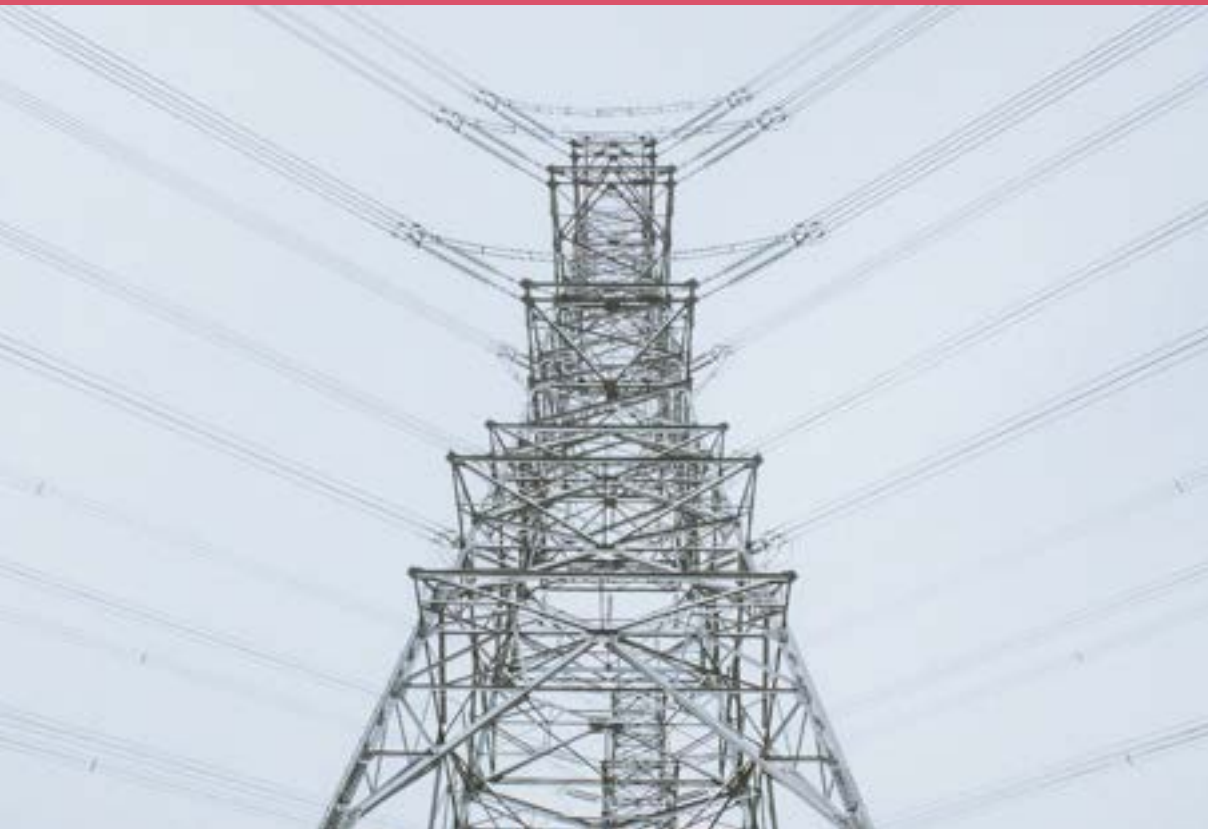


Ministry of Energy/ Ghana Energy Sector Recovery Programme (GESRP)

Validation of the Electricity Company of
Ghana (ECG) Revenue/Collection
Accounts



JANUARY 2025

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All issues and results mentioned in this and other reports relate only to those matters that we have found in the course of our work or that were important for our work, and about which we feel you should be informed. However, this report is not a comprehensive listing of our findings; specifically, we cannot be held responsible for identifying all of the risks or all weaknesses of the internal control system. This report was prepared for your exclusive use and may not be quoted either in whole or in part without our prior written consent. We do not accept any responsibility towards third parties, as this report was not prepared for any additional purpose.

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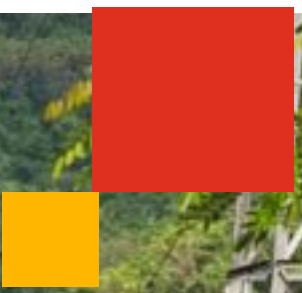
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Abbreviations

Abbreviation	Full Meaning
AI	Action Item
CAATs	Computer Assisted Audit Techniques
CMS	Customer Management System
CWM	Cash Waterfall Mechanism
DR	Disaster Recovery
ECG	Electricity Company of Ghana
ECSP	ECG Cash Settlement Platform
ESRP	Energy Sector Recovery Program
GCB	Ghana Commercial Bank
GNGC	Ghana National Gas Company Limited
GoG	Government of Ghana
GHS	Ghanaian Cedi
GWh	Gigawatt hours
NEDCO	Northern Electricity Distribution Company
NGC	Natural Gas Clearinghouse
NSLT	Non-Special Load Tariff
PURC	Public Utilities Regulatory Commission
PwC	PricewaterhouseCoopers
RPO	Recovery Point Objective
RTO	Recovery Time Objective
SLA	Service Level Agreement
SLT	Special Load Tariff
SQL	Structured Query Language
USD	United States Dollars
VRA	Volta River Authority



The Honourable Minister of Energy
Ministry of Energy
Ministries, Accra.

