approval of the *PEM Board*; and

xxx                      xxx      xxx

3.13.14.3 The *Market Operator* shall:

xxx                      xxx      xxx"

(bbbbb) Original Clause 3.13.17 and its sub-clauses under Settlement Quantities and Amounts are renumbered and amended accordingly to read as -

*"3.13.15 Settlement Amounts for Trading Participants with Bilateral Contracts*

3.13.15.1 For each *billing period*, the *Market Operator* shall determine the *settlement amount* for each *Trading Participant* with *bilateral contract* as the sum of the aggregate *trading amounts* for the *settlement intervals* in that *billing period*, determined in accordance with Clause 3.13.15.2 plus:

- (a) any amount payable by the *Market Operator* to that *Trading Participant* in respect of that *billing period* and not accounted for in Clause 3.13.15.2, including payment for any *ancillary services* purchased on behalf of the *System Operator*; less the sum of
- (b) any *market fees* which that *Trading Participant* is required to pay in respect of that *billing period* as determined in accordance with Clause 2.10; plus
- (c) any other amounts payable by that *Trading Participant* to the *Market Operator* in respect of that *billing period*, including any *reserve cost recovery charges*."

3.13.15.2 The aggregate *trading amount* for a *Trading Participant* for a *settlement interval* equals the sum of:

- (a) the *energy trading amounts* for each *market trading node* for which the *Trading Participant* is responsible calculated in accordance with Clauses 3.13.7 and 3.13.8;
- (b) the *line rental trading amount* corresponding to the quantity of *bilateral contract* of that *Trading Participant* calculated in accordance with Clause 3.13.11;



- (c) the *reserve trading amounts* for each *reserve region* into which that *Trading Participant* contributes *reserve* calculated in accordance with Clause 3.13.9 (which will always be positive for both *Generation Companies* and *Customers*);
- (d) the *transmission right trading amounts* for each *transmission right* held by the *WESM Participant* calculated in accordance with Clause 3.13.12 (which will always be positive for both *Generation Companies* and *Customers*);
- (e) the *reserve cost recovery charge* determined for that *Trading Participant* with respect to any *reserve cost recovery zone* within which it has any *facility connected* calculated in accordance with the procedures developed under Clause 3.3.5 (which will always be positive for any *Trading Participant*); and
- (f) any other *reserve cost recovery charges* determined for that *Trading Participant* in accordance with the procedures developed under Clause 3.3.5."

(ccccc) Clause 3.14.11.3 under Payment Default Procedure is amended to read as -

"3.14.11.3 If:

xxx                      xxx    xxx

- (c) The *Market Operator* receives notice from the defaulting *WESM Member* that it is not likely to remedy the default specified in the *default notice*,

then the *Market Operator* may issue a *suspension notice* in accordance with Clause 3.15.8 under which the *Market Operator* notifies the defaulting *WESM Member* that it is prohibited from participating in the *spot market*."

(ddddd) Clause 3.15.5.2 under Replacement of Security is amended to read as -

"3.15.5.2 If:

xxx                      xxx    xxx

- (b) That *WESM Member* does not remedy that failure within three (3) *working days* after being notified by the *Market Operator* of the failure,

then the *WESM Member* is deemed to be in default and the *Market Operator* shall give the *WESM Member* a *suspension notice* in accordance with Clause 3.15.8."

(eeeeee) Clause 3.15.6.3 under Drawdown of Security is amended to read as -

"3.15.6.3 If a *WESM Member* fails to comply with Clause 3.15.6.2 within the time period referred to in that clause, then the *Market Operator* shall give the *WESM Member* a *suspension notice* in accordance with Clause 3.15.8."

(fffff) Clause 3.15.8.3 under Suspension of a *WESM Member* is amended to read as -

"3.15.8.3 If a *suspension notice* is revoked, the *Market Operator* shall publicize that fact in the same manner in which the *suspension notice* was publicized in accordance with Clause 3.15.8.1."

(gggggg) Clause 4.5.1 under Metering Installation is amended to read as -

**"4.5.1 Metering Installation Components**

*A metering installation shall:*

xxx                      xxx      xxx

(e) Have electronic data recording facilities such that all metering data can be measured and recorded in accordance with the relevant *Market Manual*;

xxx                      xxx      xxx"

(hhhhhh) Clause 4.9 under Metering is amended to read as -

**"4.9 Data Validation and Substitution**

The *Market Operator* is responsible for the validation and substitution of metering data after being furnished settlement-ready metering data by the *Metering Services Provider* and shall develop data validation procedures in consultation with *WESM Participants* and in accordance with Appendix B1.2 (d)."

