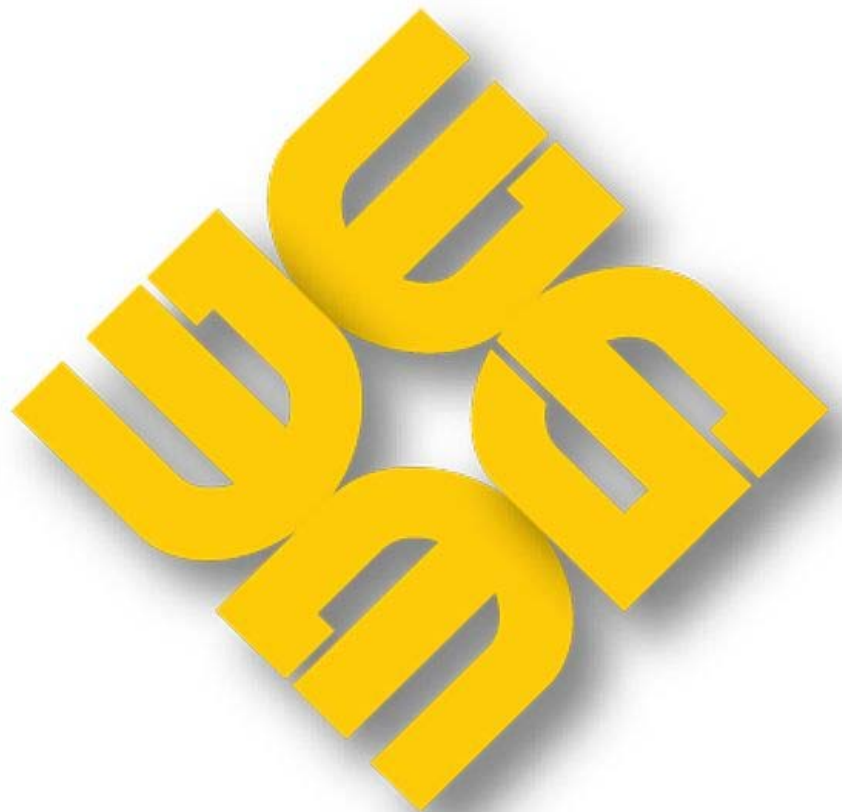


# Market Operator Performance

Annual Report for the Period  
26 September 2014 to 25 September 2015  
MOPS-2015-AR.2



**PHILIPPINE ELECTRICITY MARKET  
CORPORATION  
MARKET ASSESSMENT GROUP  
(MAG)**

## Executive Summary

This 2015 Annual Market Operator Performance Report provides the results of the monitoring and assessment of the Market Operator's performance for the period 26 September 2014 to 25 September 2015 (4Q 2014 – 3Q 2015).

In accordance with Clause 1.3.2.3 of the WESM Rules and Clause 1.4.2 of the Retail Rules, the current version of the Market Operator Performance Standards (MOPS) was approved by the PEM Board in January 2015 and by the DOE in October 2015.

The monitoring of the MO's performance is also provided under the Integrated Management System (IMS), as one of the Measurement, Analysis and Improvement Processes under the Quality Management System (QMS) of the Philippine Electricity Market Corporation (PEMC).

The over-all performance of the MO in 2015 is Very Satisfactory, same as its rating in 2014. The MO's performance rating in each performance category in 2015 and 2014 are provided below.

Category	Measure	2014				2015					
		Weight (%)	Target	Actual	Score	Weight (%)	Target	Actual	Score		Y-O-Y (Score)
A. IT Systems											
Market Management Systems	Availability	15	99.80%	99.94%	5	15	99.80%	99.88%	4	Very Satisfactory	🟢
WESM Website	Availability	5	99.50%	99.99%	5	5	99.50%	99.85%	5	Excellent	🔴
B. Market Reports and Data Publication											
	Availability	5	95%	99.95%	4	5	95%	> 95%	4	Very Satisfactory	🔴
	Timeliness	10	95%	98.25%	4	10	95%	> 95%	4	Very Satisfactory	🔴
C. Forecast Accuracy											
RTD Forecast - MAPE	Accuracy (L)	3.75	≤ 0.95%	0.89%	4	3.75	0.95%	0.79%	4	Very Satisfactory	🔴
	Accuracy (V)	3.75		1.15%	2	3.75	1.20%	1.16%	4	Very Satisfactory	🟡
RTD Forecast - FAR	Accuracy (L)	3.75	≥ 97.20%	98.17%	4	3.75	97.20%	98.78%	5	Excellent	🟡
	Accuracy (V)	3.75		94.25%	1	3.75	93.00%	95.03%	4	Very Satisfactory	🟡
DAP Forecast - MAPE	Accuracy (L)	2.5	≤ 2.20%	1.45%	4	2.5	1.60%	1.39%	4	Very Satisfactory	🔴
	Accuracy (V)	2.5		2.23%	2	2.5	2.20%	2.18%	4	Very Satisfactory	🟡
D. Dispatch Scheduling and Pricing											
RTD Workflow	Successful Run	2.5	99.75%	100%	5	2.5	99.75%	100%	5	Excellent	🔴
RTX Workflow	Successful Run	2.5	99.75%	99.99%	5	2.5	99.75%	99.92%	4	Very Satisfactory	🟢
Pricing Errors and Market Re-runs	Timeliness (Prelim)					2	98.50%	100%	5	Excellent	
	Timeliness (Final)	5	99.50%	99.98%	5	3	99.50%	99.98%	5	Excellent	🔴
Market Intervention Attributable to MO	Duration	10	≤ 19	0	5	10	≤ 14	8	4	Very Satisfactory	🟢
E. Billing, Settlements and Accounts Management											
Preliminary and Final Settlement Statements	Timeliness	2	98%	100%	5	2	98%	99.79%	5	Excellent	🔴

Category	Measure	2014				2015					
		Weight (%)	Target	Actual	Score	Weight (%)	Target	Actual	Score		Y-O-Y (Score)
Preliminary Settlement Calculations	Accuracy	2	95%	84.52%	1	2	95%	93.64%	2	Needs Improvement	↑
Final Settlement Calculations	Accuracy	3	99%	99.70%	5	3	99%	97.62%	1	Poor	↓
	Frequency	2	≤ 6	2	5	2	≤ 6	2	5	Excellent	■
Meter Data Error Detection	Timeliness	2	98%	100%	5	2	98%	100%	5	Excellent	■
Monetary Transactions	Efficiency	1	100%	100%	5	1	0 amount late	0 amount late	5	Excellent	■
	Timeliness	1	0 days late	0 days late	5	1	0 days late	0 days late	5	Excellent	■
Margin Call	Timeliness	2	95%	100%	5	1	95%	100%	5	Excellent	■
Default Notice	Timeliness					1	0 days late	0 days late	5	Excellent	
<b>F. Registration and Customer Relations</b>											
Registration	Timeliness	2	95%	100%	5	2	95%	97.06%	4	Very Satisfactory	↓
Customer Switching	Timeliness					1	95%	100%	5	Excellent	
Participant Training	Timeliness	2	95%	100%	5	2	95%	100%	5	Excellent	■
	Feedback	2	≥ 90%	95.94%	4	1	90%	95.49%	4	Very Satisfactory	■
Participant Queries and Data Requests	Timeliness	2	95%	99.05%	5	2	95%	99.02%	5	Excellent	■
Participant/ Customer Complaints	Timeliness	2	95%	100%	5	2	95%	100%	5	Excellent	■
<b>Over-All Score</b>					<b>4</b>				<b>4</b>	<b>Very Satisfactory</b>	■

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## 1. Introduction

This 2015 Annual Market Operator Performance Report provides the results of the monitoring and assessment of the Market Operator's performance for the period 26 September 2014 to 25 September 2015 (4Q 2014 – 3Q 2015).

In accordance with Clause 1.3.2.3 of the Wholesale Electricity Spot Market (WESM) Rules, the PEM Board is mandated to develop the performance standards to monitor and provide indication on the performance of the Market Operator (MO) with respect to the Electric Power Industry Reform Act (EPIRA) of 2001 and its Implementing Rules and Regulations (IRR), WESM Rules, Philippine Grid Code (PGC) and all other applicable laws, rules and regulations. An overview of the Market Operator Performance Standards (MOPS) is provided in Section 1.

Section 2 describes the tasks involved in the monitoring of the MO's performance, and reporting of findings and recommendations by the Market Assessment Group (MAG), in accordance with Section 10 of the MOPS, to the Management of the Philippine Electricity Market Corporation (PEMC) and the PEM Board.

Section 3 provides the detailed scores for each category and sub-categories, along with the discussion of findings, recommendations and PEMC action plans, which have been discussed with the process owners and the PEMC Management.

The overall MO performance for the year and for each of the last four (4) quarters are provided in Section 4.