Attn: The Chief Director

13 January 2025

Dear Sir

**Subject: Validation of Electricity Company of Ghana (ECG) Revenue/Collection Accounts-
Final Task 1 Report**

In accordance with our contract with you dated 15 October 2024 we are pleased to enclose herewith our Final Task 1 Report on the above-mentioned Project.

The report outlines the following:

- Our work done to date and some key challenges;
- Our review of the Cash Waterfall Mechanism (“CWM”);
- Our review of ECG’s billing and invoicing;
- Our general observations and specific key issues identified from the validation/reconciliation exercise;
- Our conclusion and next steps.

The period covered for this assessment is from 1 October 2023 to 31 December 2023.

This report is intended solely for the information and use of the Ministry of Energy/Ghana Energy Sector Recovery Programme and the Public Utilities Regulatory Commission and is not intended to be and should not be used by anyone other than these specified parties.

We express our gratitude to all the stakeholders for the support during the conduct of the validation exercise.

Yours sincerely,

For: PricewaterhouseCoopers (Ghana) LTD

Vish Ashiagbor

Director

Prince Adufutse

Director

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Executive Summary



Executive Summary

Section 1: Introduction and Background

As part of achieving financial sustainability in Ghana's energy utilities and value chain, the Government of Ghana (GoG) initiated the Energy Sector Recovery Program (ESRP) in May 2019. The ESRP is a comprehensive recovery program that sets out the roadmap of policies and actions required for the financial recovery in the energy sector.

The ESRP implemented a payment mechanism in April 2020, the Cash Waterfall Mechanism (CWM), to ensure transparency, equitable and timely payment of all revenues billed and collected by the Electricity Company of Ghana (ECG) on behalf of the entire electricity generation value chain.

The CWM and the Natural Gas Clearinghouse (NGC) mechanisms were put in place to ensure equity and transparency in the disbursement of energy revenues, equitable allocation of tariff revenue collected by the Electricity Company of Ghana to all parties in the energy value chain.

In June 2023, a presidential directive was issued to GESRP to address the challenges with ECG's compliance to the CWM guidelines. In summary, the objective of the directive sought to improve the financial sustainability of Ghana's energy sector by restructuring the payment mechanism going forward. We have reviewed the details of the directive in the next section of our report.

This engagement seeks to validate electricity sales in terms of kWh and amount billed and collected by ECG over a defined period to confirm if these sales, billings and collections align with the requirements and outcomes of the Cash Waterfall Mechanism and its related payments. The assessment will also validate the cycle of power delivered, corresponding billing and collection as well as the full transfer of these collected funds from the regional and/or district collection accounts into the Single Collections account.

The assessment covers the period of 1 October 2023 to 31 December 2023 (i.e. Task 1).

Section 2: Review of the Cash Waterfall Mechanism

Our objective and methodology for review of the CWM in line with the ToR is summarised as follows:

- **Our Objective:** Review the CWM allocation determination process, including the methodologies used and the inputs considered.¹
- **Our Methodology:** We obtained copies of the CWM from ECG and PURC for review (covering the Task 1 period). We also reviewed the PURC Cash Waterfall Mechanism Validation Reports for the Task 1 period.

In our review of the CWM, we made the following observations around the guidelines and procedures used in the mechanism:

- **CWM Discrepancies (Declaration vs Disbursement):** We observed that the declared collections and corresponding allocations made by ECG were consistently different from what was actually paid. This according to the CWM reports were due to

¹ In line with the ToR the second aspect of this scope requires us to review all revenues collected against electricity received from generators by ECG and delivered to customers, corresponding bills issued and revenue collected and transferred into a single collections account

overpayments/underpayments to beneficiaries particularly those with Tier 2 (Level B) of CWM. The CWM report does not state clearly why this happened and the PURC notes that the CWM Standing committee indicated how this defeats the purpose of the CWM. We generally agree with this position as the guidelines for the CWM are quite clear. It will be important to understand from ECG's perspective why the guidelines were still not followed consistently.

- **CWM process:** As mentioned earlier, the allocations and subsequent disbursement often do not completely follow the requirements of the guidelines. It will be useful for PURC to take advantage of technology enabled solutions to facilitate a system that provides real-time data, independent validation and a stronger reconciliation system to support a more efficient monitoring and evaluation process in the CWM declaration process. We have reemphasised our recommendation on the use of technology as a way of strengthening the operationalisation of the CWM (See Section 5, Conclusion and Next Steps).
- **Use of an unprotected Microsoft Excel spreadsheet (Data Integrity and Model Security):** We observed that most of the submitted CWM models did not have protected cells to limit users' ability to interfere with allocation formulas either intentionally or by error. Going forward, PURC will need to reconsider the use of Microsoft Excel based spreadsheet for the CWM. To promote the process of transparency and efficient management of the mechanism, the integrity of the data entered into the spreadsheet must be safeguarded. Key cells must be locked with control access features and enhanced access log features programmed into the spreadsheet to track any attempted changes to the inputs in the model.

As suggested in our recommendation, PURC together with ESRP should consider a shared platform approach to enhance oversight and accountability from ECG, beneficiaries and the key stakeholders of Ghana's value chain to promote confidence in the CWM and its ability to meet its objectives.

