Philippine Electricity Market Corporation

WHOLESALE ELECTRICITY SPOT MARKET
RULES CHANGE COMMITTEE

RESOLUTION NO. 2017-05

Proposed Amendments to the WESM Manuals on Billing and Settlement and Load Forecasting Methodology for the Implementation of Enhancements to WESM Design and Operations

WHEREAS, during the Rules Change Committee's (RCC) 122nd Meeting on 07 December 2016, the Philippine Electricity Market Corporation – Market Operator (PEMC-MO) presented to the RCC the Proposed Amendments to the WESM Manuals on Billing and Settlement and Load Forecasting Methodology, among other Rules and Manuals, for the Implementation of Enhancements to WESM Design and Operations[1];

WHEREAS, the proposal intends to facilitate the implementation of the following market features:

- *As provided under DOE Department Circular No. 2015-10-0015 dated 23 October 2015[2]:*

1) Five (5) minute dispatch interval;
2) Ex-ante pricing only for energy and reserves for every 5-minute dispatch interval;
3) One (1) hour settlement interval for settlement purposes;
4) Automatic pricing corrections;
5) Mandatory integration of Distribution Utilities' sub-transmission network, which materially affect dispatch schedules and prices in the WESM, into the market network model (MNM);
6) Nodal-based short-term demand forecasting; and
7) Hourly day-ahead projection (DAP) with sensitivities and hour-ahead projection (HAP).

---

[1] ORCP-WR-RR-WM-16-26 – *Proposed Amendments to the WESM and Retail Rules and Manuals for the Implementation of Enhancements to WESM Design and Operations*

(a) WESM Rules, as amended by DOE DC 2016-10-0014;
(b) Dispatch Protocol Manual, Issue 12, as approved by the PEM Board on 29 November 2016;
(c) WESM Manual on Billing and Settlements, Issue 4;
(d) WESM Manual on Load Forecasting Methodology, Issue 2;
(e) WESM Manual on Metering Standards and Procedures, Issue 10
(f) Retail Rules, as approved by DOE DC 2013-01-0002
(g) Retail Manual on Metering Standards and Procedures, Issue 2

[2] Department Circular No. DC 2015-10-0015 *Providing Policies for Further Enhancement to WESM Design and Operations*

[redacted]

- *As provided under the PEM Board-approved Price Determination Methodology Manual and amendments to the WESM Rules and Constraint Violation Coefficient Manual on 29 November 2016 (PEM Board Resolution No. 2016-41)*[3]*:*

  1) 5-minute metering as input to the calculation of trading amounts per settlement interval from the aggregate of 5-minute trading amounts;
  2) Netting out of bilateral contracts for energy from the trading amounts instead of deducting bilateral contract quantities from the ex-ante trading quantities; and
  3) Calculation of line rental trading amounts, for informational purposes only.

WHEREAS, the RCC noted that PEMC-MO already reflected in its proposed amendments to the Manual on Billing and Settlement the relevant changes previously approved by the RCC as embodied in RCC Resolution No. 2016-08[4] related to the procedures and criteria for filing of additional compensation and RCC Resolution No. 2016-14[5] related to bilateral contract quantity declaration and line rental calculation;

WHEREAS, following the formal submission of the proposal to the RCC on 16 December 2016 and the body's approval of its publication in the market information website, the proposal was published on 21 December 2016 to solicit comments from Market Participants and WESM stakeholders, giving them 30-working days until 06 February 2017 to submit their comments;

WHEREAS, the deadline of submission of comments was extended until 08 February 2017 to give Market Participants sufficient time following the PEMC-MO's conduct of two (2) forums held on 03 February 2017 to give Customers and Generators an overview of the impending changes to WESM design and operations;

WHEREAS, the RCC proceeded to deliberate on the proposal, with the body's course of action described as follows:

- *Proposed Amendments to the Load Forecasting Methodology Manual:*

  The RCC discussed the proposal during its 126th and 127th Meetings held on 03 and 17 March 2017, respectively, taking into consideration the comments received from the DOE, Aboitiz Power and MERALCO as well as the proponent's responses to the same. During its March 17th meeting, the RCC adopted the proposed amendments as revised with clarificatory edits, with the summary of the proposal as follows:

---

[3] Promulgated by the DOE on 20 March 2017 per Department Circular No. 2017-03-0001 *Adopting Further Amendments to the WESM Rules and Market Manuals for the Implementation of Enhancements to WESM Design and Operations (Provisions for Price Determination Methodology and Constraint Violation Coefficient and Pricing Re-run)*

[4] RCC Resolution No. 2016-08 – *Proposed Amendments to the WESM Manuals on Management of Must-Run and Must-Stop Units and Administered Price Determination Methodology*

[5] RCC Resolution No. 2016-14 – *Proposed Amendments to the WESM Rules relative to Bilateral Contract Quantity Declaration and Line Rental Calculation*

a) deleted defined terms that are no longer applicable using the new Market Management System (MMS);
b) provided amendments to Section 4 on *Demand Forecast for Market Projections,* renamed to *Short-term Load Forecast (STLF),* in relation to forecasting for week-ahead projection (WAP) and day-ahead projection (DAP) using the new MMS;
c) reflected the provision of load scenarios for DAP using varying sensitivities (i.e., ±5% and ±3%);
d) provided amendments to Section 5 on *Demand Forecast for Real-Time Dispatch Runs,* renamed to *Very Short-term Load Forecast (VSLF),* in relation to the addition of hour-ahead projection (HAP) as new market projection and forecasting for HAP and Real-Time Dispatch using the new MMS;
e) updated provisions on unrestrained and restrained net load forecasts based on the new MMS functionalities;
f) added provision requiring the submission of load forecasts by customers with market trading nodes having definite MW loading that can materially affect pricing and scheduling in the WESM;
g) deleted provisions on customer forecast validation as customer forecast shall be deemed final forecast considering that the customer has the best information about its demand level;
h) reflected new MMS load forecasting parameters for consistency with the new MMS functionalities;
i) updated Sections 10 and 11 to reflect the DOE's approval of amendments to the WESM Rules and Manuals; and
j) provided details in the Appendix on weather adaptive, similar day, and pattern matching algorithms for STLF to provide more information on the new MMS functionalities

- *Proposed Amendments to the Billing and Settlement Manual:*

The RCC discussed the proposal on 03 and 17 March 2017 during its 126th and 127th meetings, taking into account the comments received from the DOE, SN Aboitiz Power, Aboitiz Power, SPC Power, MERALCO and MERALCO PowerGen as well as the proponent's responses to the same.

During the RCC's March 17th meeting, the body agreed to additionally incorporate in the proposal the relevant RCC-approved amendments as embodied in RCC Resolution No. 2017-02[6] dated 13 January 2017 and RCC Resolution No. 2017-03[7] dated 03 March 2017. The body thereafter adopted the proposed amendments as revised to reflect minor clarificatory edits, with a summary of the approved proposal as follows:

[6] RCC Resolution No. 2017-02 – *Proposed Amendments to the WESM Manuals on Billing and Settlement and Registration, Suspension and De-registration Criteria and Procedures regarding Bilateral Contract Quantity Declaration and Line Rental Calculation*
[7] RCC Resolution No. 2017-03 – *Proposed Urgent Amendments to the WESM Manuals on Price Determination Methodology and Constraint Violation Coefficient and Pricing Re-run*

a) deleted references to ex-post trading amounts with the implementation of ex-ante only pricing;
b) updated references on settlement calculations for consistency with the PEM Board-approved Price Determination Methodology Manual;
c) under the section on *Definition, References and Interpretation,* deleted terms and definitions that are already provided under the WESM Rules to ensure consistency with the WESM Rules and other WESM Manuals;
d) deleted line rental trading amounts as a component in the calculation of aggregate trading amounts since line rental is already embedded in the calculation of energy trading amounts;
e) added provisions on the calculation of line rental trading amounts for energy transactions to be provided by the Market Operator for informational purposes;
f) added procedures for the submission, confirmation and nullification of bilateral contracts for energy;
g) added procedures for the submission and confirmation of bilateral contracts for reserves;
h) added provisions on the criteria and procedures for filing of additional compensation;
i) reflected changes to the section on *Amendment, Publication and Effectivity* of the Manual for consistency with the DOE's approval of amendments to the WESM Rules and Manuals; and
j) updated the billing and settlement timetable to provide timelines for the declaration of bilateral contract quantities and filing of additional compensation;
k) deemed the WESM Manual on the Segregation of Line Rental Trading Amounts obsolete due to the foregoing amendments

On 11 April 2017 during the RCC's 128th Meeting, the body agreed to additionally reflect in the proposal, if applicable, the DOE-approved changes regarding the amendments to various WESM Manuals for the Implementation of Must-Dispatch and Priority Dispatch Generating Units in the WESM as promulgated in the DOE Department Circular No. DC2017-03-0002 dated 20 March 2017.

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

RESOLVED, that the Proposed Amendments to the WESM Manuals on Billing and Settlement and Load Forecasting Methodology for the Implementation of Enhancements to WESM Design and Operations are hereby approved by the RCC;

RESOLVED FURTHER, that the attached Annexes of the Proposed Amendments to the WESM Manuals on Billing and Settlement and Load Forecasting Methodology for the Implementation of Enhancements to WESM Design and Operations are hereby endorsed to the PEM Board for approval and endorsement to the DOE.

Done this 11 April 2017, Pasig City.

[redacted]

Approved by: RULES CHANGE COMMITTEE [redacted] **Maria Lourdes G. de Castro** Chairperson Independent	
Members:	
[redacted] **Concepcion T. Tanglao** Independent	[redacted] Independent
[redacted] Independent	[redacted] Market Operator Philippine Electricity Market Corporation (PEMC)
[redacted] Transmission Sector National Grid Corporation of the Philippines (NGCP)	[redacted] Generation Sector Power Sector Assets and Liabilities Management Corporation (PSALM)
[redacted] **Jose Idebrando B. Ambrosio** Generation Sector NorthWind Power Development Corporation	[redacted] **Theo C. Sunico** Generation Sector Vivant Corporation
[redacted] Distribution Sector (PDU) Manila Electric Company (MERALCO)	[redacted] Distribution Sector (EC) Ilocos Norte Electric Cooperative, Inc. (INEC)
Juanito O. Tolentino, Jr. Distribution Sector Mactan Electric Company (MECO)	[redacted] **Ludovico D. Lim** Distribution Sector Antique Electric Cooperative, Inc. (ANTECO)
[redacted] **Lorreto H. Rivera** Supply Sector TeaM (Philippines) Energy Corporation (TPEC)	Certified True and Correct: [redacted] **Elaine D. Gonzales** RCC Secretary PEMC

Proposed Amendments to the WESM Manual on Load Forecasting Methodology related to the Implementation of Enhancements to WESM Design and Operations

Title	Section	Original Provision	Proposed Amendments	Rationale
Introduction	1			
Background	1.1	1.1.1. Load forecasts are necessary inputs to the optimization runs in the Wholesale Electricity Spot Market (WESM), particularly the week-ahead projection, day-ahead projection and ex-ante or real time dispatch market runs. The responsibility to prepare load forecasts rests in the Market Operator although Customers are also permitted to perform their own customer forecasts under certain conditions.	1.1.1. Load forecasts are necessary inputs to the optimization runs in the Wholesale Electricity Spot Market (WESM), particularly the week-ahead projection, day-ahead projection, **hour-ahead projection,** and **the** ~~ex-ante or~~ real time dispatch market runs. The responsibility to prepare load forecasts rests in the Market Operator although Customers are also permitted to perform their own customer forecasts under certain conditions.	To include hour-ahead projection as new market projection, and to remove the term "ex-ante" for consistency in using *real-time dispatch* only
Background		1.1.2. The WESM Rules provide for the responsibilities of the Market Operator in performing its load forecasts. a. WESM Rules Clause 3.7.3.1 (c) requires that each market projection shall take into account the forecast demand information prepared by the Market Operator in accordance with WESM Rules Clause 3.5.4. b. WESM Rules Clause 3.7.3.2 further requires that prior to the preparation of each set of market projections, the Market Operator shall, in consultation with the System	1.1.2. The WESM Rules provide for the responsibilities of the Market Operator in performing its load forecasts. a. WESM Rules Clause ~~3.7.3.1 (c)~~ **3.7.4.1 (c)** requires that each market projection shall take into account the forecast demand information prepared by the Market Operator in accordance with WESM Rules Clause 3.5.4. b. WESM Rules Clause ~~3.7.3.2~~ **3.7.4.2** further requires that prior to the preparation of each set of market projections, the Market Operator shall, in consultation with the	• To properly reference provisions due to re-numbering in the WESM Rules

Title	Section	Original Provision	Proposed Amendments	Rationale
		Operator, prepare an expected unrestrained net load forecast in accordance with the procedures developed under Clause 3.5.4, and such number of other load scenarios as may be determined in consultation with WESM Participants and approved by the PEM Board.	System Operator, prepare an expected unrestrained net load forecast in accordance with the procedures developed under Clause 3.5.4, and such number of other load scenarios as may be determined in consultation with WESM Participants and approved by the PEM Board.	
		c. For the ex-ante market runs, WESM Rules Clause 3.8.1 (b) and (c) directs that at the beginning of each interval, the Market Operator shall prepare a forecast of the unrestrained net load expected at each market trading node for the end of that trading interval", and "adjust that unrestrained net load forecast to account for load shedding, if required, in accordance with WESM Rules clause 3.9.5.	c. For the ~~ex-ante~~ **real-time dispatch** market runs, WESM Rules Clause 3.8.1 (b) and (c) directs that at the beginning of each interval, the Market Operator shall prepare a forecast of the unrestrained net load expected at each market trading node for the end of that trading interval", and "adjust that unrestrained net load forecast to account for load shedding, if required, in accordance with WESM Rules clause 3.9.5.	• To remove the term "ex-ante" for consistency in using *real-time dispatch* only
		d. Furthermore, WESM Rules Clause 3.5.4.2 states that each net load forecast shall be prepared in such a way as to represent the net load to be met by scheduled generation, including losses occurring outside the system represented by the market network model, but excluding any scheduled load, and less non-scheduled generation, and generation from new and renewable energy (NRE) generating units with intermittent energy resource.	d. Furthermore, WESM Rules Clause 3.5.4.2 states that each net load forecast shall be prepared in such a way as to represent the net load to be met by ~~scheduled~~ generation, **from scheduled generating units, must-dispatch generating units, priority dispatch generating units, and non-scheduled generating units** including losses occurring outside the system represented by the market network model, but excluding any scheduled load, ~~and less non-scheduled generation, and generation~~	• To reflect revisions from the amended WESM Rules (DOE DC No. 16-01-0002 dated 12 January 2016) for consistency

Title	Section	Original Provision	Proposed Amendments	Rationale
			~~from new and renewable energy (NRE) generating units with intermittent energy resource.~~	
		e. WESM Rules Clause 3.5.4.3 state that the unrestrained net load forecast for any trading interval shall be prepared so as to represent the net load as it would be, or would have been, in the absence of load shedding.	e. WESM Rules Clause 3.5.4.3 states that the unrestrained net load forecast ~~for any trading interval~~ shall be prepared so as to represent the net load as it would be, or would have been, in the absence of load shedding.	• To remove the use of "trading interval" per WESM Rules, as amended by DOE DC 2016-10-0014
		f. WESM Rules Clause 3.5.4.4 state that if load shedding is expected to occur in any trading interval, a restrained net load forecast for that trading interval shall be prepared on the same basis, but accounting for load shedding to the extent that it is expected to occur.	f. WESM Rules Clause 3.5.4.4 states that if load shedding is expected to occur in any ~~trading~~ **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.	
Background	1.1.3	a. Each Customer may submit a forecast in respect of each trading interval for each of its registered load facilities for each trading day of week in accordance with the WESM timetable. The timetable is set out in Section 5 of the WESM Dispatch Protocol.	a. Each Customer may submit a forecast in respect of each ~~trading~~ **dispatch** interval for each of its registered load facilities for each trading day of week in accordance with the WESM timetable. The timetable is set out in Section 5 **4** of the WESM Dispatch Protocol.	• To remove the use of "trading interval" and update the reference to the Section in the Dispatch Protocol Manual regarding the WESM Timetable
		b. The forecasted load shall be used by the Market Operator in the preparation of the net load forecast.	b. The forecasted load shall be used by the Market Operator in the preparation of the net load forecast.	

