



# Report on the Audit of Net Settlement Surplus/Deficit

Second Quarter Audit of CY 2021  
26 March to 25 June 2021

**DECEMBER 2023**

This Report is prepared by the  
Philippine Electricity Market Corporation –  
Market Assessment Group for the  
PEM Audit Committee

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**FOREWORD**

In its Resolution No. 07 Series of 2019, the Energy Regulatory Commission (ERC) directed the Philippine Electricity Market Corporation (PEMC) to perform an audit. This audit encompasses the actual calculation of Net Settlement Surplus (NSS) or Net Settlement Deficit (NSD), its allocation, Value Added Tax (VAT) along with interest amounts, as well as the actual billing and collection. Additionally, the ERC specified that this audit should occur quarterly and be carried out by a qualified third-party auditor.

In compliance with the said provision, the Philippine Electricity Market Audit Committee (PAC) conducted the NSS/NSD Audit covering the period 26 March to 25 June 2021, utilizing the services of the independent auditing firm Roxas Cruz Tagle & Co.

The audit aimed to assess compliance of the of the Independent Electricity Market Operator of the Philippines (IEMOP) with the Market Rules and Manuals, and directives of the ERC through its communications, orders, and issuances. The audit also determined the relevant controls (or lack thereof) and verified the effectiveness of identified controls to prevent, detect and/or correct errors on NSS/NSD.

The audit commenced in September 2022 and was concluded with a closing meeting held on 04 October 2023.

Following the completion of the audit, Roxas Cruz Tagle & Co. submitted a report outlining the findings as follows:

- Calculation of NSS/NSD and its allocation, corresponding VAT: No exception was noted between the results of Roxas Cruz Tagle & Co. and IEMOP calculations
- Billing and collection: No exception was noted in the final trading amounts billed to market participants
- IT General Controls (ITGC) Review: The control gaps identified were already addressed by IEMOP

The PAC wishes to convey its appreciation and gratitude to the PEMC management and the IEMOP management for their continuous cooperation and support. This support was invaluable in ensuring the successful completion of the audit.

For the PEM Audit Committee,



**FRANCISCO LEODEGARIO R. CASTRO, JR.**  
Chairperson



**CONCEPCION I. TANGLAO**  
Member



**ROSSANO C. LUGA**  
Member

## 1.0 ABOUT THIS REPORT

This report is prepared in accordance with Section 3.3.1 of the PEM Audit Market Manual Issue 3.0. It contains the objectives, scope, and audit methodology for conducting the assessment of Net Settlement Surplus/ Net Settlement Deficit (NSS/NSD). Additionally, it presents the findings and recommendations identified during the audit process.

## 2.0 EXECUTIVE SUMMARY

### 2.1 BACKGROUND

The Net Settlement Surplus/ Net Settlement Deficit (NSS/NSD) is the surplus or deficit resulting from the locational marginal pricing design and differences between total trading amounts received and paid out in the Wholesale Electricity Spot Market (WESM). Net surpluses must be redistributed to applicable trading participants in accordance with the WESM Rules.

On 23 October 2019, the Energy Regulatory Commission (ERC) promulgated Resolution No. 07, Series of 2019 “A Resolution Adopting Amendments to the Rules for the Distribution of Net Settlement Surplus” or the 2019 NSS Rules. The 2019 NSS Rules came into effect on 25 November 2019.

In Article VII of the 2019 NSS Rules, the ERC directed the Philippine Electricity Market Corporation (PEMC) to comply with the provisions of the WESM Rules on the conduct of Spot Market Audit and include in the said audit the actual calculation of NSS or NSD, its allocation, VAT along with interest amounts, as well as the actual billing and collection. Additionally, the ERC specified that this audit should occur quarterly and be carried out by a qualified third-party auditor.

During the PAC meeting on 14 October 2020, PEMC presented its proposals for implementing the directives. Given the regulatory nature of these directives, the PAC concurred with PEMC’s suggestion to conduct an independent audit of NSS/NSD within the context of WESM Rules and PEM Audit Manual. Additionally, the PAC agreed with the proposal to retain an Independent Auditor to meet the quarterly audit requirement.

On 17 December 2020, PEMC presented these recommendations to the IEMOP, to which the latter agreed.

Furthermore, during a meeting held on 06 January 2021, the ERC-Market Operations Services (ERC-MOS) also expressed, in principle, their agreement with the recommendations put forth by PEMC. In response to instructions from ERC-MOS during that meeting, PEMC officially conveyed the recommendations to the Commission on 13 January 2021.