Section 3: Review of ECG's Billing and Invoicing Procedures

In this part of our assessment, we reviewed the processes and steps for ECG's billing and invoicing for both postpaid and prepaid customers. We detailed the process walkthrough, highlighting the systems, computations and customer categorisation details that inform customer billing and invoicing from ECG.

Our approach for this review considered:

- **Our objective:** Our primary objective for this task aligns with the second requirement item per the Terms of Reference for the Project. In line with this, our assessment seeks to review and assess ECG's billing and invoicing procedures, including the accuracy of metering, tariff application and customer billing.
- **Our methodology:** We initiated our approach with a process walk through discussion with representatives from ECG's Customer Service Directorate (CSD) and Revenue Assurance Department. Based on this, we developed a process map aligning the process walk through with ECG systems and calculations. Using this, we prepared the relevant narrative around the billing and invoicing procedures at ECG and outlined our key observations and recommendations.

Our key findings, observations and recommendations from this task included the following:

- Based on our assessment of ECG's billing and invoicing systems, we noted that there are 21 prepaid systems, i.e., 20 legacy systems and a Meter Monitoring System (MMS). To streamline the billing and invoicing process, we suggest that ECG's management take steps to expedite the shift of meters from the legacy systems to MMS to have a central database of all meters and prepaid configurations. This will enable ECG to have a single point oversight and management of all its meters. As part of our work and our data requirements, we received aggregated sales data from the 20 Legacy systems² instead of individual customer billing data. We have informed ECG about this gap in the data and we have requested for individual sales data from the legacy systems.
- We recomputed the postpaid customer billings for a sample of customers from the Adora system to verify the accuracy and application of tariffs. Our analysis did not show any discrepancies in the system's data computations.
- We also obtained the detailed monthly billings of each postpaid customer from the Adora system. We compared our summaries to the sales report to confirm that the total billings in Adora had reflected on the sales report. However, we noted variances in the completeness test, this has been communicated to ECG as an exception. As of the time of preparing this report, we are yet to receive feedback from ECG on this.
- For the MMS, we have not been able to assess the completeness and accuracy of the prepaid billing and invoicing data from ECG. We have notified ECG about the impact of this on our work. We have requested that ECG expedite the necessary steps to make this information available for our work.
- ECG's Zeus (Polymorph) system serves as the source of non-tariff revenue for ECG's operations. We have not been able to assess the data from the system to confirm the accuracy and completeness of the non-tariff revenue. We have requested that ECG expedite the necessary steps to make this information available for our work.
- Generally, we recommend that reporting functionalities such as reports to show customer monthly power consumption per band classification is incorporated into ECG's billing and invoicing system. This will enable ECG track actual consumption of customers, and the reasonability of amounts billed to customers as well as track revenue recognised. It would also enable ECG to properly quantify commercial losses, thus informing appropriate measures to reduce these losses over time.

² This was received on 22 November 2024

Section 4: General Observations and Specific Key Issues Identified

The following table highlights our objective for each task executed per the ToR and the relevant approach and methodology we applied for our Task 1 assessment.

Table A: ToR scope of work, our objective, approach and methodology

No.	Scope of Work /Task Objective	Our Approach and Methodology
1.	Review the CWM allocation determination process, including the methodologies used and the inputs considered, all revenues collected against electricity received from generators by ECG and delivered to customers, corresponding bills issued and collected, and transferred into a single collection account for declaration by ECG to the CWM including all payment instructions issued to ECG by the CWM for disbursement under CWM guidelines and also all disbursements made out of the single collection account	<p>The first section of this scope relating to the determination process, methodology and inputs review has been completed in Section 2 of this report.</p> <p>The second part of the scope of work was handled as part of the following subsequent workstreams summarised in this table. They include items 5, 12,13 and 14 in this table.</p>
2.	Review and assess ECG's billing and invoicing procedures, including the accuracy of metering, tariff application, and customer billing.	<p>The following methodology was adopted:</p> <p>1. <i>Understanding ECG's Billing and Invoicing Process:</i></p> <p>We conducted inquiries with representatives of the Revenue & Billing Department of ECG, to understand ECG's billing and invoicing processes. Through walkthroughs and discussions, we designed a detailed flowchart of the process. This was then compared with ECG's accounting procedure manual.</p> <p>Additionally, our analysis included assessing the computed kWh consumption and tariffs used for both postpaid (Adora) and prepaid (MMS) systems.</p> <p>2. <i>Review of Metering Data Accuracy:</i></p> <p>We examined ECG's procedures for recording and maintaining customer meter readings. We also performed a walkthrough of the metering process to assess how readings are captured and subsequently used for billing customers. This assessment was important as it has a direct impact on ECG's revenue collection.</p> <p>Using the metering data, we recomputed the total revenue for both Adora and MMS systems, incorporating the kWh consumption and applicable tariffs on a monthly basis. This approach enabled us to verify the accuracy of the metering data and its impact on revenue generation.</p>