With the implementation of PEMC's Integrated Management System (IMS), the MOPS monitoring is included under the Measurement, Analysis and Improvement Processes of the PEMC's Quality Management System (QMS). As such, the MOPS also provides indication that the MO provides quality services and information to its customers.

## 2. Monitoring and Reporting

### 2.1. Performance Standards

The MOPS was initially approved by the PEM Board on 25 May 2011<sup>1</sup>, which was the basis for the internal monitoring of MO performance starting on 26 September 2011. On 21 March 2013, the PEM Board approved the revised MOPS, which was approved as amended by the Department of Energy (DOE) on 12 November 2013<sup>2</sup>. This DOE-approved version<sup>3</sup> of the MOPS provided the basis for the MO's performance in 2014 covering the period 26 September 2013 to 25 September 2014 (4Q 2013 – 3Q 2014).

This report is based on the MOPS<sup>4</sup> as amended and approved by the PEM Board on 22 January 2015<sup>5</sup> and the DOE on 06 October 2015<sup>6</sup>.

The MO performance standards are classified into six (6) categories, as follows:

- |    |   |       |
|----|---|-------|
| 1. | Information Technology (IT) Systems           | - 20% |
| 2. | Market Reports and Data Publication           | - 15% |
| 3. | Forecast Accuracy                             | - 20% |
| 4. | Dispatch Scheduling and Pricing               | - 20% |
| 5. | Billings, Settlements and Accounts Management | - 15% |
| 6. | Registration and Customer Relations           | - 10% |

The activities undertaken by MAG in monitoring the MO's performance for said categories are provided in the following sub-sections while details of the said categories are provided in Section 3.

### 2.2. Data Collection and Validation

Data and supporting information were collected from the following PEMC departments who are responsible in carrying out various MO responsibilities. Validations were conducted by cross-checking other data sources and verification of supporting documents, logs and publications, as possible.

The monitoring timeline is concurrent with the monthly WESM billing and settlement timetable, i.e. beginning every 26<sup>th</sup> day of each month and ending on the 25<sup>th</sup> day of the next month.

### 2.3. Evaluation and Reporting

The rating systems under the MOPS, including the performance targets for each category, were utilized in the determination of the MO performance rating (see Appendix A). The overall MO performance rating was computed as the rounded-off sum of the weighted scores

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<sup>1</sup> PEMC-MOPS-001, 2011, approved by the PEM Board in its Resolution No. 2011-39

<sup>2</sup> DOE Letter dated 12 November 2013 (DOE-JLP-13006301) received by PEMC on 27 November 2013

<sup>3</sup> PEMC-MOPS-002, 2013

<sup>4</sup> PEMC-MOPS, 2015

<sup>5</sup> PEM Board Resolution No. 2015-03

<sup>6</sup> DOE Letter dated 06 October 2015 (DOE-ZYM-15000176) received by PEMC on 27 October 2015

computed from the equivalent scores multiplied by the assigned weights of the performance categories.

The monitoring results were presented to relevant PEMC Departments, the PEMC Management, and PEM Audit Committee (PAC). Further, monitoring reports were submitted on a quarterly basis to said parties and to the PEM Board and DOE.

Non-achievement of targets are reported internally through Non-conformance, Corrective and Preventive Action Reports (NCPARs) under the IMS to record preventive/corrective action plans and keep track of their progress.

### 3. Categories and Ratings

#### 3.1. IT Systems

IT systems cover the availability of the Market Management System (MMS) and the public WESM Website (PW). Table 1 provides the summary of how the MO fared under the measures in this category.

Table 1. IT Systems Performance for the period 4Q 2014 – 3Q 2015

Section	Sub-Category	Target		Actual		Score	Description
3.1.1	Market Management Systems Availability	99.80%	8,742.48 hrs out of 8,760 hrs	99.88%	8,749.12 hrs; 10.88 hrs downtime	4	Very Satisfactory
3.1.2	WESM Website Availability	99.50%	8,716.20 hrs out of 8,760 hrs	99.85%	8,746.80; 13.20 hrs downtime	5	Excellent

##### 3.1.1. MMS Availability

The various IT components of the MMS is essential in the continuous and efficient communication of the market systems, gathering of market workflow inputs, processing and publication of market outputs and emergency systems.

Aside from the MMS components, the availability of the Wholesale Billing and Settlement System (WBSS) website<sup>7</sup>, which can be accessed by Market Participants through the MMS digital certificates (DCs), was considered in this measure. The WBSS website is currently being used by market participants to access their meter data and for the generators to declare their bilateral contract quantities (BCQs).

The IT components of the MMS are being administered, maintained and monitored 24x7. As part of its operational functions, PEMC monitors the MMS performance to ensure that the market results are available and published on time.

Participants' complaints or concerns regarding the MMS secured website, or Market Participant Interface (MPI), and the WBSS website are reported through phone calls or emails. In addition, any system malfunction or errors detected internally are likewise immediately reported and addressed.

PEMC uses incident management in reducing or eliminating the effects of actual or potential disturbances in services. As applicable, these incidents are documented through the accomplishment of Incident Reports (IRs) and the filing of requests or concerns internally within PEMC through the use of the in-house developed integrated tool called WIMPSys<sup>8</sup>.

In addition, PEMC's WESM Compliance Officer (WCO) collates and reports these under the MOPS (See Section 3.6.5, Participant/Customer Complaints).

<sup>7</sup> WBSS website may be accessed through either one of the links: Stl1.wesm.ph and Stl2.wesm.ph.

<sup>8</sup> Work Order, Incident Report, Monitoring Logs and Participant Information System (WIMPSys)



## MMS Downtimes

A total of 10.88 hours downtime were recorded in 2015 for the period 4Q 2014 – 3Q 2015.

MMS downtimes are attributed to the number of IAS connections, hardware issues, DC renewal errors, and WBSS database errors. Majority of the MMS downtimes are caused by WBSS-related errors.

PEMC has implemented enhanced internal monitoring processes to prevent the recurrence of such errors. In relation to the WBSS, the completion of the redundant domestic leased line will mitigate WBSS database errors. In the long term, the Central Registration and Settlement System (CRSS) will replace the WBSS.

Unavailability of the MMS that were caused by third party service providers, such as electricity supply and communication link providers of PEMC, and downtimes that do not require the MMS to restart were excluded.

## Monitoring Results

The year-to-date (YTD) availability rating of the MMS for each quarter are provided in Table 2. In 2015, MMS availability is at 99.88%, which is lower than the 99.94% availability rating in 2014.

Table 2. MMS Availability (YTD) for 4Q 2014– 3Q 2015

Monitoring Period	Total Operating Hours	Target (99.80%) Operating Hours	Performance			
			Actual		Score	Description
26Sep14 - 25Dec14	2,184.00	2,179.63	2,184.00 hrs (0 downtime)	100%	5	Excellent
26Sep14 - 25Mar15	4,344.00	4,335.31	4,340.12 hrs (3.88 hrs downtime)	99.91%	4	Very Satisfactory
26Sep14 - 25Jun15	6,552.00	6,538.90	6,542.38 hrs (9.62 hrs downtime)	99.85%	3	Satisfactory
26Sep14 - 25Sep15	8,760.00	8,742.48	8,749.12 hrs (10.88 hrs downtime)	99.88%	4	Very Satisfactory

### 3.1.2. WESM Website Availability

The PW, or the Market Information Website ([www.wesm.ph](http://www.wesm.ph)), is the facility and electronic communication system wherein PEMC publishes information that may be accessed by WESM Members, interested parties and the general public. It is part of the corporate system of PEMC, excluding the Data Management System (DMS) and electronic mail sub-systems.

In measuring its availability, downtimes attributed or caused by third parties, which are beyond the control of the MO, are excluded.

Similar with the monitoring of MMS Availability, participants' complaints or concerns regarding the WESM website are reported through phone calls or emails. PEMC departments immediately report such complaints through IRs, as applicable.

## WESM Website Downtimes

Downtimes, which refer to the number of hours or incidents when the WESM website is not accessible to internal and/or external parties, for the current year are due to errors in the web-service issues, application errors, and hardware issues.

PEMC has implemented improvements in the internal processes related to hardware maintenance and software application deployment to mitigate such errors.

## Monitoring Results

The YTD availability rating of the PW for each quarter are provided in Table 3. In 2015, PW availability is at 99.85%, which is lower than the 99.99% availability rating in 2014. Notwithstanding, both are rated Excellent.