Title	Section	Original Provision	Proposed Amendments	Rationale
		c. If the Customer fails to submit a forecast for his load facility in accordance with the WESM timetable, or if the Customer forecast submitted is not within the published forecast tolerance range, the forecast prepared by the Market Operator at the relevant node shall be used.	c. If the Customer fails to submit a forecast for his load facility in accordance with the WESM timetable, ~~or if the Customer forecast submitted is not within the published forecast tolerance range,~~ **then** the forecast prepared by the Market Operator at the relevant node shall be used.	• To reflect that there is no more Customer forecast tolerance range in order to enable Trading Participants to provide Customer Forecasts with no restriction from the Market Operator. It should be noted, however, that Customer Forecasts are only to be provided by Qualified Customers.
Purpose	1.2	This Market Manual establishes the following: 1.2.1. The requirements in determining the load forecasts for the following market runs in the WESM: a. Market Projections i. Week-Ahead Projection (WAP) ii. Day-Ahead Projection (DAP) b. Ex-ante or real time dispatch market runs 1.2.2. The customer forecast tolerance range; and 1.2.3. The forecast methodology to be employed by the Market Operator for preparing load forecasts.	This Market Manual establishes the following: 1.2.1. The requirements in determining the load forecasts for the following market runs in the WESM: a. Market Projections i. Week-Ahead Projection (WAP) ii. Day-Ahead Projection (DAP) **iii. Hour-ahead Projection (HAP)** b. ~~Ex-ante or real~~ **Real**-time dispatch ~~market runs~~ 1.2.2. ~~The customer forecast tolerance range; and~~	• To include hour-ahead projection • To reflect that there is no more Customer forecast tolerance range

Title	Section	Original Provision	Proposed Amendments	Rationale
			~~1.2.3.~~ The forecast methodology to be employed by the Market Operator for preparing load forecasts.	
Scope	1.3	This Market Manual applies to the Market Operator, the System Operator and, the Trading Participants in the WESM. The systems, processes and procedures set out in this Manual shall be used in the preparation of load forecasts to be used for the week-ahead projections (WAP), day-ahead projections (DAP), and ex-ante market runs in the WESM.	~~This Market Manual applies to the Market Operator, the System Operator and, the Trading Participants in the WESM.~~ The systems, processes and procedures set out in this **Market** Manual shall be used in the preparation of load forecasts to be used for the week-ahead projections (WAP), day-ahead projections (DAP), **hour-ahead projections (HAP),** and ~~ex-ante~~ **real-time dispatch** market runs in the WESM.	To revise for clarity
Definitions, References, and Interpretation	2			
Definitions	2.1	Unless otherwise defined or the context implies otherwise, the italicized terms used in this Manual that are defined in the WESM Rules shall bear the same meaning as defined in the WESM Rules. In addition, the following words and phrases as used in this Manual shall have the following meaning -	**2.1.1** Unless otherwise defined **in this section** or the context implies otherwise, the italicized terms used in this **Market** Manual ~~that are defined in the WESM Rules~~ shall bear the same meaning as defined in the WESM Rules. **2.1.2** In addition, the following words and phrases as used in this **Market** Manual shall have the following meaning –	To revise for clarity
Definitions	2.1	2.1.1. Demand refers to the total power consumed in a Power System or Grid inclusive of the relevant losses produced during the	~~2.1.1~~ **a**. Demand, ~~refers to the total~~ **Total** power consumed in a Power System or Grid inclusive of the relevant losses produced	For clerical revision

Title	Section	Original Provision	Proposed Amendments	Rationale
		delivery of power. It is also the total power generated in the grid.	during the delivery of power. It is also the total power generated in the grid.	
Definitions	2.1	2.1.2. Demand Forecast refers to the Demand projection for a particular Forecast Area.	~~2.1.2~~ **b**. Demand Forecast, ~~refers to the~~ Demand projection for a particular Forecast Area.	For clerical revision
Definitions	2.1	2.1.3. Final Demand Forecast refers to the sum of the Net Load Forecasts plus the losses in a Forecast Area	~~2.1.3~~ **c**. Final Demand Forecast, **Sum** ~~refers to the sum~~ of the Net Load Forecasts plus the losses in a Forecast Area	For clerical revision
Definitions	2.1	2.1.4. Forecast Area refers to a grid in the Philippine Power System where Demand Forecast will be applied. Currently, each grid in the Philippines is designated as a Forecast Area, namely the Luzon, the Visayas, and the Mindanao grids.	~~2.1.4~~ **d**. Forecast Area, **A** ~~refers to a~~ grid in the Philippine Power System where Demand Forecast will be applied. Currently, each grid in the Philippines is designated as a Forecast Area, namely the Luzon, the Visayas, and the Mindanao grids.	For clerical revision
Definitions	2.1	2.1.5. Input Demand Forecast refers to the initially assumed Demand Forecast that shall be used as the off-take for determining the Unrestrained Net Load Forecast.	~~2.1.5~~ **e**. Input Demand Forecast, **Initially** ~~refers to the initially~~ assumed Demand Forecast that shall be used as the off-take for determining the Unrestrained Net Load Forecast.	For clerical revision
Definitions	2.1	2.1.6. Load Predictor (LDP) refers to the functionality in the Market Management System which is used to determine the total energy requirement of a certain Forecast Area for the next trading interval, which shall be used in the ex-ante market run.	~~2.1.6. Load Predictor (LDP) refers to the functionality in the Market Management System which is used to determine the total energy requirement of a certain Forecast Area for the next trading interval, which shall be used in the ex-ante market run.~~	To remove the term due to the new Market Management System

Title	Section	Original Provision	Proposed Amendments	Rationale
Definitions	2.1	2.1.7. Load Profile or Load Pattern (interchangeably) refers to the time series representation of Demand.	~~2.1.7 . Load Profile or Load Pattern (interchangeably) refers to the time series representation of Demand.~~	To remove term since the application does not exist in the new Market Management System
Definitions	2.1	NEW	**f. Load Distribution Factor (LDF). Factor used in allocating the total projected load to individual loads in the market network model.**	To define term based on new approach in load forecasting
Definitions	2.1	2.1.8. Market Management System (MMS)refers to the infrastructure that supports the operations of the WESM and which includes functionalities that support the processes set out in this Manual.	~~2.1.8~~ **g**. Market Management System (MMS), **Infrastructure** ~~refers to the infrastructure~~ that supports the operations of the WESM and which includes functionalities that support the processes set out in this **Market** Manual.	To revise for clarity
Definitions	2.1	NEW	**h. Real-time Dispatch. Otherwise known as RTD. It is the dispatch schedule which determines the target loading of facilities at the end of the dispatch interval. The RTD calculates the ex-ante nodal energy dispatch prices.**	To reflect the same definition as provided in the Dispatch Protocol Manual
Definitions	2.1	2.1.9. Short-Term Forecast refers to the Demand Forecast pertaining to the next trading interval up to seven days ahead and shall be applied to the calculation of market projections and real-time dispatch schedules.	~~2.1.9~~ **i**. Short-Term **Load** Forecast, **Hourly demand forecasts** ~~refers to the Demand Forecast pertaining to the next trading interval~~ **starting at the next hour** up to seven days ahead, **It** and shall be applied to the calculation of **the** ~~market projections and real-time dispatch schedules~~ **week-ahead projection and day-ahead projection**.	To revise for clarity in referring hourly forecasts applied in Day-Ahead and Week-Ahead Projection

Title	Section	Original Provision	Proposed Amendments	Rationale
Definitions	2.1	NEW	**j. Unrestrained net load forecast. Also refers to unrestrained load.**	To add previously existing term in the Market Manual
Definitions	2.1	2.1.10. Similar Day Load Forecast (SDLF) refers to the MMS functionality that is used to derive the Demand Forecasts to be used for the Day-Ahead and Week-Ahead market projections.	~~2.1.10. Similar Day Load Forecast (SDLF) refers to the MMS functionality that is used to derive the Demand Forecasts to be used for the Day-Ahead and Week-Ahead market projections.~~	To remove provision since the application does not exist in the new MMS
Definitions	2.1	NEW	**k. Very Short-Term Load Forecast. Demand forecasts for each dispatch interval starting at the next dispatch interval up to the next two hours. It shall be applied to the calculation of the hour-ahead projection and real-time dispatch.**	To define the term referring to 5-minute forecasts applied for Hour-Ahead Projection and Real-Time Dispatch
Definitions	2.1	NEW	**l. Weather Area. A specific location where there is available weather data.**	To add the definition of *weather area* as used in Section 4.2.2
References	2.2	This Manual shall be read in association with the following – a) WESM Rules, as amended b) WESM Manual Dispatch Protocol c) Price Determination Methodology d) Philippine Grid Code (PGC)	This **Market** Manual shall be read in association with the ~~following –~~ ~~a) WESM Rules, as amended~~ ~~b) WESM Manual Dispatch Protocol~~ ~~c) Price Determination Methodology~~ ~~d) Philippine Grid Code (PGC)~~ **and other relevant Market Manuals**.	To revise for clarity since the WESM Rules is the primary reference for this Market Manual
Interpretation	2.3	2.3.1. Any reference to a clause in any section of this Market Manual shall refer to the particular clause of the same section in which	2.3.1. Any reference to a clause in any section of this Market Manual shall refer to the particular clause of the same section in which	For clerical revisions

Title	Section	Original Provision	Proposed Amendments	Rationale
		the reference is made, unless otherwise specified or the context provides otherwise. 2.3.2. Where there is a discrepancy or conflict between this Manual and the WESM Rules, the WESM Rules shall prevail. 2.3.3. Standards and policies appended to, or referenced in, this Manual shall provide a supporting framework.	the reference is made, unless otherwise specified or the context provides otherwise. 2.3.2. Where there is a discrepancy or conflict between this **Market** Manual and the WESM Rules, the WESM Rules shall prevail. 2.3.3. Standards and policies appended to, or referenced in, this **Market** Manual shall provide a supporting framework.	
Responsibilities	3			
Market Operator	3.1.	3.1.1. The Market Operator shall prepare net load forecasts for each customer node for each Trading Interval in accordance with the methodology set out in this Market Manual. 3.1.2. The Market Operator shall be primarily responsible for the development and review of the load forecasting methodology documented in this Market Manual.	3.1.1. The Market Operator shall prepare net load forecasts for each customer **market trading** node ~~for each Trading Interval~~ in accordance with the methodology set out in this Market Manual. 3.1.2. The Market Operator shall be primarily responsible for the development and review of the load forecasting methodology documented in this Market Manual.	• To remove the use of "trading interval" per WESM Rules, as amended by DOE DC 2016-10-0014 • For clerical revisions
System Operator	3.2.	3.2.1. The System Operator shall provide the information required from them to the Market Operator in accordance with this Manual, and ensure such information's accuracy. 3.2.2. The System Operator shall assist the Market Operator in improving the load	3.2.1. The System Operator shall provide the information required ~~from them to~~ **by** the Market Operator in accordance with this **Market** Manual, and ensure such information's accuracy. 3.2.2. The System Operator shall assist the Market Operator in improving the load	For clerical revisions

Title	Section	Original Provision	Proposed Amendments	Rationale
		forecasting methodology set out in this Manual.	forecasting methodology set out in this **Market** Manual.	
Trading Participants	3.3.	3.3.1. The Trading Participants shall carry out the responsibilities provided for in this Manual. 3.3.2. Customer Trading Participants that opted to provide net load forecasts for their respective facilities shall be responsible for the timely submission and accuracy of their forecast information.	3.3.1. The Trading Participants shall carry out the responsibilities provided for in this **Market** Manual. 3.3.2. Customer Trading Participants that opted to provide net load forecasts for their respective facilities shall be responsible for the timely submission and accuracy of their forecast information.	For clerical revisions
Demand Forecast for Market Projections	4	Demand Forecast for Market Projections	**Short-Term** ~~Demand~~ **Load** ~~Forecast for Market Projections~~	To focus this section on hourly forecasts for WAP and DAP. HAP shall be covered under the Very Short Term Load Forecast, which is for 5-minute forecasts.
Week-Ahead and Day-Ahead Demand Forecasts	4	Week-Ahead and Day-Ahead Demand Forecasts	~~Week-Ahead and Day-Ahead Demand Forecasts~~ **Background**	
Week-Ahead and Day-Ahead Demand Forecasts	4.1.1.	Hourly demand forecasts for each forecast area from the current day to the next seven (7) days shall be determined by the Market Operator using the Similar Day Load Forecast (SDLF) module of the Market Management System.	Hourly demand forecasts for each forecast area from the current day to the next seven (7) days shall be determined by the Market Operator using the ~~Similar Day Load Forecast (SDLF) module of the Market Management System~~ **System's Short-Term Load Forecast (STLF) application**.	To revise for clarity in the use of specific application in the new Market Management System

Title	Section	Original Provision	Proposed Amendments	Rationale
Week-Ahead and Day-Ahead Demand Forecasts	4.1.2.	The demand forecasts obtained in Section 4.1.1 of this Market Manual shall be used as input demand forecasts to obtain the unrestrained net load forecasts for the week-ahead projection (WAP) and the day-ahead projection (DAP).	The **aforementioned hourly** demand forecasts ~~obtained in Section 4.1.1 of this Market Manual~~ shall be used as input demand forecasts to obtain the **hourly** unrestrained net load forecasts for the week-ahead projection (WAP) and the day-ahead projection (DAP).	To revise for clarity
Week-Ahead and Day-Ahead Demand Forecasts	4.1.4.	The procedures for obtaining the net load forecasts from the demand forecasts are discussed further in Section 6 of this Market Manual.	The procedures for obtaining the net load forecasts from the demand forecasts **using load distribution factors** are discussed further in Section 6 of this Market Manual.	To revise for clarity in determining nodal load forecasts
Similar Day Load Forecast	4.2	Similar Day Load Forecast	~~Similar Day Load Forecast~~ **Determination of Hourly Demand Forecasts**	To focus this Section on the determination of hourly forecasts, which may use a variety of forecasting methodologies
Similar Day Load Forecast	4.2.1	The Similar Day Load Forecast (SDLF) produces hourly demand forecasts for the current day and the next seven days.	The ~~Similar Day Load Forecast (SDLF)~~ produces **process of determining** hourly demand forecasts ~~for the current day and the next seven days~~ **involve various input data such as historical demand, historical weather measurements, and weather forecast data**.	To provide the determination of hourly forecasts, which may use a variety of forecasting methodologies
Similar Day Load Forecast	4.2.2	The SDLF calculates Demand Forecasts based on historical demand and weather data. Weather data used is forecasted daily. The demand profile consists of actual Hourly	**Each forecast area is mapped to a *weather area*, which has its own distinct** ~~The SDLF calculates Demand Forecasts based on~~ historical demand and weather **and**	To revise for clarity and consistency in the use of weather data, both historical and forecasted.

