

Market Operator Performance

Annual Report for the Period
26 September 2016 to 25 September 2017
MOPS-2017-AR.1



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

Executive Summary

This 2017 Annual Market Operator Performance Report provides the results of the monitoring and assessment of the Market Operator's performance for the period 26 September 2016 to 25 September 2017 (4Q 2016 – 3Q 2017). This report also provides the recommendations to enhance the MOPS and MO performance, and the corresponding PEMC action plans.

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 on 22 January 2015 and by the DOE on 06 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 2017 is Very Satisfactory, which is higher than the Satisfactory rating in 2016. The improvement in performance this year is attributed to the enhanced processes in maintaining the Market Management System (MMS) that increased MMS availability and decreased MO-attributable market interventions, the implementation of software patch in the MMS that increased forecast accuracy in Visayas, and the implementation of enhanced internal controls in the preparation of settlements.

The MO's performance rating in each performance category in 2017 and 2016 is provided below.

Category	Measure	Weight (%)	Target	2016		2017			Y-O-Y (Score)
				Actual	Score	Actual	Score		
A. IT Systems									
Market Management Systems	Availability	15	99.80%	99.85%	3	99.99%	5	Excellent	⬆️
WESM Website	Availability	5	99.50%	99.87%	5	99.99%	5	Excellent	🟡
B. Market Reports and Data Publication									
	Availability	5	95%	99.99%	4	99.998%	4	Very Satisfactory	🟡
	Timeliness	10	95%	95.02%	4	98.22%	4	Very Satisfactory	🟡
C. Forecast Accuracy									
RTD Forecast - MAPE	Accuracy (L)	3.75	0.95%	0.80%	4	0.80%	4	Very Satisfactory	🟡
	Accuracy (V)	3.75	1.20%	1.50%	2	1.14%	4	Very Satisfactory	⬆️
RTD Forecast - FAR	Accuracy (L)	3.75	97.20%	98.64%	5	98.79%	5	Excellent	🟡
	Accuracy (V)	3.75	93.00%	89.70%	2	94.50%	4	Very Satisfactory	⬆️
DAP Forecast - MAPE	Accuracy (L)	2.5	1.60%	1.36%	4	1.31%	4	Very Satisfactory	🟡
	Accuracy (V)	2.5	2.20%	2.00%	4	2.20%	4	Very Satisfactory	🟡
D. Dispatch Scheduling and Pricing									
RTD Workflow	Successful Run	2.5	99.75%	100%	5	100%	5	Excellent	🟡
RTX Workflow	Successful Run	2.5	99.75%	100%	5	100%	5	Excellent	🟡
Pricing Errors and Market Re-runs	Timeliness (Prelim)	2	98.50%	99.17%	4	99.50%	5	Excellent	⬆️
	Timeliness	3	99.50%	100%	5	99.92%	5	Excellent	🟡

Category	Measure	Weight (%)	Target	2016		2017			Y-O-Y (Score)
				Actual	Score	Actual	Score		
	(Final)								
Market Intervention Attributable to MO	Duration	10	≤ 14	16	2	4	5	Excellent	⬆️
E. Billing, Settlements and Accounts Management									
Preliminary and Final Settlement Statements	Timeliness	2	98%	100%	5	100%	5	Excellent	🔴
Preliminary Settlement Calculations	Accuracy	2	95%	98.27%	4	99.19%	5	Excellent	⬆️
Final Settlement Calculations	Accuracy	3	99%	99.92%	5	99.97%	5	Excellent	🔴
	Frequency	2	≤ 6	1	5	1	5	Excellent	🔴
Meter Data Error Detection	Timeliness	2	98%	100%	5	100%	5	Excellent	🔴
Monetary Transactions	Efficiency	1	0 amount late	0 amount late	5	0 late	5	Excellent	🔴
	Timeliness	1	0 days late	0 days late	5	0 late	5	Excellent	🔴
Margin Call	Timeliness	1	95%	100%	5	100%	5	Excellent	🔴
Default Notice	Timeliness	1	0 days late	0 days late	5	0 late	5	Excellent	🔴
F. Registration and Customer Relations									
Registration	Timeliness	2	95%	96.67%	4	99.81%	4	Very Satisfactory	🔴
Customer Switching	Timeliness	1	95%	100%	5	100%	5	Excellent	🔴
Participant Training	Timeliness	2	95%	100%	5	100%	5	Excellent	🔴
	Feedback	1	90%	94.80%	4	96.82%	5	Excellent	⬆️
Participant Queries and Data Requests	Timeliness	2	95%	100%	5	100%	5	Excellent	🔴
Participant/ Customer Complaints	Timeliness	2	95%	98.51%	4	100%	5	Excellent	⬆️
Over-All Score					3		4	Very Satisfactory	⬆️

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1. Introduction

This 2017 Annual Market Operator (MO) Performance Report provides the results of the monitoring and assessment of the Market Operator's performance for the period 26 September 2016 to 25 September 2017 (4Q 2016 – 3Q 2017). This report also provides the recommendations to enhance the Market Operator Performance Standards (MOPS) and MO performance, and the corresponding PEMC action plans.

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 MO with respect to its responsibilities under 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.

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.

This report is organized as follows:

- Section 2 provides an overview of the MOPS. It also 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), PEM Audit Committee (PAC), PEM Board, and Department of Energy (DOE).
- 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. Comparative ratings for the years 2014 to 2017 are also described.
- The overall MO performance for the year is provided in Section 4.

MAG monitors the performance of the MO in accordance with Section 10.2 of the MOPS.

2. Monitoring and Reporting

2.1. Performance Standards

The MOPS was initially approved by the PEM Board on 25 May 2011,¹ 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 DOE on 12 November 2013² that provided the basis for the MO's performance in 2014.

This 2017 annual report, and those for 2015 and 2016, are based on the MOPS as amended and approved by the PEM Board on 22 January 2015³ and the DOE on 06 October 2015.⁴ The current MOPS cover the responsibilities of PEMC as the MO and Central Registration Body (CRB) of the retail market.

The MO performance standards are classified into six (6) categories with corresponding weights, 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% |

2.2. Monitoring Timeline

The monitoring timeline is concurrent with the monthly WESM billing and settlement timetable, i.e. beginning every 26th day of each month and ending on the 25th day of the next month, and begins every 26th of September of the previous year to the 25th of September of the current year. Provided in Table 1 are the billing months covered in each monitoring period since 2014.

Table 1. Monitoring Periods, 2014 to 2017

Year (YR) / Quarter (QTR)	Q1	Q2	Q3	Q4
2014	26 September 2013 - 25 December 2013 (4Q 2013)	26 December 2013 - 25 March 2014 (1Q 2014)	26 March 2014 - 25 June 2014 (2Q 2014)	26 June 2014 - 25 September 2014 (3Q 2014)
2015	26 September 2014 - 25 December 2014 (4Q 2014)	26 December 2014 - 25 March 2015 (1Q 2015)	26 March 2015 - 25 June 2015 (2Q 2015)	26 June 2015 - 25 September 2015 (3Q 2015)

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

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

³ PEM Board Resolution No. 2015-03

⁴ DOE Letter dated 06 October 2015 (DOE-ZYM-15000176) received by PEMC on 27 October 2015

Year (YR) / Quarter (QTR)	Q1	Q2	Q3	Q4
2016	26 September 2015 - 25 December 2015 (4Q 2015)	26 December 2015 - 25 March 2016 (1Q 2016)	26 March 2016 - 25 June 2016 (2Q 2016)	26 June 2016 - 25 September 2016 (3Q 2016)
2017	26 September 2016 - 25 December 2016 (4Q 2016)	26 December 2016 - 25 March 2017 (1Q 2017)	26 March 2017 - 25 June 2017 (2Q 2017)	26 June 2017 - 25 September 2017 (3Q 2017)

2.3. Data Collection and Validation

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

2.4. Evaluation and Reporting

The scoring system under Section 9 of the MOPS provides the specific range of raw scores corresponding each score per category and the basis for the quantitative evaluation of the MO's performance (see Appendix A). Provided below is the score guide for each level of performance from highest to lowest:

Table 2. Score Guide

Score	Description
5	Excellent
4	Very Satisfactory
3	Satisfactory
2	Needs Improvement
1	Poor

The monitoring results are presented to relevant PEMC Departments, the PEMC Management, and PAC. These monitoring reports are submitted on a quarterly and annual basis to said parties, to the PEM Board and DOE. Further, the annual monitoring report is published in the WESM website and is subject to independent review by the external auditor engaged to conduct the periodic operational audit on the MO.⁵

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

⁵ The 2014 Annual MOPS Report was audited during the 5th Independent Market Operations Audit in 2015. The 2015 and 2016 Annual MOPS Reports have been audited during the 6th Independent Market Operations Audit in 2017.

3. Categories and Ratings

3.1. IT Systems

IT systems cover the availability to market participants of the Market Management System (MMS) and the public WESM website. Table 3 provides the summary of how the MO fared under the measures in this category.

Table 3. IT Systems Performance Ratings

Section	Sub-Category	Target		Actual		Score
3.1.1	Market Management Systems Availability	99.80%	8,742.48 hrs out of 8,760 hrs	99.99%	8,759.42 hrs; 0.15 hrs downtime	5
3.1.2	WESM Website Availability	99.50%	8,716.20 hrs out of 8,760 hrs	99.99%	8,758.95 hrs; 1.05 hrs downtime	5

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

Participants' complaints or concerns regarding these systems are reported to the MO 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 an in-house developed integrated online tool.⁶ In addition, PEMC's WESM Compliance Officer (WCO) reviews these concerns and reports valid complaints under the MOPS (See Section 3.6.5, Participant/Customer Complaints).

3.1.1. Market Management System

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

Aside from the MMS components, including its secured website, or Market Participant Interface (MPI), the availability of the Wholesale Billing and Settlement

⁶ The IT Service Management System replaced the Work Order, Incident Report, Monitoring Logs and Participant Information System (WIMPSys).

System (WBSS) website,⁷ 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).

Monitoring Results

A total of 0.58 hours (35 minutes) downtime were recorded in 2017 as summarized below.⁸

Table 4. MMS Downtimes

Incident	Hours / Minutes	No. of Incidents
MPI inaccessible due to the high utilization of bandwidth of the Dedicated Leased Line (DLL) from Ortigas to Diliman.	0.20 / 12	1
Restarting of the MPI application to resolve lost connection to Oracle database	0.05 / 3	1
Restarting of the MPI application to resolve an MPI application error	0.33 / 20	10
Total	0.58 / 35	12

The MPI was inaccessible due to the high utilization of bandwidth of the Dedicated Leased Line (DLL) from Ortigas to Diliman on 19 January 2017. The incident was resolved by using the backup DLL and restarting the MPI application.

Majority of the MMS downtimes in 2017 were caused by the restarting of the MPI application that is manually initiated by the MO to resolve errors. While the various errors (e.g. related to MMS applications and database) do not by themselves cause the MPI to be inaccessible, the restarting of the MPI application to reboot the MMS rendered it inaccessible for about two (2) minutes. This could be likened to restarting a laptop when an application hangs.

The restarting of the MPI application has been the solution when there is an increasing number of internet authentication service (IAS) connections. Restarting the MPI, and thus making the MPI unavailable for 2 minutes, was the preemptive measure undertaken by the MO to prevent prolonged downtimes when the MPI access becomes restricted due to the large number of IAS connections. Even with this inherent system limitation, there were no noted IAS-related downtime in 2017, as provided in Figure 1 and Table 5 below.

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

⁸ Details of MMS downtimes are provided in Appendix B.1

Figure 1. MMS Downtimes, 2014 to 2017

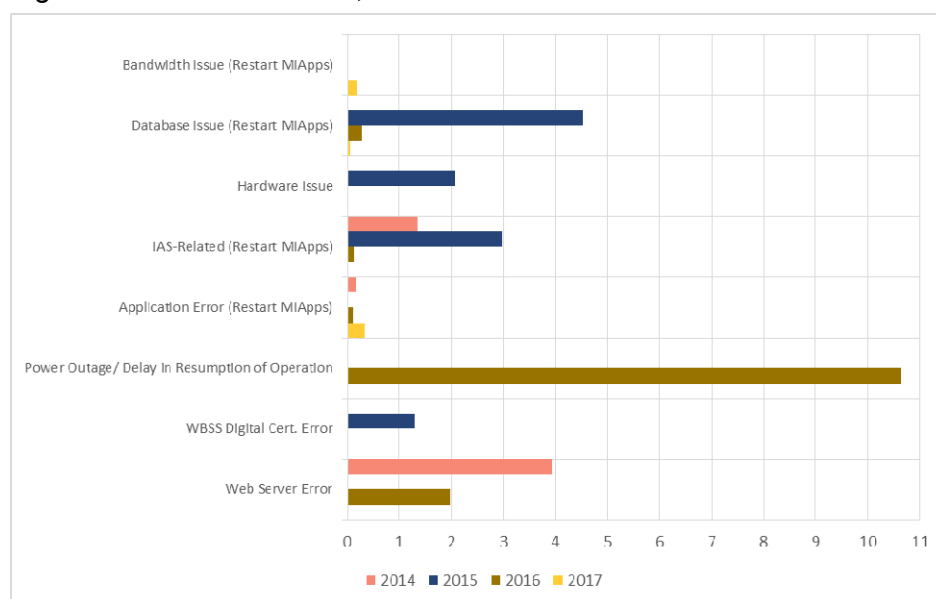


Table 5. MMS Downtimes (in hours), 2014 to 2017

Incidents	2014	2015	2016	2017	Total
Web Server Error	3.93		1.97		5.90
WBSS Digital Cert. Error		1.30			1.30
Power Outage/ Delay in Resumption of Operation			10.65		10.65
Application Error (Restart MIApps)	0.17		0.12	0.33	0.62
IAS-Related (Restart MIApps)	1.35	2.98	0.13		4.46
Hardware Issue		2.07			2.07
Database Issue (Restart MIApps)		4.53	0.28	0.05	4.86
Bandwidth Issue (Restart MIApps)				0.2	0.20
Total	4.10	10.88	13.15	0.58	28.71

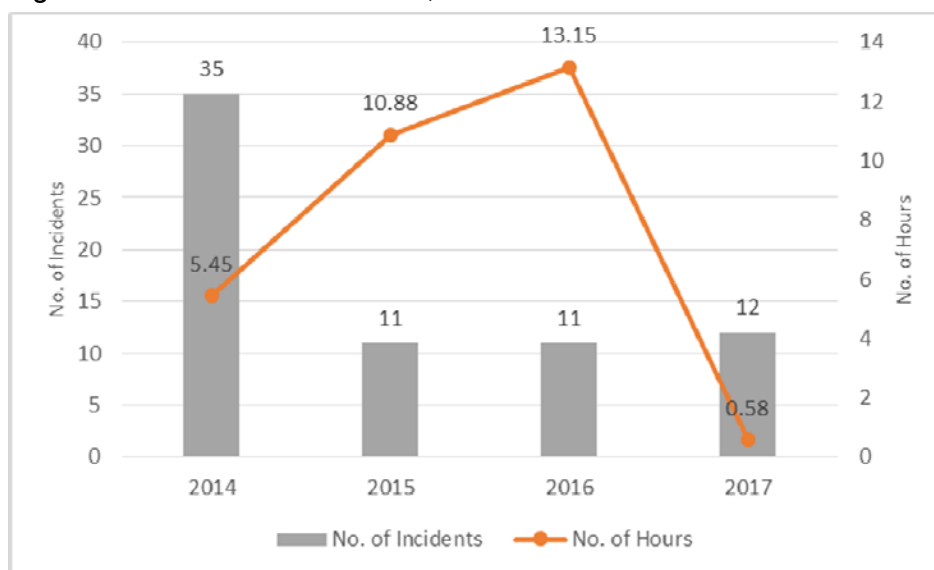
Noteworthy is the non-recurrence in 2017 of power outage, which caused the longest downtime of 10.65 hours in 2016. It could be recalled that the loss of power of the uninterruptible power supply (UPS) of the MMS and the delay in the resumption of market operations in the emergency back-up site (EBS) resulted in the prolonged MMS downtime from 4:30 AM to 3:09 PM on 27 March 2016. Due to said incident, the MO upgraded the UPS and enhanced its business continuity plan (BCP) and disaster recovery plan (DRP) procedures⁹.