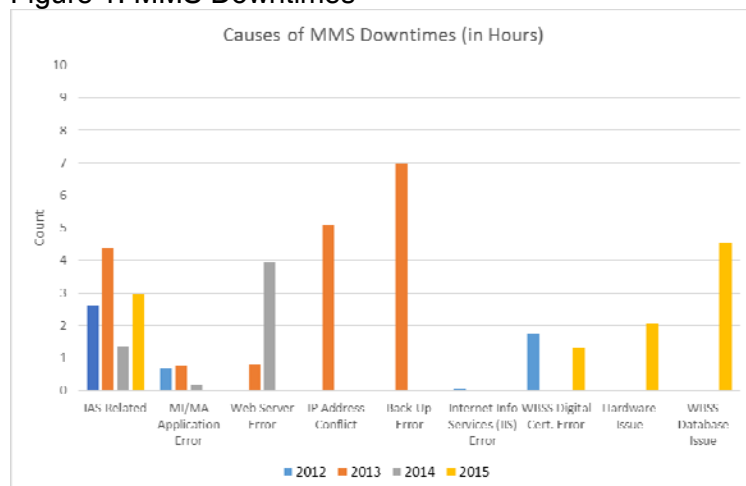
Table 3. WESM Website Availability for 4Q 2014 - 3Q 2015

Monitoring Period	Total Operating Hours	Target (99.50%) Operating Hours	Performance			
			Actual		Score	Description
26Sep14 - 25Dec14	2,184.00	2,173.08	2,184.00 hrs (0 downtime)	100%	5	Excellent
26Sep14 - 25Mar15	4,344.00	4,322.28	4,332.45 hrs (11.55 hrs downtime)	99.73%	4	Very Satisfactory
26Sep14 - 25Jun15	6,552.00	6,519.24	6,540.45 hrs (11.55 hrs downtime)	99.82%	4	Very Satisfactory
26Sep14 - 25Sep15	8,760.00	8,716.20	8,746.80 (13.20 hrs downtime)	99.85%	5	Excellent

### 3.1.3. Findings and Recommendations: IT Systems

Figure 1 provides that the downtimes attributed to MMS application errors, web server errors, internet protocol (IP) address conflict, back-up errors, and internet information services (IIS) errors did not occur in 2015. This may indicate that the corrective/preventive measures in addressing noted causes of MMS downtimes in previous years have been effective.

Figure 1. MMS Downtimes

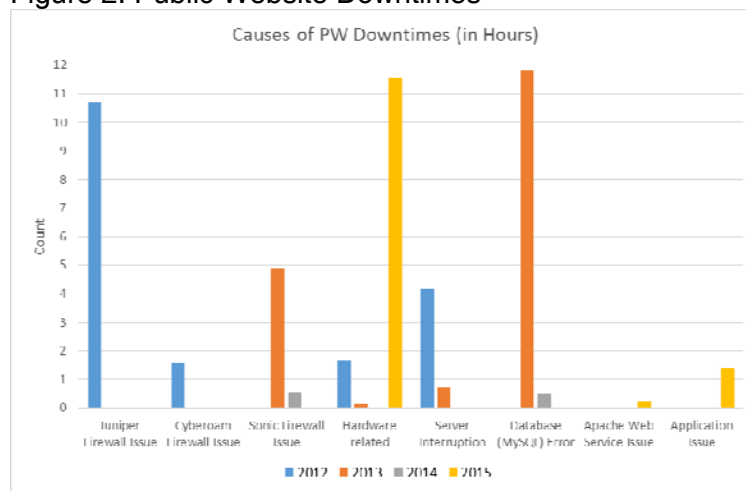


However, there were new errors which occurred in 2015, such as the WBSS-related errors. While the WBSS website was inaccessible, it is noted that access to the MMS-MPI was not affected. Further, market participants may easily submit their BCQs to PEMC through email. With the significant portion (>50%) of MMS downtimes attributed to the WBSS, there may be a need to review the monitoring criteria for the MMS and WBSS.

On the occurrence of IAS-related downtimes and hardware issues in 2015, these were attributed to the obsolescence of the MMS and could be addressed by the deployment of the New MMS (NMMS).

On the other hand, there were also new causes of PW downtimes such as Apache web-service issues and application errors. Figure 2 shows that hardware-related downtimes significantly increased in 2015 while other PW downtimes noted in previous years did not occur in 2015.

Figure 2. Public Website Downtimes



### 3.1.4. PEMC Action Plans: IT Systems

PEMC has endeavored to undertake the following action plans to mitigate the occurrence of MMS downtimes:

- Continuing monitoring of the number of IAS connections in relation to the PEMC Management's decision to accept the inherent limitations of the MMS as one of the factors causing MMS availability issues.
- Continuing coordination in addressing, resolving and reporting participant complaints regarding the availability of the MPI.
- Review monitoring criteria for MMS availability.
- Continuing implementation of enhanced processes for systems monitoring and maintenance.
- Ongoing development of the NMMS.
- Ongoing development of the CRSS.

### 3.2. Market Reports and Data Publication

Market participants rely on market information for them to make informed business decisions, whether it be on electricity trading or making long term electricity industry investments. Readily available information are also helpful to the DOE and Energy Regulatory Commission (ERC) in their policy and regulatory decisions, respectively. Thus, making market information available through timely publication is essential in maintaining the transparency in the operations of the WESM.

The MO is required to publish various market information, in accordance with the WESM Rules, market manuals and policy/regulatory directives. The list of market information for publication is provided in Annex D of the MOPS document.

"Publication" as defined in the WESM Rules is "to make available information". While there are other means to make available information, for the purposes of this MOPS monitoring, publication of market reports and data is interpreted to being made through the PW, MPI, email, and newspaper of general circulation, as applicable.

The requirement to publish market information, in market reports format or in data format, is measured under the MOPS based on availability and timeliness. Published market reports and data that were considered in the "Timeliness" measure are those with a prescribed timeline for publication in corresponding enabling rules/guidelines. On the other hand, all publications are considered in the "Availability" measure.

The following table provides the summary on how the MO fared in this category.

Table 4. Market Reports and Data Publication Performance Rating for 4Q 2014 – 3Q 2015

Section	Sub-Category	Target	Actual	Score	Description
3.2.1	Availability of Market Reports and Data Publication	95% (45 publications)	> 95% 39 publications 6 publications are excluded	4	Very Satisfactory
3.2.1	Timeliness of Market Reports and Data Publication	95% (33 publications)	> 95% 26 publications 7 publications are excluded	4	Very Satisfactory

Among the required publications, 6 were excluded from the Availability measure while seven (7) were excluded from the Timeliness measure as shown in Table 5.

Table 5. List of Market Information Excluded in the Rating

Required Publication	Reason for Exclusion (in Measure)
1. Formulation of the Market Dispatch Optimization Model (MDOM)	Price Determination Methodology (PDM) published since 2Q 2012. (Timeliness)
2. Generator and Line Outages, Security Limits and Contingency Lists as submitted by SO to the MMS	Monitoring has yet to be established, in coordination with the System Operator (SO). (Availability and Timeliness)
3. Real-Time System Condition or System Operator Advisory	
4. System Operator Advisory (Updated Daily or upon availability of verified/ complete information)	
5. Substitute prices for PSM for congestion related pricing errors in the MPI near real-time	Monitoring has yet to be established. (Availability and Timeliness)
6. Substitute prices for PSM for congestion related pricing errors in the WESM website daily	

Required Publication	Reason for Exclusion (in Measure)
<p>7. Other system data that will be published includes the following:</p> <ul style="list-style-type: none"> <li>• Total energy dispatched</li> <li>• Total dispatchable load</li> <li>• Total reserve required per time point (for each class and area)</li> <li>• Total system losses</li> <li>• Reserve requirements</li> <li>• Locational marginal prices</li> </ul>	<p>Already covered in other publications. (Availability and Timeliness)</p>

### 3.2.1. Availability of Market Reports and Data

The measure of availability pertains to the actual number of publications against the total number of required publications.

#### Monitoring Results

As provided in Table 6, information and data were published as required more than the target of 95%.

Table 6. Availability of Market Reports and Data (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Target	Performance		
		Actual	Score	Description
26Sep14 - 25Dec14	95%	> 90%	3	Satisfactory
26Sep14 - 25Mar15		> 90%	3	Satisfactory
26Sep14 - 25Jun15		> 95%	4	Very Satisfactory
26Sep14 - 25Sep15		> 95%	4	Very Satisfactory

### 3.2.2. Timeliness of Market Reports and Data Publication

Timeliness of market information publication refers to the MO's adherence to the required timing of publication of market reports/data in accordance to the schedules under the WESM Rules, Manuals, internal procedures or the MOPS document.

#### Monitoring Results

As provided in Table 7, information and data were published within the required timelines more than the target of 95%.

Table 7. Timeliness of Market Reports and Data Publication (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Target	Performance		
		Actual	Score	Description
26Sep14 - 25Dec14	95%	> 85%	2	Needs Improvement
26Sep14 - 25Mar15		> 90%	3	Satisfactory
26Sep14 - 25Jun15		> 95%	4	Very Satisfactory
26Sep14 - 25Sep15		> 95%	4	Very Satisfactory

In 4Q 2014, three (3) publications were not published within the required timeline, which caused the rating to be below the target. These were subsequently rectified, as follows:

- Structure and level of market fees and the methods used in determining the structure (ERC Order Dated 15 October 2014 Re CY 2014 Market Fees, due for publication in December 2014) – published in January 2015
- Dispatch Tolerances Standards (PEM Board Resolution 2005-15 adopting the +/- 3% dispatch tolerance, due for publication within 4Q 2104) – published in June 2015.
- Initial Loss Percentage (Information document, due for publication within 4Q 2014) – published in June 2015.