Title	Section	Original Provision	Proposed Amendments	Rationale
		Average Loads, type of day (normal day and/or holiday), and actual weather data for the day (which has been previously saved in the Market Management System's database). SDLF extracts the historical data that is deemed to be the curve of best fit[1], and then applies customer provided factors to produce the Demand Forecasts for each Forecast Area. *Footnote 1*: Curves of best fit are identified through statistical curve fitting	**forecasted weather information** data. ~~Weather data used is forecasted daily. The demand profile consists of actual Hourly Average Loads, type of day (normal day and/or holiday), and actual weather data for the day (which has been previously saved in the Market Management System's database). SDLF extracts the historical data that is deemed to be the curve of best fit[1], and then applies customer provided factors to produce the Demand Forecasts for each Forecast Area.~~ ~~*Footnote 1*: Curves of best fit are identified through statistical curve fitting~~	
Similar Day Load Forecast	4.2.3	Procedure for Day-Ahead Forecast a) Through the Market Management System's Similar Day Load Forecast (SDLF) module, the Market Operator shall select a set of Daily Demand Profiles based on the following conditions: i. Similar Day load profile pattern (Sun, Mon, Tue-Wed-Thurs, Fri, Sat, and holiday) ii. Special Events, (e.g. earth hour) iii. Temperature iv. Humidity v. Other Weather conditions vi. Other Factors as deemed appropriate by the Market Operator	~~Procedure for Day-Ahead Forecast~~ ~~a) Through the Market Management System's Similar Day Load Forecast (SDLF) module, the Market Operator shall select a set of Daily Demand Profiles based on the following conditions:~~ ~~i. Similar Day load profile pattern (Sun, Mon, Tue-Wed-Thurs, Fri, Sat, and holiday)~~ ~~ii. Special Events, (e.g. earth hour)~~ ~~iii. Temperature~~ ~~iv. Humidity~~ ~~v. Other Weather conditions~~ ~~vi. Other Factors as deemed appropriate by the Market Operator~~	To reflect that the details of the different forecasting methodologies are moved in the Appendix section

Title	Section	Original Provision	Proposed Amendments	Rationale
		b) The SDLF module shall initially prepare a set of Demand Forecasts by averaging the Daily Demand Profiles selected in item a) i. c) The SDLF module has a facility to override Demand Forecasts should the Market Operator see the need to adjust the initially defined Demand Forecast from the SDLF. d) The Market Operator shall maintain the information provided in the SDLF on load growth and all-time peak load value, to help improve the accuracy of the Daily Demand Forecasts determined by the SDLF.	~~b) The SDLF module shall initially prepare a set of Demand Forecasts by averaging the Daily Demand Profiles selected in item a) i.~~ ~~c) The SDLF module has a facility to override Demand Forecasts should the Market Operator see the need to adjust the initially defined Demand Forecast from the SDLF.~~ ~~d) The Market Operator shall maintain the information provided in the SDLF on load growth and all-time peak load value, to help improve the accuracy of the Daily Demand Forecasts determined by the SDLF.~~ **Hourly demand forecasts are determined using the MMS' STLF application's weather adaptive, similar day, and pattern matching algorithms as shown in the illustration below. The methodology behind these forecasting algorithms are further discussed in Section 12.** **Figure 1. Process Overview for Determining Hourly Demand Forecasts via MMS-STLF** (See Attachment 1)	
		NEW	**4.2.4. The Market Operator may use other forecasting algorithms to determine hourly demand forecasts for each forecast area.** **4.2.5. The demand forecast determined by the Market Operator outside of the MMS'**	To reflect the proposed new process for implementing hourly forecasts, which includes the ability for the Market Operator to introduce its

Title	Section	Original Provision	Proposed Amendments	Rationale
			forecasting algorithm shall be treated as an external demand forecast. **4.2.6. If an external demand forecast is provided by the Market Operator in a relevant hourly interval, then the external demand forecast shall be considered as the input demand forecast regardless of any existing demand forecast determined by the MMS. These hourly demand forecasts shall be included in the Market Operator's performance standards.**	own forecast (called external forecast)
Similar Day Load Forecast	4.2.4 4.2.5	4.2.4 Pursuant to WESM Rules Clause 3.7.3.2 and Clause 3.7.3.3, the Market Operator shall prepare a market projection corresponding to each load scenario as may be determined in consultation with WESM Participants and approved by the PEM Board. 4.2.5. Each projected load scenario shall be saved onto different cases by the Market Operator through the available forecasting facility.	4.2.4 **4.2.7** Pursuant to WESM Rules ~~Clause~~ **Clauses 3.7.4.2** ~~3.7.3.2~~ and ~~Clause 3.7.3.3~~ **3.7.4.3**, the Market Operator shall prepare a market projection corresponding to each load scenario as may be determined in consultation with WESM Participants and approved by the PEM Board. ~~4.2.5. Each projected load scenario shall be saved onto different cases by the Market Operator through the available forecasting facility.~~	To revise references due to re-numbering in the amended WESM Rules (DOE DC2016-10-0014 dated 14 October 2016)
			4.2.8. Load scenarios shall be provided for each day-ahead projection using the following sensitivities (increments/decrements) with respect to the input demand forecast provided:	To define the details of the load scenarios to be used for DAP as required in the WESM Rules.

<table>
<tr><th>Title</th><th>Section</th><th>Original Provision</th><th>Proposed Amendments</th><th>Rationale</th></tr>
<tr><td></td><td></td><td></td><td><u>Table 1. DAP Load Scenarios</u>
<table><tr><th><u>DAP Load Scenario</u></th><th><u>Increment (+) / Decrement (-), %</u></th></tr><tr><td><u>Load Scenario 1</u></td><td><u>– 5 %</u></td></tr><tr><td><u>Load Scenario 2</u></td><td><u>– 3 %</u></td></tr><tr><td><u>Load Scenario 3</u></td><td><u>+ 3 %</u></td></tr><tr><td><u>Load Scenario 4</u></td><td><u>+ 5 %</u></td></tr></table></td><td></td></tr>
<tr><td>Demand Forecast for the Real Time Dispatch Runs</td><td>5</td><td>Demand Forecast for the Real Time Dispatch Runs</td><td>~~Demand Forecast for the Real Time Dispatch Runs~~ Very Short Term Load Forecasts</td><td>To specify forecasts for HAP and RTD. VSTLF is in a 5-minute resolution</td></tr>
<tr><td>Hour-Ahead Demand Forecasts</td><td>5.1</td><td>Hour-Ahead Demand Forecasts</td><td>~~Hour-Ahead Demand Forecasts~~ <u>Background</u></td><td></td></tr>
<tr><td>Hour-Ahead Demand Forecasts</td><td>5.1.1.</td><td>Demand forecasts for the next hour in each forecast area shall be determined by the Market Operator using the Load Predictor (LDP) module of the Market Management System.</td><td>Demand forecasts for ~~the next~~ <u>each 5-minute interval in the next two (2)</u> hour <u>hours</u> in each forecast area shall be determined by the Market Operator using the ~~Load Predictor (LDP) module of the~~ Market Management System <u>System's Very Short-Term Load Forecast (VSTLF) application</u>.</td><td>To revise for clarity in applying 5-minute forecasts in the New MMS</td></tr>
<tr><td>Hour-Ahead Demand Forecasts</td><td>5.1.2.</td><td>The demand forecasts obtained in Section 5.1.1 of this Market Manual shall be used as input demand forecasts to obtain the unrestrained net load forecasts for the real-time dispatch (RTD).</td><td>The demand forecasts <u>for each 5-minute interval in the next two (2) hours</u> ~~obtained in Section 5.1.1 of this Market Manual~~ shall be used as input demand forecasts to obtain the unrestrained net load forecasts for the <u>hour-ahead projection (HAP) and the</u> real-time dispatch (RTD).</td><td>To revise for clarity in applying 5-minute forecasts in the new Market Management System and added hour-ahead projection.</td></tr>
</table>

Title	Section	Original Provision	Proposed Amendments	Rationale
Hour-Ahead Demand Forecasts	5.1.3.	The summation of the net load forecast plus the losses computed for a forecast area after the optimization process in the relevant RTD run constitutes the final demand forecast for that forecast area.	The summation of the net load forecast plus the losses computed for a forecast area after the optimization process in the relevant **HAP or** RTD run constitutes the final demand forecast for that forecast area.	To include hour-ahead projection
Load Predictor	5.2.	Load Predictor	~~Load Predictor~~ **Determination of Demand Forecasts for Each Dispatch Interval**	To remove Load Predictor since it does not exist in the new Market Management System and revised instead to indicate how 5-minute demand forecasts are determined
Load Predictor	5.2.1.	5.2.1. The Load Predictor is a facility in the Market Management System (MMS) for managing hour-ahead Demand Forecasts that shall be used as an input to the RTD.	~~5.2.1. The Load Predictor is a facility in the Market Management System (MMS) for managing hour-ahead Demand Forecasts that shall be used as an input to the RTD.~~	To remove Load Predictor since it does not exist in the new Market Management System
Load Predictor	5.2.2.	5.2.2. The Load Predictor (LDP) is a stand-alone application in the Market Management System (MMS) that produces system energy demands in the near-term (24 intervals, every 5 minutes covering the next 2 hours). Its resulting demand forecast shall then be used by the Real-Time Dispatch (RTD).	~~5.2.2. The Load Predictor (LDP) is a stand-alone application in the Market Management System (MMS) that produces system energy demands in the near-term (24 intervals, every 5 minutes covering the next 2 hours). Its resulting demand forecast shall then be used by the Real-Time Dispatch (RTD).~~	To remove Load Predictor since it does not exist in the new Market Management System
Load Predictor	5.2.3.	5.2.3. The LDP uses a time-series method utilizing the actual system demand, which is derived from the total generation of the EMSI	~~5.2.3.~~ **5.2.1** The ~~LDP~~ **VSTLF** uses **historical demand data and shall be represented in** a time-series ~~method utilizing the actual system demand, which is derived from the total~~	To reflect use of new methodology for 5-minute forecasts

Title	Section	Original Provision	Proposed Amendments	Rationale
		system snapshot, to forecast the total system load for each succeeding 5-minute interval. Figure (See Attachment 2)	~~generation of the EMSI system snapshot, to forecast the total system load for each succeeding 5-minute interval.~~	
		NEW	**5.2.2. From the demand time-series data, demand forecast shall be determined using the Cubic-Spline Interpolation Method, which details are discussed in Appendix D.**	To add provision that indicates methodology for 5-minute forecasts, as discussed in the Appendix D of the Manual
Load Predictor	5.2.4	5.2.4 The LDP provides Input Demand Forecasts for each Forecast Area. It also has a feature that allows users to manually intervene with the initially computed forecast, and be able to place their own load forecast for the relevant region and interval. Figure 1. LDP Screenshot 1 (See Attachment 2)	~~5.2.4 The LDP provides Input Demand Forecasts for each Forecast Area. It also has a feature that allows users to manually intervene with the initially computed forecast, and be able to place their own load forecast for the relevant region and interval.~~ ~~Figure 1. LDP Screenshot 1 and Figure 2. LDP Screenshot 2~~	To remove Load Predictor since it does not exist in the new Market Management System.
Load Predictor	5.2.5	5.2.5 LDP Algorithm xxx	~~5.2.5 LDP Algorithm~~ ~~xxx~~	To remove Load Predictor since it does not exist in the new Market Management System.
Net Load Forecasts	6			
		Pursuant to WESM Rules Clause 3.5.4.1, the Market Operator shall prepare a net load forecast, which are either unrestrained or restrained. Both shall be provided by the Market Operator in the market projections	**6.1 Scope** Pursuant to WESM Rules Clause 3.5.4.1, **this section provides** the Market ~~Operator~~ **Operator's preparation of** ~~shall prepare a net~~ load ~~forecast~~ **forecasts**, which are either	For clerical revisions

Title	Section	Original Provision	Proposed Amendments	Rationale
		(WAP and DAP) and the real-time dispatch (RTD).	unrestrained or restrained, **for** ~~. Both shall be provided by the Market Operator in the~~ market projections ~~(WAP and DAP)~~ and the real-time dispatch ~~(RTD)~~ **market runs**.	
Unrestrained Net Load Forecast	6.1.	6.1. Unrestrained Net Load Forecast	~~6.1.~~ **6.2** Unrestrained Net Load Forecast	
Unrestrained Net Load Forecast	6.1.	6.1.1. The unrestrained net load forecast is prepared by the Market Operator by pro-rating the input demand forecast net of an initial loss percentage to the base load values.	~~6.1.1~~ **6.2.1**. The unrestrained net load forecast is prepared by the Market Operator by ~~pro-rating~~ **allocating** the input demand forecast net of an initial loss percentage ~~to the base load values~~ **with respect to the Load Distribution Factors (LDF) set for each customer market trading node**. **6.2.2 LDFs are defined for each customer market trading node that belongs to a specific forecast area, for each day and hour.**	To define the use of Load Distribution Factors based on the proposed methodology of allocating demand forecasts to nodes using these allocation factors.
Unrestrained Net Load Forecast	6.1.	6.1.2. Unrestrained Net Load Forecasts shall exclude scheduled loads.	~~6.1.2. Unrestrained Net Load Forecasts shall exclude scheduled loads.~~	To remove provision due to the definition of Unrestrained Load in the WESM Rules
Unrestrained Net Load Forecast	6.1.	6.1.3. The base load values shall consider the contributions from non-scheduled generation and generation from NRE generating units with intermittent energy resource.	~~6.1.3. The base load values shall consider the contributions from non-scheduled generation and generation from NRE generating units with intermittent energy resource.~~	To remove provision due to the definition of Unrestrained Load in the WESM Rules

Title	Section	Original Provision	Proposed Amendments	Rationale
Unrestrained Net Load Forecast	6.1.	6.1.4. For the RTD, the base load value is the latest actual system snapshot prior to the execution of this workflow. For the market projections of the WAP and DAP, it shall use the Load Pattern prepared by the Market Operator, which covers loads for each Customer Node for the next seven days. The Market Operator shall develop relevant procedures in the preparation of the load Pattern. Figure 3. High-Level Diagram to obtain the Unrestrained Net Load Forecast (See Attachment 3)	~~6.1.4~~ **6.2.3.** ~~For the RTD, the base load value is the latest actual system snapshot prior to the execution of this workflow. For the market projections of the WAP and DAP, it shall use the Load Pattern prepared by the Market Operator, which covers loads for each Customer Node for the next seven days.~~ The Market Operator shall develop relevant procedures in the preparation of the ~~load Pattern~~ **LDFs**. ~~Figure 3. High-Level Diagram to obtain the Unrestrained Net Load Forecast~~ **6.2.4. The following figure shows the process of how unrestrained net load forecasts are determined from input demand forecasts using LDFs.** **Figure 2. Determination of Unrestrained Net Load Forecasts for each Customer Market Trading Node** (See Attachment 3)	To reflect that Load Distribution Factors are used instead of the latest system snapshot in the proposed methodology of determining nodal forecasts
		6.1.5. The total unrestrained net load forecast can be interpreted in the following equation: Total UNLF = Demand Forecast x (1 - Initial Loss Percentage$_{FA}$) Where:	~~6.1.5~~ **6.2.5.** The total unrestrained net load forecast can be interpreted in the following equation: Total UNLF = Demand Forecast x (1 - Initial Loss Percentage$_{FA}$) Where:	For clerical revisions