Likewise, there were no downtimes of the WBSS website in 2017. While there were complaints regarding the WBSS website, the system was still available through other web servers.

In total, there is a significant decrease in the duration of downtimes from 2014, as provided in Figure 2. On the other hand, the number of incidents went up slightly as compared to 11 in 2015 and 2016 to 12 this year.

⁹ Ongoing development of IT Emergency Procedure by 3rd party consultant

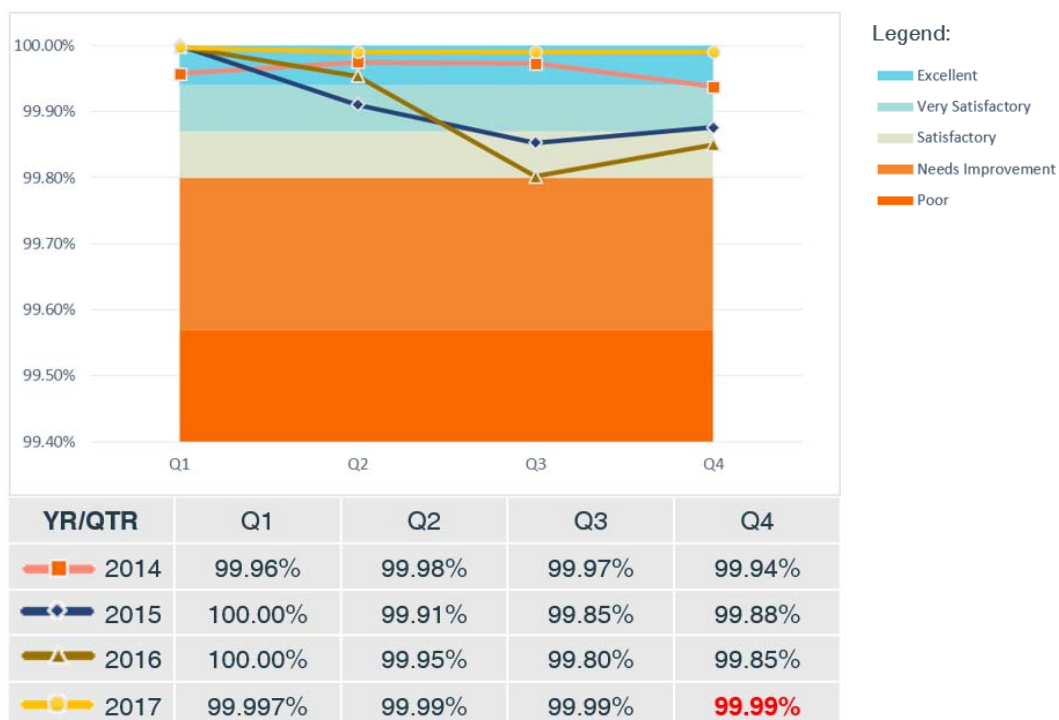
Figure 2. Total MMS Downtimes, 2014 to 2017



Unavailability of the MMS that was caused by third party service providers, such as electricity supply and communication link providers of PEMC, were excluded.

Considering the above-noted downtimes, the year-to-date (YTD) availability rating of the MMS for each quarter are provided in Figure 3. The MMS availability in 2017 is the highest rating since 2014 at 99.99%.

Figure 3. MMS Availability (YTD), 2014 to 2017



3.1.2. Public WESM Website

The public WESM website, or the Market Information Website (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 provides extensive information about PEMC, the WESM and Retail Competition and Open Access (RCOA), market operations and governance. It also makes available market data and operational reports, registration and training information, and various documents, including the relevant laws, issuances, rules, and manuals.

The public WESM website also contains relevant publication such as news, notices, announcements, and information on events. It also has a platform, i.e. Ticketing System, wherein inquiries, concerns, and even complaints can be made electronically by any interested party.

In measuring its availability, downtimes refer to incidents when the public WESM website is not accessible due to errors caused by the MO's internal system and processes. Those attributed or caused by third parties are excluded since these are beyond the MO's control.

Monitoring Results

A total of 1.05 hours (63 minutes) downtime were recorded in 2017 as summarized below.¹⁰

Table 6. Public Website Downtimes

Incident	Hours / Minutes	No. of Incidents
Network configuration problem	0.80 / 48	1
Hardware related issues	0.25 / 15	2
Total	1.05 / 63	3

The largest downtime, at 0.80 hours, is attributable to network configuration problem, which was resolved by using the backup system of the public WESM website while reconfiguring the network of the primary server. This is the first instance of such type of issue to occur since 2014.

Downtimes due to hardware issues were again experienced in 2017 but with shorter total duration at 0.25 hours as compared to those seen in 2015 and 2016, at 1.55 hours and 9.52 hours, respectively, as provided in Figure 4 and Table 7 below.

¹⁰ Details of public WESM website downtimes are provided in Appendix B.2

One incident is due to high central processing unit (CPU) usage and server loading, which was resolved by restarting the server and reconfiguring the server application. The other incident that is attributed to hardware issue is the downtime caused by a defective cable, which was resolved by replacing the said hardware. The implementation of the MO's enhanced detailed work instruction in resolving hardware and software issues contributed to the decrease in the occurrence of such incidents.

Figure 4. Public Website Downtimes (in hours), 2014 to 2017

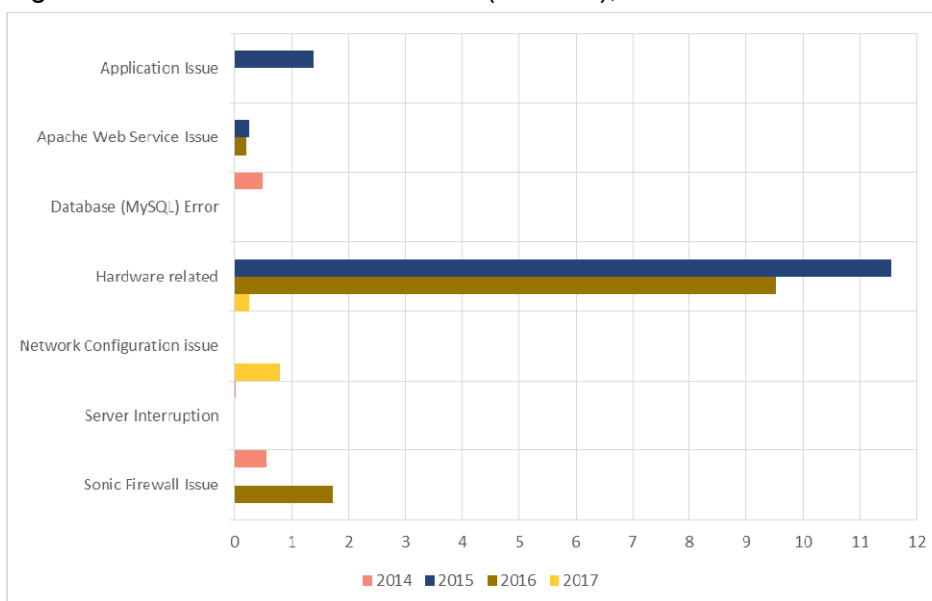


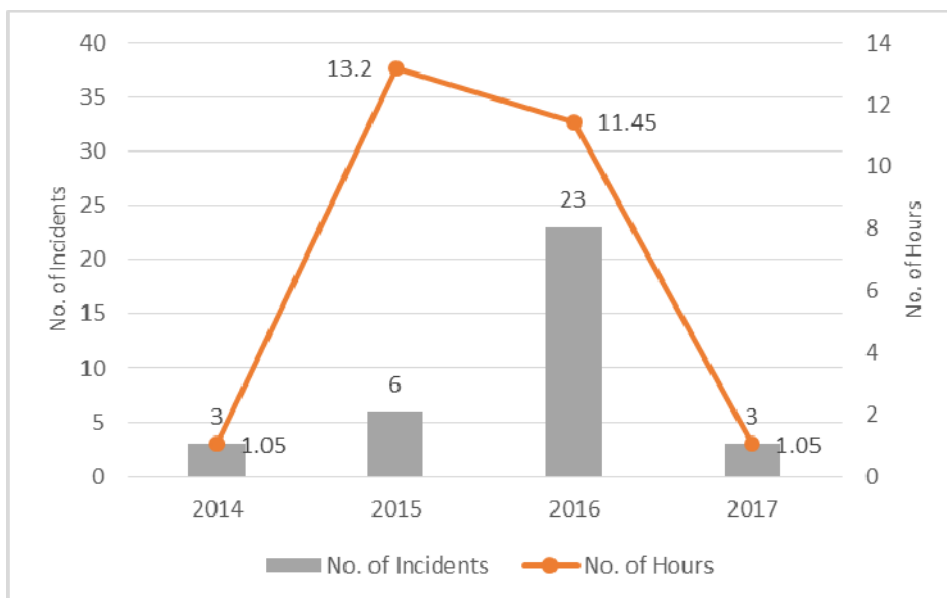
Table 7. Public Website Downtimes (in hours), 2014 to 2017

Incidents	2014	2015	2016	2017	Total
Sonic Firewall Issue	0.55		1.73		2.28
Server Interruption	0.02				0.02
Network Configuration issue				0.80	0.80
Hardware related		11.55	9.52	0.25	21.32
Database (MySQL) Error	0.48				0.48
Apache Web Service Issue		0.25	0.20		0.45
Application Issue		1.40			1.40
Total	1.05	13.20	11.45	1.05	26.75

As presented above, downtimes due to firewall issue, server interruption, database errors, web service and application issues did not recur in 2017.

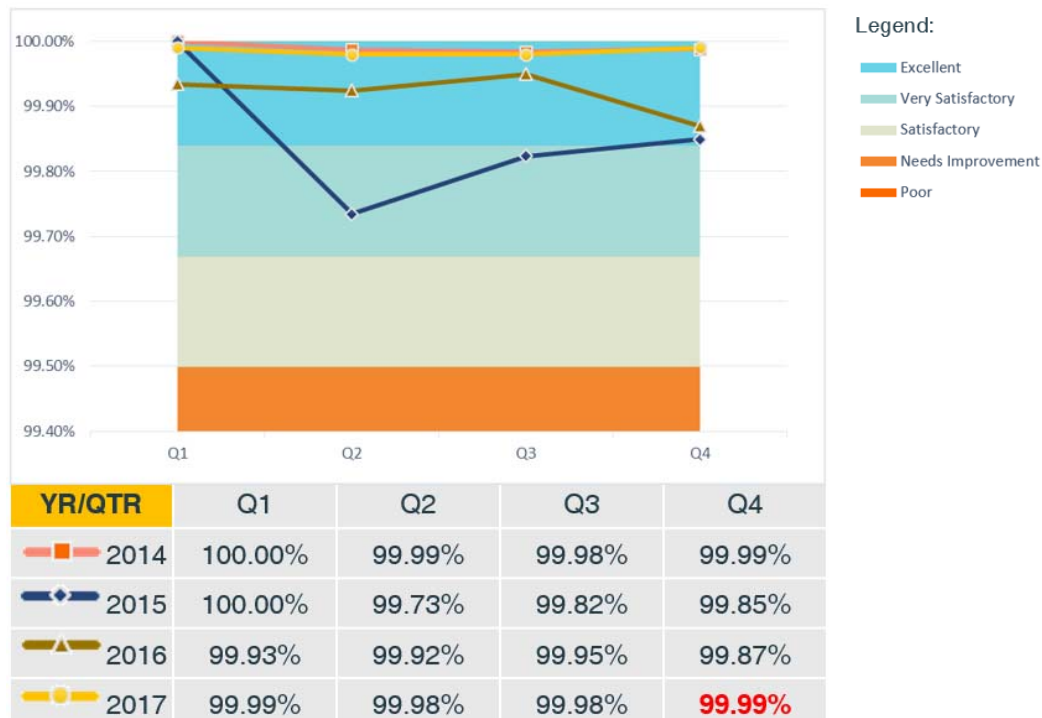
In total, there is a significant decrease in the duration of downtimes, as provided in Figure 5, from 13.2 hours in 2015 to 1.05 hours in 2017. On the other hand, there is a decrease in the number of incidents, from 6 instances in 2015, 23 in 2016, to three (3) in 2017. The levels in 2017 for both number of incidents and hours are equivalent to those in 2014.

Figure 5. Total Public Website Downtimes, 2014 to 2017



Considering the above-noted downtimes, the YTD availability rating of the public WESM website for each quarter are provided in Figure 6. The public WESM website availability in 2017 is the highest rating since 2014 at 99.99%.

Figure 6. Public WESM Website Availability (YTD), 2014 to 2017



3.1.3. Recommendations and Actions Plans

The availability of IT systems are currently monitored based on complaints from internal and external users. It is recommended that the MO implement an automatic monitoring of system availability.

To do so, PEMC will review the license of the new MMS monitoring tool to determine whether it may be extended to monitor corporate systems, specifically, the public WESM website.

Further, it is noted that the following activities are currently implemented to mitigate the occurrence of MMS and public WESM website downtimes:

- Continuing coordination in addressing, resolving and reporting participant complaints.
- Continuing monitoring of the number of IAS connections in relation to the inherent limitations of the MMS as one of the factors causing availability issues.
- Review monitoring criteria for MMS availability in relation to the implementation of the new MMS.

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 information¹¹, for the purposes of this MOPS monitoring, publication of market reports and data is interpreted to being made through the public WESM website, MPI, email, and newspaper of general circulation, as applicable. Note that publications through file transfer protocol (FTP) are monitored internally.

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 latter are those with a prescribed timeline for publication in corresponding enabling rules/guidelines. On the other hand, reports or data are considered available once published, including those that have remained unchanged since its first publication (such as WESM Manuals, e.g. procedures regarding constraint violation coefficients).

The summary on how the MO fared in this category is provided in Table 8. Publications excluded from the monitoring for availability and timeliness are shown in Table 9.

Table 8. Market Reports and Data Publication Performance Ratings

Section	Sub-Category	Details	Target	Actual	Score
3.2.1	Availability	45 publications (38 rated, 7 excluded)	95%	99.998%	4
3.2.1	Timeliness	33 publications (26 rated; 7 excluded)	95%	98.22%	4

¹¹ Publication is also done via data sharing or file transfer facility to market participants who have availed of this paid service. Data sharing or file transfers of MMS-generated and other market data and/or reports are provided to the monitoring systems of the DOE and ERC.