### 3.2.3. Findings and Recommendations: Market Reports and Data Publication

The MO was able to make available publications for this monitoring period, as required. On the other hand, some of these publications have not met the required publication timelines in 4Q 2014.

The following recommendations were discussed with the process owners:

1. Ensure that internal business procedures provide the publication timelines which are consistent with the requirements under the WESM Rules and Manuals.
2. Determine manner of reporting and monitoring of above-cited exempted publications (items 2 to 6 in Table 5), for monitoring in 2016.
3. Review publication requirements of the Central Registration Body (CRB), for inclusion in the publications to be monitored under the MOPS.
4. Review Satisfactory range for the Rating System used in this measure since it includes values which are below the target (i.e. Satisfactory range is 90% to 95%, while the target is 95%).

### 3.2.4. PEMC Action Plan: Market Reports and Data Publication

PEMC will be undertaking the first two (2) recommendations while the latter items will be considered in the annual review of the MOPS in 2016.

### 3.3. Forecast Accuracy

As cited in the 4<sup>th</sup> MO Audit Report on Market Software Testing, load forecasting is a key determinant of market prices and schedules, and therefore must be as accurate as is reasonably possible. Any difference between the forecast load and the actual load represents an economic cost to the market in that either too much or too little generation is scheduled.

The MO currently prepares and publishes week ahead (WAP), day ahead (DAP) and hour ahead (RTD) market projections to forecast load scenarios considering various factors (e.g. network service provider data, reserve requirements, generation offer, among others).

As provided in the MOPS, however, only the DAP and RTD projections shall be measured as to their accuracy. The RTD accuracy is measured in terms of Mean Average Percent Error (MAPE) and Forecast Accuracy Rate (FAR) while the DAP accuracy is measured with the MAPE only. Both RTD and DAP are measured per region, i.e. Luzon and Visayas. The ratings for these sub-categories are provided in Table 8.

Table 8. Forecast Accuracy Performance Ratings for the 4Q 2014 – 3Q 2015

Section	Sub-Category	Target	Region	Actual	Score	Description
3.3.1	RTD Forecast - MAPE	0.95%	Luzon	0.79%	4	Very Satisfactory
		1.20%	Visayas	1.16%	4	Very Satisfactory
	RTD Forecast - FAR	97.20%	Luzon	98.78%	5	Excellent
		93.00%	Visayas	95.03%	4	Very Satisfactory
3.3.2	DAP Forecast - MAPE	1.60%	Luzon	1.39%	4	Very Satisfactory
		2.20%	Visayas	2.18%	4	Very Satisfactory

The assessment of forecast accuracy in this report considered exclusions that were provided in the MOPS. Out of the 8,760 total intervals for this monitoring period, 8,574 intervals were considered for the purpose of this monitoring of the accuracy of RTD/DAP for Luzon while 8,468 were considered for Visayas.

#### 3.3.1. RTD Forecast

The hour ahead forecast or the RTD forecast is one (1) of the variables that are used to determine the ex-ante schedules and prices for the target trading interval. For clarity, it is noted that the data used in the computation of RTD forecast accuracy is the MMS generated forecast for Luzon and Visayas.<sup>9</sup> The said regions are measured separately since RTD is published on a regional basis. The accuracy is measured against the actual demand based on snapshot data of all generators at minute 59<sup>10</sup>, as follows:

- MAPE - reflects the average of the absolute percent difference between the actual and forecasted demand across all intervals
- FAR - reflects the number of intervals in percent wherein the forecast is within the MAPE tolerance level, which is set at  $\pm 3\%$ .

<sup>9</sup> Previously, hourly load forecasts that are inputs to the MMS (LDF or LDP) were used, in accordance with the MOPS, Issue 1.0.

<sup>10</sup> In the absence of 59<sup>th</sup> minute snapshot data, the 54<sup>th</sup> minute snapshot data before the target hour or the 4<sup>th</sup> minute snapshot data of the target trading interval could be used. As an example, the 1559H or 1554H or 1604H snapshot data shall be used as actual demand for the 1600H interval.



## Monitoring Results

Table 9 indicates that the MO was within the target MAPE of less than 0.95% with a rating of 0.79% in Luzon, and target MAPE of less than 1.20% with a rating of 1.16% in Visayas.

Table 9. RTD-MAPE (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance (MAPE)							
	Target	Actual	Score	Description	Target	Actual	Score	Description
	Luzon				Visayas			
26Sep14 - 25Dec14	0.95%	0.78%	4	Very Satisfactory	1.20%	1.13%	4	Very Satisfactory
26Sep14 - 25Mar15		0.82%	4	Very Satisfactory		1.16%	4	Very Satisfactory
26Sep14 - 25Jun15		0.78%	4	Very Satisfactory		1.15%	4	Very Satisfactory
26Sep14 - 25Sep15		0.79%	4	Very Satisfactory		1.16%	4	Very Satisfactory

There are 105 intervals out of 8,574 valid intervals in Luzon and 421 out of 8,468 valid intervals in Visayas that have RTD forecasts beyond the +/- 3% MAPE tolerance level. As shown in Table 10, the MO exceeded the RTD FAR target rating of 97.20% with an actual rating of 98.78% in Luzon. Likewise, the MO exceeded the target of 93% with an actual rating of 95.03% in Visayas.

Table 10. RTD-FAR (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance (FAR)							
	Target	Actual	Score	Description	Target	Actual	Score	Description
	Luzon				Visayas			
26Sep14 - 25Dec14	97.20%	98.88%	5	Excellent	93.00%	95.84%	4	Very Satisfactory
26Sep14 - 25Mar15		98.48%	4	Very Satisfactory		94.98%	4	Very Satisfactory
26Sep14 - 25Jun15		98.79%	5	Excellent		94.98%	4	Very Satisfactory
26Sep14 - 25Sep15		98.78%	5	Excellent		95.03%	4	Very Satisfactory

### 3.3.2. DAP Forecast

The DAP MAPE is used to measure the accuracy of DAP forecast. For clarity, the data used in the computation of DAP MAPE is the Similar Day Load Forecast (SDLF) Demand for Luzon and Visayas. As with the computation of RTD Forecast, the accuracy of DAP Forecast is measured against the actual demand based on snapshot data of all generators at minute 59.

## Monitoring Results

Table 11 shows that the MO was within the target MAPE of less than 1.60% with a rating of 1.39% in Luzon, and target MAPE of less than 2.20% with a rating of 2.18% in Visayas.



Table 11. DAP-MAPE (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance (MAPE)							
	Target	Actual	Score	Description	Target	Actual	Score	Description
	Luzon				Visayas			
26Sep14 - 25Dec14	1.60%	1.39%	4	Very Satisfactory	2.20%	2.48%	3	Satisfactory
26Sep14 - 25Mar15		1.43%	4	Very Satisfactory		2.38%	4	Very Satisfactory
26Sep14 - 25Jun15		1.38%	4	Very Satisfactory		2.27%	4	Very Satisfactory
26Sep14 - 25Sep15		1.39%	4	Very Satisfactory		2.18%	4	Very Satisfactory

### 3.3.3. Findings and Recommendation: Forecast Accuracy

The accuracy of Luzon and Visayas forecasts have significantly improved. Notable is the increase of the RTD-FAR for Luzon from Very Satisfactory in 2014 to Excellent in 2015. On the other hand, the increase in the accuracy ratings for Visayas is attributed to the revised rating system under the MOPS.

While the system forecasts have improved, the implementation of nodal forecasting, which has been consistently advocated in the MO audit reports, is recommended to further enhance market operations. This is likewise provided under the DOE directives on the enhancements to WESM design and operations under DOE Circular 2015-10-0015<sup>11</sup>.

### 3.3.4. PEMC Action Plans: Forecast Accuracy

Consistent with the said DOE directive, the implementation of nodal forecasting is considered in the ongoing development of the NMMS.

<sup>11</sup> Providing Policies for Further Enhancement of the Wholesale Electricity Spot Market (WESM) Design and Operations (DOE DC-2015-10-0015) dated 23 October 2015.

### 3.4. Dispatch Scheduling and Pricing

This category deals with the market scheduling and pricing performance by the MO. It is particularly important that market processes be properly managed because of its impact to participant behavior and market outcome. As such, this category is measured in terms of the success in implementing workflow processes, timeliness of pricing error issuance and the duration of market intervention attributable to the MO, as provided in Table 12.