Title	Section	Original Provision	Proposed Amendments	Rationale
		UNLF unrestrained net load forecast Initial Loss Percentage$_{FA}$ initial loss percentage in FA FA forecast area	UNLF **refers to** unrestrained net load forecast Initial Loss Percentage$_{FA}$ **refers to** initial loss percentage in FA FA **refers to** forecast area	
		6.1.6. The unrestrained net load forecast of each customer node shall be obtained by pro-rating the total unrestrained net load forecast to the actual load of each customer node based on the latest actual system snapshot from the System Operator. $UNLF_b = \frac{\text{Total UNLF}}{\text{Total Actual Load}_{FA,LATEST}} \times \text{Actual Load}_{i, FA, LATEST}$ Where: $UNLF_i$ unrestrained net load forecast of customer node i Total Actual Load$_{FA, LATEST}$ sum of actual loads in a forecast area where customer node I belongs based on the latest system snapshot Actual Load$_{i, FA, LATEST}$ actual load of customer node i based on the latest system snapshot	~~6.1.6~~ **6.2.6**. The unrestrained net load forecast of each customer **market trading** node shall be obtained by pro-rating the total unrestrained net load forecast to the actual load of each customer **market trading** node based on the latest actual system snapshot from the System Operator. **This is provided in the following equation:** $UNLF_b = \frac{\text{Total UNLF}}{\text{Total LDF}_{h, FA}} * LDF_{b, h, FA}$ Where: $UNLF_b$ **refers to** unrestrained net load forecast of customer **market trading** node ~~i~~ **b** Total LDF Load$_{h, FA}$ **refers to the** sum of ~~actual loads~~ **load distribution factors for hour h in a forecast area FA** where customer **market trading** node ~~i~~ **b** belongs ~~based on the latest system snapshot~~ $LDF_{b, h, FA}$ **refers to the** actual load **distribution factor** of customer	• To revise for clarity • Clerical • To include use of Load Distribution Factors

Title	Section	Original Provision	Proposed Amendments	Rationale
			market trading node ~~i~~ **b for hour h in forecast area FA** ~~based on the latest system snapshot~~	
		6.1.7. A Trading Participant may submit his own unrestrained net load forecast as long as the value is within the prescribed value from the Market Operator. Further details on customer forecasts are available in Section 7 of this Market Manual.	~~6.1.7~~ **6.2.7.** A Trading Participant may submit his own unrestrained net load forecast ~~as long as the value is within the prescribed value from the Market Operator~~. Further details on customer forecasts are available in Section 7 ~~of this Market Manual~~.	To reflect that there is no more Customer forecast tolerance range
Restrained Net Load Forecast	6.2	6.2. Restrained Net Load Forecast	6.2 **6.3**. Restrained Net Load Forecast	Re-numbering
Restrained Net Load Forecast	6.2	6.2.1. The restrained net load forecast of each customer node is achieved after the optimization process of the market dispatch optimization model (MDOM).	~~6.2.1~~ **6.3.1**. The restrained net load forecast of each customer **market trading** node is achieved after the optimization process of the market dispatch optimization model (MDOM).	For clerical revisions
Restrained Net Load Forecast	6.2	6.2.2. A customer node's projected load will be shed should its price reach the level of the VoLL price.	~~6.2.2~~ **6.3.2**. A customer **market trading** node's projected load will be shed should its price reach the level of the **Nodal** VoLL price.	For clerical revisions
Restrained Net Load Forecast	6.2	6.2.3. The restrained net load forecast shall then be obtained after the MDOM determines a solution reflective of load shedding. The following equation shows the value of the restrained net load forecast: $RNLF_i = UNLF_i - Load\ Shed_i$	~~6.2.3~~ **6.3.3**. The restrained net load forecast shall then be obtained after the MDOM determines a solution reflective of load shedding. The following equation shows the value of the restrained net load forecast: $RNLF_b = UNLF_b - Load\ Shed_b$	For clerical revisions

Title	Section	Original Provision	Proposed Amendments	Rationale
		Where: $RNLF_i$ restrained net load forecast of customer node i $UNLF_i$ unrestrained net load forecast of customer node i $Load\ Shed_i$ amount of load to be shed at customer node i	Where: $RNLF_b$ **refers to the** restrained net load forecast of customer **market trading** node i **b** $UNLF_b$ **refers to the** unrestrained net load forecast of customer **market trading** node i **b** $Load\ Shed_b$ **refers to the** amount of load to be shed at customer **market trading** node i **b**	
Initial Loss Percentage	6.3	6.3. Initial Loss Percentage	6.3 **6.4**. Initial Loss Percentage	Re-numbering
		6.3.1. The initial loss percentage is the percentage of the demand forecast initially assumed to be the loss. It shall be netted out of the demand forecast in order to achieve the total unrestrained net load forecast, which shall then be used to obtain the unrestrained net load forecast of each customer node.	6.3.1 **6.4.1**. The initial loss percentage is the percentage of the demand forecast initially assumed to be the loss. It shall be netted out of the demand forecast in order to achieve the total unrestrained net load forecast, which shall then be used to obtain the unrestrained net load forecast of each customer **market trading** node.	For clerical revisions
		6.3.2. Each forecast area has its own initial loss percentage, and it shall be reviewed on an annual basis by the Market Operator. The initial loss percentage per forecast area shall be published by the Market Operator in the Market Information Website[2]. *Footnote 2:* www.wesm.ph	6.3.2 **6.4.2**. Each forecast area has its own initial loss percentage, and it shall be reviewed on an annual basis by the Market Operator. The initial loss percentage per forecast area shall be published by the Market Operator in the Market Information Website[2]. *Footnote 2:* www.wesm.ph	Re-numbered item

Title	Section	Original Provision	Proposed Amendments	Rationale
Customer Forecasts	7			
Customer Forecast Submission	7.1.1.	Customer forecasts are made available to Trading Participants in the WESM through the Market Management System's Market Participant Interface (MPI).	**Each qualified customer, except those that are required by the Market Operator based on Section 7.1.6, may at its option, submit forecasts for its respective market trading node for each hourly or dispatch interval.** ~~Customer forecasts are made available to Trading Participants in the WESM through the Market Management System's Market Participant Interface (MPI).~~	To reflect the option of customers to submit forecasts; deleted provision is moved to Section 7.1.7, as proposed
	7.1.3.	7.1.3. Each Customer may, at its option, submit forecasts for its respective market trading node.	~~7.1.3. Each Customer may, at its option, submit forecasts for its respective market trading node.~~	To delete provisions since the same are provided in Section 7.1.1, as proposed
	7.1.4.	7.1.4. Each Customer that intends to participate in this optional program shall require approval from the Market Operator for accounting and validation purposes.	~~7.1.4. Each Customer that intends to participate in this optional program shall require approval from the Market Operator for accounting and validation purposes.~~	
	7.1.5.	7.1.5. Each Customer that submits load forecasts for the market projections (Week-Ahead and Day-Ahead) and the real-time dispatch shall upload the relevant forecast in accordance with the WESM timetable.	~~7.1.5.~~**7.1.3** Each Customer that submits load forecasts for the market projections ~~(Week-Ahead and Day-Ahead)~~ and the real-time dispatch shall upload the relevant forecast in accordance with the WESM timetable.	To include all market projections (WAP,DAP & HAP)
	7.1.6. 7.1.7	7.1.6 The Customer forecast shall represent the estimated aggregate demand at the market trading node.	~~7.1.6~~ **7.1.4** The Customer forecast shall represent the estimated aggregate demand at the market trading node **and shall**	To consolidate provisions

Title	Section	Original Provision	Proposed Amendments	Rationale
		7.1.7. Customer forecasts for the market projections and the real-time dispatch shall be in real-power quantities (MW)	~~7.1.7. Customer forecasts for the market projections and the real-time dispatch shall be~~ in real-power quantities (MW)	
	7.1.8.	7.1.8. Customer forecasts shall be considered as the official schedule of the Real-Time Dispatch.	~~7.1.8~~ **7.1.5.** Customer forecasts **submitted by Trading Participants shall replace the Unrestrained Net Load Forecast determined in Section 6.2 of this Market Manual** ~~shall be considered as the official schedule of the Real-Time Dispatch.~~	To revise for clarity
		NEW	**7.1.6. Should a customer market trading node have a definite MW loading that can a materially affect WESM's pricing and scheduling, then the Market Operator require the relevant Trading Participant to submit Customer forecasts for the identified market trading node for each interval in accordance with the timetable.**	To require certain loads to submit their own forecasts in the WESM, which include pump-storage hydro plants that operate as pump during specific periods
		NEW	**7.1.7. Submission of Customer Forecasts in the WESM shall be made via the Market Management System's Market Participant Interface (MPI).**	Re-located from section 7.1.1
Customer Forecast Validation	7.2	7.2. Customer Forecast Validation xxx	~~7.2. Customer Forecast Validation~~ ~~xxx~~	To reflect that there is no more Customer forecast tolerance range
		NEW	**7.2. CUSTOMER LOAD FORECAST CONSIDERATIONS**	To provide customer load forecasting considerations

Title	Section	Original Provision	Proposed Amendments	Rationale
			Trading Participants submitting customer load forecasts shall consider the following when determining Net Load Forecasts for their relevant market trading nodes. 1. Customer Forecast Methodology. In preparing the load forecast, the customers may select the methodology that they believe is most appropriate for each individual market trading node. 2. Customer Load Forecast Adjustment. Load adjustment factors shall be established by the Customer and his Meter Service Provider. The adjustment factors shall consider site-specific losses and other factors deemed necessary to reflect accurate customer load forecast at his market trading node. 3. Customer Forecast Timeline. Customers may be able to provide their own load forecast based on the Open Market Window defined in the WESM Dispatch Protocol.	
Submission of Trading Participant Load Information	7.3.	7.3. Submission of Trading Participant Load Information xxx	~~7.3. Submission of Trading Participant Load Information~~ xxx	Already covered in the prior sections.

Title	Section	Original Provision	Proposed Amendments	Rationale
Load Forecasting Considerations	8	8 Load Forecasting Considerations	8 Load Forecasting Considerations **Parameters**	
Weather Data	8.1.1	Historical and forecast weather data shall be made available to the Market Management System's database on a regular interval in accordance with the WESM timetable. The weather data shall be based on the major load center located in the forecast area. Weather parameters shall include, but not limited to the following. • Temperature • Humidity • Wind direction • Wind speed • Sky cover (0 = clear, 10 = maximum overcast) • Precipitation	Historical and forecast weather data shall be made available to the Market Management System's database on a regular interval in accordance with the WESM timetable. The weather data shall be based on the major load center located in the forecast area. Weather parameters shall include, but not limited to the following. • Temperature • Humidity • ~~Wind direction~~ • ~~Wind speed~~ • ~~Sky cover (0 = clear, 10 = maximum overcast)~~ • ~~Precipitation~~	To reflect actual data used in proposed load forecasting methodologies
Weather Data	8.1.2.	Such weather information shall be obtained from a reliable source deemed appropriate by the Market Operator. Prospective weather data providers are listed in of this Market Manual.	Such weather information shall be obtained from a reliable source deemed appropriate by the Market Operator. Prospective weather data providers are listed in **Appendix E** ~~of this Market Manual~~.	To revise for clarity
Load Demand	8.2.	Load Demand	~~Load Demand~~	To revise for clarity
Load Demand	8.2.1.	Demand and generation data shall be obtained from the Network Service Providers' SCADA system, and it shall be incorporated in the data provided by the System Operator. Network Service Providers shall ensure that	Demand ~~and generation~~ data shall be obtained from the Network Service Providers' SCADA system, and it shall be incorporated in the data provided by the System Operator **to the Market Operator**. ~~Network Service Providers shall ensure that they provide the most reliable~~	

Title	Section	Original Provision	Proposed Amendments	Rationale
		they provide the most reliable and accurate real-time information to the Market Operator.	~~and accurate real-time information to the Market Operator.~~	
Load Demand	8.2.2.	Real-time information shall include telemetered data with provisions for state-estimation for higher reliability and accuracy. Such information shall form part of the demand forecast and the net load forecast prepared by the Market Operator.	Real-time information shall include **at the nodal levels shall also be retrieved by the Market Operator from the System Operator** ~~telemetered data with provisions for state-estimation for higher reliability and accuracy.~~ Such information shall ~~form~~ **be used by the Market Operator in preparing** ~~part of the~~ demand forecast and the net load forecast ~~prepared by the Market Operator.~~	To revise provision since there is no state-estimation yet
Load Demand	8.2.3.	In the absence or failure to provide reliable real-time information, the Market Operator shall utilize the latest snapshot information provided. It shall be provided on a regular interval that is agreed upon between the Market Operator and System Operator.	In the absence or failure to provide reliable real-time information, the Market Operator shall utilize the latest ~~snapshot~~ information provided. ~~It shall be provided on a regular interval that is agreed upon between the Market Operator and System Operator.~~	To revise for clarity
Load Demand	8.2.4.	Historical hourly load information shall be used by the Market Operator in providing historical load profile for the Week-Ahead and Day-Ahead projections.	**Demand obtained over time shall form part of the historical** ~~Historical~~ hourly load information **that** shall be used by the Market Operator **as inputs to the load forecasting algorithms used for market projections and real-time dispatch** ~~in providing historical load profile for the Week-Ahead and Day-Ahead projections.~~	For clerical revisions
Trading Participant Demand	8.2.5.	xxx	~~8.2.5~~ xxx	Moved to section 7.2 on Customer Load Forecasts

Title	Section	Original Provision	Proposed Amendments	Rationale
			Customer Demand Forecasts shall be based on the provisions under Section 7.	
Load Forecast Audit and Performance Measures	9			
Load Forecast Audit and Performance Measures	9.2.	The Market Operator shall monitor the actual and forecasted load demand for each relevant market trading node.	The Market Operator shall monitor the actual and forecasted **nodal** load demand for each relevant market trading node.	To revise for clarity
Amendments, Publication and Effectivity	10			
Amendments to this Manual	10.1.	10.1 Amendments to this Manual Any amendment to, or revision to this Manual shall be approved by the PEM Board.	10.1 ~~Amendments to this Manual~~, **Review and Update** **10.1.1. Pursuant to WESM Rules Clause 3.5.4.6, the Market Operator shall periodically review the methodologies for performing nodal load forecasts and update this Market Manual, as necessary.** **10.1.2** Any **amendments** ~~amendment to~~ or revision to this **Market** Manual shall be approved ~~by the PEM Board~~ **in accordance with Chapter 8 of the WESM Rules and corresponding Market Manual on rules change process**.	To reflect the responsibility of the Market Operator in reviewing nodal load forecast methodologies
Publication and Effectivity	10.2	Upon approval of the PEM Board, this Manual shall take effect fifteen (15) days from its publication, or such later date as the PEM	~~Upon approval of the PEM Board, **The** this Manual shall take effect fifteen (15) days from~~ its publication **and effectivity of this Market**	To reflect the publication and effectivity of the Manual consistent with the