Table 9. List of Market Information Excluded in the Rating

Required Publication (Reference Rules/Manuals)	Reason for Exclusion (in Measure)
1. Suspension Notice	No suspended WESM Participant in 2017. (Availability)
2. Notice of Deregistered WESM Participants	No deregistered WESM Participant in 2017. (Availability and Timeliness)
3. Formulation of the Market Dispatch Optimization Model (MDOM)	Price Determination Methodology (PDM) published since 2Q 2012, particularly when the new public WESM website was launched. (Timeliness)
4. Real-Time System Condition or SO Advisory	Automated publication of data as soon as received from the SO. (Availability and Timeliness)
5. SO Advisory (Updated Daily or upon availability of verified/ complete information)	
6. Substitute prices for congestion-related pricing errors in the MPI near real-time	Not applicable since the MO has to analyze congestion relation pricing errors and publishes results within two (2) working days after the relevant trading day. (Availability and Timeliness)
7. Substitute prices for congestion-related pricing errors in the WESM website daily	Already covered in other publications. (Availability and Timeliness)
8. Other system data: Total energy dispatched, Total dispatchable load, Total reserve required per time point (for each class and area), Total system losses, Reserve requirements, Locational marginal prices	

3.2.1. Availability of Market Reports and Data

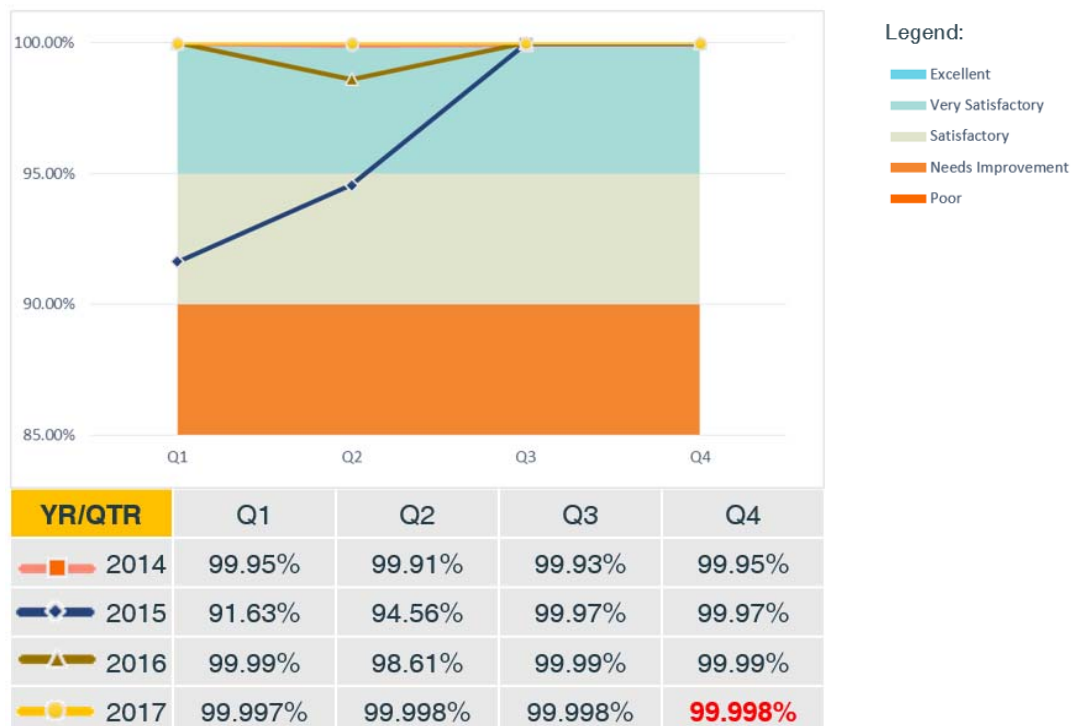
Availability pertains to the actual number of publications against the total number of required publications for each of the 38 publications monitored. The average of the availability ratings for the 38 publications provides the basis for rating this measure, such that regardless of the volume of the published market information, all 38 publications have equal weights.

Monitoring Results

The availability rating for 2017 is at 99.998%, which is slightly higher than the ratings in previous years, as provided in Figure 7. While this is a very high rating, note that the MO will only be rated Excellent for this measure at a score of 100%. All 38 publications¹² rated above 90%, which is the lowest rating in the satisfactory range for this measure.

¹² Details of publications are provided in Appendix C

Figure 7. Availability of Market Reports and Data (YTD), 2014 to 2017



3.2.2. Timeliness of Market Reports and Data Publication

Timeliness of market information publication refers to the MO's compliance to the required timing of publication of market information in accordance to the schedules under the WESM Rules, Manuals, internal procedures or the MOPS document. Similar to the calculation of availability in Section 3.2.1, timeliness pertains to the actual number of timely publications against the total number of required publications for each of the 26 publications monitored. The average of the timeliness ratings for the 26 publications provides the basis for rating for this measure, such that regardless of the volume of the published information, all 26 publications have equal weights.

Monitoring Results¹³

The publications with ratings below the target are as follows:

- (1) Summary of Pricing Error Notice (PEN) Issuance; and
- (2) Summary of Price Substitution Methodology (PSM) Issuance

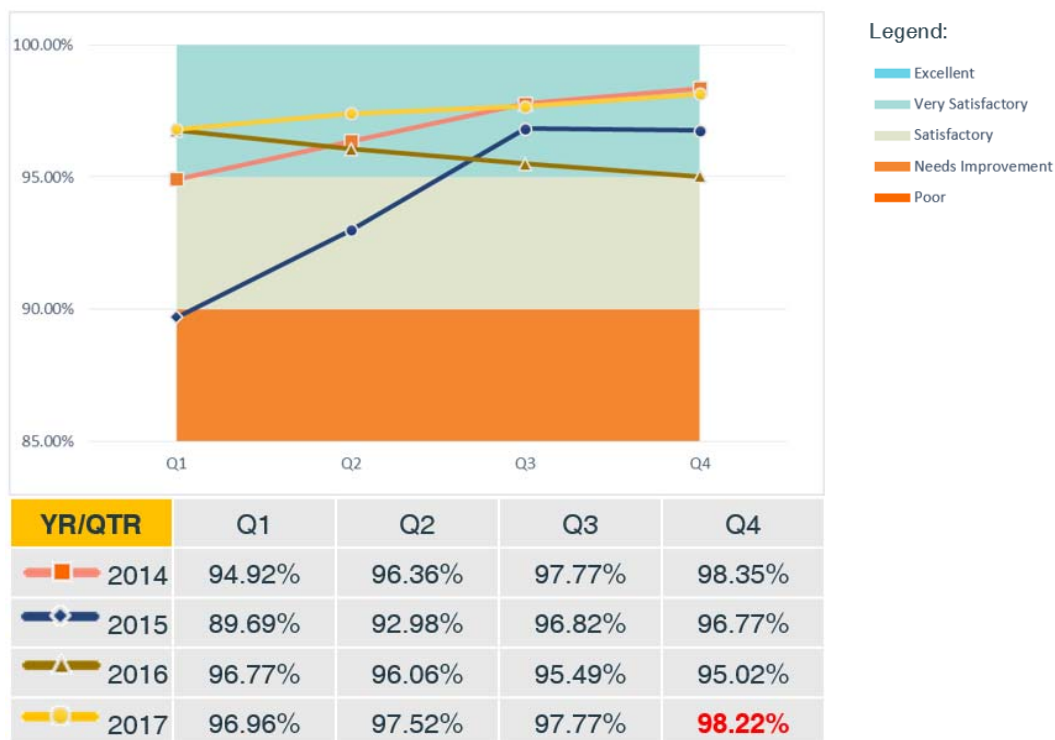
¹³ Details of publications are provided in Appendix C

Under the Market Manual on PEN issuance,¹⁴ PENs should be published within 2 business days after the trading day. Similarly, PSM prices are required to be published within 2 business days after the trading day under the Market Manual¹⁵ on PSM issuance. However, actual publications of these market information follow a timeline based on 2 working days, which considers weekends and holidays.

To reflect the actual timelines of publication, PEMC submitted proposed changes to the said Market Manuals on 19 October 2016 to the Rules Change Committee (RCC).¹⁶ The proposal changes the publication timelines from 2 business days to 2 working days. The DOE-approved amended timelines became effective on 15 May 2017.¹⁷

The over-all timeliness rating of market reports and data in 2017 is 98.22%, as shown in Figure 8. This is greater than the timeliness ratings for the last 2 years. Note that the MO will only be rated Excellent for this measure at a score of 100%.

Figure 8. Timeliness of Market Reports and Data (YTD), 2014 to 2017



¹⁴ Criteria and Guidelines for the Issuance of Pricing Error Notices and Conduct of Market Re-Run, Issue 1

¹⁵ Methodology for Determining Pricing Errors and Price Substitution due to Congestion for Energy Transactions in the WESM, Issue 4

¹⁶ PEMC Proposed Amendments To The WESM Manuals On Pricing Error Notice And Price Substitution Methodology - Discussion Paper (ORCP-WM-16-23)

¹⁷ DOE DC 2017-03-0001 dated 20 March 2017 - Adopting further amendments to the wholesale electricity spot market (WESM) rules and market manuals for the implementation of enhancements to WESM design and operations (Provisions for Price Determination Methodology and Constraint Violation Coefficients and Pricing Re-run)

3.2.3. Recommendations and Action Plans

A review of the public WESM website and publications therein indicate that some web pages provide outdated or incomplete information. As discussed with the process owners, it is recommended that the contents of the public website be reviewed to ensure that information, even those that are not being monitored under the MOPS, are available are complete, clear, and up to date.

The recommendations made in the 2016 MO Performance Annual Report are also reiterated, as follows:

1. Ensure that process objectives in the internal business procedures provide the publication timelines which are consistent with the requirements under the WESM Rules and Manuals.
2. 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%).

It has also been observed that while notifications on the cessation of memberships is being implemented as required under WESM Rule 2.6.3, it is not being monitored under the MOPS. Further to item 2 above, it is recommended that the inclusion the Notice of the Cessation of Membership in the publications to be monitored be considered in the next review and revision of the MOPS.

3.3. Forecast Accuracy

As cited in the 4th 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).

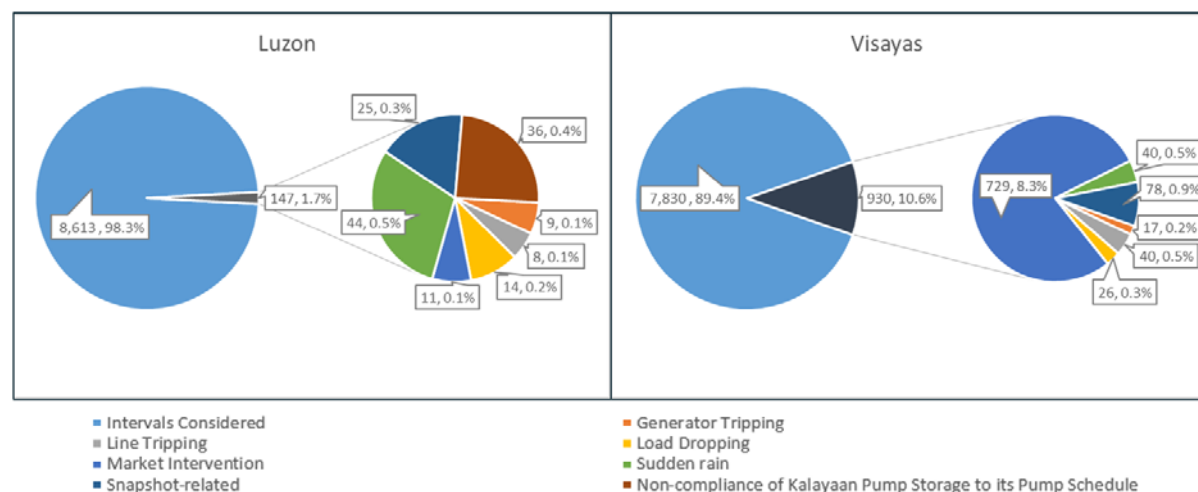
As provided in the MOPS, however, only the DAP and RTD projections shall be measured as to their accuracy. The RTD accuracy is measured in terms of Mean Absolute Percentage Error (MAPE) and Forecast Accuracy Rate (FAR) while the DAP accuracy is measured with the MAPE only. Both RTD and DAP are measured per region, i.e. Luzon and Visayas. The ratings for these sub-categories are provided in Table 10.

Table 10. Forecast Accuracy Performance Ratings

Section	Sub-Category	Target	Region	Actual	Score
3.3.1	RTD Forecast - MAPE	0.95%	Luzon	0.80%	4
		1.20%	Visayas	1.14%	4
	RTD Forecast - FAR	97.20%	Luzon	98.79%	5
		93.00%	Visayas	94.50%	4
3.3.2	DAP Forecast - MAPE	1.60%	Luzon	1.31%	4
		2.20%	Visayas	2.20%	4

The assessment of forecast accuracy in this report considered exclusions that were provided in the MOPS. Out of the 8,760 total intervals, 8,613 intervals were considered for the purpose of this monitoring of the forecast accuracy in Luzon while 7,830 were considered in Visayas. Figure 9 provides the number of trading intervals considered and excluded in the monitoring of forecast accuracy.

Figure 9. Trading Intervals Considered and Excluded in 2017



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.¹⁸ 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 59,¹⁹ 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 $\pm 3\%$.

Monitoring Results

As provided in Figure 9, the Luzon RTD-MAPE has been consistently within the Very Satisfactory range since 2015. For 2017, the raw score is at 0.80%, which is the same level in 2016 and a bit lower than the MAPE in 2015 at 0.79%.²⁰

¹⁸ Previously, hourly load forecasts that are inputs to the MMS (LDF or LDP) were used, in accordance with the MOPS, Issue 1.0.

¹⁹ In the absence of 59th minute snapshot data, the 54th minute snapshot data before the target hour or the 4th 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.

²⁰ 2014 RTD-MAPE ratings are not provided in Figures 10 and 11 since these were based on a different rating system under the previous MOPS version (2013).