Table 12. Dispatch Scheduling and Pricing Performance Ratings for 4Q 2014 – 3Q 2015

Section	Sub-Category	Target	Actual	Score	Description
3.4.1	RTD Workflow Successful Run	99.75%	100%	5	Excellent
3.4.2	RTX Workflow Successful Run	99.75%	99.92%	4	Very Satisfactory
3.4.3	Timeliness of Pricing Errors and Market Re-runs before the issuance of Preliminary Statements	98.50%	100%	5	Excellent
	Timeliness of Pricing Errors and Market Re-runs before the issuance of Final Statements	99.50%	99.98%	5	Excellent
3.4.4	Number of Market Intervention (MI) Attributable to MO	≤ 14	8	4	Very Satisfactory

#### 3.4.1. RTD Workflow

Since the RTD workflow process is run at an hourly interval, its success rate is evaluated by the number of trading intervals with resulting schedule completed within the timetable. These include RTD runs that were manually run by PEMC within the timetable.

Under the MOPS, unsuccessful RTD runs that are attributable to factors beyond the control of MO (e.g. attributable to the SO and communication failure by third party service providers) are excluded from the calculations. Further, RTD runs with MI attributable to the MO are excluded in the trading intervals being rated.

#### Monitoring Results

Table 13 provides a 100% success rate for RTD workflow runs in 2015. The excluded trading intervals due to the occurrence of market intervention includes those attributed to the MO enumerated in Section 3.4.4.

Table 13. RTD Workflow Run (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance			
	Target	Actual	Score	Description
26Sep14 - 25Dec14	99.75%	100%	5	Excellent
26Sep14 - 25Mar15		100%	5	Excellent
26Sep14 - 25Jun15		100%	5	Excellent
26Sep14 - 25Sep15		100%	5	Excellent

### 3.4.2. RTX Workflow

The ex-post run or RTX workflow is measured in the same manner as with the RTD workflow process, except for the exclusion of MO-attributable market intervention.

#### Monitoring Results

Table 14 provides a 99.92% success rate for RTX workflow runs in 2015. Information on the RTX unsuccessful runs, which led to market interventions, are provided in Section 3.4.4.

Table 14. RTX Workflow Run (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance			
	Target	Actual	Score	Description
26Sep14 - 25Dec14	99.75%	100%	5	Excellent
26Sep14 - 25Mar15		99.91%	4	Very Satisfactory
26Sep14 - 25Jun15		99.92%	4	Very Satisfactory
26Sep14 - 25Sep15		99.92%	4	Very Satisfactory

### 3.4.3. Pricing Errors and Market Re-runs

This sub-category particularly refers to the process of validation of intervals with PENs and the timely completion of market re-runs (MRR) prior to the issuance of preliminary and final settlements for Luzon and Visayas.

#### Monitoring Results

As provided in Table 15, the timely issuance of prices for the Preliminary and Final Settlement Statements exceeded the targets with ratings of 100% and 99.98%, respectively.

Table 15. Timely Issuance of Pricing Errors and Conduct of Market Re-run (YTD)

Monitoring Period	Performance (Prelim)				Performance (Final)			
	Target	Actual	Score	Description	Target	Actual	Score	Description
26Sep14 - 25Dec14	98.50%	100%	5	Excellent	99.50%	100%	5	Excellent
26Sep14 - 25Mar15		100%	5	Excellent		99.95%	5	Excellent
26Sep14 - 25Jun15		100%	5	Excellent		99.97%	5	Excellent
26Sep14 - 25Sep15		100%	5	Excellent		99.98%	5	Excellent

### 3.4.4. Market Intervention Attributable to MO

The duration or frequency of MIs that have been caused by the MO is being monitored to ensure that the WESM is operational 24x7. The allowable number of MIs in a year is equal to or less than 14 trading intervals.

There were 10 MO-initiated market interventions during the year, five (5) of which are excluded since these were caused by external factors, as provided in Table 16.

Table 16. MO Initiated Market Interventions for 4Q 2014 - 3Q 2015

Date/Affected Intervals	Remarks	MO-Attributed
17 December 2014, 1900H	Workflow stoppage in the MMS caused by non-convergence of RTD/RTX workflow caused by inappropriate input data	-
01 February 2015, 0500H	Workflow stoppage in the MMS caused by non-convergence of RTD workflow caused by inappropriate input data (failed merger of system snapshot for Luzon and Visayas)	-
19 February 2015, 0300H	Workflow stoppage in the MMS caused by non-convergence of RTD workflow caused by inappropriate input data (due to multiple tripping in Visayas).	-
11 March 2015, 0400H 12 March 2015, 0400H to 0600H	Workflow stoppage in the MMS caused by the simulation of the business continuity plan (BCP) and disaster recovery procedures (DRP)	✓
08 June 2015, 1400H	Workflow stoppage in the MMS due to a software initialization problem	✓
13 June 2015, 1000H	RTD schedules were not communicated on time to the Luzon System Operator due to IT network-related issues.	✓
17 July 2015, 2200H	MMS failed to generate dispatch schedule due to hardware failure of MMS database server.	✓
11 August 2015, 1200H	RTD workflow failed to start up due to an unexpected high utilization of software resources, hence, no dispatch schedule was generated for interval 1200H.	✓
18 September 2015, 0300H to 1000H	Workflow stoppage in the MMS caused by unavailability of snapshot data from Visayas.	-

### Monitoring Results

The MO-attributable MIs in Table 16 correspond to 8 trading intervals. As provided in Table 17, this is within the target.

Table 17. Market Intervention Attributable to MO (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance			
	Target	Actual	Score	Description
26Sep14 - 25Dec14	≤ 14	0	5	Excellent
26Sep14 - 25Mar15		4	5	Excellent
26Sep14 - 25Jun15		6	4	Very Satisfactory
26Sep14 - 25Sep15		8	4	Very Satisfactory

### 3.4.5. Findings and Recommendations: Dispatch Scheduling and Pricing

While the ratings are high for this category, the increase of the number of MO-attributable MIs is notable and reflective of the obsolescence of the MMS. In the long term, these will be addressed by the NMMS.

On the monitoring of RTD and RTX successful runs, we recommend the review of this measure in relation to the factors or instances that the MMS will be having unsuccessful runs. The current monitoring of MO-attributable MIs may likewise be considered in the review.

### 3.4.6. PEMC Action Plans: Dispatch Scheduling and Pricing

The PEMC Management indicated that any changes to the MOPS will be considered in its next review and amendment.

## 3.5. Billings, Settlements and Accounts Management

This category is related to the financial aspect of the WESM operations. It is essential that the MO handle financial transactions of the WESM with utmost integrity and efficiency considering the possible financial impact of the transactions to the Market Participants. The MOPS provides that this category be measured in terms of timeliness, frequency and accuracy. The ratings for the sub-categories under this major category are summarized below.

Table 18. Billings, Settlement and Accounts Management Performance Ratings for 4Q 2014 - 3Q 2015

Section	Sub-Category	Target	Actual	Score	Description
3.5.1	Timeliness of Preliminary and Final Settlement Statements	98%	99.79%	5	Excellent
3.5.2	Accuracy of Preliminary Settlement Calculations	95%	93.64%	2	Needs Improvement
	Accuracy of Final Settlement Calculations	99%	97.62%	1	Poor
3.5.3	Frequency of Final Settlement Adjustments	≤ 6	2	5	Excellent
3.5.4	Timeliness of Meter Data Error Detection	98%	100%	5	Excellent
3.5.5	Timeliness of Monetary Transactions	0 days late	0 days late	5	Excellent
	Remittance Efficiency	0 amount late	0 amount late	5	Excellent
3.5.6	Timeliness of Margin Call	95%	100%	5	Excellent
3.5.7	Timeliness of Default Notice	0 days late	0 days late	5	Excellent

For reference, Table 19 provides the relevant dates and WESM billing periods that are covered in each monitoring period for this section.

Table 19. WESM Billing Periods covered in the MOPS for 4Q 2014 - 3Q 2015

Monitoring Period	Covered Billing Periods	Billing Period	Dates
26Sep14 - 25Dec14	99 – 101	99	26 August 2014 to 25 September 2014
		100	26 September 2014 to 25 October 2014
		101	26 October 2014 to 25 November 2014
26Sep14 - 25Mar15	99 – 104	102	26 November 2014 to 25 December 2014
		103	26 December 2014 to 25 January 2015
		104	26 January 2015 to 25 February 2015
26Sep14 - 25Jun15	99 – 107	105	26 February 2015 to 25 March 2015
		106	26 March 2015 to 25 April 2015
		107	26 April 2015 to 25 May 2015
26Sep14 - 25Sep15	99 – 110	108	26 May 2015 to 25 June 2015
		109	26 June 2015 to 25 July 2015
		110	26 July 2015 to 25 August 2015

### 3.5.1. Timeliness of Preliminary and Final Settlement Statements

The WESM Rules require that Preliminary Settlement Statements are issued within 7 days after the end of each billing period. It also provides that the issuance of Final Settlement Statements should not be later than 18 days after the end of each billing period. Further, if the deadline falls on a Non-Working Day, the issuance of the settlement statements shall be made during the next immediate Working Day.