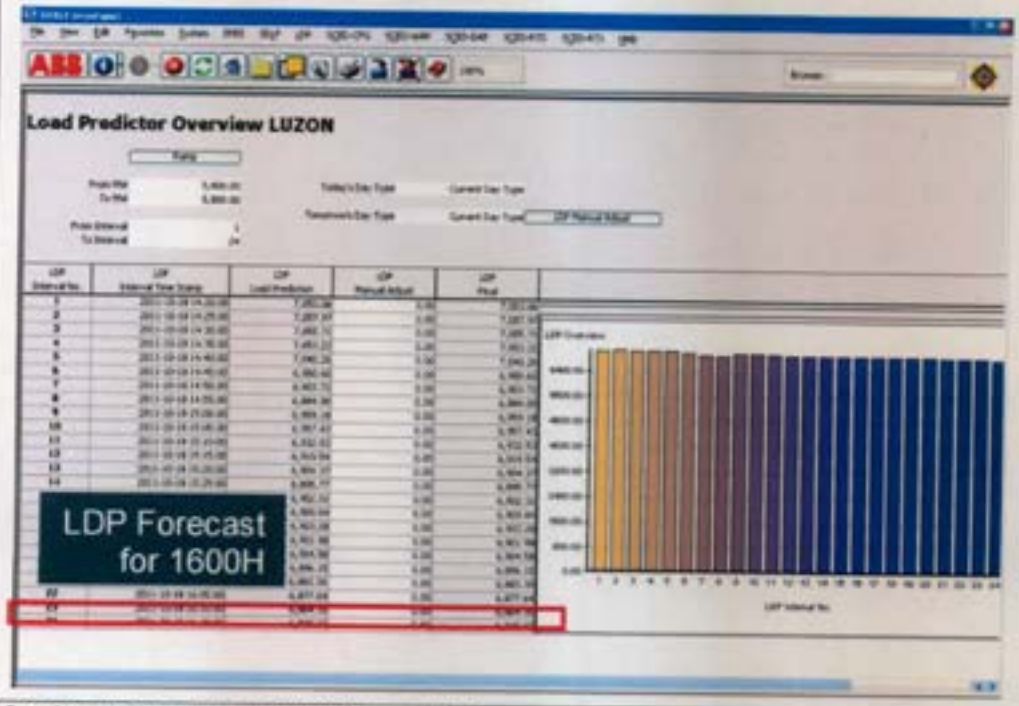
Title	Section	Original Provision	Proposed Amendments	Rationale
		Board determines, in accordance with the WESM Manual of Procedures for Changes to the WESM Rules (WESM-RCM).	**Manual shall be in accordance with Chapter 8 of the WESM Rules and corresponding Market Manual on rules change process**~~, or such later date as the PEM Board determines, in accordance with the WESM Manual of Procedures for Changes to the WESM Rules (WESM-RCM).~~	WESM Rules and relevant Market Manual
Appendix	11			
	A	Appendix A. LDP Methodology Sample	Appendix A. ~~LDP Methodology Sample~~ **Weather Adaptive Algorithm for Short-Term Load Forecast**	To provide details on the revised load forecasting methodologies. See Attachment 4 (Appendices)
			Appendix B. Similar Day Algorithm for Short-Term Load Forecast	
			Appendix C. Pattern Matching Algorithm for Short-Term Load Forecast	
			Appendix D. Cubic-Spline Interpolation Algorithm for Very Short-Term Load Forecast	
	B	Appendix B. List of Prospective Weather Data Providers	Appendix B **E**. List of Prospective Weather Data Providers	

Current	Proposed
NEW	**Figure 1. Process Overview for Determining Hourly Demand Forecasts via MMS-STLF** 

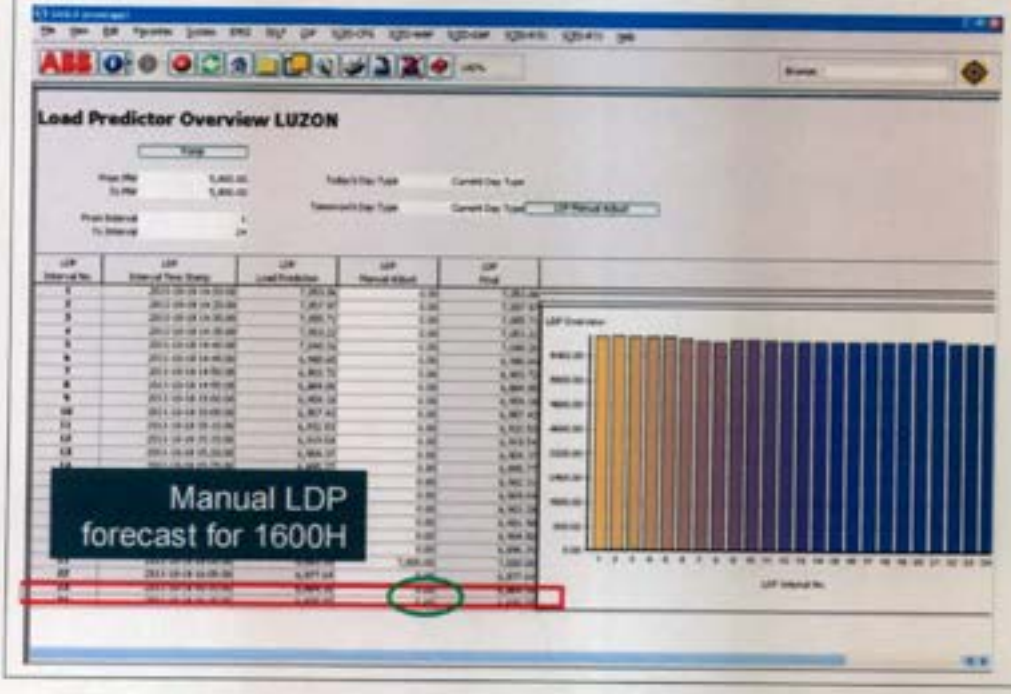
Attachment 2 – Figures in Section 5 for deletion

Section 5.2.3

Section 5.2.4; Figure 1. LDP Screenshot 1



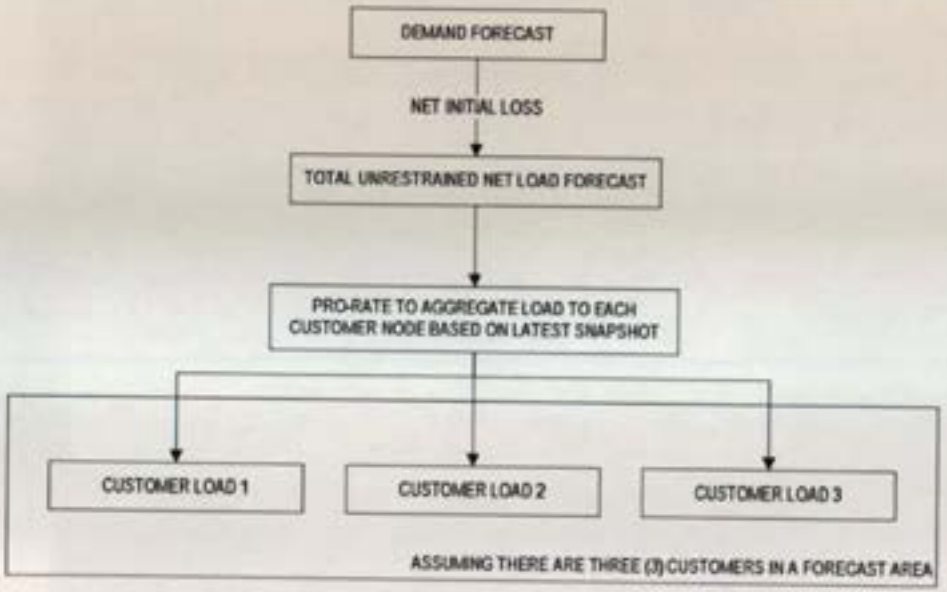
Section 5.2.4; Figure 1. LDP Screenshot 2



Attachment 3 – Figures in Section 6

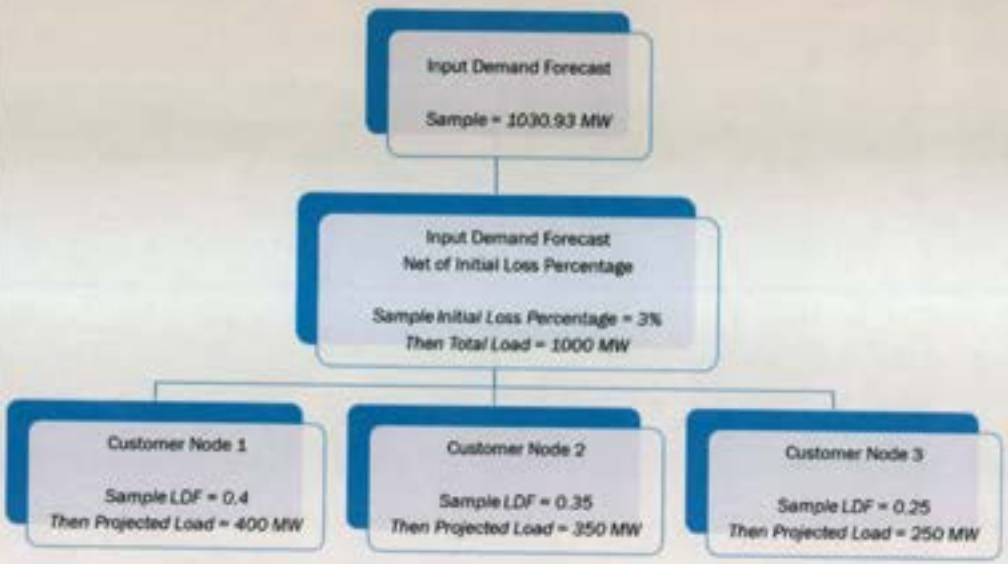
Current

Section 6.1.4; Figure 3. High-level Diagram to obtain the Unrestrained Net Load Forecast



Proposed

Section 6.2.4; Figure 2. Determination of Unrestrained Net Load Forecasts for each Customer Market Trading Node



Attachment 4 – Appendices (Proposed)

Appendix A. Weather Adaptive Algorithm for Short-Term Load Forecast

1. Input Data Specification

The following input data are necessary to calculate the load forecast for this methodology:

a. Current load data.
b. Current weather data.
c. Weather forecast data provided by weather services companies.
d. Preselected day types for forecasting period.
e. The prediction error of the last forecast.
f. Estimated parameter values which quantify the causal relationship among historical load data, historical weather data and day type data.

2. Weather Adaptive Using Multiple Regression Method

The Weather Adaptive Algorithm uses multiple regression analysis to create a statistical relationship between demand and weather conditions, including day types. In this methodology, the regression coefficients are estimated using equally or exponentially weighted minimum mean square error (MMSE) estimation criteria.

The regression analysis is performed with up to 3rd degree polynomial functions. The polynomial degree is adjusted for each weather influencing variable by parameter.

Regression analysis filters the different weather-dependent parts of the load for a given time, for example, time interval 8.00-9.00 a.m., as well as the influence of day type. The result of this filtering process is a set of regression coefficients (polynomial-coefficients).

To detect non-typical historical data, an adjustable data check is implemented. If load or influencing variables violate an adjustable bandwidth, they are excluded from the data analysis.

The result of the analysis is a decomposition of the time-dependent total load Y(t) into:

$$Y(t) = B(t) + a_T T(t) + a_L L(t) + \left[\sum a_W W(t)\right] + D(t) + model\_error(t)$$

Where:

B(t) refers to weather insensitive load component
a_L, L(t) refers to weather-sensitive load components
a_T, T(t) refers to temperature-dependent load
a_L L(t) refers to humidity-dependent load
a_W W(t) refers to other weather-dependent load
D(t) refers to day type-specific load component
model_error (t) refers to the minimized weighted least squares estimation

The model error, is minimized using a weighted least squares technique, and this allows the user to get the forecast results in the form of an analytical expression.

Generally the regression analysis, which involves regression coefficient estimation, is activated periodically together with a subsequent forecast calculation.

3. Model analysis

Model analysis is the process used to find a new set of parameters that reduces the forecast errors for the weather adaptive algorithm. This requires using a particular set of historical load and weather history. Multiple simulations are run which imitate what the Weather Adaptive forecasting calculations would have been for that particular set of data starting at a user defined day and moving through the remaining data one day at a time. Each simulation has a different set of weather adaptive parameters. Results are summarized and may be compared, and therefore help to in analysing points that need further improvement.

4. Determination of the Weather Forecast Data

In order to get good forecast results the best available weather forecast data are necessary.

For the forecast calculation, the STLF program requires time series in the adjusted time step of each weather variable over the whole forecast period. These values are calculated automatically from the preceding inputs that are listed.

For the temperature influence, the program tracks a standardized curve through the day-specific values of minimum and maximum temperature. This standardized temperature curve is determined from the historical data at each run of the analysis program. The time points of the extreme forecast temperature are extracted from the historical data.

[redacted]

5. Determination of the Load Forecast

The load forecast is calculated for each adjusted time step of the forecast period using the regression coefficients and the weather variables forecast as well as type of day.

The forecast program is activated through the following different means

- Periodically at defined time steps
- After each run of the analysis program
- On user request

Appendix B. Similar Day Algorithm for Short-Term Load Forecast

Use the similar day forecast to produce a *Demand Forecast* for a day or a range of days in the forecast period.

The similar day forecast is based on recalculated *Demand* patterns. There are *Demand* increment patterns for each:

- Forecast Area *Demand*
- Month
- Hour/minute
- Day type
- Normal/average weather conditions

The similar day profiles where calculated initially using historical *Demand* data and recalculation is going to be done once a day during midnight processing. Subsequently, they can be reviewed and edited using the STLF User Interface.

Historical load profile (similar day load) has been calculated for each month, hour and day type:

$$LoadProfile_{i,j,k} = \frac{1}{n} \cdot \sum_{l=1}^{n} HistoricalLoad_{i,j,k}$$

And standard deviation for each calculated load profile has been calculated by:

$$StandardDeviation_{i,j,k} = \sqrt{\frac{\sum(HistoricalLoad_{i,j,k} - LoadProfile_{i,j,k})^2}{n}}$$

Where:

i = 1, 2, 3,...12 - month

j = 1, 2, 3,...24 - hour

k = 1, 2, 3,...8 - day type
l = 1, 2, 3,...n - number of historical days

Forecasting applications supporting the following day types:

Day Type No.	Day Type
1	FRI
2	MON
3	SAT
4	SUN
5	WKD
6	TUE
7	WED
8	THU

The *Demand* similar day patterns are non-weather sensitive, and they provide the average *Demand* in case for normal weather condition for that time of year (defined by month, hour and day type).