Figure 10. RTD-MAPE (YTD) for Luzon, 2015 to 2017

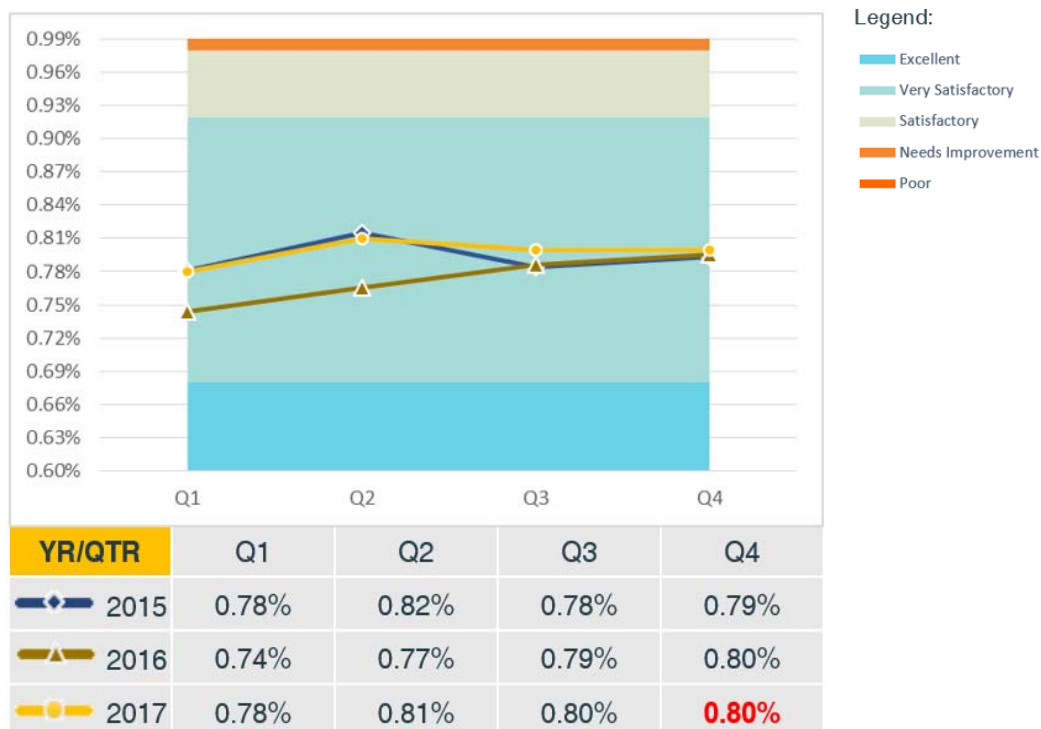
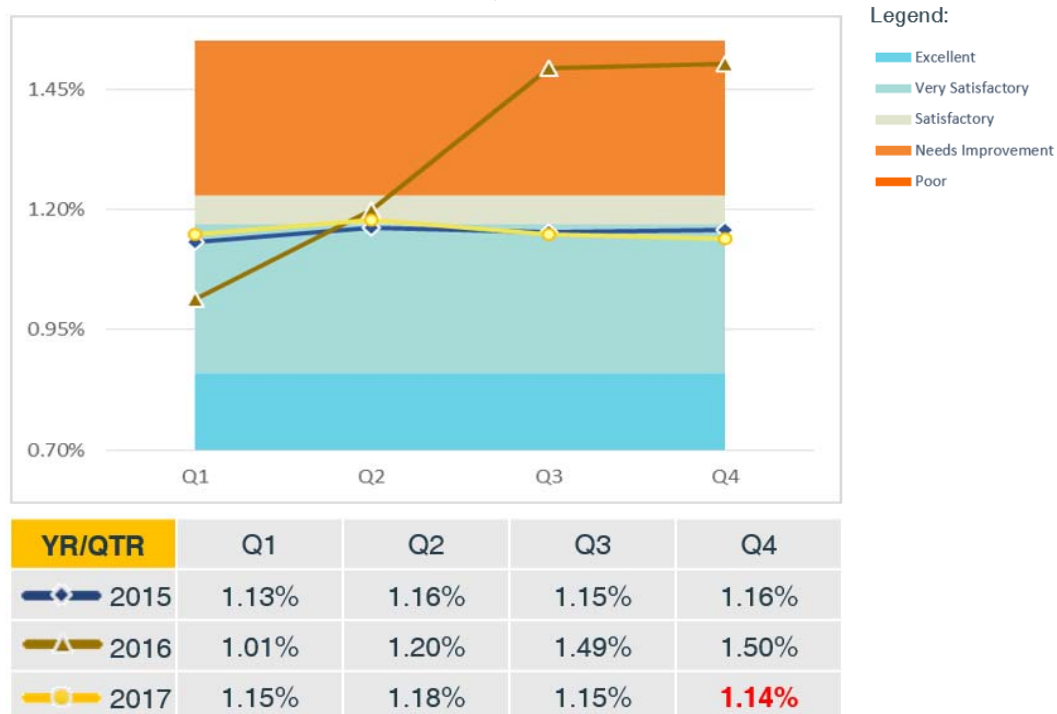


Figure 11. RTD-MAPE (YTD) for Visayas, 2015 to 2017



On the other hand, Figure 11 shows that the RTD-MAPE in Visayas in 2017 is at 1.14%, which is significantly higher than the rating last year at 1.50%. It could be recalled that this measure had a decreasing trend in 2016 due to the occurrence of

negative losses, which started to occur in February 2016. The issue was resolved after a software patch was deployed in September 2016. Thereafter, the RTD-MAPE for Visayas improved.

Of the 8,613 intervals considered in Luzon and 7,830 intervals considered in Visayas, there were 104 and 431 intervals, respectively, that had RTD forecasts beyond the +/- 3% MAPE tolerance level.

As provided in Figure 12 and Figure 13, this resulted to RTD-FARs of 98.79% and 94.50% in Luzon and Visayas, respectively. The rating for Luzon has consistently been in the lower bounds of the Excellent range since 2015. On the other hand, the RTD-FAR in Visayas has greatly improved as compared in 2016, which only rated at 89.70% (Needs Improvement).

Figure 12. RTD-FAR (YTD) for Luzon, 2015 to 2017

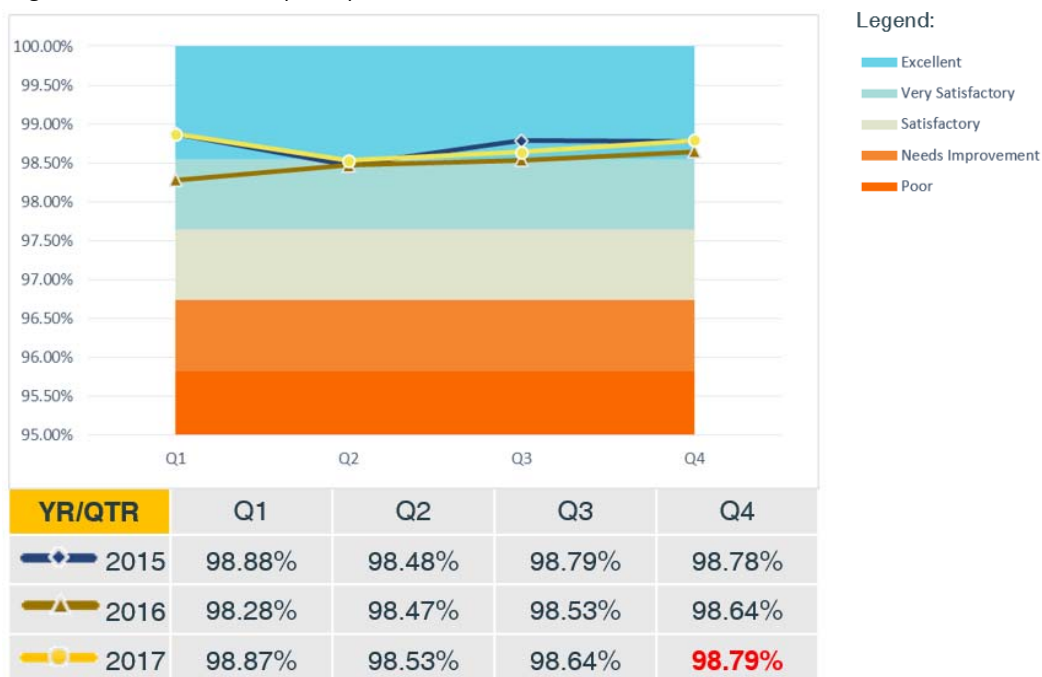
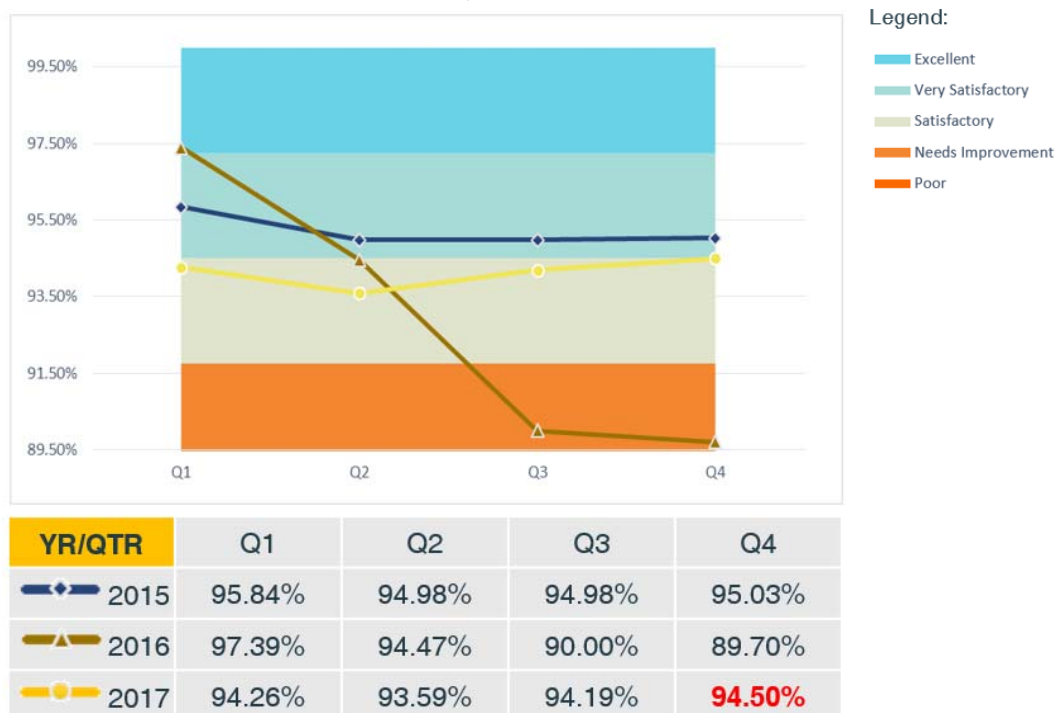


Figure 13. RTD-FAR (YTD) for Visayas, 2014 to 2017



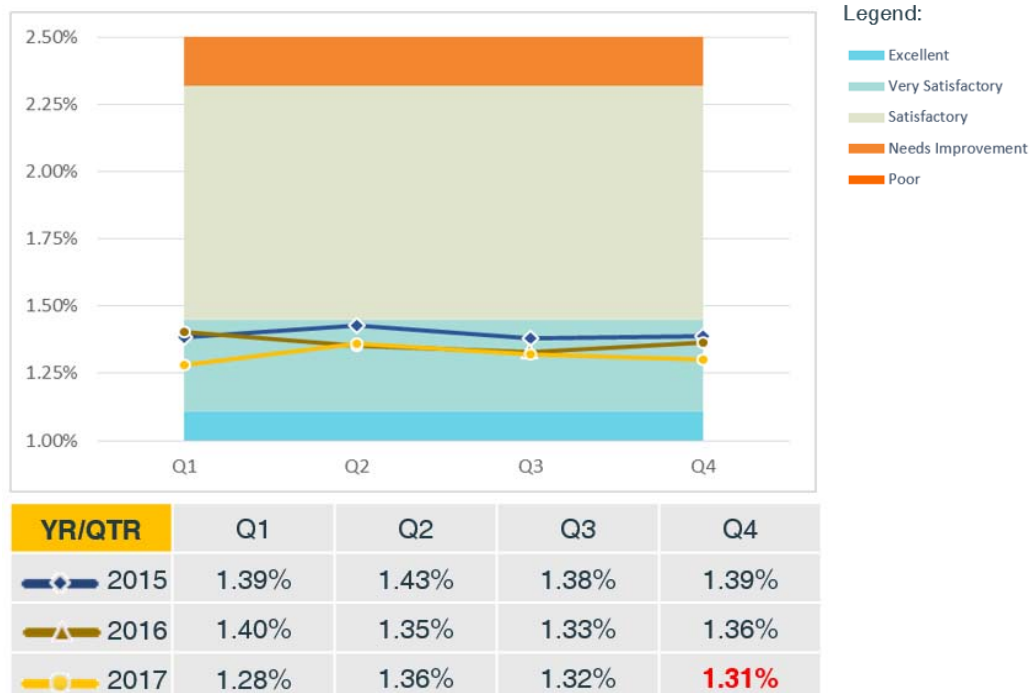
3.3.2. DAP Forecast

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. Similar 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. Further the same exclusions in the RTD forecasts are applied in the DAP forecasts.

Monitoring Results

As provided in Figure 14, the DAP-MAPE ratings for Luzon was maintained in the Very Satisfactory range with the rating for the year at 1.31%, which is the highest year-end rating since 2015.

Figure 14. DAP-MAPE (YTD) for Luzon, 2015 to 2017



On the other hand, the lowest year-end rating for DAP-MAPE in Visayas was recorded in 2017 at 2.20% since 2015. As shown in Figure 15, however, this is well within the Very Satisfactory range.

Figure 15. DAP-MAPE (YTD) for Visayas, 2015 to 2017



3.3.3. Recommendation and Action Plan

To reiterate the recommendation made in the 2016 MO Performance Annual Report, the implementation of nodal forecasting, which has been consistently advocated in the MO audit reports, is recommended to further enhance market operations.

As this is one of the enhancements directed by the DOE to improve WESM design and operations under DOE Circular 2015-10-0015,²¹ the MO has considered this in the design of the new MMS, which development is ongoing.

²¹ 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 RTD and real-time ex-post (RTX) workflow processes, timeliness of pricing error issuance and the duration of market intervention (MI) attributable to the MO, as provided in Table 11.

Table 11. Dispatch Scheduling and Pricing Performance Ratings

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

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 service providers) are excluded from the calculations. Further, RTD runs with MI attributable to the MO are excluded in the trading intervals considered.

Monitoring Results

The MO maintained a 100% success rate for RTD workflow runs from 2014 to 2017. For the current year, the excluded trading intervals due to the occurrence of market intervention include those attributed to the MO as enumerated in Section 3.4.4.

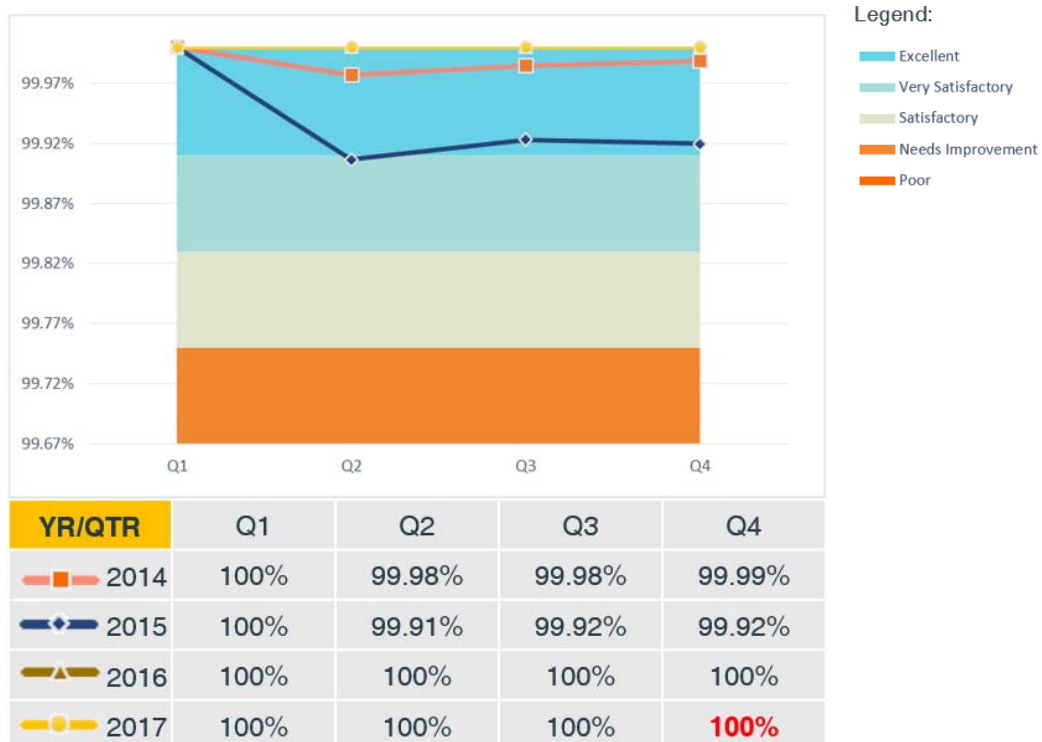
3.4.2. RTX Workflow

The ex-post run or RTX workflow is measured in the same manner as with the RTD workflow process.