(iiiiii) Clause 5.2.6.2 under Market Audit is amended to read as -

"5.2.6.2 The *spot market* audit shall cover and review compliance by the *Market Operator* with its procedures and the effectiveness and appropriateness of systems utilized in the operation of the *spot market*, including but not limited to:

xxx                      xxx      xxx

(d) The *market dispatch optimization model's* pricing and *dispatch* scheduling processes;

xxx                      xxx      xxx"

(jjjjjj) Clause 6.7.1 under Force Majeure is amended to read as -

**"6.7.1 Force Majeure Event**

A force majeure is the occurrence of an event or events in the *grid* and in a *dispatch interval* that is/are not within the reasonable control, directly or indirectly, of the *System Operator*, *Market Operator* and *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 system* during that *dispatch interval* and such reduction is likely to materially affect the operation of the *spot market* or materially threaten *system security*."

(kkkkkk) Clause 6.9.2.2 under Declaration of Market Suspension is amended to read as -



"6.9.2.2 The *spot market* is deemed suspended at the start of the *dispatch interval* or any *settlement interval* in which the ERC advises the *Market Operator* that the *spot market* is suspended."

(IIIIII) Clause 6.9.3.1 under Effect of Market Suspension is amended to read as -

"6.9.3.1 The *market price* during a *dispatch interval* in which the ERC has declared the *spot market* to be suspended and up to the time that the market resumes in accordance with Clause 6.9.2.4 is to be determined by the *Market Operator* in accordance with Clause 6.2.3."

(mmmmmm) Clause 6.9.3.2 under Effect of Market Suspension is amended to read as -

"6.9.3.2 During a *dispatch interval* in which the *spot market* is suspended, the *WESM Rules* will continue to apply with such modifications as the *Market Operator* reasonably determines to be necessary, taking into consideration the circumstances and conditions giving rise to the decision by the ERC to suspend the *spot market*."

(nnnnnn) Clause 7.2.2.8 under Breaches of the WESM Rules by WESM Members is amended to read as -

"7.2.2.8 The *Enforcement and Compliance Officer* may further recommend to the *PEM Board* that the *WESM Member* determined to be in breach be suspended in accordance with Clause 3.15.8 if the said *Member* has:

xxx                      xxx      xxx

The *Enforcement and Compliance Officer* may recommend to the *PEM Board* for approval the suspension of the party in breach in accordance with Clause 3.15.8."

(oooooo) Glossary Chapter 11 is amended to include The following definition of terms under the Glossary Chapter 11 -

"Automatic Pricing Re-run. The automated process under Clause 3.6.7 that solves the *market dispatch optimization model* with relaxed *constraints* after detecting non-zero *constraint violation* variable values to produce *energy* and *reserve* prices according to the *timetable*.

Customer Market Trading Node. A *market trading node* at which electricity will normally be purchased from the *spot market* and which is classified as a *Customer market trading node* in accordance with Clause 3.2.2.2.

Dispatch Conformance Standards. Standards that define whether or not dispatched *Trading Participants* comply with *dispatch schedules* and *dispatch instructions* for *energy* and *reserves* in accordance with Clause 3.8.5.

Dispatch Instruction. Refers to the instruction issued by the *System Operator* to *Trading Participants* such as *Generation Companies* with *scheduled generating units* and to *Generation Companies* whose *generating units* will provide *ancillary services* to implement the final *dispatch schedule* in real time.

**Dispatch Interval.** A five-minute period commencing every five (5) minutes according to the *timetable* and Clause 3.4.1.

**Energy Settlement Price.** The schedule-weighted average *nodal energy dispatch prices* for the set of *dispatch intervals* corresponding to a *settlement interval*, determined for a *market trading node* in accordance with Clause 3.10.6.

**Energy Trading Amount.** Determined as the *energy settlement price* for that *node* in that *settlement interval* multiplied by the *energy settlement quantity* (in MWh) for that *node* in that *settlement interval* in accordance with Clause 3.13.8.