No.	Scope of Work /Task Objective	Our Approach and Methodology
3.	Review and assess ECG's revenue collection and accounts receivables management.	<p>Our approach for this assessment is summarised as follows:</p> <ol style="list-style-type: none"> <i>Summary Revenue Sheets Comparison:</i> <p>We obtained the summary of the revenue sheets and compared them with PwC's recomputed revenue figures derived from ECG's IT systems. This comparative analysis focused on data from ECG's Adora system. This is because as at the date of this report, we have not been granted access to the MMS and legacy systems for further analysis.</p> <ol style="list-style-type: none"> <i>Revenue Collection Reconciliation:</i> <p>As part of this exercise, we used the revenue collection summaries (provided by ECG) and compared this against independently verified bank statement sweeps conducted by PwC to assess the accuracy of the amounts.</p> <ol style="list-style-type: none"> <i>Revenue and Receivables Validation:</i> <p>We proceeded to validate and confirm that the revenues recorded by ECG aligned with the cash payments received and the outstanding receivables reported within the period.</p>
4.	Validate that all revenues received by ECG for the reporting period are in alignment with the electricity received and distributed by ECG along with corresponding billing and collections, and amounts declared by ECG to the electricity value chain entities and note any discrepancies.	<p>Our approach for this task is summarised as follows:</p> <ol style="list-style-type: none"> <i>Invoice and power delivered validation:</i> <p>We obtained ledger details and copies of invoices to support the documentation of transactions within the Task 1 period. The details of each invoice (including the energy delivered [kWh] on that invoice, were documented and compared to the amounts billed by IPPs (See Appendix 9).</p> <p>We also compared these against what was recorded in ECG's ledger to give rise to the liabilities that the ECG owes the individual IPPs. Following this step, we then collated the total kWh received by ECG from each IPP and compared it to the kWh distributed by ECG to its customers.</p> <ol style="list-style-type: none"> <i>Revenue received</i> <p>We validated the revenue received by ECG by obtaining bank statements supplied by ECG's banks and also using a process of direct bank confirmations to obtain bank statements directly from ECG Banks . We reviewed these statements to confirm that sweeps from various</p>

No.	Scope of Work /Task Objective	Our Approach and Methodology
		accounts were made into the Head Office collection accounts. All transactions were analysed, and credits received were investigated accordingly to help establish any discrepancies.
5.	Validate that ECG has made timely payment to the electricity value chain entities in accordance with the payment instructions issued to ECG by the CWM and note any discrepancies;	<p>To satisfy the requirements for this task:</p> <ul style="list-style-type: none"> • We obtained the CWM models and ledger details for each month within the Task 1 period. We also obtained payment vouchers to enable us to trace all payments per the ledger to the respective bank statements. • We agreed the payments made for each IPP per the bank statements and reconciled the total payments to the amounts per the CWM. Variances noted were investigated and explained to be either incomplete payments or exchange differences. • We also reviewed the dates of payments for each IPP, regulatory bodies and other beneficiaries, in each month, to validate and confirm that payments were made in accordance with the guidelines per the CWM.
6.	Identify all accounts into which customer cash collections are transferred	<p>Our approach for is summarised as follows:</p> <ul style="list-style-type: none"> • We obtained the bank statements for ECG accounts from ECG and simultaneously requested for the statements directly from the banks where ECG held the accounts.
7.	Check that all revenues received at each collection point were transferred in full to the relevant district collection/revenue accounts;	<ul style="list-style-type: none"> • We conducted checks to confirm that the bank statements received from ECG were the same as the independently received statement from the banks.
8.	Check that the daily banked receipts were swept in full into the Head Office Single collection/revenue account;	<ul style="list-style-type: none"> • Furthermore, we reviewed all receipts and payments records as well as general ledger details to identify each bank account from which payments or receipts have occurred in order that we can obtain the bank statement for analysis
9.	Identify any revenue accounts utilised by ECG which are not swept into the district collection accounts and head office Single Collection account;	<ul style="list-style-type: none"> • After confirmation, we then used our technology enabled solutions to convert, organise and structure the statements to facilitate our detailed transaction analysis. • We analysed the data to assess the relevant requirements for items 6,7,8 and 9. • We captured our observations and liaised with ECG to offer any clarification on flagged items that were unclear or required documentary confirmation on what they related to. • The analysis was further summarised into visualisations to support our observations.
10.	Check the inflows into all the operational accounts to determine the sources of such revenue.	<p>Our approach for this task included the following steps:</p> <ul style="list-style-type: none"> • We reviewed ECG's bank accounts to identify the accounts used for operational activities. • We reviewed all transactions in the bank accounts and aggregated the revenue inflows per the bank statements into Energy Collections (including prepaid meters, non-SLT, Online quotas, set-offs, SLT and swift payments) and Non-Energy Collections (including card and