Monitoring Results

The MO rated 100% success rate for RTX workflow runs in 2017. Figure 16 provides that the rating for this measure improved from 2015.

Figure 16. RTX Successful Runs (YTD), 2014 to 2017



3.4.3. Pricing Errors and Market Re-runs

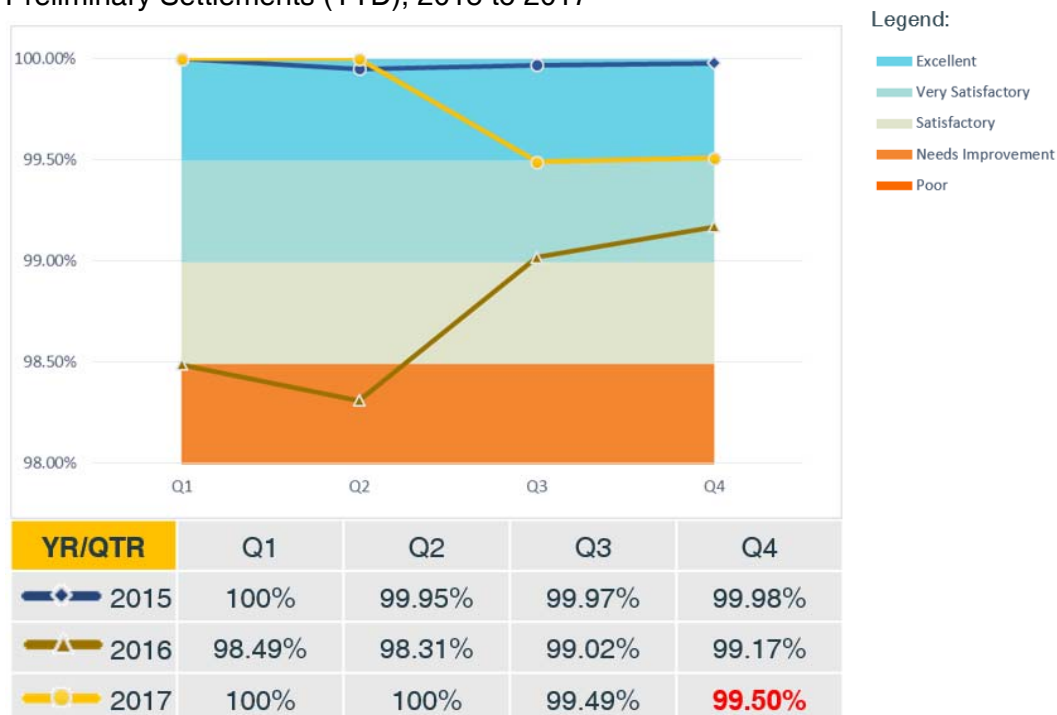
This sub-category particularly refers to the process of validation of intervals with PENs and the timely completion of market re-runs (MRR) prior to the issuance of preliminary and final settlements for Luzon and Visayas.

Monitoring Results

For the submission of prices prior the preliminary settlements, the MO rated 99.50% in 2017, which is higher than the 2016 rating at 99.17%, as provided in Figure 17.²² The slight dip in rating is attributed to the following instances in 2Q 2017 (Q3) and 3Q 2017 (Q4):

- Pricing errors were declared for intervals 0100H to 0300H on 19 June 2017. Verification of offers and correction of RTD and RTX prices in Luzon and Visayas were completed after the preliminary settlement statements were issued; and
- Correction of RTX prices for interval 0700H on 09 September 2017 in Visayas.

Figure 17. Timely Issuance of Pricing Errors and Conduct of Market Re-runs for Preliminary Settlements (YTD), 2015 to 2017



²² The reported rating for this measure in the 2015 MOPS Annual Report is amended from 100% to 99.98% due to corrections in data. In addition, this measure was monitored starting in 2015, thus, there is no rating for this measure in 2014.

As provided in Figure 18, the timeliness rating for the issuance of prices for the final settlements this year is at 99.92%, which is lower than ratings in 2015 and 2016.²³ The decrease in rating this year is attributed to the correction in the following prices in the March 2017 billing period:

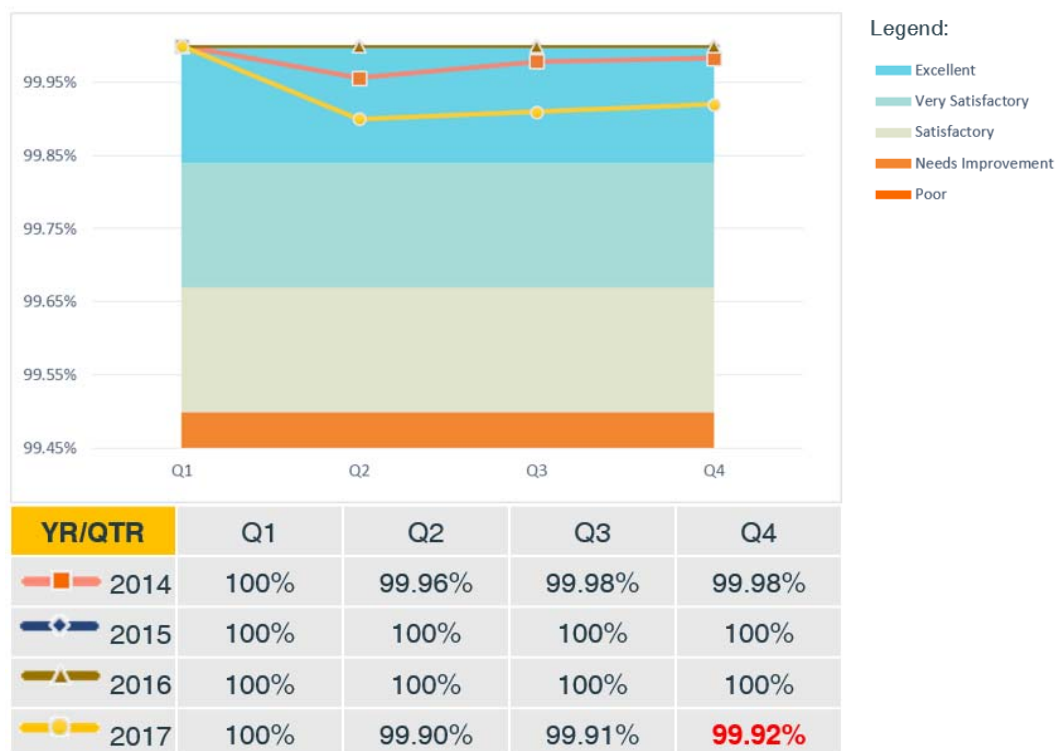
- RTX prices for interval 1100H on 07 March 2017; and
- RTX prices for interval 1200H on 08 March 2017.

The non-identification of pricing error in the first interval and the use of incorrect outage schedule in the market re-run for the latter interval resulted to inaccurate market prices being settled during the Final Settlements for the said billing period.

Due to these changes in prices, the March 2017 statement was reissued on 15 May 2017. It is noted that this adjustment is not included in the measure on the Frequency of Adjustments in Final Statements (see Section 3.5.3) since changes to market prices are excluded from said measure under the MOPS.

To mitigate the recurrence of said errors, the MO implemented enhancements to its market re-run process.

Figure 18. Timely Issuance of Pricing Errors and Conduct of Market Re-runs for Final Settlements (YTD), 2014 to 2017



²³ The reported rating for this measure in the 2015 MOPS Annual Report is amended from 99.98% to 100% due to corrections in data.

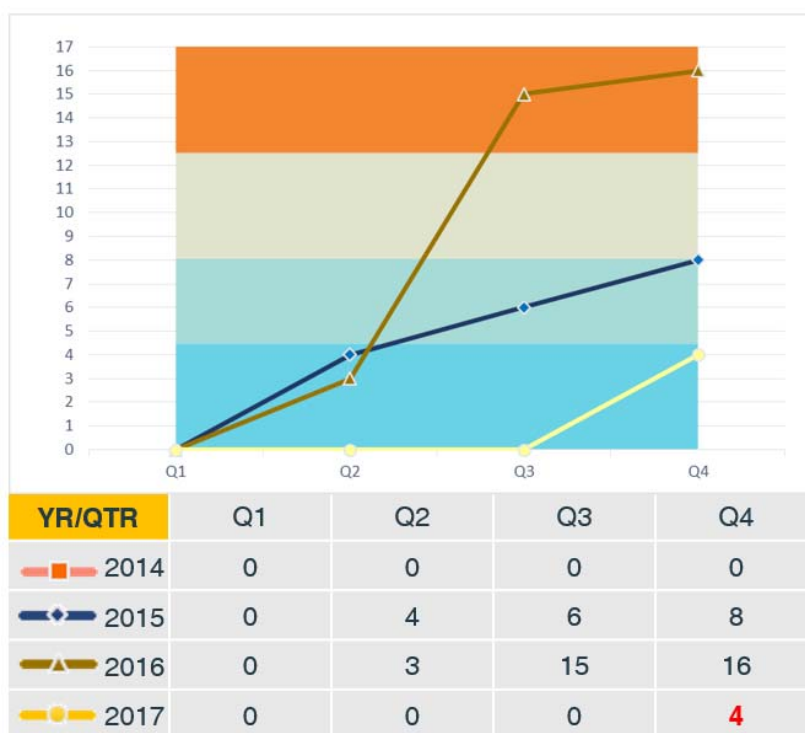
3.4.4. Market Intervention Attributable to MO

The duration or frequency of MIs that are attributable to 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.

Monitoring Results

The market interventions in 2017 that were attributable to the MO occurred on 26 August 2017 from 1100H to 1400H due to workflow stoppage in the MMS. The 4 intervals with MO-attributable MIs is significantly lower than the 16 MIs in 2016, as shown in Figure 19.

Figure 19. Market Intervention Attributable to MO (YTD), 2014 to 2017



3.4.5. Recommendations and Action Plans

As recommended in the 2016 MO Performance Annual Report, it is likewise recommended for the MO to consider the revised market rules for the implementation of enhanced market design and operations, as well as the deployment of the new MMS, in the review of the measures on dispatch, scheduling, and pricing.

In particular, it is recommended to remove the timeliness measures of PEN-MRR because this is an internal process where market prices are inputs to settlement statements. This will then remove the changes to market prices as exclusion in the accuracy of settlement statements.

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 12. Billings, Settlement and Accounts Management Performance Ratings

Section	Sub-Category	Target	Actual	Score
3.5.1	Timeliness of Preliminary and Final Settlement Statements	98%	100%	5
3.5.2	Accuracy of Preliminary Settlement Calculations	95%	99.19%	5
	Accuracy of Final Settlement Calculations	99%	99.97%	5
3.5.3	Frequency of Final Settlement Adjustments	≤ 6	1	5
3.5.4	Timeliness of Meter Data Error Detection	98%	100%	5
3.5.5	Remittance Efficiency	0 amount late	0 amount late	5
	Timeliness of Monetary Transactions	0 days late	0 days late	5
3.5.6	Timeliness of Margin Call	100%	100%	5
	Timeliness of Default Notice	0 days late	0 days late	5

For reference, Table 13 provides the relevant dates and WESM billing periods that are covered in Sections 3.5.1 to 3.5.2.

Table 13. WESM Billing Periods

Monitoring Period	Covered Billing Periods	Billing Period	Dates
26Sep16 - 25Dec16	123 – 125	123	26 August 2016 to 25 September 2016
		124	26 September 2016 to 25 October 2016
		125	26 October 2016 to 25 November 2016
		126	26 November 2016 to 25 December 2016
26Dec16 - 25Mar17	126 – 128	127	26 December 2016 to 25 January 2017
		128	26 January 2017 to 25 February 2017
		129	26 February 2017 to 25 March 2017
		130	26 March 2017 to 25 April 2017
26Mar17 - 25Jun17	129 – 131	131	26 April 2017 to 25 May 2017
		132	26 May 2017 to 25 June 2017
		133	26 June 2017 to 25 July 2017
26Jun17 - 25Sep17	132 – 134	134	26 July 2017 to 25 August 2017

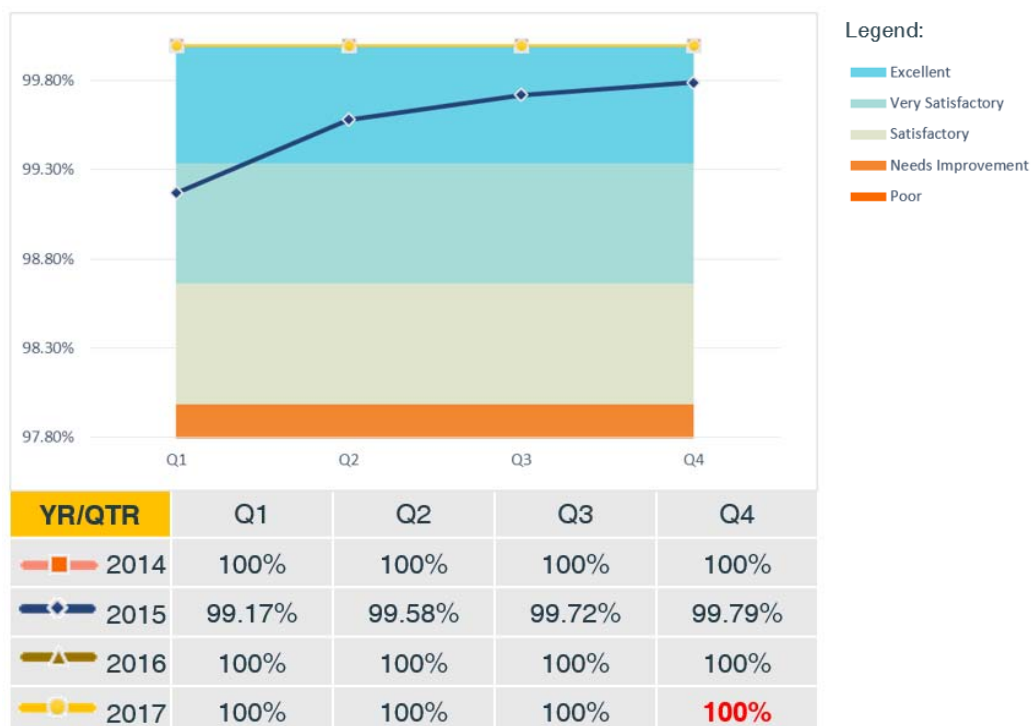
3.5.1. Timeliness of Preliminary and Final Settlement Statements

The WESM Rules require that Preliminary Settlement Statements are issued within seven (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 scored 100% timeliness rating for the issuance of Preliminary and Final Statements in all quarters. Figure 20 presents the favorable YTD ratings from 2014 to 2017.

Figure 20. Timeliness of Issuance of Preliminary and Final Settlement Statements (YTD), 2014 to 2017



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

Figure 21 illustrates that the accuracy for preliminary statements has improved since 2014, with the annual rating for 2017 at 99.12% (Excellent).