On 24 February 2021, the PEM Board granted approval for the engagement of an Independent Auditor for the NSS/NSD audit. Thereafter, PEMC entered into an engagement with Roxas Cruz Tagle & Co. to conduct the NSS/NSD audit, for the following audit periods:

<b>Audit Period</b>	<b>Covered Billing Months</b>
First Quarter	26 November 2019 to 25 March 2021
Second Quarter	26 March 2021 to 25 June 2021
Third Quarter	26 June 2021 to 25 September 2021
Fourth Quarter	26 September 2021 to 25 December 2021

The audit project commenced with a kickoff meeting on 13 April 2021. Subsequently, the closing meeting for the first quarter audit was held on 26 August 2022.

Following this, Roxas Cruz Tagle & Co. proceeded to conduct the second quarter audit, concluding with a closing meeting on 04 October 2023.

## 2.2 AUDIT SCOPE AND OBJECTIVES

The second quarter audit covers the period from 26 March to 25 June 2021.

The audit was conducted to assess compliance with the Market Rules and Manuals, and directives of the ERC through its communications, orders, and issuances. The audit also determined the relevant controls (or lack thereof) and verified the effectiveness of identified controls to prevent, detect and/or correct errors on NSS/NSD.

## 2.3 AUDIT METHODOLOGY

The auditor's work covers the following general procedures (GP) to satisfy the objectives and requirements specified in the Terms of Reference. These procedures are aligned with the Methodology and Philippine Standards on Related Services 4400, *Engagement to Perform Agreed-Upon Procedures Regarding Financial Information*.

GP1. Obtain understanding of the relevant laws, pronouncements, Market Rules and Manuals and directives of ERC.

GP2. Obtain an understanding of the NSS/NSD Tool and identify relevant controls (or lack thereof) and verify effectiveness of identified controls on NSS/NSD Tool.

GP3. Perform an understanding and walkthrough of the processes surrounding the NSS/NSD with the assistance of IEMOP.

GP4. Perform recalculation of NSS/NSD and its allocation, corresponding Value-added Tax and interest amounts, as well as the actual billing and collection performed by IEMOP and determine any inconsistencies and non-compliances.

GP5. Assess any inconsistencies and non-compliances of the foregoing.

GP6. Report the assessments and findings.

In performing GP4, recalculation of NSS/NSD, the auditor selected at least 10 days with the highest amount or at least 50% of total NSS/NSD, whichever is higher, for the billing months spanning April to June 2021.

## **2.4 AUDIT FINDINGS AND CONCLUSION**

### **2.4.1 IT GENERAL CONTROLS (ITGC) REVIEW OF THE NSS/NSD TOOL**

During the review of ITGC for the second quarter, it was noted that the control gaps observed during the first quarter audit have been addressed, as follows:

#### **01 Assign appropriate access rights to all users**

There is no distinction in the access granted to users of the NSS/NSD Tool. The Tool allows all authorized users to access all system features, including file imports, trading amount calculations, and report generation. This unrestricted access could lead to unauthorized data changes, potentially allowing users to perform transactions beyond their job responsibilities. With this, the Independent Auditor noted that the logical access control was inherently ineffective.

The Independent Auditor recommended that user access should be limited within the user's job responsibilities to prevent unauthorized changes to critical data.

In light of the decommissioning of the NSS/NSD Tool for the 1-hour market, all users were removed as of 02 March 2023.

#### **02 Enhance application password security**

The NSS/NSD Tool interface is integrated with the Microsoft Active Directory for user authentication. The Independent Auditor conducted a review of the password and account lockout policy of Windows. The auditee's user authentication controls were found to be inadequate in restricting system access (e.g., the maximum password age set to 365 days, minimum password length set to 6 characters). As a result, authentication control for the NSS/NSD Tool was deemed ineffective.

To enhance user access security in the NSS/NSD Tool, the Independent Auditor recommended strengthening user authentication control in Windows. This included implementing an 8-character minimum password length and setting the password age to maximum of 60 to 90 days.

In response, the auditee implemented a Multi-Factor Authentication (MFA) to the NSS/NSD Tool, offering an additional layer of security in lieu of the recommended password parameters.

As of 21 February 2023, the independent auditor observed that the firewall and passwords had been integrated with the Microsoft Active Directory. A unique password assigned to each user, complying with the recommended password parameters.