No.	Scope of Work /Task Objective	Our Approach and Methodology
		<p>meter replacement fee, UWP, reconnection fee) based on the description per the bank statements.</p> <ul style="list-style-type: none"> We analysed this data to establish the relevant sources of the revenue as required.
11.	Check the disbursement from the revenue/collection accounts to the other beneficiaries;	<p>Following Task item 5, we compared the amounts per the CWM with the actual amounts paid to the CWM beneficiaries including the IPPs. Any variances identified were investigated to establish the sources/reason for the observed discrepancies. Unresolved amounts were then compared to the 25.74% allocated to ECG, and any amounts exceeding this 25% threshold were flagged for further review.</p>
12.	Determine whether the disbursements by ECG were in accordance with the CWM allocation percentages per the payment instructions issued by the CWM to ECG;	<p>We reviewed the ECG CWM models for the period to establish the relevant allocations and we compared it with the payments/disbursement data to confirm if there were any variances.</p> <p>We investigated further to understand the reason for the variances over the period.</p>
13.	Confirm the amounts declared weekly as non-tariff revenues (i.e., any revenues not declared by ECG to the CWM);	<p>We compared the CWM non-tariff revenues values to ECG's non-tariff revenue ledger and conducted a variance analysis. Additionally, we requested for the breakdown of the items that make up the non-tariff revenue for the period.</p>
14.	Confirm the payment of the statutory deductions declared by ECG have been disbursed to the various authorities in a timely manner;	<p>Our approach for executing this task included the following steps:</p> <ul style="list-style-type: none"> Statutory payments were computed based on payments made to the Ghana Revenue Authority (GRA), National Electrification Scheme, and Street Lighting Fund. According to the CWM guidelines, 12.5% of total revenue collections, after deducting payments to Tier 1 (IPPs), is allocated for statutory payments. To assess compliance with this guideline, we recalculated the required statutory payment allocations. We conducted a 100% test of payments made towards the National Electrification Scheme, GRA, and Street Lighting Fund. Discrepancies on payment start date observed on a credit note (to be used to offset these statutory payments over a period) led us to obtain prior credit notes to confirm the relevant details.
15.	Check whether ECG is using a single collection account as per MoF directive of June 21, 2023, effective July 1, 2023.	<p>Our approach here was to observe if the bank account operations by ECG reflected this directive or not based on the sweeps and disbursement transactions. We also flagged any discrepancies or items that did not align with this directive.</p>
16.	Undertake a comprehensive assessment of the adequacy, transparency and effectiveness of accounting and overall	

No.	Scope of Work /Task Objective	Our Approach and Methodology
17.	<p>internal control systems for the revenue collections, transfer, and disbursement mechanisms;</p> <p>Recommend and advise the GOG on how to strengthen internal controls and GOG oversight over ECG's revenue and disbursement structure under the CWM</p>	<ul style="list-style-type: none"> • We took into account all our observations made during the execution of our scope of work for this period (from task item 1 to task item 15). • We identified a number of weaknesses and areas of improvement that will help enhance the role of CWM in promoting transparency and strengthening the power sector value chain. • We summarised our recommendations as part of our conclusion in this report. • Our recommendations also highlighted the relevant stakeholders expected to take the suggestions forward including ECG.
18.	<p>Confirm that key findings and recommendations from the 1 July – 30 September, 2023, have been satisfactorily addressed.</p>	<p>We have deferred this task to be completed in Task 2 of this engagement.</p>

The following table summarises our key issues and observations from our review of the available data and information covering the scope items highlighted in Table A.

Table B: Our Key Issues and Observations-Task 1

No.	Key Finding	Details of findings	Conclusion/Recommendation
1	Differences between collection amounts per CWM and ECG Cash Settlement Platform Report	<p>We identified that the amounts recorded as collections in the CWM were lower than the amounts per the ECG Cash Settlement Platform Report. The amount per CWM is GHS 2.72 billion while the amount per the ECG Cash Settlement Platform Report for the Task 1 period is GHS 3.29 billion.</p> <p>In summary, the discrepancies observed between the CWM and the amounts per the ECG Cash Settlement Platform Report are captured as follows:</p> <ul style="list-style-type: none"> • October 2023: GHS 404,816,039 • November 2023: GHS 104,768,729 • December 2023: GHS 57,948,229 <p>The total under declaration between CWM and the ECG Cash Settlement Platform Report is GHS 567.53 million.</p> <p>See Appendix 3A for details.</p>	ECG should carry out monthly reconciliations to promptly address and resolve any discrepancies.
2	Differences between collection amounts per CWM and collection amounts per ECG Revenue Collections Sheet	<p>For the three-month period of October to December 2023, the total amount recorded as revenue collections in the CWM was GHS 2.72 billion while the reported monthly revenue collections for the same period as per the ECG Revenue Collections Sheet amounted to GHS 3.33 billion.</p> <p>Notably, there were issues with both the total collection amounts and the reconciliations between tariff and non-tariff collections.</p>	<p>This inconsistency warrants further investigation to determine the underlying causes and to implement corrective measures to ensure accuracy in reporting.</p> <p>We recommend that ECG does monthly reconciliations to resolve all discrepancies.</p>

No.	Key Finding	Details of findings	Conclusion/Recommendation
		<p>The total under declaration between CWM and the ECG Revenue Collections Sheet is GHS 604.82 million.</p> <p>We have summarised our findings on the discrepancies in Appendix 3B of this report.</p>	
3	Differences between collection amounts per CWM and validated bank collections	<p>There were discrepancies between the amounts recorded as revenue collections in the CWM for the Task 1 period of October to December 2023 and the amounts validated for each month as collections per the bank statements provided.</p> <p>A net amount of GHS 1.14 billion represent the total amount under-declared for the period when the CWM is compared to the amounts validated per the bank statements. The breakdown is as follows:</p> <ul style="list-style-type: none"> • October 2023: GHS 760,228,193 • November 2023: GHS 226,709,788 • December 2023: GHS 155,821,068 <p>In all the months, validated amounts were higher than CWM amount.</p> <p>See Appendix 3C for details of our finding.</p>	Regular reconciliations should be performed by ECG to ensure that all collections in the various bank statements are appropriately captured in the CWM.
4	Discrepancies identified Between CWM and Non-Tariff Collection Schedule	<p>A total amount of GHS 15.72 million was identified as difference between the non-tariff revenue collections declared in the CWM and the amounts per ECG Collection Schedule.</p> <p>It is important to note that, discrepancies in the non-tariff revenues collected affect the amount of revenue collections to be shared by Level B IPPs and other beneficiaries of the CWM.</p>	<p>Since ECG has a payment platform in place, ECG should explore the functionalities of the Platform to identify ways to clearly segregate revenue collections into tariff and non-tariff collections.</p> <p>This clear segregation of revenue collections will ensure that accurate amounts are recorded in the CWM for tariff and non-tariff revenue to bring transparency in the CWM process.</p>