**Generator Market Trading Node.** A *market trading node* at which electricity will normally be sold to the *spot market* and which is classified as a *generator market trading node* in accordance with Clause 3.2.2.2.

**Gross Energy Settlement Quantity.** The *energy settlement quantity* determined in accordance with Clause 3.13.6 for a *market trading node*, in a *settlement interval* before any adjustment for *bilateral contracts*.

**Hour-Ahead Projection.** *Projections* of market conditions for the *dispatch intervals* in the hour ahead determined and *published* by the *Market Operator* in accordance with Clause 3.7.3.

**Market Run.** A particular instance of the *market dispatch optimization model* performed for a particular *dispatch interval*, or a set of such instances model performed for all the *dispatch intervals* in a *market horizon*.

**Nodal Energy Dispatch Price.** The price determined by the *Market Operator* for a particular *market network node* and *dispatch interval*, immediately prior to commencement of that *dispatch interval*, directly from the *market dispatch optimization* for that *dispatch interval* in accordance with Clause 3.10.2. In the case of *market projections*, the *nodal energy price* may be determined on a *dispatch interval* basis (*hour-ahead projections*) or trading one (1) hour interval basis (*day-ahead projections* and *week ahead projections*).

**Reserve Price.** The price for *reserve* in a particular *reserve region* and *dispatch interval*, determined in accordance with Clause 3.10.7.

**Reserve Settlement Price.** The schedule-weighted average price for each *reserve region* and *reserve category* in each *settlement interval*, determined in accordance with Clause 3.10.7.

**Reserve Settlement Quantity.** The amount of *reserve* deemed to have been supplied by a *reserve Supplier* in a particular *reserve region* and *settlement interval*, determined in accordance with Clause 3.13.5.

**Reserve Trading Amount.** Determined for each *Trading Participant* who supplies *reserve*. This is computed as the *reserve settlement price* multiplied by the *reserve settlement quantity* for that *Trading Participant* in that *reserve region* for that *settlement interval* in accordance with Clause 3.13.9.



Settlement Interval. A 1-hour period commencing on the hour according to the *timetable* and Clause 3.4.2.

Technical Committee. The committee of that name established in accordance with Clause 1.7."

(pppppp) The definitions of the following terms under Glossary Chapter 11 are amended to read-

"Constraint Violation Coefficients. Coefficients set for *constraint violation* variables by the Market Operator in accordance with Clause 3.6.2. The Market Operator shall ensure that, if *constraints* shall be violated, such violation will occur in appropriate priority order.

Dispatch Schedule. The target *loading levels* in MW for each *scheduled generating unit*, *must dispatch generating unit*, *priority dispatch generating unit*, *non-scheduled generating unit*, *scheduled load* and *reserve facility* for the end of that *dispatch interval*, determined by the Market Operator through the use of a *market dispatch optimization model* in accordance with Clause 3.8.1.

Ex-Ante. A matter determined in relation to a *dispatch interval* before that *dispatch interval* commences.

Excess Generation. *Generations* which may be scheduled to occur in excess of *load requirements*, even though *nodal energy dispatch prices* have fallen to the *market price floor*, and which shall then be dealt with in accordance with Clause 3.9.8.

Interruptible Load. Means *load* that a *Customer* is able to interrupt at very short notice in response to:

(a) A *frequency deviation*; or

(b) A request of the *System Operator*,

in order to meet applicable *ancillary service requirements*, subject to the requirements of the *Grid Code* and *Distribution Code*.

Line Rental. The *economic rental* arising from the use of a *transmission line*, calculated as the difference in value between flows out of the *receiving node* of that line and flows into the *sending node*, in accordance with Clause 3.13.11.

Load Weighted Average. An average produced by multiplying each *nodal energy dispatch price* by the *load* at that *node*, summing the results, and then dividing by the sum of the *loads* involved.

Market Bid. A *demand bid* for a particular *dispatch interval* corresponding to a *settlement interval* of a particular *trading day* in the current *market horizon*, whether formed from a *standing bid* in accordance with Clause 3.5.10 or revised by the relevant *Trading Participant* in accordance with Clause 3.5.11.

Market Dispatch Optimization Model. The optimization model which contains the mathematical algorithm to be used for the purposes of determining *dispatch schedules* and *nodal dispatch prices*, and preparing *market projections* based on the price determination methodology approved by ERC.