The weather increment patterns defined by standard deviation are expected to change under "Hot"/"Cold" weather conditions. Positive increments indicate that load increases in hotter weather conditions than in normal weather conditions. Negative increments indicate the reverse. Under cold weather conditions, the increments are subtracted rather than added to the non-weather sensitive load pattern values.

Appendix C. Pattern Matching Algorithm for Short-Term Load Forecast

The pattern matching algorithm uses a process to filter days that can be used to determine *Demand Forecasts*. The filtering of days is based on a pre-defined set of parameters, namely the type of day and historical weather data.

Based on the values defined in the filter, such as the type of day and the high and low values of temperature, it will select days and then provide an index for its difference. From there, it will assign a weight to be applied to the *Demand* for that day.

Using the weights along with the actual *Demand* for that day, a *Demand Forecast* shall be determined.

[redacted]

Appendix D. Cubic-Spline Interpolation Algorithm for Very Short-Term Load Forecast

1. Cubic-Spline Interpolation Process

The 5-minute *Demand Forecast* executes for a time-horizon of 2 hours, or for 24 5-minutes intervals.

The 5-minute forecast-area load forecast makes use of a Cubic Spline Fitting algorithm in conjunction with the load-tracking methodology.

The inputs to the calculation are the hourly *Demand Forecast* as well as the 5-minute historical loads as shown in the figure below.

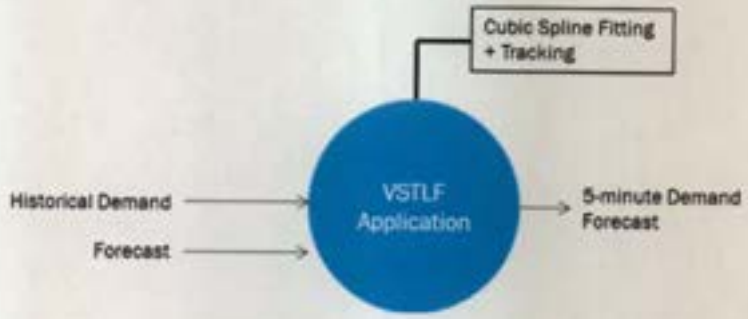


Figure 1. Cubic Spline Process Overview

The Tracking algorithm calculates correction term to the forecast for several 5-minute forecasting period. A curve fitting algorithm is used along with actual *Demand* to calculate the 5 minute forecast.

2. 5-minute Tracking Load Forecast Function via Cubic Spline

The tracking forecast is based on deviations between the five minute *Demand Forecasts* and the actual *Demand* every five minutes over the last hour. An average error term is used for the tracking forecast calculation. This average error term is calculated by adapting the relative errors for each time step so that values reflect the recent error trend.

$$\varepsilon_t = \frac{\left[5MinuteLoad_t' - 5MinuteLoad_t\right]}{5MinuteLoad_t}$$

$$A_t = A_{t-1} + \alpha\left[\varepsilon_t - A_{t-1}\right]$$

Where:

$\hat{5MinuteLoad}_t$ - 5 minute forecast load at time t

$5MinuteLoad_t$ - 5 minute measured load at time t

ε_t - Relative error at time t

A_t - Average (or adapted) error at time t

α_t - Adaptive parameter ($0 < \alpha_t < 1$)

The correction terms for future time steps are then be calculated as follows:

$$Y_{t+1} = (-1)\hat{5MinuteLoad}_{t+1}[\beta(\varepsilon_t - A_t) + A_t]$$

$$Y_{t+n} = (-1)\hat{5MinuteLoad}_{t+n}A_t$$

Where:

Y_t - Forecast correction term for time t

β - Weighting factor for the first future time step

n - The number of the forecasting time steps (n>1)

The adaptive parameter is selected so that the error from the previous time step does not receive too much weight. The weighting factor is introduced so that the effect of the error for the previous time step may receive additional weight in determining the correction for the next time step.

Appendix E. List of Prospective Weather Data Providers

1. Department of Science and Technology – Philippine Atmospheric, Geophysical, and Astronomical Services Administration (DOST-PAGASA)
2. Accuweather

Philippine Electricity Market Corporation

ANNEX B

Proposed Amendments to the WESM Manual on Billing and Settlement regarding the Implementation of Enhancements to WESM Design and Operations

Title	Section	Original Provision	Proposed Amendments	Rationale
Introduction	1			
Background	1.1	1.1 The WESM Billing and Settlement Manual is one of manuals prepared by the Philippine Electricity Market Corporation (PEMC). This manual focuses on the billing and settlement procedures to be followed by the Market Operator (MO) and Trading Participants (TP) for preparation of settlement statements and settlement of transactions in the Wholesale Electricity Spot Market (WESM).	~~1.1~~ **This** ~~The WESM Billing and Settlement~~ **Market Manual provides** ~~Manual is one of manuals prepared by the Philippine Electricity Market Corporation (PEMC). This manual focuses on the billing and settlement~~ **the** procedures ~~to be followed by the Market Operator (MO) and Trading Participants (TP) for~~ **on the** preparation of settlement statements **as basis for the** and settlement of transactions **of Trading Participants** in the Wholesale Electricity Spot Market (WESM).	To revise for clarity and consistency with all Market Manuals
Purpose	1.2	1.2 This Manual implements relevant provisions from WESM Rules Sections 3.14 and 3.15. It describes the procedures which the Market Operator and Trading Participants must follow in relation to the settlement process and compliance with the prudential requirements.	~~1.2~~ This **Market** Manual implements relevant provisions from WESM Rules ~~Sections~~ **Clauses** 3.14 and 3.15. It describes the procedures which the Market Operator and Trading Participants must follow in relation to the settlement process and compliance with the prudential requirements.	To revise for clarity
Scope	1.3	This manual covers the following procedures: 1.3.1 Section 3 - Issuance of Settlement Statements in accordance with WESM Rules 3.14.4, 3.14.5, 3.14.8, and 3.14.9;	**1.3.1** This **Market Manual** ~~manual~~ covers the following procedures: ~~1.3.1~~ **a.** Section 3 **4** - Issuance of Settlement Statements in accordance with WESM Rules **Clauses** 3.14.4, 3.14.5, 3.14.8, and 3.14.9;	• To revise for clarity and consistency with all market manuals • Corrected section references for items a to e • Added items f and g to indicate section references

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
		1.3.2 Section 4- Collection and Payment of Settlement Amounts in accordance with WESM Rules 3.14.2, 3.14.3, 3.14.6, 3.14.7, and 3.14.10; 1.3.3 Section 5 - Payment Default in accordance with WESM Rules 3.14.11 and 3.14.12; 1.3.4 Section 6 - Prudential Requirement in accordance with WESM Rules 3.15; and 1.3.5 Section 7 - Suspension and Revocation of Suspension in accordance with WESM Rules 3.14.11.2(b) and 3.15.8. This manual does not cover the following: 1.3.6 Calculation of Administered Prices, which is covered in the Administered Price Determination Methodology; 1.3.7 Settlement amounts calculation, which is covered in the Price Determination Methodology;	~~1.3.2~~ **b.** Section 5- Collection and Payment of Settlement Amounts in accordance with WESM Rules **Clauses** 3.14.2, 3.14.3, 3.14.6, 3.14.7, and 3.14.10; ~~1.3.3~~ **c.** Section 6 - Payment Default in accordance with WESM Rules **Clauses** 3.14.11 and 3.14.12; ~~1.3.4~~ **d.** Section 7 - Prudential Requirement in accordance with WESM Rules **Clause** 3.15; and ~~1.3.5~~ **e.** Section 8 - Suspension and Revocation of Suspension in accordance with WESM Rules **Clauses** 3.14.11.2(b) and 3.15.8; **f. Section 9 – Bilateral contract declaration for energy and reserves in accordance with WESM Rules Clauses 3.13.1 and 3.13.2; and** **g. Section 10 – Filing of additional compensation in accordance with Section 8.3 of the Price Determination Methodology.** **1.3.2** This **Market Manual** manual does not cover the following **processes, which are all**	for additional Sections 9 and 10 • To properly reference the calculation of administered price, net settlement surplus,

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
		1.3.8 Net settlement surplus, which is covered in the Management of Settlement Surplus Manual; 1.3.9 Must run unit calculation, which is covered in the Management of Must Run and Must Stop Units Manual;	**provided under the Price Determination Methodology Manual**: ~~1.3.6~~ **a.** Calculation of administered prices, ~~which is covered in the Administered Price Determination Methodology;~~ ~~1.3.7~~ **b.** Settlement amounts calculation, ~~which is covered in the Price Determination Methodology;~~ ~~1.3.8~~ **c.** Net settlement surplus, ~~which is covered in the Management of Settlement Surplus Manual;~~ **and** ~~1.3.9~~ **d.** Must run unit calculation, ~~which is covered in the Management of Must Run and Must Stop Units Manual;~~	and compensation for must-run units from the WESM Rules to the Price Determination Methodology Manual
Definitions, References, and Interpretation	2			
Definitions	2.1	NEW	**2.1.1 Unless otherwise defined or the context implies otherwise, the italicized terms used in this Market Manual shall bear the same meaning as defined in the WESM Rules and other Market Manuals.** **2.1.2 The following words and phrases as used in this Market Manual shall have the following meaning:**	To add provisions for consistency with the outline/format of other Market Manuals.

Title	Section	Original Provision	Proposed Amendments	Rationale
Definitions	2.1.1	2.1.1 Actual Exposure. The total amount of obligation that a WESM member is required to pay on due date.	~~2.1.1 Actual Exposure. The total amount of obligation that a WESM member is required to pay on due date.~~	To delete the term as it is already defined under the WESM Rules
Definitions	2.1.2	2.1.2 Average Actual Market Price. This refers to the ratio of the total spot market payment of a WESM Member, which may include spot market energy and reserve transactions and line rental trading amount for contracted quantities, to the total metered quantities net of bilateral contract quantities for each billing month.	~~2.1.2~~ **a.** Average Actual Market Price. This refers to the ratio of the total spot market payment of a WESM Member, which may include spot market energy and reserve transactions ~~and line rental trading amount for contracted quantities~~, to the total metered quantities net of bilateral contract quantities for each billing month.	• For re-numbering • To delete references to line rental trading amount since it is already embedded in the calculation of Energy Trading Amounts
Definitions	2.1.3	2.1.3 Billing Period. The period of one month commencing at 00:00 hours of the twenty sixth (26th) day of each calendar month to 24:00 hours of the twenty fifth (25th) day of the next calendar month.	~~2.1.3 Billing Period. The period of one month commencing at 00:00 hours of the twenty sixth (26th) day of each calendar month to 24:00 hours of the twenty fifth (25th) day of the next calendar month.~~	To delete the term as it is already defined under the WESM Rules
Definitions	2.1.4	2.1.4 Business Day. Any day on which the spot market is open for business.	~~2.1.4 Business Day. Any day on which the spot market is open for business.~~	To delete the term as it is already defined under the WESM Rules
Definitions	2.1.5	2.1.5 Credit Support Provider. xxx	~~2.1.5~~ **b.** Credit Support Provider. xxx	For re-numbering
Definitions	2.1.6	2.1.6 Default Event. Any one or more of the events listed in WESM Rule 3.14.11.1.	~~2.1.6 Default Event. Any one or more of the events listed in WESM Rule 3.14.11.1.~~	To delete the terms as they are already defined under the WESM Rules
	2.1.7	2.1.7 Default Interest Rate. An interest rate of three percent (3%) per annum or the approved default interest by the PEM	~~2.1.7 Default Interest Rate. An interest rate of three percent (3%) per annum or the approved default interest by the PEM Board, in addition~~	

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
		Board, in addition to the Interest Rate, to be applied to the remaining default amount.	~~to the Interest Rate, to be applied to the remaining default amount.~~	
	2.1.8	2.1.8 Default Notice. A notice issued by the Market Operator under WESM Rule 3.14.11.2.	~~2.1.8 Default Notice. A notice issued by the Market Operator under WESM Rule 3.14.11.2.~~	
Definitions	2.1.9	2.1.9 EFT Facility. An electronic funds transfer facility.	~~2.1.9 EFT Facility. An electronic funds transfer facility.~~	
Definitions	2.1.10	2.1.10 Final Statement. A statement issued by the Market Operator under WESM Rule 3.14.5.	~~2.1.10 Final Statement. A statement issued by the Market Operator under WESM Rule 3.14.5.~~	
Definitions	2.1.11	2.1.11 Financial Year. A period referring to calendar year that commences on January 1 and ends on December 31 of the same year.	~~2.1.11 Financial Year. A period referring to calendar year that commences on January 1 and ends on December 31 of the same year.~~	
Definitions	2.1.12	2.1.12 FIT-All Administrator. Fxxx	~~2.1.12~~ c. FIT-All Administrator. xxx	
Definitions	2.1.13	2.1.13 Interest Rate. In relation to any period for which an interest rate is to be determined hereunder, a rate per annum equal to the lending rate published by the Bangko Sentral ng Pilipinas (BSP) at the time of payment.	~~2.1.13 Interest Rate. In relation to any period for which an interest rate is to be determined hereunder, a rate per annum equal to the lending rate published by the Bangko Sentral ng Pilipinas (BSP) at the time of payment.~~	
Definitions	2.1.14	2.1.14 Intending WESM member. A person who wishes to become a WESM member	~~2.1.14 Intending WESM member. A person who wishes to become a WESM member and~~	

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
		and who registers with the Market Operator under WESM Rule 2.9.	~~who registers with the Market Operator under WESM Rule 2.9.~~	
Definitions	2.1.15	2.1.15 Margin Call. An amount which the Market Operator calls to be paid by a Trading Participant in accordance with WESM Rule 3.15.10.1 to make up any anticipated shortfall between that Trading Participant's trading limit and the Market Operator's exposure in respect of that Trading Participant.	~~2.1.15 Margin Call. An amount which the Market Operator calls to be paid by a Trading Participant in accordance with WESM Rule 3.15.10.1 to make up any anticipated shortfall between that Trading Participant's trading limit and the Market Operator's exposure in respect of that Trading Participant.~~	
Definitions	2.1.16	2.1.16 Market Fees. The charges imposed on all WESM members by the Market Operator to cover the cost of administering and operating the WESM, as approved by the ERC.	~~2.1.16 Market Fees. The charges imposed on all WESM members by the Market Operator to cover the cost of administering and operating the WESM, as approved by the ERC.~~	To delete the terms as they are already defined under the WESM Rules
Definitions	2.1.17	2.1.17 Market Operator (MO). The entity responsible for the operation of the spot market governed by the PEM Board in accordance with clause 1.4 which, for the avoidance of doubt, is the AGMO for a period of twelve months from the spot market commencement date and thereafter the entity to which the functions, assets and liabilities of the AGMO are transferred in accordance with section 30 of the Act.	~~2.1.17 Market Operator (MO). The entity responsible for the operation of the spot market governed by the PEM Board in accordance with clause 1.4 which, for the avoidance of doubt, is the AGMO for a period of twelve months from the spot market commencement date and thereafter the entity to which the functions, assets and liabilities of the AGMO are transferred in accordance with section 30 of the Act.~~	