On the other hand, the independent auditor noted the following control gaps for the second quarter which were likewise addressed by the auditee:

### **01 Restrict IT personnel from having access to the production environment**

According to the provided users list, two (2) out of six (6) NSS/NSD tool users belong to the ISTD.

The Independent Auditor recommended the monitoring of IT personnel activities within the production environment. This can be achieved by generating transaction logs or audit trail documenting IT personnel's actions, which should subsequently undergo management review.

It was also recommended to carry out an annual periodic review of user access to confirm the proper assignment of access rights to all users. This review should include the validation of the continued validity of IT personnel's access to the production environment.

In response, the auditee clarified that the ISTD personnel have access to the overall system configuration, as they are the developers of the NSS/NSD Tool. They also provide support for the other market systems. Furthermore, due to limited manpower, one of ISTD's responsibilities is to provide support during market operations emergencies and the switch-over from primary system to back-up site. Hence, their access cannot be removed.

Regarding the employees who have resigned, their access to the market systems have been revoked by removing them from the active directory.

The auditee committed to include the review of activity logs as part of its IMS internal audits. In addition, as of 07 March 2023, the Independent Auditor was able to obtain the following:

- Screenshots of activity logs in CRSS for the three (3) remaining active users; and
- Screenshot of disabled access of the three (3) resigned users.

## **02 Enhance the physical security of the data center**

Based on the Independent Auditor's visit to the auditee's data center on 20 December 2022, the following observations were noted:

- Uninterruptable power supply (UPS) room and server room are easily identifiable from outsiders due to the visible markings/labels;
- Server room is left unlocked; and
- There are no security cameras in place.

The Independent Auditor then recommended the following:

- Remove labels from UPS room and server room;
- Lock server room doors to prevent access from unauthorized persons; and
- Install CCTV cameras to monitor activity within the data center.

The auditee responded to the Independent Auditor's recommendations, as follows:

- The labels from UPS room and server room doors will be retained as it is recommended by ISO/IEC 27001:20013;
- The installation of electronic door access was completed on 16 February 2023; and
- The installation of CCTV cameras was completed on 12 Jan 2023.

## **2.4.2 RECALCULATION OF NSS/NSD AND ITS ALLOCATION, CORRESPONDING VALUE-ADDED TAX AND INTEREST AMOUNTS, AND BILLING AND COLLECTION**

### **Recalculation of NSS/NSD and its Allocation**

No exception was noted between the results of the recalculation performed by the Independent Auditor when compared to the auditee's calculation. The Independent auditor noted either no differences or only minimal differences in their recalculation, attributing the minimal differences to rounding off. It is important to clarify that the amounts presented represent the total amounts of the sampled data for the month, and not the actual total amount for the month.

### **Recalculation of Value-Added Tax (VAT)**

The Independent Auditor reviewed the VAT imposed on the vatable sales per Market Participant and assessed its compliance with BIR regulations. The Independent Auditor noted no exception on the VAT recalculation, but with observed differences as follows:

- Minimal differences in one (1) Market Participant for April, May and June 2021 attributable to the calculation of VAT in the Final Billing compared to the calculated VAT based on the generation mix ratio (GMR); and
- Significant difference in June 2021 for another Market Participant due to ERC's directive to defer the collection of the NSS adjustments in their Final Billing for May 2021. This is accordance with the ERC advisory posted on 24 June 2021.

For these observations, the Independent Auditor recommended the monitoring of the calculated VAT based on the GMR against the VAT in the Final Billing to minimize substantial differences. In addition, IEMOP must ensure the timely implementation of ERC issuances and reflect the same in the final billings.

### **Validation of Billing and Collection**

The Independent Auditor noted no exception in the validation of Billing and Collection.

In particular, no difference was noted between the monthly final trading amounts calculated by the auditee and the final trading amounts stated in the billing statement of sampled Market Participants.

Moreover, the Independent Auditor compared the billed amount with the collected amount and noted that there are uncollected amounts due to VAT on energy, payment offsets, and payment deferrals in accordance with ERC's Advisory posted on 24 June 2021. For Market Participants with outstanding balances, the auditee issues default notices after the scheduled due date.

As per the Independent Auditor's assessment, the Billing and Collection process has been implemented properly by the auditee. In addition, the Independent Auditor noted that the sample final billing statements for the covered billing months feature wet signatures from reviewers and approvers, a notable addition that was absent during the first quarter audit.