**Market Network Model.** A mathematical representation of the *power system*, which is used for the purpose of determining *dispatch schedules* and *nodal dispatch prices*, and preparing *market projections*.

**Market Offer.** A *generation offer* for a particular *dispatch interval* corresponding to a *settlement interval* of a particular *trading day* in the current *market horizon*, whether formed from a *standing offer* in accordance with Clause 3.5.10 or revised by the relevant *Trading Participant* in accordance with Clause 3.5.11.

**Market Price.** A generic term covering prices for *energy* and *reserve*, nodal or zonal, as appropriate.

**Market Projections.** Week ahead, day-ahead, or *hour ahead projections* of *spot market conditions*, performed in accordance with Clause 3.7.

**Must-Run Unit (MRU).** A *generating unit* identified and instructed, by the *System Operator* to either a) come on-line, or b) provide additional *energy* on a particular *dispatch interval* but the *dispatch* of which is said to be out-of-merit, to address *system security requirements*. For clarity, MRU shall be utilized only after the *System Operator* has exhausted all available *ancillary services*. MRUs are classified as follows: a) *Scheduled MRU* - MRU designated by the *System Operator* before the *dispatch interval* and included in the real-time *dispatch schedule* through the imposition of security limit as defined in the *WESM Dispatch Protocol Manual*. b) *Real-Time MRU* - MRU designated by the *System Operator* within a *dispatch interval*.

**Net Settlement Surplus.** The *settlement surplus* remaining after all *market transactions* have been accounted for, including the assignment of *transmission line rentals* to *Network Service Providers*. This remainder is assumed to be attributable to *economic rentals* arising from other binding *constraints*, and accounted for in accordance with Clause 3.13.14.

**Pricing Error Notice.** A notice issued in accordance with Clause 3.9.6 advising the market that prices for a particular *dispatch interval* are unavailable, or invalid.

**Projected Output.** The *loading level* nominated by a *Generation Company* for its *must dispatch generating units* or *priority dispatch generating units* indicating the forecasted output of its *must dispatch generating unit* or *priority dispatch generating unit* at the end of a *dispatch interval*.

**Projection.** A set of results derived in accordance with Clause 3.7 from a series of *market dispatch optimization model runs* describing projected market conditions over an hour-ahead, day-ahead or week ahead *market horizon* for a particular *scenario* of *net forecast load*, and set of assumptions with respect to availability of key system elements.

**Receiving Node.** For a *transmission line*, the *node* from which there is a net flow of electricity into that line in a particular *settlement interval* to be accounted for in determining the *line rental*, in accordance with Clause 3.13.11. For a *transmission right*, the *node* to which the issuer of the *transmission right* is deemed to guarantee transfer of electricity, to be advised to the *Market Operator* in accordance with Clause 3.13.

**Reserve.** *Ancillary services* that are traded in the *WESM*.



**Reserve Facility Category.** A particular type of *reserve facility*, characterized by its technology (e.g. *interruptible load*, *synchronized generation*, *non-synchronized generation*) which is reflected in the type of offer it can make.

**Sending Node.** For a *transmission line*, the *node* into which there is a net flow of electricity out of that line in a particular *settlement interval* to be accounted for in determining the *line rental*, in accordance with Clause 3.13.11. For a *transmission right*, the *node* from which the issuer of the *transmission right* is deemed to guarantee transfer of electricity, to be advised to the *Market Operator* in accordance with Clause 3.13.2.

**Settlement Amount.** The amount payable by or to a *Trading Participant*, or *Network Service Provider*, in respect of a *billing period* as determined by the *Market Operator* under Clause 3.13.13 or 3.13.15.

**Settlement Price.** An *energy* or *reserve settlement price*.

**Settlement Quantity.** An *energy* or a *reserve settlement quantity*.

**Suspension Notice.** A notice issued by the *Market Operator* under Clause 3.15.8.

**Timetable.** The *timetable* prepared by the *Market Operator* for operation of the *spot market* in accordance with Clause 3.4.3.

**Trading Amount.** The amount to be paid by, or paid to a *Trading Participant*, or *Network Service Provider* in respect of *energy*, *reserve*, *line rentals*, or *transmission rights* calculated in accordance with Clause 3.13.7, 3.13.8, 3.13.9, or 3.13.13, respectively.