Title	Section	Original Provision	Proposed Amendments	Rationale
Definitions	2.1.18	2.1.18 Maximum Exposure (ME). The maximum exposure of a WESM member shall mean the computed average monthly settlement amount of the billing periods covering 26 March through 25 September prior to the end of the Financial Year multiplied by the factor 35/30 and shall set the level of security deposit that a WESM member is required to maintain.	~~2.1.18 Maximum Exposure (ME). The maximum exposure of a WESM member shall mean the computed average monthly settlement amount of the billing periods covering 26 March through 25 September prior to the end of the Financial Year multiplied by the factor 35/30 and shall set the level of security deposit that a WESM member is required to maintain.~~	
Definitions	2.1.19	2.1.19 Market Transaction. A sale or purchase of electricity, or other services, made through the spot market.	~~2.1.18 Market Transaction. A sale or purchase of electricity, or other services, made through the spot market.~~	
		NEW	**d. Marginal cost of congestion. Congestion component of the locational marginal price as defined under Section 4.10.1 of the Price Determination Methodology**	To add the definition in relation to the segregation of line rental trading amounts under Section 9
		NEW	**e. Marginal cost of losses. Losses component of the locational marginal price as defined under Section 4.10.1 of the Price Determination Methodology**	To add the definition in relation to the segregation of line rental trading amounts under Section 9
Definitions	2.1.20	2.1.20 Non-Working Day. A day which is not a Working day (Weekends and holidays).	~~2.1.20 Non-Working Day. A day which is not a Working day (Weekends and holidays).~~	To delete the term as it is already defined under the WESM Rules
Definitions	2.1.21	2.1.21 Preliminary Statement. xxx	~~2.1.21~~ **f.** Preliminary Statement. xxx	For re-numbering

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
Definitions	2.1.22	2.1.22 Publish, Publication. To make available information.	~~2.1.22 Publish, Publication. To make available information.~~	To delete the term as it is already defined under the WESM Rules
Definitions	2.1.23	2.1.23 Settlement. xxx	~~2.1.23~~ **g.** Settlement. xxx	For re-numbering
Definitions	2.1.24	2.1.24 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 WESM Rule 3.13.14 or WESM Rule 3.13.15.	~~2.1.24 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 WESM Rule 3.13.14 or WESM Rule 3.13.15.~~	To delete the term as it is already defined under the WESM Rules
Definitions	2.1.25	2.1.25 Settlement Statements. xxx	~~2.1.25~~ **h.** Settlement Statements. xxx	For re-numbering
Definitions	2.1.26	2.1.26 Spot market. Has the same meaning as the WESM.	~~2.1.26 Spot market. Has the same meaning as the WESM.~~	To delete the terms as they are already defined under the WESM Rules
Definitions	2.1.27	2.1.27 Suspension Notice. A notice issued by the Market Operator under WESM Rule 3.15.8.	~~2.1.27 Suspension Notice. A notice issued by the Market Operator under WESM Rule 3.15.8.~~	
Definitions	2.1.28	2.1.28 Trading Limit. In respect of a Trading Participant at any time means the last trading limit set by the Market Operator for the Trading Participant under WESM Rule 3.15.9.	~~2.1.28 Trading Limit. In respect of a Trading Participant at any time means the last trading limit set by the Market Operator for the Trading Participant under WESM Rule 3.15.9.~~	
Definitions	2.1.29	2.1.29 Trading Participant. A Customer or Generation Company.	~~2.1.29 Trading Participant. A Customer or Generation Company.~~	To delete the terms as they are already defined under the WESM Rules

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
Definitions	2.1.29	2.1.30 WESM member. A person who is registered with the Market Operator in accordance with WESM Rules 2.3 and 2.4 of the WESM Rules.	~~2.1.30 WESM member. A person who is registered with the Market Operator in accordance with WESM Rules 2.3 and 2.4 of the WESM Rules.~~	
Definitions	2.1.31	2.1.31 WESM Rules. The detailed rules that govern the administration and operation of the WESM.	~~2.1.31 WESM Rules. The detailed rules that govern the administration and operation of the WESM.~~	
Definitions	2.1.32	2.1.32 Wholesale Electricity Spot Market ("WESM"). The electricity market established by the DOE in accordance with the Act.	~~2.1.32 Wholesale Electricity Spot Market ("WESM"). The electricity market established by the DOE in accordance with the Act.~~	
Definitions	2.1.33	2.1.33 Working Day. A day (excluding Saturdays and Sundays) on which banks and financial institutions are open in the city or municipality where the principal offices of the Market Operator are located.	~~2.1.33 Working Day. A day (excluding Saturdays and Sundays) on which banks and financial institutions are open in the city or municipality where the principal offices of the Market Operator are located.~~	
		NEW	**2.2 References** **This Market Manual shall be read in association with the WESM Rules and other relevant Market Manuals.**	To add provisions for consistency with the outline/format and interpretation of other Market Manuals.
		NEW	**2.3 Interpretation** **2.3.1 Any reference to a clause in any section of this Market Manual shall refer to the particular clause of the same section in**	

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
			which the reference is made, unless otherwise specified or the context provides otherwise. **2.3.2 Standards and policies appended to, or referenced in, this Market Manual shall provide a supporting framework.**	
Responsibilities	3			
Market Operator	3.1.1	3.1.1 The Market Operator (MO) shall be responsible for complying with the requirements set forth in this Manual and in the WESM Rules, as follows: xxx	3.1.1 The Market Operator ~~(MO)~~ shall be responsible for complying with the requirements set forth in this **Market** Manual and in the WESM Rules, as follows: xxx	To revise for clarity
Trading Participants	3.2	Trading Participants (TP)	Trading Participants ~~(TP)~~	Clerical Correction
Trading Participants	3.2.1	3.2.1 The Trading Participants (TP) shall be responsible for complying with the requirements set forth in this Manual and in the WESM Rules, as follows: a) Retrieve and review settlement statement files and supporting data issued by MO. The Trading Participants shall notify MO if files are not accessible or received within the timetable and if there are discrepancies or errors; xxx	~~3.2.1~~ The Trading Participants ~~(TP)~~ shall be responsible for complying with the requirements set forth in this **Market** Manual and in the WESM Rules, as follows: a) Retrieve and review settlement statement files and supporting data issued by ~~MO~~ **the Market Operator**. The Trading Participants shall notify ~~MO~~ **the Market Operator** if files are not accessible or received within the timetable and if there are discrepancies or errors; xxx	To revise for clarity and clerical correction

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
Settlement Statements	4			
Settlement Quantity and Amounts	4.1	a) The settlement quantity billed to each Trading Participant is in accordance to WESM Rules 3.13.5, 3.13.6 and 3.13.7 (with adjustments on Bilateral Quantities). b) The settlement amounts billed to each Trading Participant is in accordance to WESM Rules 3.13.14 and WESM Rules 3.13.17 (with adjustments on bilateral). c) For Settlement of Trading Participants with Bilateral contracts: 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 trading intervals in that billing period, determined in accordance with WESM Rules 3.13.17.2 plus: i. Any amount payable by the Market Operator to that Trading Participant in respect of that billing period and not accounted for in WESM Rules 3.13.17.2, including payment for any ancillary services purchased on behalf	a) The settlement quantity billed to each Trading Participant is in accordance to WESM Rules **Clauses** 3.13.5, **and** 3.13.6 ~~and 3.13.7 (with adjustments on Bilateral Quantities)~~. b) The ~~settlement amounts~~ **trading amount** billed to each Trading Participant is in accordance to ~~WESM Rules 3.13.14 and~~ WESM Rules **Clauses** 3.13.17 ~~(with adjustments on bilateral)~~ **and 3.13.18**. c) **The reserve cost recovery charge billed to each Trading Participant is in accordance to WESM Rules Clause 3.13.9.** ~~For Settlement of Trading Participants with Bilateral contracts: 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 trading intervals in that billing period, determined in accordance with WESM Rules 3.13.17.2 plus:~~ ~~i. Any amount payable by the Market Operator to that Trading Participant in respect of that billing period and not accounted for in WESM Rules 3.13.17.2,~~	• To revise for clarity • To add provisions on the reserve cost recovery charges and transmission rights trading amount to be billed to Trading Participants, as applicable.

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
		of the System operator, less the sum of ii. Any market fees which that Trading Participant is required to pay in respect of that billing period as determined in accordance with WESM Rules 2.10; plus iii. Any other amounts payable by that Trading Participant to the Market Operator in respect of that billing period, including any ancillary services recovery charges.	~~including payment for any ancillary services purchased on behalf of the System operator, less the sum of~~ ~~ii. Any market fees which that Trading Participant is required to pay in respect of that billing period as determined in accordance with WESM Rules 2.10; plus~~ ~~iii. Any other amounts payable by that Trading Participant to the Market Operator in respect of that billing period, including any ancillary services recovery charges.~~ **d) The transmission rights trading amount billed to each Trading Participant is in accordance to WESM Rules Clause 3.13.10.**	
		d) The aggregate trading amount for a Trading Participant for a trading interval equals the sum of: i. The ex-ante energy trading amounts for each market trading node for which the Trading Participants is responsible calculated in accordance with WESM Rules 3.13.7 and 3.13.8 (which will typically be positive for a Generation	~~d~~**e)** The aggregate trading amount for a Trading Participant for a ~~trading~~ **settlement** interval equals the sum of: i. The ~~ex-ante~~ energy trading amounts for each market trading node for which the Trading Participants is responsible calculated in accordance with WESM Rules **Clause** 3.13.7 ~~and 3.13.8~~ (which will typically be positive for a Generation	• Renaming of "trading interval" to "settlement interval" in accordance with DOE DC 2016-010-0014.

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
		Company and negative for a Customer); plus ii. The ex-post energy trading amounts for each market trading node for which the Trading Participant is responsible calculated in accordance with WESM Rules 3.13.7 and 3.13.9 (which will typically be positive or negative for any Trading Participant); plus iii. The line rental trading amount corresponding to the quantity of bilateral contract of that Trading Participant calculated in accordance with WESM Rules 3.13.12; plus iv. The reserve trading amounts for each reserve region into which that Trading Participant contributes reserve calculated in accordance with WESM Rules 3.13.10 (which will always be positive for both Generation Companies and Customers); plus v. The transmission right trading amounts for each transmission right held by the WESM Participant calculated in accordance with WESM Rules 3.13.13 (which will always be	Company and negative for a Customer); plus ~~ii. The ex-post energy trading amounts for each market trading node for which the Trading Participant is responsible calculated in accordance with WESM Rules 3.13.7 and 3.13.9 (which will typically be positive or negative for any Trading Participant); plus~~ ~~iii. The line rental trading amount corresponding to the quantity of bilateral contract of that Trading Participant calculated in accordance with WESM Rules 3.13.12; plus~~ ~~iv~~ **ii.** The reserve trading amounts for each reserve region into which that Trading Participant contributes reserve calculated in accordance with WESM Rules **Clause 3.13.8** ~~3.13.10~~ (which will always be positive for both Generation Companies and Customers); plus v. The transmission right trading amounts for each transmission right held by the WESM Participant calculated in accordance with WESM Rules **Clause 3.13.10** ~~3.13.13~~ (which will always be	• Global change in deleting or revising provisions related to or referencing "ex-post" trading amounts, as applicable, in accordance with DOE DC 2015-010-0015, which provides ex-ante only pricing and settlements in the WESM • Line rental trading amount is embedded in the calculation energy trading amount and line rental trading amounts are determined for informational purposes only. • Updated references to the WESM Rules, as revised per DOE DC 2016-010-0014 and DOE DC 2017-03-0001.

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
		positive for both Generation Companies and Customers) plus vi. 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 WESM Rules 3.3.4 (which will be positive for any Trading Participant); and vii. Any other ancillary service cost recovery charges determined for that Trading Participant in accordance with the procedures developed under WESM Rules 3.3.4.	positive for both Generation Companies and Customers) plus vi. 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 WESM Rules **Clause 3.3.5** 3.3.4 (which will be positive for any Trading Participant); and vii. Any other ancillary service cost recovery charges determined for that Trading Participant in accordance with the procedures developed under WESM Rules **Clause 3.3.5** 3.3.4.	
			f) 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 WESM Rules 3.13.11.2 plus: **i. Any amount payable by the Market Operator to that Trading Participant in respect of that billing period and not**	• Added the provisions on the determination of settlement amounts for each billing period in accordance with WESM Rules Clause 3.13.11.

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
			accounted for in WESM Rules 3.13.11.2, including payment for any ancillary services purchased on behalf of the System operator, less the sum of **ii. Any market fees which that Trading Participant is required to pay in respect of that billing period as determined in accordance with WESM Rules 2.10; plus** **iii. Any other amounts payable by that Trading Participant to the Market Operator in respect of that billing period, including any reserves recovery charges.**	
	4.1.2	Net Settlement Surplus. If the transactions indicated in this document, clause 4.1.1, in aggregate, results in a surplus or deficit remaining, this will be known as the net settlement surplus. This may be retained by the Market Operator, to fund deficit as a result of transactions required in WESM Rules 3.13.14, or may be flowed back to the Market Participants in accordance with the procedures to be developed under WESM Rules 3.13.16.3, or may be used by the Market Operator to establish and support the market for Financial	Net Settlement Surplus. If the transactions indicated in ~~this document, clause~~ **Section** 4.1.1, in aggregate, results in a surplus or deficit remaining, this will be known as the net settlement surplus. This may be retained by the Market Operator, to fund deficit as a result of transactions required in WESM Rules **Clause 3.13.11** ~~3.13.14~~, or may be flowed back to the Market Participants in accordance with the procedures to be developed under WESM Rules **Clause 3.13.12.3** ~~3.13.16.3~~, or may be used by the Market Operator to establish and support the market for Financial	• To revise for clarity To update references to the WESM Rules as revised per DOE DC 2016-010-0014.

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
		Transmission Rights subject to the approval of the PEM Board;	Transmission Rights subject to the approval of the PEM Board;,	
	4.1.3	Price Substitution Adjustments. When network congestion due to Price Substitution Methodology arises for a particular billing period, the trading intervals of the affected billing period shall be settled in reference to Section 5 of the Market Manual of Methodology for Determining Pricing Errors and Price Substitution (WESM-MDPEPS-004).	~~Price Substitution Adjustments. When network congestion due to Price Substitution Methodology arises for a particular billing period, the trading intervals of the affected billing period shall be settled in reference to Section 5 of the Market Manual of Methodology for Determining Pricing Errors and Price Substitution (WESM-MDPEPS-004).~~	To delete provision in accordance with the revised Price Determination Methodology as approved by the PEM Board on 29 November 2016
	4.1.4	4.1.4 Must Run Adjustment. In a particular billing period where a must run generating unit was implemented for a trading interval, the settlement for the Trading Participant of the generating unit for the affected trading interval shall be in accordance to Section 9 of the Market Manual of Management of Must-Run Units (WESM-MRU-004).	~~4.1.4~~ **4.1.3** Must Run Adjustment. In a particular billing period where a must-run generating unit was implemented for a ~~trading~~ **dispatch** interval, the settlement for the Trading Participant of the generating unit for the affected ~~trading~~ **dispatch** interval shall be in accordance to **the relevant market price under the Price Determination Methodology Manual and** Section ~~9~~ **10** of **this Market Manual** ~~the Market Manual of Management of Must- Run Units (WESM-MRU-004).~~	• To reflect that Must-Run Units shall be paid at market price and may file for additional compensation in accordance with Section 10, in accordance with the revised Price Determination Methodology as approved by the PEM Board on 29 November 2016, • To re-name "trading interval" to "dispatch interval" in accordance with the designation of Must-Run Units every dispatch interval under the proposed Dispatch Protocol Manual.