No.	Key Finding	Details of findings	Conclusion/Recommendation
		<p>The amount per the ECG Collection Schedule were higher than the CWM declarations for the Task 1 period. This includes:</p> <ul style="list-style-type: none"> • October 2023: GHS 2,643,174 • November 2023: GHS 7,366,787 • December 2023: GHS 5,705,452 <p>See Appendix 3D for details.</p>	
5	Commission payments to Vendor	<p>ECG has contracted the services of a vendor who provides the payment platform used for collecting all revenues on its behalf and making settlements to designated bank accounts of ECG.</p> <p>From our review of the ECG Cash Settlement Platform Report, we noted that the Vendor is entitled to a commission on the total collections they make on behalf of ECG.</p> <p>The ECG Cash Settlement Platform Report indicates an amount of GHS 47.50 million was paid as commissions to the Vendor for the Task 1 period. These commissions were deducted before collection declarations were made in the CWM.</p> <p>See Appendix 3E for further details.</p>	<p>There is currently no provision in the CWM Guidelines for commissions such as this to be deducted before the net amounts (after deductions) are reported in the CWM for allocation.</p> <p>ECG should ensure compliance with the CWM Guidelines in its operations.</p>
6	Emergency fuel purchases by ECG.	<p>In our analysis, we found that ECG makes fuel purchases when necessary to ensure continuous generation of electricity in the country.</p> <p>We observed that the expenses associated with these fuel purchases affect the allocations to the beneficiaries under the CWM.</p>	<p>Despite the impact on its allocations to beneficiaries under the CWM, ECG indicated that they have an obligation to Ghanaians to maintain a stable power supply.</p> <p>To address this issue (and its impact of the CWM), it is crucial for ECG and the Ministry of Energy to improve their coordination to ensure the timely procurement of fuel to minimise or curtail such purchases.</p>

No.	Key Finding	Details of findings	Conclusion/Recommendation
		<p>In our discussions with ECG, they indicated that emergency fuel purchases are made following directives by the Ministry of Energy, when there is imminent shortage of electricity in the country.</p> <p>Within the Task 1 period, a total amount of GHS 136.74 million was paid out for emergency fuel to the fuel supplier. However, per the CWM, only GHS 18.20 million was declared as payment to the Supplier (in November 2023) within the period. This created a variance of GHS 118.54 million between the declared payments to the Supplier (per the CWM) and the actual payments made by ECG per ECG's payment records.</p> <p>See Appendix 5E for details of payments made to the Supplier.</p>	<p>Additionally, implementing a policy for fuel procurement for IPPs under the CWM will be essential to help prevent disruptions and improve transparency issues in the financial allocations, particularly for Level B beneficiaries (who are currently affected by this arrangement).</p>
7	<p>Issuance of debit notes to IPPs on behalf of fuel suppliers by ECG.</p>	<p>We observed that over the Task 1 period, ECG paid some fuel suppliers on behalf of the IPPs. ECG acknowledges this transaction by issuing a debit note to the IPPs. Debit notes serve to reduce ECG's financial obligations to the IPPs.</p> <p>During our validation, we cross-checked the debit notes issued with the bank statements to confirm that the amounts per the debit notes were matched to payments in the bank statements.</p> <p>We however noted that the total amount of debit notes issued which were agreed to the bank statements did not fully cover the total amount declared to be paid to the IPPs per the CWM. The variance is GHS 127.10 million for the Task 1 period. (See Appendix 4 for detailed analysis).</p>	<p>ECG should take steps to ensure that what is declared in CWM is paid in full to avoid the build-up of debts to beneficiaries of the CWM.</p>

No.	Key Finding	Details of findings	Conclusion/Recommendation
		See issue 12 for further commentary on IPP payments.	
8	Credit notes issued to Ghana Revenue Authority (GRA)	<p>In the course of our work, we observed that ECG issued credit notes to GRA to offset its liabilities. The credit notes amounting to GHS 500 million, was intended to offset all outstanding liabilities ECG owes GRA up to April 2024.</p> <p>There is an arrangement between the Government of Ghana (GoG) and ECG on the payment of VAT liability by ECG and the settlement of electricity bills by Ministries, Departments, and Agencies (MDAs). This is done through the issuance of credit notes after the VAT liability and electricity bills of MDAs have been offset.</p> <p>The issuance of these credit notes means that Ministries, Departments, and Agencies (MDAs) who owe ECG will not make any payments for the period covered by the credit notes. This has the effect of depriving the beneficiaries of the CWM of their share of collections had these MDAs paid for the electricity they consumed.</p>	We propose that PURC includes guidelines for credit notes in the CWM model to ensure transparency in payments to regulatory authorities.
9	Directive on the use of a Single Collections Account not adhered to	According to the CWM Guidelines, ECG is required to maintain a single collection bank account for all revenue collections and subsequent payments to the CWM beneficiaries. This approach is intended to streamline bookkeeping and facilitate easier reconciliation	ECG should take steps to designate and operate a single collections account as per the CWM Guidelines, while utilising other accounts for their remaining operational needs. This will enhance financial oversight and compliance with the CWM module.