Figure 21. Accuracy of Preliminary Settlement Statements (YTD), 2014 to 2017



Likewise, the target accuracy rating for Final Settlements was similar with the rating in 2016, as shown in Figure 22. The error is attributable to the change in the final settlement statement for the 129th billing period (see Section 3.5.3).

Figure 22. Accuracy of Final Settlement Statements (YTD), 2014 to 2017



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 has been 1 adjustment in the Final Settlement Statements within the year due to the correction of metered quantities (MQ) of Clark Electric Distribution Corporation and Taiyo Nippon Sanso Clark, Inc. (TNSC01R), which affected the net settlement surplus (NSS) of all market participants during the May 2017 billing period. As provided in Figure 23, this 1 adjustment for the year is well within the Excellent rating, maintaining the favorable rating for this measure since 2014.

Figure 23. Frequency of Adjustments in Final Settlement Calculations (YTD), 2014 to 2017



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 four (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 orphan²⁴ meter data and meter data with uncertain and missing values²⁵, the MO will issue an MTR to the MSP. In turn, the MSP should issue the corrected daily meter data within ten (10) calendar days and monthly meter data within 2 business days.²⁶

²⁴ 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).

²⁵ Section 7.3.4 of the WESM Manual on Metering Standards and Procedures

²⁶ Section 10.4.1.3-4 of the WESM Manual on Metering Standards and Procedures

Monitoring Results

Timeliness of the issuance of MTRs rated 100%, or Excellent, for the year and since 2014. While this is the case, there is a need to implement enhancements to the quality of metering data being received by the MO in consideration of the significant volume of MTRs and responsibility of the MSPs to provide accurate MQs. Figure 24 provides the number of monthly (MMTR) and daily MTRs (DMTR) issued in 2017 for WESM and RCOA meters. The number of MTRs is further categorized in Figure 25 based on the markets the meters are associated with. The latter figure shows that, in 2017, majority of the MMTRs are associated with WESM meters while most of the DMTRs are associated with RCOA meters.

Figure 24. Number of Monthly and Daily MTRs, 2015 to 2017

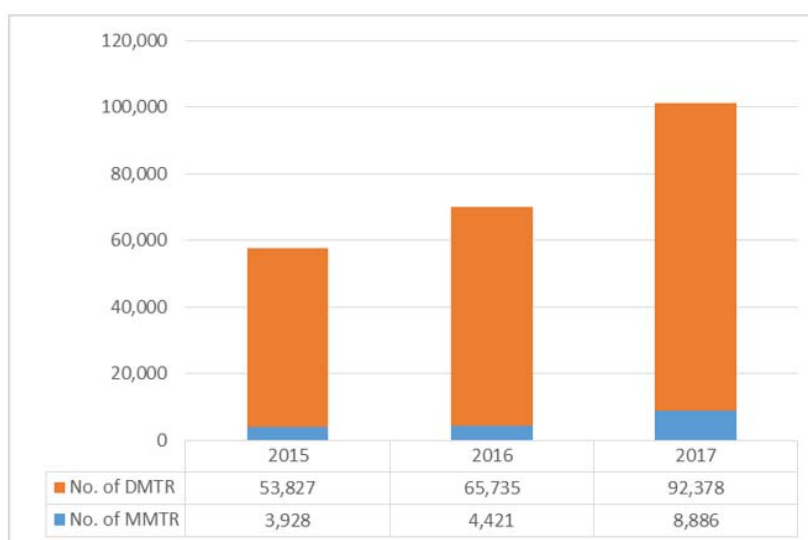
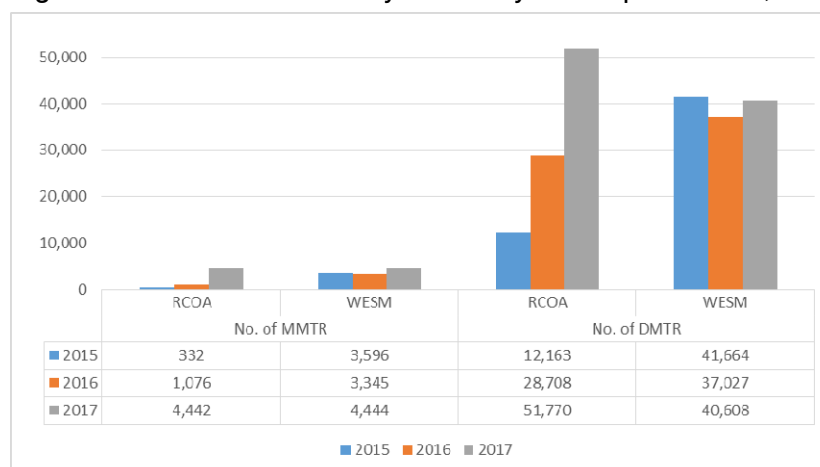


Figure 25. Number of Monthly and Daily MTRs per Market, 2015 to 2017



3.5.5. Monetary Transactions and Remittance Efficiency

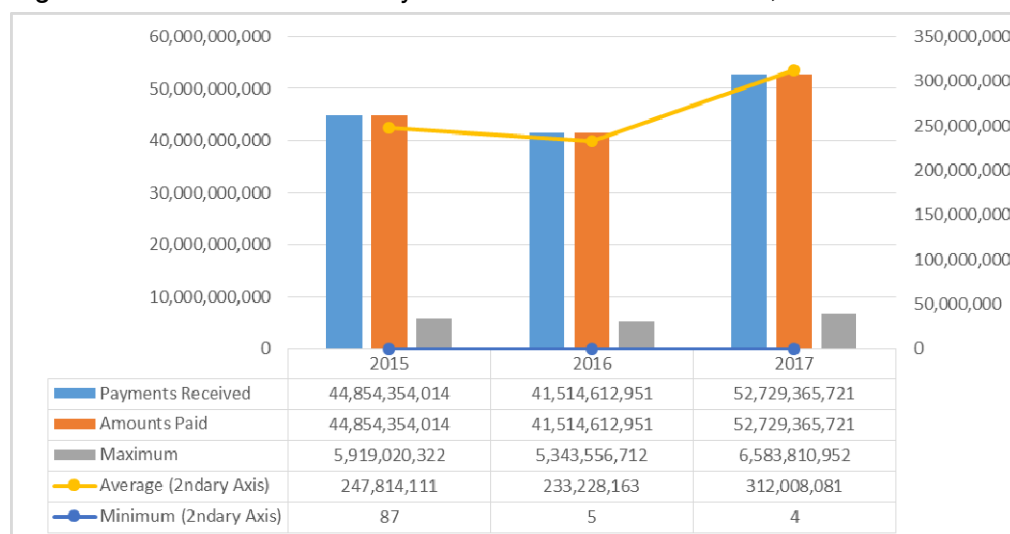
As provided in the MOPS and the WESM Billing and Settlements Manual, all monetary transactions must be remitted to WESM Members in accordance to the WESM settlement timetable, i.e. no later than 3:00 p.m. on the next business day following the day on which the MO is to be paid.

Monitoring Results

The MO has consistently rated Excellent in processing timely monetary transactions and ensuring that all payments received from buying Trading Participants are remitted to selling Trading Participants on time.

To provide an indication on the amount of electricity traded in the WESM, the total amounts received and paid by the MO in 2017 are provided in Figure 26. It shows that monetary transactions has an increasing trend, which could also be said to reflect the increasing purchases in the spot market. It is interesting to note that while the maximum amount of daily monetary transaction in 2017 is at PhP 6 billion, the minimum amount is at PhP 4.

Figure 26. Amount of Monetary Transactions in the WESM, 2015 to 2017



3.5.6. Timeliness of Margin Calls and Default Notices

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 20th of the next month after the billing period, i.e. for the billing month 26 January 2016 to 25 February 2016, margin calls should have been issued on or before 20 March 2016.

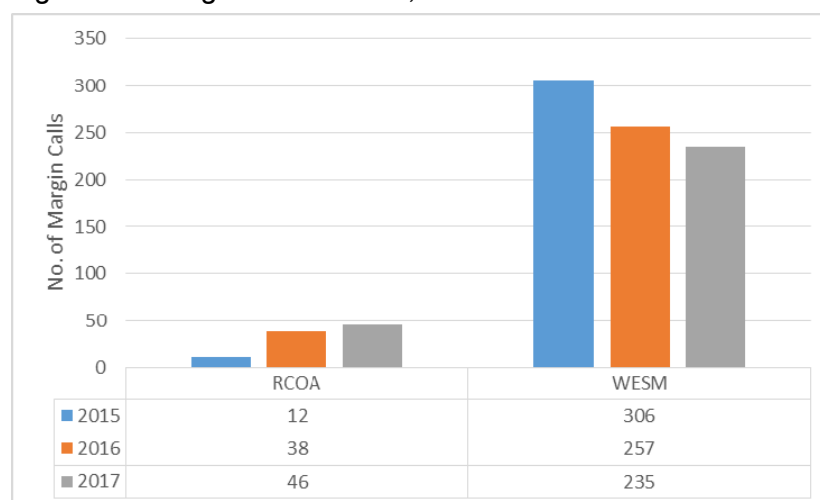
With regards the issuance of default notices, WESM Rule 3.14.11.2 requires the MO to issue a default notice, which specifies the nature of the alleged default, as soon as practicable, during any of the default events specified under WESM Rule 3.14.11.1. Further, the MO is required to disclose information pursuant to DOE DC No. 2013-07-0018 issued on 26 July 2013, Section 1.1.(a) containing 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 has consistently rated Excellent in providing timely margin calls and default notices to Trading Participants.²⁷ The list of WESM members with unpaid energy settlement amounts are published, as required, in the WESM website.

The number of margin calls issued by the MO in 2015 to 2017 is shown in Figure 27. It indicates that number of times that trading participants have breached their trading limits have slightly increased for retail participants and, conversely, decreased for wholesale participants.

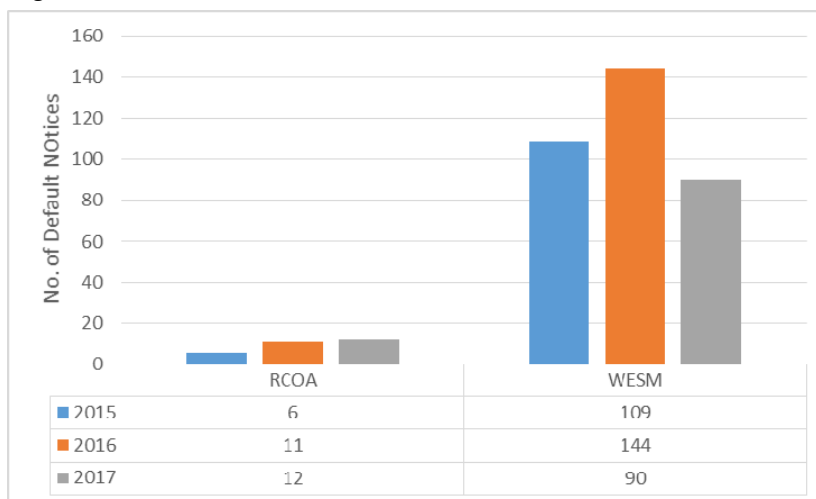
Figure 27. Margin Calls Issued, 2015 to 2017



²⁷ Monitoring of timely default notices was implemented starting in 2015, under the current version of the MOPS.

Likewise, Figure 28 shows that instances of non-payment in the retail market has increased slightly while these have significantly decreased in the wholesale market.

Figure 28. Default Notices Issued, 2015 to 2017



3.5.7. Recommendations and Action Plans

As recommended in the 2016 MO Performance Annual Report, it is likewise recommended for the MO to consider the revised market rules for the implementation of enhanced market design and operations in the review of the measures on billing, settlements, and accounts management.

In particular, the following changes to the MOPS are recommended:

- Removal of the timeliness measure for MTR issuances since the MSPs are already monitored by the MO in accordance with the WESM and Retail Metering Manuals.
- Consider combining the timeliness measures for monetary transactions in amount and number of days. Based on the current measure, any late in terms of amounts or days would result to a failed rating for both measures.
- Consistent with the recommended removal of the timeliness measure on PEN-MRR submissions, it is also recommended to not exclude changes to market prices in the accuracy measure for preliminary and final settlements. This is because market prices also come from the MO.

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 14. Registration and Customer Relations Performance Ratings

Section	Sub-Category	Target	Actual	Score
3.6.1	Timeliness of Processing Registration Applications	95%	99.81%	4
3.6.2	Timeliness of Processing Customer Switching Applications	95%	100%	5
3.6.3	Timeliness of the conduct of Participant Trainings	95%	100%	5
	Participant's Feedback re: Training	90%	96.82%	5
3.6.4	Timeliness in addressing Participant Queries and Data Requests	95%	100%	5
3.6.5	Timeliness in addressing Participant/ Customer Complaints	95%	100%	5

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 five (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 date on which the MO sends the notice of approval.

Monitoring Results

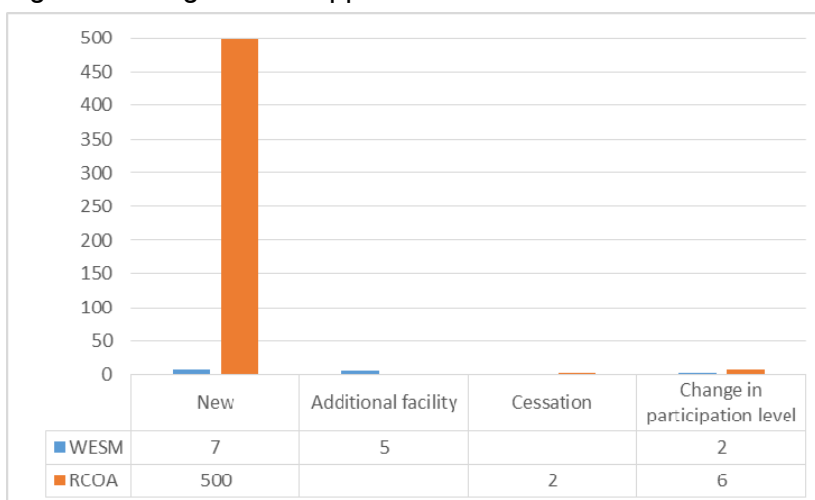
In consideration of the above timelines, the MO met the target timeliness rating in 2017. There was 1 late out of the 522 registration applications processed, resulting to a rating of 99.81%. As shown in Figure 29, this is greater than the ratings last year. Note that the Excellent rating for this measure equals a 100% timely processing of registration applications.

Figure 29. Timeliness of Processing Registration Applications (YTD), 2014 to 2017



As anticipated, the number of new retail market participant registration applications took the bulk of the processed applications in 2017, as shown in Figure 30. This is attributed to the implementation of a broader contestable market.