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
				Note that the *WESM Manual on the Management of Must-Run and Must-Stop Units* is deemed superseded by the provisions on the criteria and implementation of Must-Run Units, which are transferred in the proposed Dispatch Protocol Manual, while provisions related to compensation are provided under the approved Price Determination Methodology Manual and this Market Manual.
	4.1.5	4.1.5 The settlement data that are being transmitted to the Trading Participants along with the WESM Energy Bill and Market Fee Bill includes the Ex-Ante energy trading amounts, Ex-Post Energy Trading Amounts, Ex-Ante Quantity and Prices, Ex-Post Prices, Meter Quantity Data, line rental trading amount of participants with bilateral contract quantity and each of the participants bilateral contract quantity. These set of information are being transmitted to the Trading Participants via email and CD copy mailed along with the Participant's Energy Bill.	4.1.4 The settlement data that are being transmitted to the Trading Participants along with the ~~WESM Energy Bill and Market Fee Bill~~ **preliminary and final statements including the market fee statements which** includes the ~~Ex-Ante~~ energy trading amounts, ~~Ex-Post Energy Trading Amounts, Ex-Ante Quantity and Prices, Ex-Post Prices, Meter Quantity Data~~ **final nodal energy dispatch prices, energy settlement quantity,** line rental trading amount of participants with bilateral contract quantity and each of the participants' bilateral contract quantity**, reserve trading amount, reserve recovery amount, net settlement surplus rebated, and line loss**	• To revise for clarity • To delete references to Ex-Post and introduce new terms based on the revised Price Determination Methodology as approved by the PEM Board on 29 November 2016

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
			and congestion charges. These set of information are being transmitted to the Trading Participants via email and CD copy mailed along with the Participant's ~~Energy Bill~~ **Statements**.	
		NEW	**9 Bilateral Contract Declaration**	
		NEW	**9.1 Declaration for Energy Transactions**	To incorporate the RCC-approved amendments to the WESM Rules (per RCC Resolution No. 2016-14) and WESM Manuals on *Registration, Suspension and De-registration Criteria and Procedures* and *Billing and Settlement* related to Bilateral Contract Declaration and Line Rental Calculation (RCC Resolution No. 2017-02), providing details on the procedures and conditions for declaring bilateral contract data.
		NEW	**9.1.1 Trading Participants who will sell electricity pursuant to bilateral contracts during a dispatch interval and wish those bilateral contracts to be accounted for in settlements may declare to the Market Operator bilateral contract data up to the end of the following trading day.**	• To incorporate RCC-approved amendments (RCC Resolution No. 2017-02) regarding bilateral contract declaration: (i) clarify the timeline for submitting bilateral contract declarations in the market and (ii) provide the required data when

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
				submitting bilateral contract declarations.
		NEW	**9.1.2 To be valid, bilateral contract declarations submitted by a Trading Participant shall include:** **a. market trading node from the identified market trading nodes during the enrolment of the supply contract designated as the source of the supply from the selling Trading Participant;** **b. the Trading Participant who will buy the declared volume pursuant to their bilateral contract;** **c. market trading node from the identified market trading nodes during the enrolment of the supply contract and whose final nodal energy dispatch price will be used as reference during settlements; and** **d. bilateral contract quantity in MWh for each dispatch interval for that trading day.**	• To replace "trading interval" with "dispatch interval" in accordance with the revised settlements under the revised Price Determination Methodology as approved by the PEM Board on 29 November 2016

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
		NEW	**9.1.3 Bilateral contract declarations may include the market trading node from the identified market trading nodes during the enrolment of the supply contract designated as the withdrawal point of the buying Trading Participant.**	• To incorporate RCC-approved amendments (per RCC Resolution No. 2016-14), allowing participants to specify the reference node of bilateral contract quantities declared in the WESM.
		NEW	**9.1.4 Bilateral contract declarations submitted by a Trading Participant should be covered by a supply contract enrolled by the Trading Participant to the Market Operator in accordance with the relevant Market Manual.**	• To incorporate RCC-approved amendments (per RCC Resolution No. 2017-02), providing for the requirement that the supply contract should be enrolled with the Market Operator during registration
		NEW	**9.1.5 The Market Operator shall immediately send to each Trading Participant with whom it has received a valid bilateral contract declaration an electronic confirmation of receipt of that bilateral contract declaration.**	• To incorporate RCC-approved amendments (per RCC Resolution No. 2017-02), providing for the responsibility of Market Operator to acknowledge receipt of valid submissions.

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
		NEW	**9.1.6 If the enrollment of the supply contract covering the bilateral contract declaration requires confirmation from the buying Trading Participant, the valid bilateral contract declaration shall be accounted for during settlements only upon confirmation by the buying Trading Participant in accordance with Section 9.2.**	• To incorporate the RCC-approved amendments under RCC Resolution Nos. 2016-14 and 2017-02, providing for the considerations in using declared bilateral contract quantities for settlement.
		NEW	**9.1.7 If the enrollment of the supply contract covering the bilateral contract declaration does not require confirmation from the buying Trading Participant, the valid bilateral contract declaration shall be accounted for during settlements unless nullified by the buying Trading Participant in accordance with Section 9.2.**	
		NEW	**9.1.8 If the bilateral contract declaration is invalid, the Market Operator shall promptly inform the Trading Participant and such bilateral contract declaration shall not be accounted for in settlements.**	
		NEW	**9.2 Confirmation and Nullification for Energy Transactions**	• To incorporate the RCC-approved amendments under RCC Resolution Nos. 2016-14 and 2017-02, providing for the timeline in confirming
		NEW	**9.2.1 In order to be accounted for during settlements, valid bilateral contract**	

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
			declarations covered by supply contracts enrolled to require confirmation submitted by a Trading Participant should be confirmed by the buying Trading Participant to the Market Operator one day after each trading day.	bilateral contract declarations of supply contracts that were enrolled to require confirmation
		NEW	**9.2.2 If the enrollment of the supply contract does not require confirmation from the buying Trading Participant, the valid bilateral contract declarations submitted by a Trading Participant shall be accounted for during settlements unless the buying Trading Participant submits to the Market Operator a notice of nullification one day after each trading day.**	• To incorporate the RCC-approved amendments per RCC Resolution Nos. 2016-14 and 2017-02, providing for the timeline for nullifying bilateral contract declarations of supply contract that were enrolled to not require confirmation and the responsibilities of the Market Operator when a bilateral contract declaration is confirmed or nullified.
		NEW	**9.2.3 The Market Operator shall immediately send to each buying Trading Participant with whom it has received a confirmation or notice of nullification an electronic confirmation of receipt of that confirmation or notice of nullification.**	
		NEW	**9.2.4 Upon receipt of a confirmation or notice of nullification, the Market Operator shall immediately notify the relevant selling Trading Participant to the supply contract that the valid bilateral contract**	

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
			declaration has been confirmed or nullified.	
		NEW	9.2.5 At the end of each trading day, the Market Operator shall notify all buying and selling Trading Participants, whose supply contract was enrolled to require confirmation and whose valid bilateral contract declarations was not confirmed, that their bilateral contract declarations shall not be accounted for during settlements.	
		NEW	9.2.6 At the end of each trading day, the Market Operator shall notify all buying and selling Trading Participants, whose supply contract was enrolled to not require confirmation and whose valid bilateral contract declarations was not nullified, that their bilateral contract declarations shall be accounted for during settlements.	
		NEW	9.3. Line Rental Calculation for Energy Transactions	To incorporate the RCC-approved amendments per RCC Resolution Nos. 2016-14 and 2017-02 regarding line rental calculation
		NEW	9.3.1 WESM Rules Clause 3.13.7.2 provides that the Market Operator shall calculate line rental trading amounts for each bilateral contract quantity declaration, for informational purposes.	

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
			9.3.2 For the purpose of calculating line rental trading amounts, bilateral contract quantities declared for buying trading participants shall be: a. if available, assigned to each of its market trading nodes as identified in Section 9.1.3; or b. pro-rated to each of its market trading node based on metered quantities.	
		NEW	9.3.3 For a selling Trading Participant, the line rental trading amount associated with a bilateral contract declaration shall be equal to the bilateral contract quantity multiplied by the difference of the final energy dispatch price at the market trading node identified under Section 9.1.2 (a) and the final energy dispatch price at the market trading node identified under Section 9.1.2 (c).	
		NEW	9.3.4 For a buying Trading Participant, the line rental trading amount associated with a bilateral contract declaration shall be equal to the sum of the line rental trading amounts calculated for each of its market trading nodes. The line rental trading amount for each market trading node of a buying Trading Participant is equal to the bilateral contract quantity or, if	

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
			applicable, the pro-rated bilateral contract quantity calculated under Section 9.4.3 of the market trading nodes multiplied by the difference of the final energy dispatch price at the market trading node of the buying Trading Participant and the final energy dispatch price at the market trading node identified under Section 9.1.2(c).	
		NEW	9.3.5 The line rental trading amount associated with each bilateral contract declaration of a Trading Participant may be segregated into: a. the line rental trading amount attributable to losses calculated by applying the same formula in Sections 10.1.3 and 10.1.4 but only using the marginal cost of losses component of the final energy dispatch prices in place of the final energy dispatch prices; and b. the line rental trading amount attributable to congestion calculated by applying the same formula in Section 10.1.3 and 10.1.4 but only using the marginal cost of congestion component of the final energy dispatch prices in place of the final energy dispatch prices.	

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
		NEW	**9.3.6 Line rental trading amounts segregated into the amounts attributable to the cost of losses and of congestion shall be calculated by the Market Operator and included in the settlement statements of Trading Participants. Additional information to validate segregated line rental trading amounts may be provided by the Market Operator subject to the pertinent provisions of the WESM Rules and the relevant Market Manual.**	
		NEW	**9.4 Declaration for Reserve Transactions**	To add provisions for submission of reserve bilateral contract quantity by the System Operator
		NEW	**9.4.1 The System Operator shall submit to the Market Operator the following information on bilateral contracts for reserves up to the end of the following trading day:** **a. Trading Participant who provides the ancillary service;** **b. Reserve bilateral contract quantity; and** **c. Reserve category.**	
		NEW	**9.4.2 The Market Operator shall confirm the receipt of reserve bilateral contract quantity declaration.**	

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
		NEW	**10. Filing of Claims for Additional Compensation**	
		NEW	**10.1. Criteria for Additional Compensation** **In accordance with Section 8.3.3 of the Price Determination Methodology Manual, Trading Participants may be entitled to additional compensation when the cost incurred in complying with the dispatch instruction are not sufficiently covered by the trading amounts related to settlement intervals with dispatch intervals under any of the following conditions:** **a. Market suspension or Market intervention; or** **b. When a trading participant is designated as must-run unit or constrain-on generating unit.**	• To add provision on the additional compensation for Must-Run Units and during intervals under Market Intervention or Market Suspension in accordance with the revised Price Determination Methodology as approved by the PEM Board on 29 November 2016 • To incorporate the RCC-approved amendments per RCC Resolution No. 2016-08 regarding filing of additional compensation • To incorporate the RCC-approved Proposed Urgent Amendments to the WESM Manuals on PDM and CVC-PR on 03 March 2017.

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
		NEW	**10.2. Filing of Claims**	• To add provision on the additional compensation for Must-Run Units and during intervals under market intervention or market suspension in accordance with the revised Price Determination Methodology as approved by the PEM Board on 29 November 2016 • To incorporate the RCC-approved amendments per RCC Resolution No. 2016-08 regarding the timeline within which to file additional compensation. • • Consistent with the RCC-approved changes in Section 10.1 (b)
		NEW	**10.2.1 Trading Participants shall submit the written claim for additional compensation within the allowable timeframe, as follows:** **a. Market suspension or market intervention – fourteen (14) working days after the resumption of the market; and** **b. Must-run unit or constrain-on generating unit – within one (1) year after the trading participant was designated as MRU or constrain-on generating unit** **Any claims not filed within such period shall be deemed waived.**	
		NEW	**10.2.2 Trading Participants shall submit sufficient proof regarding the costs incurred, which are limited to fuel cost and variable operating and maintenance costs, which may include start-up and shut down cost. Below is the non-exhaustive list of requirement documents in filing claims for additional compensation:** **a. Certified correct Fuel Consumption and Inventory Report;**	

[redacted]

Title	Section	Original Provision	Proposed Amendments	Rationale
			b. Purchase Invoices, Official Receipts and other supporting documents; and **c. ERC approved rate or List of Variable Operation and Maintenance Costs supported by photocopies of invoices/receipts.**	
		NEW	**10.2.3 The Market Operator shall determine validity of the costs incurred based on the aforementioned supporting documents.**	• To add provision on additional compensation for Must-Run Units and during intervals under market intervention or market suspension in accordance with the revised Price Determination Methodology as approved by the PEM Board on 29 November 2016 • To incorporate RCC-approved amendments under RCC Resolution No. 2016-08 regarding the timeline within which the Market Operator shall process claims for additional compensation
		NEW	**10.2.4 The Market Operator shall inform the requesting Trading Participant of the approval or disapproval of the claim within fourteen (14) working days from receipt of the complete documents from the Trading Participant. Any claim not decided within fourteen (14) working days shall be deemed approved and shall be allocated and billed immediately in the succeeding billing period.**	
Amendments, Publication and Effectivity	9	9 Amendments, Publication and Effectivity	~~9~~ **11** Amendments, Publication and Effectivity	Re-numbering
Amendments	9.1.1	9.1Amendments	~~9.1~~ **11.1** Amendments	Re-numbering

[redacted]

<table>
<tr><th>Title</th><th>Section</th><th>Original Provision</th><th>Proposed Amendments</th><th>Rationale</th></tr>
<tr><td></td><td></td><td>xxx</td><td>xxx</td><td></td></tr>
<tr><td>Publication and Effectivity</td><td>9.1.2</td><td>9. 2 Publication and Effectivity

xxx</td><td>~~9.~~2 <u>11.2</u> Publication and Effectivity

xxx</td><td>Re-numbering</td></tr>
<tr><td>Appendix</td><td>10</td><td></td><td></td><td></td></tr>
<tr><td>Billing and Settlement Timetable</td><td>Appendix A</td><td>NEW</td><td>
<table>
<tr><th><u>PROCEDURES</u></th><th><u>TIMETABLE</u></th></tr>
<tr><td><u>Declaration of Bilateral Contract Quantities for Energy and Reserves</u></td><td><u>Within one (1) day following the trading day</u></td></tr>
<tr><td><u>Filing of Claims for Additional Compensation</u></td><td><u>a. Market suspension or market intervention – fourteen (14) working days two billing periods after the resumption of the market; and</u>

b. <u>Must-run unit or constrain-on generating</u></td></tr>
</table>
</td><td>To add timelines in accordance with the proposed changes in Sections 9 and 10</td></tr>
</table>

[redacted]

Title	Section	Original Provision	Proposed Amendments		Rationale
				unit – within one (1) year after the trading participant was designated as MRU or constrain-on generating unit	

[redacted]