No.	Key Finding	Details of findings	Conclusion/Recommendation
		<p>and accounting of revenues as well as collections.</p> <p>However, we noted through our validation procedures that ECG operates multiple bank accounts (84 bank accounts) with 20 different banks.</p>	<p>ECG may consider operating its single collections account with a bank with relatively more extended branches across the country. This will curb the need for several accounts with several banks and help streamline its operations and transparency.</p>
10	<p>Untimely payments made to IPPs and regulatory bodies</p>	<p>According to the CWM guidelines, ECG is obligated to make payments to the CWM beneficiaries by the 22nd of every month. However, ECG has failed to adhere to this payment timeline.</p> <p>From our review, we also noted that timely payments are not made for statutory deductions such as National Electrification and Street Lighting.</p> <p>The procedures we performed, identified the following:</p> <ul style="list-style-type: none"> • October 2023: USD 11.00 million was not paid on time and GHS 352.00 million was not paid on time. • November 2023: USD 5.00 million was not paid on time and GHS 72 million was not paid on time. • December 2023: USD 10.50 million was not paid on time and GHS 165.00 million was not paid on time. <p>See Appendices 6a, 6b and 6c for details.</p>	<p>ECG should take steps to introduce performance monitoring systems to track adherence to payment schedules.</p> <p>These systems should establish accountability measures for any delays such as periodic reviews and measures to address the root cause of the payment failures.</p>
11	<p>Allocations for statutory payments are not consistent each month</p>	<p>Based on the CWM Guidelines, ECG is required to allocate 12.5% of net collections, after allocations to Level A IPPs, for statutory payments.</p>	<p>We would like to emphasise the fact that ECG needs to follow the guidelines issued by the CWM in determining the amount to be allocated to statutory agencies.</p>

No.	Key Finding	Details of findings	Conclusion/Recommendation
		<p>From our review of the CWM data covering the Task 1 period, we noted that no amounts were directly described as allocations for statutory payments in the month of November 2023 and December 2023.</p> <p>We however noticed that a total amount of GHS 303.48 million was made as deductions in the CWM against the net revenues after Level A IPP allocations for the two months (November 2023 and December 2023). These deductions were described as tax offsets amounting to GHS 253.48 million in November 2023, and GHS 50 million in December 2023.</p> <p>These amounts were deducted before arriving at net revenue for Level B beneficiaries in the CWM. ECG could not provide us with evidence supporting these tax offsets and the rationale for doing so.</p> <p>The effect of this is that the revenue available for allocation for Level B beneficiaries was reduced by these amounts</p> <p>See Appendix 6C for details of our findings.</p>	<p>Failure to comply with the CWM guidelines will lead to decreased payments for other stakeholders.</p>
12	<p>Differences between amount allocated to the CWM beneficiaries (including IPPs) and the actual amount paid to the beneficiaries.</p>	<p>During our review of ECG's payment ledger, transfer advice, and bank statements, we observed discrepancies in the payments to CWM beneficiaries compared to the allocations made in the CWM.</p> <p>It was observed that ECG consistently failed to remit the allocated monthly amounts stipulated in the CWM. For the Task 1 period the total allocation per CWM to the beneficiaries is GHS</p>	<p>ECG should put in place measures to pay the IPPs the amounts stipulated in the CWM for each month to ensure compliance with the CWM guidelines.</p>

No.	Key Finding	Details of findings	Conclusion/Recommendation
		<p>2.58 billion while the amount paid is GHS 1.97 billion.</p> <p>The total underpayment for the Task 1 period of GHS 609,101,403, indicate significant deviation from the CWM allocations.</p> <p>See Appendix 5 for details.</p>	
13	Pending access to ECG's Information Technology systems	<p>As part of our mandate to assess the CWM, a thorough evaluation of ECG's billing and invoicing processes is required (in line with the ToR for this engagement).</p> <p>This assessment contains several critical areas, including the accuracy of metering, the application of tariffs, customer billing procedures, and the authenticity of billing statements issued to customers. Obtaining access to these systems is essential for verifying the accuracy of the revenues received.</p> <p>As at the time of completing this report, ECG had granted us access to the Adora system but was still putting in place the relevant measures in order to grant us access to the MMS, Zeus and legacy systems for validation.</p>	<p>Limited access to ECG's data systems significantly hinders our ability to conduct a thorough assessment of ECG's billing and invoicing processes.</p> <p>These Systems are critical for revenue validation and accuracy confirmation. To facilitate a complete and accurate evaluation, it is crucial for ECG to provide full access to these systems.</p>
14	Key observations from the billing and invoicing system review	<p>We obtained the detailed monthly billings of each postpaid customer from the Adora system for the period October to December 2023. We compared our analysis to the Sales Report to confirm that the total billings in Adora are consistent with the total billings reported in the Sales Report.</p> <p>While the Adora Systems showed total billing to be GHS 2.81 billion, the Sales Report showed total billings as GHS 3.29 billion. This resulted in a difference of GHS 479 million. As at the time</p>	ECG should take steps to reconcile the differences noted.