#### Monitoring Results

The MO exceeded its target of 98% with its Preliminary and Final Statement Timeliness rating of 99.79%, as provided in Table 20.

Table 20. Timeliness of the Issuance of Preliminary and Final Settlement Statements (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance			
	Target	Actual	Score	Description
26Sep14 - 25Dec14	98%	99.17%	4	Very Satisfactory
26Sep14 - 25Mar15		99.58%	5	Excellent
26Sep14 - 25Jun15		99.72%	5	Excellent
26Sep14 - 25Sep15		99.79%	5	Excellent

There is only 1 instance of late issuance of final statements, which is during the October 2014 billing period due to the manual processing of regional price substitution methodology (PSM) during the outage of the high voltage direct current (HVDC) line.

### 3.5.2. Accuracy of Preliminary and Final Settlement Calculations

Given the possible financial impact of WESM settlement statements, the MO is rated according to the accuracy of issued billing statements. Accuracy rating of Preliminary Settlements is computed as the mean of the absolute percentage error of the

preliminary settlement total trading amount (TTA) and the final settlement TTA per participant invoice.

The adjustments related to claims for additional compensation for Administered Prices (AP) and must run units (MRUs) are excluded, as well as the adjustments due to corrections in meter quantities that are attributable to the metering service provider (MSP).

### Monitoring Results

As provided in Table 21, the MO fell short of its target of 95% with its accuracy rating for preliminary statements of 93.64% for this monitoring period. This is an improved rating from last year's rating of 84.52%.

Table 21. Accuracy of Preliminary Settlement Statements (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance			
	Target	Actual	Score	Description
26Sep14 - 25Dec14	95%	77.32%	1	Poor
26Sep14 - 25Mar15		87.44%	1	Poor
26Sep14 - 25Jun15		91.82%	1	Poor
26Sep14 - 25Sep15		93.64%	2	Needs Improvement

Likewise, the target accuracy rating for Final Settlements was not achieved due to the adjustments in prices and Metering Masterfile in 4Q 2014. (See next Section 3.5.3). While the MO rated 100% in the subsequent quarters, the equivalent score did not improve.

Table 22. Accuracy of Final Settlement Statements (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Target	Actual	Score	Description
26Sep14 - 25Dec14	99%	90.05%	1	Poor
26Sep14 - 25Mar15		94.82%	1	Poor
26Sep14 - 25Jun15		96.72%	1	Poor
26Sep14 - 25Sep15		97.62%	1	Poor

### 3.5.3. Frequency of Adjustments in Final Settlement Calculations

Final settlement statements are also evaluated according to the number of adjustments in the final settlement calculations with the target being less than 6 adjustments per year.

### Monitoring Results

There have been 2 adjustments in the Final Settlement Statements within 4Q 2014, as follows:

- Adjustment in final prices from the Pricing Error Notices (PEN) Summary for Final Settlements were not reflected in Final Billing run.
- Adjustment due to changes in meter quantities (MQ), Metering Masterfile, and ex-ante quantities (EAQ) of several market participants.

With the above adjustments considered, the target of incurring a maximum of 6 adjustments in the final statements was still achieved, as provided in Table 23.

Table 23. Final Settlement Adjustments (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance			
	Target	Actual	Score	Description
26Sep14 - 25Dec14	≤ 6	2	5	Excellent
26Sep14 - 25Mar15		2	5	Excellent
26Sep14 - 25Jun15		2	5	Excellent
26Sep14 - 25Sep15		2	5	Excellent

### 3.5.4. Meter Data Error Detection

The MO is also evaluated in terms of its ability to detect meter data errors through the timely issuance of Meter Trouble Reports (MTRs) within 4 calendar days after receipt of meter data from the MSP.

The MO receives daily MQ electronically in Meter Data Exchange Format (MDEF – a software format) and monthly MQ via compact disc (CD) in Excel format from the MSP. The daily MQ is used for daily monitoring, processing and validation while the formatted-excel MQ is used for monthly settlement in the WESM. In cases where there exists orphan<sup>12</sup> meter data and meter data with uncertain and missing values<sup>13</sup>, the MO will issue an MTR to the MSP. In turn, the MSP should issue the corrected daily meter data within 10 calendar days and monthly meter data within 2 business days from the issuance of MTRs.<sup>14</sup>

### Monitoring Results

As provided in Table 24, the MO was able to issue MTR's as scheduled.

Table 24. Meter Data Error Detection by MO (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance			
	Target	Actual	Score	Description
26Sep14 - 25Dec14	98%	100%	5	Excellent
26Sep14 - 25Mar15		100%	5	Excellent
26Sep14 - 25Jun15		100%	5	Excellent
26Sep14 - 25Sep15		100%	5	Excellent

<sup>12</sup> Values of the metered data whose meter is not registered in the MMS master lists are known as the "Orphan Values" (Section 7.3.2.3 of the WESM Manual on Metering Standards and Procedures).

<sup>13</sup> Section 7.3.4 of the WESM Manual on Metering Standards and Procedures

<sup>14</sup> Section 10.4.1.3-4 of the WESM Manual on Metering Standards and Procedures



### 3.5.5. Monetary Transactions and Remittance Efficiency

As provided in the MOPS and the WESM Billing and Settlements Manual, all monetary transactions must be remitted to WESM Members in accordance to the WESM settlement timetable, i.e. no later than 3:00 p.m. on the next business day following the day on which the MO is to be paid.

#### Monitoring Results

Table 25 provides that the MO was able to remit all payments received to the market participants on time.

Table 25. Monetary Transactions Timeliness and Remittance Efficiency

Monitoring Period	Timeliness				Remittance Efficiency			
	Target	Actual	Score	Description	Target	Actual	Score	Description
26Sep14 - 25Dec14	0 days delayed in remittance	0	5	Excellent	0 amount of late remittance	0	5	Excellent
26Sep14 - 25Mar15		0	5	Excellent		0	5	Excellent
26Sep14 - 25Jun15		0	5	Excellent		0	5	Excellent
26Sep14 - 25Sep15		0	5	Excellent		0	5	Excellent

### 3.5.6. Timeliness of Margin Calls

In accordance with the WESM Rules, the MO should verify whether each market participant has sufficient levels of prudential support to cover their financial trading activity in the spot market. If the actual exposure of a Market Participant exceeds its trading limit, then the MO shall issue a "Margin Call" to the Market Participant. As provided in the MOPS, the MO shall be evaluated according to the timeliness of issuing a notice for margin call to relevant WESM Member.

The MO target of margin call issuance is on or before the 20<sup>th</sup> of the next month after the billing period, i.e. for the billing month 26 January 2015 to 25 February 2015, margin calls should have been issued on or before 20 March 2015.

#### Monitoring Results

The MO exceeded its target rating of 95% with the rating of 100% timely issuances of margin calls, as shown in Table 26.

Table 26. Margin Calls (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance			
	Target	Actual	Score	Description
26Sep14 - 25Dec14	95%	100%	5	Excellent
26Sep14 - 25Mar15		100%	5	Excellent
26Sep14 - 25Jun15		100%	5	Excellent
26Sep14 - 25Sep15		100%	5	Excellent

### 3.5.7. Timeliness of Default Notices

In accordance with the WESM Rule 3.14.11.2, the MO issues a default notice, which specifies the nature of the alleged default, as soon as practicable, when a default event. The MO is required to disclose information pursuant to Clause 5.3.2<sup>15</sup> of the WESM Rules the Settlement amount unpaid by the end of the month, and the specific WESM member that failed to pay the settlement amounts.

### Monitoring Results

The MO met its target rating of no late issuance of default notices to trading participants, as shown in Table 27.

Table 27. Default Notices (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance			
	Target	Actual	Score	Description
26Sep14 - 25Dec14	0 days delayed	0	5	Excellent
26Sep14 - 25Mar15		0	5	Excellent
26Sep14 - 25Jun15		0	5	Excellent
26Sep14 - 25Sep15		0	5	Excellent

### 3.5.8. Findings and Recommendations

The MO was able to achieve the performance targets for this category except for the accuracy of Preliminary and Final Settlement Statements.

Implementation of enhanced internal procedures and an automated settlement system, i.e. CRSS, will address errors due to issues in coordination and manual processing.

### 3.5.9. PEMC Action Plans

PEMC has endeavored to implement enhanced billing and settlement procedures to mitigate manual errors.

<sup>15</sup> As amended by DOE DC No. 2013-07-0018 issued on 26 July 2013

### 3.6. Registration and Customer Relations

This category evaluates the MO in relation to its efficiency in addressing the concerns and requests of external parties, which may directly influence the perception of the market participants on PEMC as an organization, and WESM as a venue for trading electricity.

In summary, the ratings for the sub-categories under this major category are provided below.