Figure 30. Registration Applications in 2017



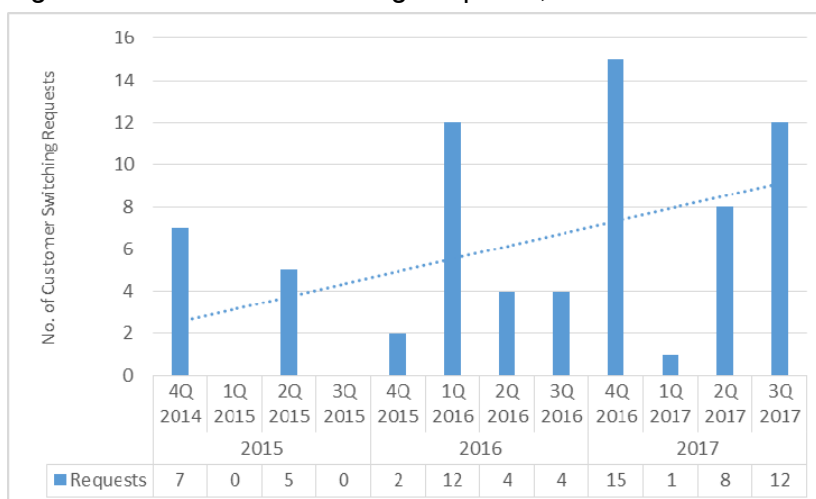
3.6.2. Customer Switching Requests

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

The MO has consistently rated Excellent in processing timely requests for customer switching since 2015.²⁸ Figure 31 shows the increasing trend in the number of customer switching requests since 2015.

Figure 31. Customer Switching Requests, 2015 to 2017



3.6.3. Participants Feedback and Timeliness in the Conduct of Training

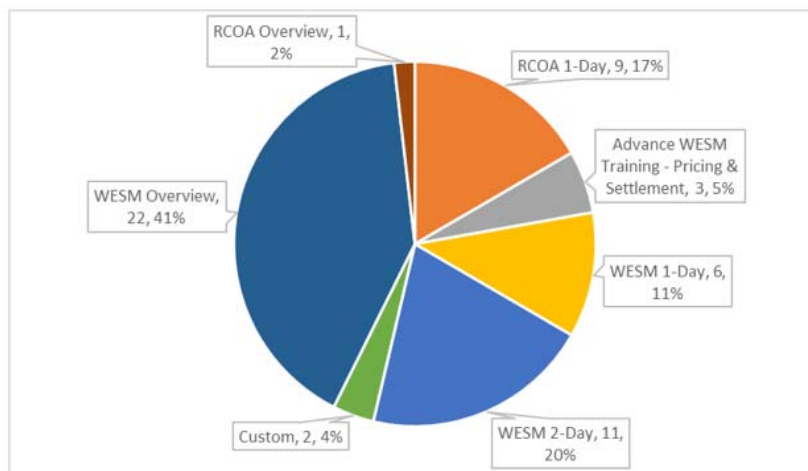
To gauge the effectiveness of trainings, their timely conduct and the participants' feedback on the trainer/speaker and other aspects of the training (e.g. logistics and materials), which are gathered through survey forms to rate, are monitored.

Monitoring Results

The MO has consistently rated Excellent in the timely conduct of trainings since 2014. In 2017, there were 54 trainings conducted, with most of the trainings conducted were about WESM Overview. Other types of trainings held are shown in

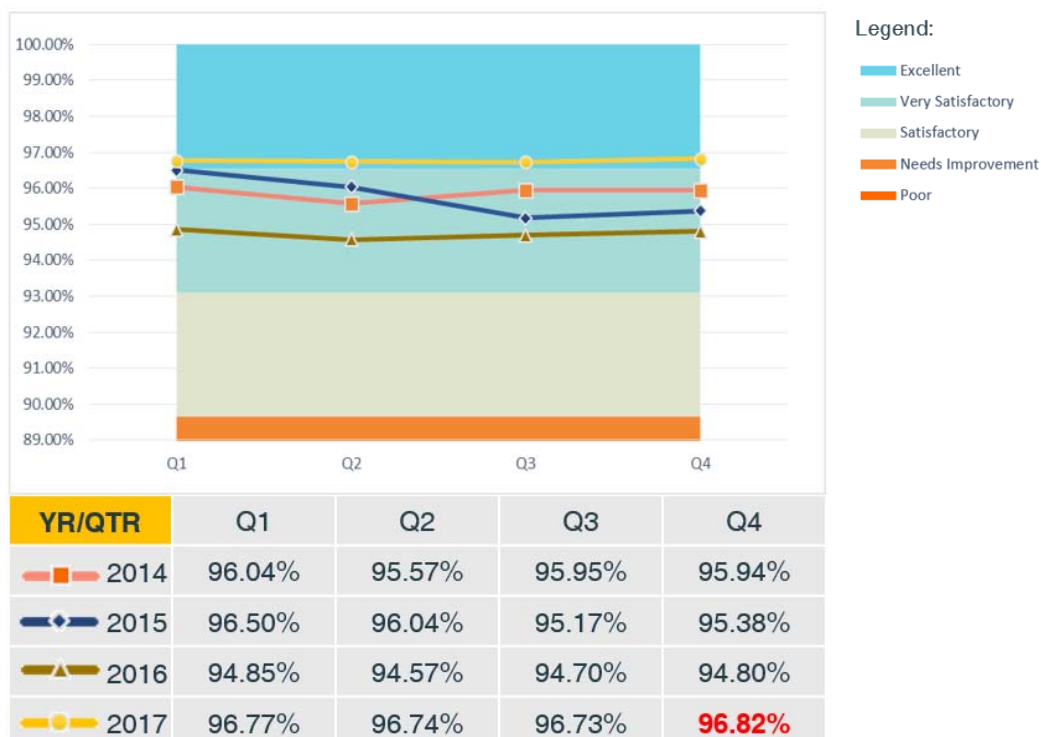
²⁸ Customer switching timeliness was only measured starting in 2015, under the current MOPS.

Figure 32. Trainings Conducted, 2017



On the other hand, the MO was rated Very Satisfactory from 2014 to 2016 by training participants based on their feedback, as provided in Figure 33. The training feedback increased this year, with a yearend rating of 96.82%, which is within the lower bounds of the Excellent range. This increase is attributed to the change in the scoring system for Training Feedback.

Figure 33. Participants' Feedback on Trainings Conducted (YTD), 2014 to 2017



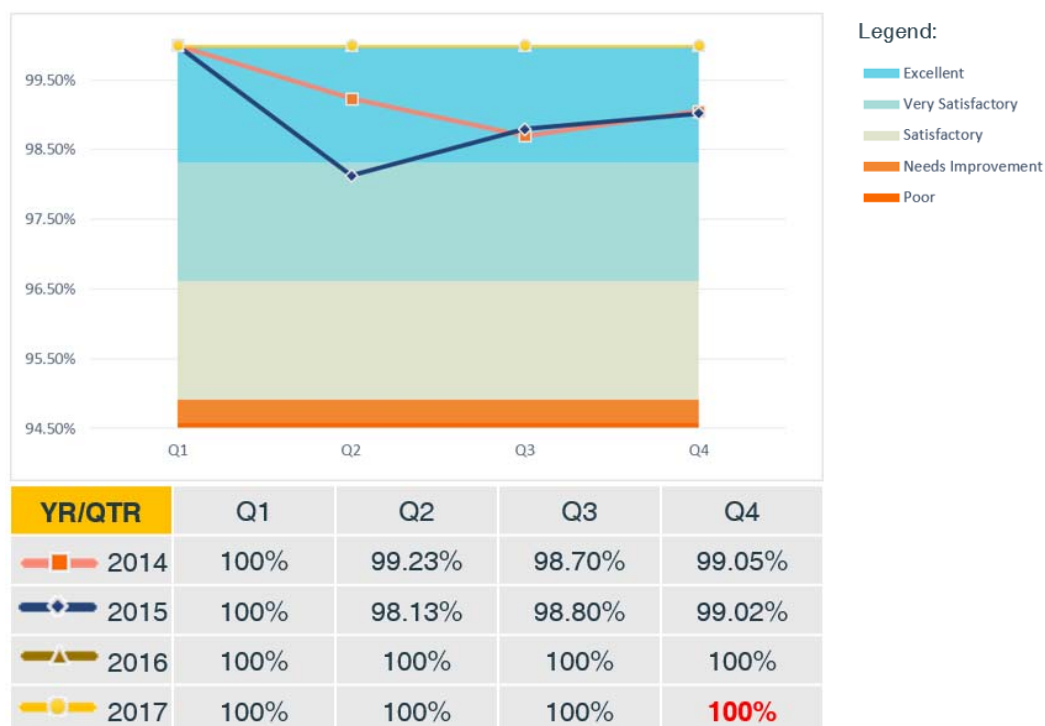
3.6.4. Participant Queries and Data Requests

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 processed 82 queries/data requests in 2017, as required. Figure 34 presents that the MO has maintained the Excellent rating of 100% since 2016.

Figure 34. Timeliness of Processing Participant Queries and Data Requests (YTD), 2014 to 2017



It is worth mentioning that the MO addresses frequent data requests by making frequently requested data available in the public WESM website. One instance this year is the recent publication of Final Prices in March 2017, which was implemented since participants have been requesting for the said data. Final Prices for preliminary settlements are made available after the issuance of the preliminary statements, which are in turn replaced with the final prices made after the issuance of the final statements.²⁹

²⁹ http://www.wesm.ph/inner.php/downloads/final_prices

3.6.5. Participant/Customer Complaint

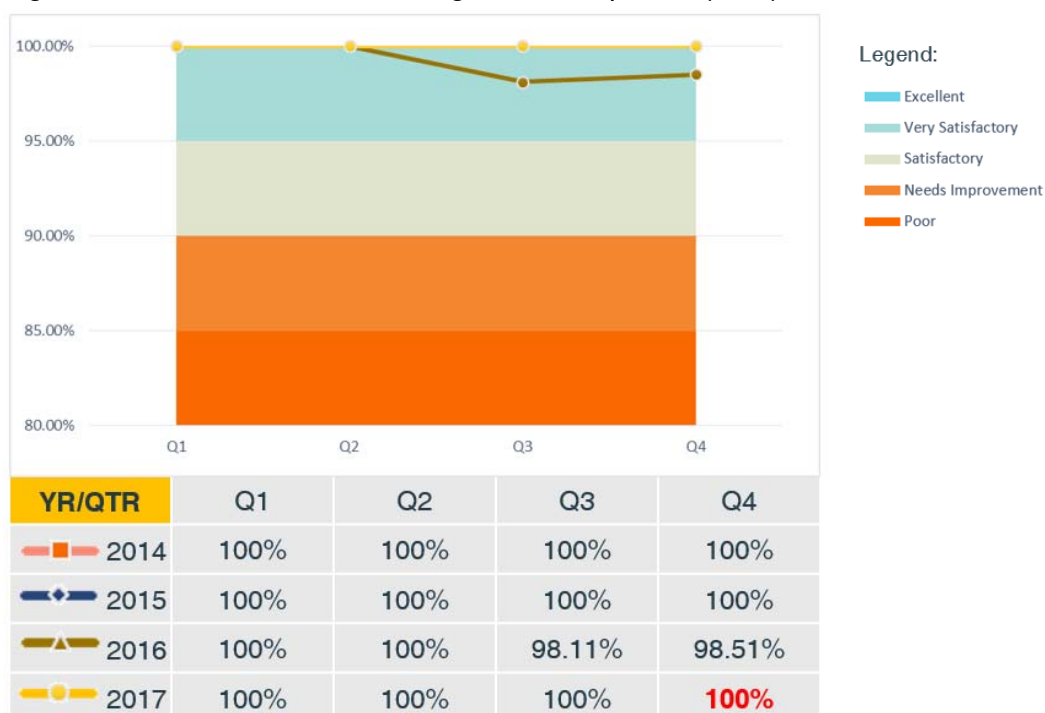
The MOPS provides that complaints by customers (WESM Members, DOE and ERC) should be resolved in a timely manner, i.e. within 5 working days.

The complaints received are mostly 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 addressed 53 valid complaints in 2017 as required. Figure 35 shows that this is higher than the rating of 98.51% in 2016.

Figure 35. Timeliness in addressing Valid Complaints (YTD), 2014 to 2017



3.6.6. Recommendations and Action Plans

As recommended in the 2016 MO Performance Annual Report, it is likewise recommended for the MO to consider the revised market rules for the implementation of enhanced market design and operations in the review of the measures on registration and customer relations.

In particular, it is recommended to remove the timeliness measures of the conduct of trainings since trainings are all set with the concurrence of the MO.

Further, it is recommended for the MO to document the feedback scoring system for trainings in its internal business procedures.

On the timeliness of processing queries and data requests, it is noted that the MO monitors the timeliness of data requests and queries submitted by market participants only. It is recommended that the MO develop performance objectives, which may not necessarily be included in the MOPS, for these types of queries. Queries/requests that are not addressed in a timely manner may result to complaints.

4. Over-all MO Performance

The over-all performance of the MO in 2017 for the period 26 September 2016 to 25 September 2017 is Very Satisfactory, which is higher than the rating in 2016. The MO's performance rating in each performance category in 2017 and 2016 are summarized below.

The over-all MO performance rating is computed as the rounded-off sum of the weighted scores, which are computed from the equivalent scores multiplied by the assigned weights of the performance categories.

Table 15. MO Performance, 2016 and 2017

Category	Measure	Weight (%)	Target	2016		2017			Y-O-Y (Score)
				Actual	Score	Actual	Score	Score	
A. IT Systems									
Market Management Systems	Availability	15	99.80%	99.85%	3	99.99%	5	Excellent	⬆️
WESM Website	Availability	5	99.50%	99.87%	5	99.99%	5	Excellent	🔴
B. Market Reports and Data Publication									
	Availability	5	95%	99.99%	4	99.998%	4	Very Satisfactory	🔴
	Timeliness	10	95%	95.02%	4	98.22%	4	Very Satisfactory	🔴
C. Forecast Accuracy									
RTD Forecast - MAPE	Accuracy (L)	3.75	0.95%	0.80%	4	0.80%	4	Very Satisfactory	🔴
	Accuracy (V)	3.75	1.20%	1.50%	2	1.14%	4	Very Satisfactory	⬆️
RTD Forecast - FAR	Accuracy (L)	3.75	97.20%	98.64%	5	98.79%	5	Excellent	🔴
	Accuracy (V)	3.75	93.00%	89.70%	2	94.50%	4	Very Satisfactory	⬆️
DAP Forecast - MAPE	Accuracy (L)	2.5	1.60%	1.36%	4	1.31%	4	Very Satisfactory	🔴
	Accuracy (V)	2.5	2.20%	2.00%	4	2.20%	4	Very Satisfactory	🔴
D. Dispatch Scheduling and Pricing									
RTD Workflow	Successful Run	2.5	99.75%	100%	5	100%	5	Excellent	🔴
RTX Workflow	Successful Run	2.5	99.75%	100%	5	100%	5	Excellent	🔴
Pricing Errors and Market Re-runs	Timeliness (Prelim)	2	98.50%	99.17%	4	99.50%	5	Excellent	⬆️
	Timeliness (Final)	3	99.50%	100%	5	99.92%	5	Excellent	🔴
Market Intervention Attributable to MO	Duration	10	≤ 14	16	2	4	5	Excellent	⬆️
E. Billing, Settlements and Accounts Management									
Preliminary and Final Settlement Statements	Timeliness	2	98%	100%	5	100%	5	Excellent	🔴
Preliminary Settlement Calculations	Accuracy	2	95%	98.27%	4	99.19%	5	Excellent	⬆️
Final Settlement Calculations	Accuracy	3	99%	99.92%	5	99.97%	5	Excellent	🔴
	Frequency	2	≤ 6	1	5	1	5	Excellent	🔴
Meter Data Error Detection	Timeliness	2	98%	100%	5	100%	5	Excellent	🔴
Monetary Transactions	Efficiency	1	0 amount late	0 amount late	5	0 late	5	Excellent	🔴
	Timeliness	1	0 days late	0 days	5	0 late	5	Excellent	🔴