**Transmission Right.** The right to financial compensation based on differences between *nodal energy dispatch prices* at different *market trading nodes* as notified under Clause 3.13.3, and settled in accordance with Clause 3.13.12.

**WESM Participants.** All entities under Clause 2.2.1 that are authorized by the *ERC* to participate in the *WESM* in accordance with the *Act*.

**Zonal Energy Price.** The price determined in accordance with Clause 3.10.3 for each *Customer pricing zone* under Clause 3.2.3."

(qqqqqq) The following terms defined under Glossary Chapter 11 are hereby deleted-

1. Ancillary services cost recovery charge;
2. Customer Node;
3. Dispatch Tolerances;
4. Ex-Ante Dispatch;
5. Ex-Ante Energy Settlement Price;
6. Ex-Ante Nodal Energy Price;
7. Ex-Ante Zonal Energy Price;
8. Ex-post;
9. Ex-Post Energy Settlement Price;
10. Ex-Post Energy Settlement Quantity;

11. Ex-Post Nodal Energy Price;
12. Ex-Post Zonal Energy Price;
13. Generator Node;
14. Gross Ex-Ante Energy Settlement Quantity;
15. Gross Ex-Post Energy Settlement Quantity;
16. Nodal Energy Price;
17. Reserve Effectiveness Factor;
18. Run;
19. Trading Interval;
20. Zonal Reserve Price; and
21. Zonal Reserve Settlement Quantity.

(yyyyyyyyy) Appendix A1.1, under Generation Offer, is amended to read as -

"A1.1 Generation Offers

*Generation offers:*

- (a) may include up to ten (10) *generation* offer blocks per (aggregate) unit, and the maximum combined capacity of *generation* and *reserve* offers must not be less than the maximum available capacity of the generator;
- (b) shall be for a minimum block size of one (1) *MW*;
- (c) shall have monotonically increasing prices, starting from zero *generation*;
- (d) may include negative prices; and
- (e) shall include minimum and maximum up / down *ramp rates*."

(zzzzzzzzz) Appendix A1.2, under Reserve Offers, is amended to read as -

"A1.2 Reserve Offers

*Reserve offers from Generation Companies* shall consist of:

xxx                      xxx      xxx

- (d) A minimum block size of one (1) *MW*; and
- (e) Monotonically increasing prices starting from zero for the first offer block, which shall correspond to the mandatory *reserve* capability required from that *Generation Company* under its connection agreement.

*Reserve offers from Customers* shall consist of:

xxx                      xxx      xxx"

(aaaaaaaaa) Appendix A2, under Information to be Supplied by Network Service Provider, is amended to read as -

"Network Characteristics

Most of these information will be supplied as standing data which will be updated only as required for a *dispatch interval*.

xxx                      xxx      xxx"



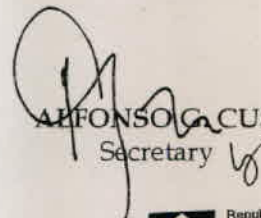
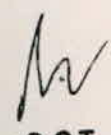

**Section 2. Transitory Provisions.** This amended WESM Rules shall be initially used for the development of the WESM's New Market Management System (NMMS) and actual implementation of the enhancements to WESM design and operations. Notwithstanding, the current WESM Rules shall remain effective for the commercial operation of the integrated WESM and Retail Market until the DOE issuance through a Department Circular of the commencement date for the NMMS.

**Section 3. Review of the Market Manuals.** For the timely completion of the implementation of the enhancements to WESM design and operations, the responsibility of the Philippine Electricity Market Corporation (PEMC) to review and facilitate necessary amendments to the related Market Manuals to ensure consistencies with the amended WESM Rules is hereby reiterated.

**Section 4. Separability Clause.** If for any reason, any section or provision of this Circular is declared unconstitutional or invalid, such parts not affected shall remain valid and subsisting.

**Section 5. Effectivity.** This Circular shall take effect upon publication in at least two (2) newspapers of general circulation and shall remain in effect until otherwise revoked.

Issued this \_\_\_\_ October 2016 at the DOE, Energy Center, Rizal Drive, Bonifacio Global City, Taguig City, Metro Manila.

  
ALFONSO CUSI  
Secretary   
OCT 14 2016  
 Republic of the Philippines  
DEPARTMENT OF ENERGY  
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