Table 28. Registration and Customer Relations Performance Ratings for 4Q 2014 - 3Q 2015

Section	Sub-Category	Target	Actual	Score	Description
3.6.1	Timeliness of Processing Registration Applications	95%	97.06%	4	Very Satisfactory
3.6.2	Timeliness of Processing Customer Switching Applications	95%	100%	5	Excellent
3.6.3	Timeliness of the conduct of Participant Trainings	95%	100%	5	Excellent
	Participant's Feedback re: Training	90%	95.49%	4	Very Satisfactory
3.6.4	Timeliness in addressing Participant Queries and Data Requests	95%	99.02%	5	Excellent
3.6.5	Timeliness in addressing Participant/ Customer Complaints	95%	100%	5	Excellent

#### 3.6.1. Registration Processing

The process of registration of the WESM participants under the WESM Rules is being implemented according to the following timeline:

- Within 5 working days from receiving an application, the MO shall advise the applicant of any further information which the MO reasonably considers to be required to properly assess the application (WESM Rules, Clause 2.5.3.1);
- The MO shall send written notice of approval to the applicant within 15 working days from receipt of the application or the additional information or fees, if any;
- The registration of the applicant shall take effect on the date specified in the notice of approval which shall be a date not more than 7 working days after the MO sends the notice of approval.

#### Monitoring Results

In consideration of the above timelines, the MO processed all 32 out of 34 WESM and all 34 retail market participant registration applications and exceeded its target of 95% with an annual rating of 97.06% as provided in Table 29.

Table 29. Timeliness of Processing Registration Applications

Monitoring Period	Performance			
	Target	Actual	Score	Description
26Sep14 - 25Dec14	95%	92.59%	4	Very Satisfactory
26Sep14 - 25Mar15		95.12%	4	Very Satisfactory
26Sep14 - 25Jun15		96.30%	4	Very Satisfactory
26Sep14 - 25Sep15		97.06%	4	Very Satisfactory

### 3.6.2. Customer Switching Requests

In accordance with the Retail Rules, customer switching requests should be processed by the MO, subject to the completion of all requirements, within 30 days prior to the proposed effective date.

#### Monitoring Results

In 4Q 2014 – 3Q 2015, all requests for customer switching were processed within the required timeline, as shown in Table 30.

Table 30. Timeliness of Processing Customer Switching Requests (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance			
	Target	Actual	Score	Description
26Sep14 - 25Dec14	100%	100%	5	Excellent
26Sep14 - 25Mar15		100%	5	Excellent
26Sep14 - 25Jun15		100%	5	Excellent
26Sep14 - 25Sep15		100%	5	Excellent

### 3.6.3. Participants Feedback and Timeliness in the Conduct of Training

To gauge the effectiveness of trainings, their timely conduct and the participants' feedback on the trainer/speaker, topics and other aspects of the training (e.g. logistics and materials), which are gathered through survey forms to rate, are monitored.

#### Monitoring Results

In 4Q 2014 – 3Q 2015, 72 trainings for WESM Participants and interested parties were conducted by the MO. These were all conducted on time thus the 100% rating in Table 31. On the other hand, participant feedback on trainings also exceeded the target rating of 95% with an actual score of 95.49%.

Table 31. Participants' Feedback and Timeliness of Trainings Conducted (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Timeliness				Feedback			
	Target	Actual	Score	Description	Target	Actual	Score	Description
26Sep14 - 25Dec14	100%	100%	5	Excellent	90%	96.50%	4	Very Satisfactory
26Sep14 - 25Mar15		100%	5	Excellent		96.04%	4	Very Satisfactory
26Sep14 - 25Jun15		100%	5	Excellent		95.46%	4	Very Satisfactory
26Sep14 - 25Sep15		100%	5	Excellent		95.49%	4	Very Satisfactory

### 3.6.4. Participant Queries and Data requests

The MOPS requires the MO to address queries and data requests in a timely manner. Queries and data requests may include requests for historical data, clarifications regarding WESM concepts and requests for in-depth analysis or simulations.

#### Monitoring Results

The MO received a total of 204 queries/data requests and addressed 202 of these within the allotted time schedule, as provided in Table 32.

Table 32. Timeliness in addressing Requests/Queries (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance			
	Target	Actual	Score	Description
26Sep14 - 25Dec14	95%	100%	5	Excellent
26Sep14 - 25Mar15		98.13%	4	Very Satisfactory
26Sep14 - 25Jun15		98.80%	5	Excellent
26Sep14 - 25Sep15		99.02%	5	Excellent

### 3.6.5. Participant/Customer Complaint

The MOPS provides that complaints by customers (WESM Members, DOE and ERC) should be resolved in a timely manner, i.e. within 5 working days.

The most number of complaints received are related to the MO's IT systems, particularly the MPI and public WESM website, which are the main interface of the MO with the market participants.

#### Monitoring Results

The MO was able to address all 151 complaints within the required timeline. As shown in Table 33, the MO rated 100%, or Excellent, for this measure.

Table 33. Timeliness in addressing Valid Complaints (YTD) for 4Q 2014 - 3Q 2015

Monitoring Period	Performance			
	Target	Actual	Score	Description
26Sep14 - 25Dec14	95%	100%	5	Excellent
26Sep14 - 25Mar15		100%	5	Excellent
26Sep14 - 25Jun15		100%	5	Excellent
26Sep14 - 25Sep15		100%	5	Excellent

### **3.6.6. Findings and Recommendations: Registration and Customer Relations**

The MO has met all performance targets in relation to providing customer service and participant support. To further improve its performance in this area, particularly in addressing and monitoring queries/data requests and complaints, the close coordination within the MO and implementation of automated monitoring systems are recommended to ensure timely resolution and also minimize duplication in monitoring.

### **3.6.7. PEMC Action Plans: Registration and Customer Relations**

PEMC has recently implemented an online ticketing system (OTS) that is expected to facilitate submission of queries/data requests and complaints by WESM members and other external parties, and the timely resolution and monitoring of such submissions by the relevant PEMC departments.

## 4. Over-all MO Performance

The over-all performance of the MO in 2015 for the period 26 September 2014 to 25 September 2015 is Very Satisfactory, same as its rating in 2014. The MO's performance rating in each performance category in 2015 and 2014 are summarized below.

Table 34. MO Performance for 4Q 2014 - 3Q 2015

Category	Measure	2014				2015					
		Weight (%)	Target	Actual	Score	Weight (%)	Target	Actual	Score	Y-O-Y (Score)	
A. IT Systems											
Market Management Systems	Availability	15	99.80%	99.94%	5	15	99.80%	99.88%	4	Very Satisfactory	↓
WESM Website	Availability	5	99.50%	99.99%	5	5	99.50%	99.85%	5	Excellent	■
B. Market Reports and Data Publication											
	Availability	5	95%	99.95%	4	5	95%	> 95%	4	Very Satisfactory	■
	Timeliness	10	95%	98.25%	4	10	95%	> 95%	4	Very Satisfactory	■
C. Forecast Accuracy											
RTD Forecast - MAPE	Accuracy (L)	3.75	≤ 0.95%	0.89%	4	3.75	0.95%	0.79%	4	Very Satisfactory	■
	Accuracy (V)	3.75		1.15%	2	3.75	1.20%	1.16%	4	Very Satisfactory	↑
RTD Forecast - FAR	Accuracy (L)	3.75	≥ 97.20%	98.17%	4	3.75	97.20%	98.78%	5	Excellent	↑
	Accuracy (V)	3.75		94.25%	1	3.75	93.00%	95.03%	4	Very Satisfactory	↑
DAP Forecast - MAPE	Accuracy (L)	2.5	≤ 2.20%	1.45%	4	2.5	1.60%	1.39%	4	Very Satisfactory	■
	Accuracy (V)	2.5		2.23%	2	2.5	2.20%	2.18%	4	Very Satisfactory	↑
D. Dispatch Scheduling and Pricing											
RTD Workflow	Successful Run	2.5	99.75%	100%	5	2.5	99.75%	100%	5	Excellent	■
RTX Workflow	Successful Run	2.5	99.75%	99.99%	5	2.5	99.75%	99.92%	4	Very Satisfactory	↓
Pricing Errors and Market Re-runs	Timeliness (Prelim)					2	98.50%	100%	5	Excellent	
	Timeliness (Final)	5	99.50%	99.98%	5	3	99.50%	99.98%	5	Excellent	■
Market Intervention Attributable to MO	Duration	10	≤ 19	0	5	10	≤ 14	8	4	Very Satisfactory	↓
E. Billing, Settlements and Accounts Management											
Preliminary and Final Settlement Statements	Timeliness	2	98%	100%	5	2	98%	99.79%	5	Excellent	■
Preliminary Settlement Calculations	Accuracy	2	95%	84.52%	1	2	95%	93.64%	2	Needs Improvement	↑
Final Settlement Calculations	Accuracy	3	99%	99.70%	5	3	99%	97.62%	1	Poor	↓
	Frequency	2	≤ 6	2	5	2	≤ 6	2	5	Excellent	■
Meter Data Error Detection	Timeliness	2	98%	100%	5	2	98%	100%	5	Excellent	■
Monetary Transactions	Efficiency	1	100%	100%	5	1	0 amount late	0 amount late	5	Excellent	■
	Timeliness	1	0 days late	0 days late	5	1	0 days late	0 days late	5	Excellent	■