Category	Measure	Weight (%)	Target	2016		2017			
				Actual	Score	Actual	Score		Y-O-Y (Score)
				late					
Margin Call	Timeliness	1	95%	100%	5	100%	5	Excellent	■
Default Notice	Timeliness	1	0 days late	0 days late	5	0 late	5	Excellent	■
F. Registration and Customer Relations									
Registration	Timeliness	2	95%	96.67%	4	99.81%	4	Very Satisfactory	■
Customer Switching	Timeliness	1	95%	100%	5	100%	5	Excellent	■
Participant Training	Timeliness	2	95%	100%	5	100%	5	Excellent	■
	Feedback	1	90%	94.80%	4	96.82%	5	Excellent	▲
Participant Queries and Data Requests	Timeliness	2	95%	100%	5	100%	5	Excellent	■
Participant/ Customer Complaints	Timeliness	2	95%	98.51%	4	100%	5	Excellent	▲
Over-All Score					3		4	Very Satisfactory	▲

Appendix A. Rating System References³⁰

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	$5 \geq x \geq 0$	$9 \geq x > 5$	$14 \geq x > 9$	$14 < x \leq 19$	$19 < x$

³⁰ Refer to the MO Performance Standards Scoring System, Section 9, MOPS as approved by the DOE in October 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	≤ 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%	$x=100\%$	$95\% \leq x < 100\%$	$90\% \leq x < 95\%$	$85\% \leq x < 90\%$	$x < 85\%$

Appendix B. Observations on IT Systems

B.1. MMS Downtimes

Date	Time of Incident	Time Resolved	Downtime in Minutes	Incident/s / Reference Incident Report	Resolution
4Q 2016			4.00 (0.07 hours)		
30-Sep-16	16:41	16:43	2.00	Restarted the MPIAPPS to address error in the publication of the DAP Pre-Dispatch Schedule and Price Reports on 1631H (IR-1609-00379)	The MMS downtime is attributed to the restarting of the MPIAPPS. To make available the DAP Pre-Dispatch Schedule and Price Reports, these were manually republished at 1651H.
12-Dec-16	6:14	6:16	2.00	Restarted the MPIAPPS to address database error in market mandatory closure process for 0700H (IR-1612-00482)	The MMS downtime is attributed to the restarting of the MPIAPPS. The market mandatory closure process for 0700H was then manually run on 0616H.
1Q 2017			18.00 (0.30 hours)		
19-Jan-17	17:45	17:54	9.00	MPI access was affected by the high utilization of bandwidth of the Dedicated Leased Line (DLL) from Ortigas to Diliman (IR-1701-00038).	Transferred the link to the backup DLL and restarted the MPIAPPS.
	18:15	18:18	3.00		
8-Feb-17	3:07	3:09	2.00	Restarted the MPIAPPS to address error in the market mandatory closure process for 0400H (IR-1702-00056).	The MMS downtime is attributed to the restarting of the MPIAPPS. Manually run the market mandatory closure process for 0400H on 0313H.
23-Feb-17	12:27	12:29	2.00	Restarted the MPIAPPS to address error in the market mandatory closure process for 1300H (IR-1702-00018).	The MMS downtime is attributed to the restarting of the MPIAPPS. Manually run the market mandatory closure process for 1300H on 1230H.
6-Mar-17	7:11	7:13	2.00	Restarted the MPIAPPS to address the MI/MPI Event Status error for 0800H at 0604H. (IR-1703-0028)	The MMS downtime is attributed to the restarting of the MPIAPPS. Manually run the process after restarting the MPIAPPS.

Date	Time of Incident	Time Resolved	Downtime in Minutes	Incident/s / Reference Incident Report	Resolution
2Q 2017			13.00 (0.22 hours)		
31-Mar-17	17:12	17:14	2.00	Restarted the MPIAPPS to address the MI/MPI Event Status error for 1600H at 1500H. (IR-1703-0045)	The MMS downtime is attributed to the restarting of the MPIAPPS. Manually run the process after restarting the MPIAPPS. The RTX Price Report for 31 March, H17, was then republished at 1534H.
	16:44	16:46	2.00	Restarted the MPIAPPS to address the errors in the publication of the RTX Ancillary Services Price Report (IR-1703-0046).	The MMS downtime is attributed to the restarting of the MPIAPPS.
	17:18	17:20	2.00		The cause for non-publication of the RTX Ancillary Services Price Report was further investigated.
	17:43	17:45	2.00		
1-Apr-17	17:07	17:09	2.00	Restarted the MPIAPPS to address the error in the publication of the RTX Price Report for 01 April, H15, on 1503H (IR-1704-0048).	The MMS downtime is attributed to the restarting of the MPIAPPS. To make available the RTX Price Report for 01 April, H15, it was manually republished at 1523H.
27-Apr-17	7:20	7:23	3.00	Restarted the MPIAPPS to address the error in connecting to the Oracle database (IR-1704-0068).	The MMS downtime is attributed to the restarting of the MPIAPPS. Further, the application was rerun to update the market status for 04 May 4.
3Q 2017			0.00 (0.00 hours)		

B.2. WESM Website Downtimes

Date	Time of Incident	Time Resolved	Downtime (in Minutes)	Incident/s / Reference Incident Report	Resolution
4Q 2016			15.00 (0.25 hours)		
13-Oct-16	7:55	8:02	7.00	Application problem due to high CPU usage and loading of the server (IR-1610-00396)	Restarted the server and changed permission access of the server's mail application, which was found to be causing the server to slow down. Further, the work instruction was updated to provide detailed corrective action for similar incidents.
14-Nov-16	21:47	21:55	8.00	Hardware issue due to defective cable (IR-1611-00445)	Replaced the defective UTP cable
1Q 2017			48.00 (0.80 hours)		
21-Mar-17	16:45	17:33	48.00	Network configuration problem (IR-1703-0039)	Public website was transferred to the backup system while the primary server was being reconfigured and data was being restored. The public website was restored in the production system and publication of data completed at 1833H. Advisory was sent at around 1924H.
2Q 2017			0.00 (0.00 hours)		
3Q 2017			0.00 (0.00 hours)		

Appendix C. Observations on Publication of Market Reports and Data

Publication	Rules/Manual References	Location / Audience	Availability		Timeliness	
			Score	Rating	Score	Rating
Registration Information						
1. Registration Fees	WESM Rules 2.9.2 & 2.5.1	Public website / Public	100%	5	Not rated	
2. Suspension Notice	WESM Rules 3.15.7.1 a to 3.15.7.1 b and WESM Rules 3.15.8.3 & Manual – Billing and Settlement Section 5.1	Public website / Public	n/a		n/a	
3. Notice of Deregistered WESM Participants	WESM Rules 4.7.5 & WESM Rule 3.15.8.6 (b) & Dispatch Protocol Appendix A.10 Market Information Publication 4.2.1.4. Registration	Public website / Public	n/a		n/a	
4. Register of all WESM Members	WESM Rule 1.3.1.1 (f) & WESM Rules 5.2.3 (a), (c) and (d) & WESM Rule 2.5.7 & MO Information Disclosure and Confidentiality Manual – Market Information Catalogue & Dispatch Protocol Appendix A.10 Market Information Publication 4.2.1.4. Registration	Public website / Public	100%	5	100%	5
5. Register of all WESM Applicants	WESM Rules 2.5.7 & WESM Rules 5.2.3 (a) and (b)	Public website (WESM/RCOA) / Public	100%	5	Not rated	
6. New Metering Installation of the MSP	Manual - Metering Standards and Procedures	Public website / Public	100%	5	100%	5
Market Manuals, Regulatory Issuances, and Guidelines						
7. Formulation Of The Market Dispatch Optimization Model (Price Determination Methodology)	WESM Rules 3.6.1.2 & MO Information Disclosure and Confidentiality Manual – Market Information Catalogue	Public website / Public	100%	5	n/a	
8. Structure and level of market fees and the methods used in determining the structure	WESM Rules 2.10.5 & MO Information Disclosure and Confidentiality Manual – Market Information Catalogue	Public website / Public	100%	5	100%	5
9. Spot Market Operation Timetable (contained in the Dispatch Protocol Manual)	WESM Rules 3.4.2.3	Public website / Public	100%	5	Not rated	
10. Forecast Tolerance Range (contained in the Load Forecasting Manual)	WESM Rules 3.5.4.1	Public website / Public	100%	5	Not rated	
11. Dispatch Tolerances Standards (PEM Board Resolution (2005-15))	WESM Rules 3.8.7	Public website / Public	100%	5	Not rated	

Publication	Rules/Manual References	Location / Audience	Availability		Timeliness	
			Score	Rating	Score	Rating
12. Procedures for determination of market re-run prices (contained in the Criteria and Guidelines for the Issuance of Pricing Error Notices and Conduct of Market Re-Run)	WESM Rules 3.10.5	Public website / Public	100%	5	Not rated	
13. Procedure In Establishing the Network Configuration and Other Constraints for the determination of ex-post nodal energy prices (contained in the Dispatch Protocol Manual and Determination of Ex-post Nodal Prices Manual)	WESM Rules 3.10.7	Public website / Public	100%	5	Not rated	
14. Electronic Communication Procedures (contained in the MO Information Disclosure and Confidentiality Manual)	WESM Rules 5.2.2.5 (a) to 5.2.2.5 (c)	Public website / Public	100%	5	Not rated	
15. Methodology For Determining the Administered Price (contained in the Administered Price Determination Methodology Manual)	WESM Rules 6.2.3	Public website / Public	100%	5	Not rated	
16. Constraint Violation Coefficients or Procedures for Calculating Constraint Violation Coefficients for Each Constraint and Revisions in the Constraint Violation Coefficient levels (contained in the Constraint Violation Coefficients (CVC) Manual)	WESM Rules 3.6.2.4 (DOE Circular No. DC 2010-03-0004 & Manual – Constraint Violation Coefficients (CVC) Sections 3.1, 10.1 and 10.3 & Dispatch Protocol Appendix A.10 Market Information Publication 4.2.1.2	Public website / Public	100%	5	Not rated	
17. MDOM Performance Standards	WESM Rule 3.6.1.2	Public website / Public	100%	5	Not rated	
18. Operating Procedures (Dispatch Protocol, Emergency Procedures,	Dispatch Protocol Appendix A.10 Market Information Publication 4.2.1.1. Systems and Procedures	Public website / Public	100%	5	100%	5

Publication	Rules/Manual References	Location / Audience	Availability		Timeliness	
			Score	Rating	Score	Rating
Load Shedding, Registration Manual)						
19. Initial Loss Percentage	Load Forecasting Manual 6.3. Initial Loss Percentage	Public website / Public	100%	5	100%	5
Market Reports						
20. Significant Variations Report	WESM Rules 1.3.1.4 & Manual - Guidelines on Significant Variations In and Between Trading Intervals Clause 7.2	Public website / Public	100%	5	100%	5
21. Market Network Model / Market Trading Nodes / MNM Bus-Oriented Single Line Diagram	WESM Rules 3.2.1 & WESM Rules 3.2.2.4 & Manual – Market Network Model & MO Information Disclosure and Confidentiality Manual – Market Information Catalogue & Dispatch Protocol Appendix A.10 Market Information Publication 4.2.1.2	Public website / Public	100%	5	100%	5
22. Review of the Underlying Factors Giving Rise to any Net Settlement Surplus	WESM Rules 3.13.16.3 b	Public website / Public	100%	5	100%	5
23. Post Dispatch Reports	Dispatch Protocol	Public website (Luzon/Visayas) / Public	100%	5	99.86%	4
24. Summary of PEN Issuance	Manual – Criteria for Guidelines for the Issuance of Pricing Error Notices and Conduct of Market Re-run in WESM Clause 9.4	Public website / Public	100%	5	79.86%	1
25. Summary of PSM Issuance	Manual - Methodology for Determining Pricing Errors and Price Substitution Due to Congestion for Energy Transactions in the WESM Clause 9.3	Public website / Public	100%	5	79.29%	1
26. Market Re-Run (MRR) Results	Manual – Criteria for Guidelines for the Issuance of Pricing Error Notices and Conduct of Market Re-run in WESM Clause 9.5	Public website / Public	100%	5	100%	5
27. Monthly Performance Rating of the MSP	Manual - Metering Standards and Procedures in WESM Clause 10.7.1	Public website / Public	100%	5	100%	5
28. MRU Report by the SO	MO Information Disclosure and Confidentiality Manual – Market Information Catalogue & Transmission System Information provided by the System Operator to the Market Operator	Public website / Public (MyWESM log-in)	100%	5	100%	5
Market Data						
29. Day-Ahead Projections	WESM Rules 3.4.2.2 (b) & WESM Rules 3.7.2.1 & Dispatch Protocol & MO Information Disclosure and Confidentiality Manual – Market Information Catalogue	MPI / per participant Public website (DAP: Load/Gen & Next Day Summary: Luzon/ Visayas) / Public	99.96%	4	99.51%	4
30. Week-Ahead Projections	WESM Rules 3.4.2.2 (a) & WESM Rules	MPI / per participant	99.96%	4	99.41%	4

Publication	Rules/Manual References	Location / Audience	Availability		Timeliness	
			Score	Rating	Score	Rating
	3.7.1.1 & Dispatch Protocol & MO Information Disclosure and Confidentiality Manual – Market Information Catalogue	Public website (WAP: Load/Gen & Next Week Summary: Luzon/ Visayas) / Public				
31. Scheduled Generation Or Scheduled Load	WESM Rules 3.11.1.3 & MO Information Disclosure and Confidentiality Manual – Market Information Catalogue	Public website / Public	100%	5	99.97%	4
32. Levels of NSS / NSS Allocations	WESM Rules 3.13.16.3 a & Manual - Management of The Net Settlement Surplus Clause 10.1 & ERC/DOE Directive	Public website / Public	100%	5	100%	5
33. Administered Prices for one billing period	Manual - Administered Price Determination Methodology	Public website / Public	100%	5	100%	5
34. Hourly Total Registered Pmin of All Scheduled Generating Units	Dispatch Protocol (DP) - Bids and Offers	MMS-MPI / WESM Trading participants	100%	5	99.73%	4
35. Hourly Nodal Demand Forecasts for RTD, DAP, WAP Reserve Requirement	DP - Demand Forecasting & MO Information Disclosure and Confidentiality Manual – Market Information Catalogue	MMS-MPI / WESM Trading participants, DOE and ERC Public website / Public	100%	5	96.38%	4
36. Generation Offers and Demand Bids	MO Information Disclosure and Confidentiality Manual – Market Information Catalogue	Public website / Public	100%	5	99.94%	4
37. Ex-Ante and Ex-Post Load Weighted Average Price (LWAP)	MO Information Disclosure and Confidentiality Manual – Market Information Catalogue	Public website / Public (MyWESM log-in)	100%	5	100%	5
38. MRU generation prices	MO Information Disclosure and Confidentiality Manual – Market Information Catalogue	Public website / Public	100%	5	100%	5
39. Marginal Plants and Market Clearing Prices	MO Information Disclosure and Confidentiality Manual – Market Information Catalogue	Public website / Public	100%	5	99.73%	4
40. Generator and Line Outages, Security Limits and Contingency Lists as submitted by SO to the MMS	MO Information Disclosure and Confidentiality Manual – Market Information Catalogue & Transmission System Information provided by the System Operator to the Market Operator	Public Website / WESM Trading Participants and exceptions under WESM Rules 5.3.2 (MyWESM log-in)	100%	5	100%	5