Category	Measure	2014				2015					
		Weight (%)	Target	Actual	Score	Weight (%)	Target	Actual	Score		Y-O-Y (Score)
Margin Call	Timeliness	2	95%	100%	5	1	95%	100%	5	Excellent	■
Default Notice	Timeliness					1	0 days late	0 days late	5	Excellent	
<b>F. Registration and Customer Relations</b>											
Registration	Timeliness	2	95%	100%	5	2	95%	97.06%	4	Very Satisfactory	▼
Customer Switching	Timeliness					1	95%	100%	5	Excellent	
Participant Training	Timeliness	2	95%	100%	5	2	95%	100%	5	Excellent	■
	Feedback	2	≥ 90%	95.94%	4	1	90%	95.49%	4	Very Satisfactory	■
Participant Queries and Data Requests	Timeliness	2	95%	99.05%	5	2	95%	99.02%	5	Excellent	■
Participant/ Customer Complaints	Timeliness	2	95%	100%	5	2	95%	100%	5	Excellent	■
<b>Over-All Score</b>					<b>4</b>				<b>4</b>	<b>Very Satisfactory</b>	■



## Appendix A. Rating System References<sup>16</sup>

MO Performance Category	Measure	Rating System	Target	Ranges				
				Excellent 5	Very Satisfactory 4	Satisfactory 3	Needs Improvement 2	Poor 1
IT Systems (20%)								
Market Management Systems	Availability	RS 2a	99.80%	$99.93\% \leq x \leq 100\%$	$99.87\% \leq x < 99.93\%$	$99.80\% \leq x < 99.87\%$	$99.80\% > x \geq 99.73\%$	$99.73\% > x$
WESM Website	Availability	RS 2a	99.50%	$99.83\% \leq x \leq 100\%$	$99.67\% \leq x < 99.83\%$	$99.50\% \leq x < 99.67$	$99.50\% > x \geq 99.33\%$	$99.33\% > x$
Market Reports and Data Publication (15%)	Availability	RS 3	95%	=100%	$95\% \leq x < 100\%$	$90\% \leq x < 95\%$	$85\% \leq x < 90\%$	$x < 85\%$
	Timeliness	RS 3	95%	=100%	$95\% \leq x < 100\%$	$90\% \leq x < 95\%$	$85\% \leq x < 90\%$	$x < 85\%$
Forecast Accuracy (20%)								
RTD Forecast - MAPE	Accuracy - Luzon	RS 4b	0.95%	$x \leq 0.68\%$	$0.68\% < x < 0.92\%$	$0.92\% \leq x \leq 0.98\%$	$0.98\% < x < 1.28\%$	$x \geq 1.28\%$
	Accuracy - Visayas		1.20%	$x \leq 0.86\%$	$0.86\% < x < 1.17\%$	$1.17\% \leq x \leq 1.23\%$	$1.23\% < x < 1.65\%$	$x \geq 1.65\%$
RTD Forecast - FAR	Accuracy - Luzon	RS 2b	97.20%	$x \geq 98.55\%$	$98.55\% > x > 97.65\%$	$97.65\% \geq x \geq 96.75\%$	$96.75\% > x > 95.85\%$	$x \leq 95.85\%$
	Accuracy - Visayas		93.00%	$x \geq 97.00\%$	$97.00\% > x > 94.33\%$	$94.33\% \geq x \geq 91.67\%$	$91.67\% > x > 89.00\%$	$x \leq 89.00\%$
DAP Forecast - MAPE	Accuracy - Luzon	RS 4C	1.60%	$x < 1.11$	$1.11\% < x < 1.45\%$	$1.45\% < x < 2.32\%$	$2.32\% < x < 3.20\%$	$x > 3.20\%$
	Accuracy - Visayas		2.20%	$x < 1.73$	$1.73\% < x < 2.41\%$	$2.41\% < x < 3.08\%$	$3.08\% < x < 3.27\%$	$x > 3.27\%$
Dispatch Scheduling and Pricing (20%)								
RTD Workflow	Successful Run	RS 2a	99.75%	$99.92\% \leq x \leq 100\%$	$99.83\% \leq x < 99.92\%$	$99.75\% \leq x < 99.83\%$	$99.75\% > x \geq 99.67\%$	$99.67\% > x$
RTX Workflow	Successful Run	RS 2a	99.75%	$99.92\% \leq x \leq 100\%$	$99.83\% \leq x < 99.92\%$	$99.75\% \leq x < 99.83\%$	$99.75\% > x \geq 99.67\%$	$99.67\% > x$
Pricing Errors and Market Re-runs	Timeliness - Prelim	RS 2a	98.50%	$99.50\% < x < 100\%$	$99.50\% < x < 99.00\%$	$98.50\% < x < 99.00\%$	$98.50\% < x < 98.00\%$	$98.00\% > x$
	Timeliness - Final	RS 2a	99.50%	$99.83\% \leq x \leq 100\%$	$99.67\% \leq x < 99.83\%$	$99.50\% \leq x < 99.67\%$	$99.50\% > x \geq 99.33\%$	$99.33\% > x$
Market Intervention Attributable to MO	Duration	RS 4a	14	$5 \geq x \geq 0$	$9 \geq x > 5$	$14 \geq x > 9$	$14 < x \leq 19$	$19 < x$

<sup>16</sup> Refer to the MO Performance Standards Scoring System, Section 9, PEMC-MOPS, 2015

MO Performance Category	Measure	Rating System	Target	Ranges				
				Excellent 5	Very Satisfactory 4	Satisfactory 3	Needs Improvement 2	Poor 1
Billings, Settlements and Accounts Management (15%)								
Preliminary and Final Settlement Statements	Timeliness	RS 2a	98%	$99.33\% \leq x \leq 100\%$	$98.67\% \leq x < 99.33\%$	$98\% \leq x < 98.67\%$	$98\% > x \geq 97.33\%$	$97.33\% > x$
Preliminary Settlement Calculations	Accuracy	RS 2a	95%	$98.33\% \leq x \leq 100\%$	$96.67\% \leq x < 98.33\%$	$95\% \leq x < 96.67\%$	$95\% > x \geq 93.33\%$	$93.33\% > x$
Final Settlement Calculations	Accuracy	RS 2a	99%	$99.67\% \leq x \leq 100\%$	$99.33\% \leq x < 99.67\%$	$99\% \leq x < 99.33\%$	$99\% > x \geq 98.67\%$	$98.67\% > x$
	Frequency	RS 4a	$\leq 6$	$2 \geq x \geq 0$	$4 \geq x > 2$	$6 \geq x > 4$	$6 < x \leq 8$	$8 < x$
Meter Data Error Detection	Timeliness	RS 2a	98%	$99.33\% \leq x \leq 100\%$	$98.67\% \leq x < 99.33\%$	$98\% \leq x < 98.67\%$	$98\% > x \geq 97.33\%$	$97.33\% > x$
Monetary Transactions	Remittance Efficiency	RS 1	0 amount late	$x=0$				$x>0$
	Timeliness	RS 1a	0 days late	$x=0$				$x>0$
Margin Call	Timeliness	RS 2a	95%	$98.33\% \leq x \leq 100\%$	$96.67\% \leq x < 98.33\%$	$95\% \leq x < 96.67\%$	$95\% > x \geq 93.33\%$	$93.33\% > x$
Default Notice	Timeliness	RS 1	0 days late	$x=0$				$x>0$
Registration and Customer Relations (10%)								
Registration	Timeliness	RS 3	95%	$x=100\%$	$95\% \leq x < 100\%$	$90\% \leq x < 95\%$	$85\% \leq x < 90\%$	$x < 85\%$
Customer Switching	Timeliness	RS 3	95%	$x=100\%$	$95\% \leq x < 100\%$	$90\% \leq x < 95\%$	$85\% \leq x < 90\%$	$x < 85\%$
Participant Training	Timeliness	RS 3	95%	$x=100\%$	$95\% \leq x < 100\%$	$90\% \leq x < 95\%$	$85\% \leq x < 90\%$	$x < 85\%$
	Feedback	RS 2a	90%	$96.67\% \leq x \leq 100\%$	$93.33\% \leq x < 96.67\%$	$90\% \leq x < 93.33\%$	$90\% > x \geq 86.67\%$	$86.67\% > x$
Participant Queries and Data Requests	Timeliness	RS 2a	95%	$98.33\% \leq x \leq 100\%$	$96.67\% \leq x < 98.33\%$	$95\% \leq x < 96.67\%$	$95\% > x \geq 93.33\%$	$93.33\% > x$
Participant/ Customer Complaints	Timeliness	RS 3	95%	$x=100\%$	$95\% \leq x < 100\%$	$90\% \leq x < 95\%$	$85\% \leq x < 90\%$	$x < 85\%$