No.	Key Finding	Details of findings	Conclusion/Recommendation
		<p>of completing this report, ECG was yet to fully reconcile the difference noted. See Appendix 13 for details of our finding.</p>	
15	Meters yet to be migrated to the Meter Management System	<p>ECG employs a Meter Management System (MMS) to centrally manage some of its prepaid meters and balances as well as to remotely update meter configurations.</p> <p>Based on our assessment of ECG's billing and invoicing systems, we noted that there are 21 prepaid systems, i.e., 20 legacy systems and a Meter Monitoring System (MMS).</p> <p>It was evident that not all meters have been integrated into the MMS yet.</p>	<p>ECG should put in place measures or expedite any current attempts to integrate all meters including those on the legacy systems onto the Meter Management System (MMS).</p> <p>This will create a central database of all meters and prepaid configurations for efficient management.</p>

Section 6: Conclusion and Next Steps

Based on our analysis of the data and information that was made available to us by ECG within the relevant scope of work set out in the Terms of Reference for Task 1, we have identified the following key recommendations for the attention of ECG, Ministry of Energy, PURC and other relevant stakeholders. Some of our recommendations include those put forward in our previous Task 1 Report (covering the period 1 July 2023 to 30 September 2023) that have not been implemented as well as new recommendations arising out of this review period.

Our key recommendations from our assessment include the following:

Table C: Our recommendations (Task 1 Review)

No.	Thematic Area	Recommendation details
1	Fuel Purchases	<p>We recommend that ECG engage in discussions with key stakeholders, including the IPPs and the PURC, Ministry of Energy, to clearly define and agree on the responsibility for procuring fuel for power generation.</p> <p>ECG's current practice of purchasing fuel on demand and, in some cases, paying full prices to non-beneficiaries of the CWM significantly impacts cash outflows, particularly for Level B beneficiaries under the CWM.</p> <p>Our review of the CWM guidelines did not indicate that ECG is authorised to purchase fuel on behalf of IPPs. It is unclear why this arrangement has been established between the IPPs and ECG. Further clarification and stakeholder engagement will be necessary to address this issue.</p>
2	Internal Reconciliation Mechanisms	<p>Our assessment for this Task 1 period revealed discrepancies within ECG's records on the relevant items on revenue and collections. Specifically, there were instances where the amounts reported as collections in the ECG collections sheet differed from those declared in the CWM. We believe that these issues can be easily resolved if ECG conducts a reconciliation between its internal records and the amounts reported in the CWM.</p> <p>We anticipate that this validation exercise may be taken forward into the foreseeable future. Based on this, these mechanisms will be very useful in supporting the delivery of this engagement with minimal interruptions to ECG's regular operations by making the relevant data/information readily available through the reconciliation mechanisms.</p>
3	Revenue Data from ECG Cash Settlement Platform (ECSP)	<p>We recommend that ECG take steps to engage the ECSP Vendor to establish mechanisms to facilitate a clear distinction between tariff and non-tariff revenue collections at the points of collection. This will help ECG maintain accurate records and facilitate a process where all revenue collections are easily reconcilable with the amounts reported in the CWM. We</p>

No.	Thematic Area	Recommendation details
		<p>recommend that since the fees charged by the ECSP impacts the CWM beneficiaries, it will be important in the interest of openness and transparency for ECG to engage the relevant stakeholders on the arrangement with the ECSP.</p>
4	Review the approach to the Single Collection Account	<p>We recommend that ECG streamlines its banking arrangements to work with either one or, at most, two banks with extensive branch networks³ covering all major parts of the country to align with the 2023 Ministry of Finance directive to operate a single account under the CWM arrangement.</p> <p>Engaging with a limited number of banks with nationwide reach will enhance operational efficiency and reduce complexities in managing collections at ECG. This approach will allow ECG to maintain a more centralised collection account with each selected bank, eliminating the current reliance on multiple bank accounts with various banks across the country.</p> <p>A streamlined banking arrangement would bring the following benefits to ECG and improve transparency around the revenue/collections management:</p> <ul style="list-style-type: none"> • <i>Simplified verification:</i> Consolidating accounts from up to two banks would make it easier to verify sweeps and reconcile collections, ensuring greater transparency and accuracy in financial reporting. • <i>Enhanced control:</i> A centralised account structure reduces the risk of errors or mismanagement associated with handling multiple accounts across various banks. • <i>Cost efficiency:</i> Working with fewer banks can lower administrative costs and banking fees. • <i>Improved accountability and transparency:</i> With a more centralised system, monitoring cash flows and conducting audits (both internal and external) becomes more efficient. <p>Implementing this recommendation would align ECG's operations (especially in connection with revenue/collections) with the MoF directive on the CWM. Additionally, it will also help improve the efficiency, transparency, and reliability of its revenue collection process.</p>
5	Develop a Monitoring System for Allocation	<p>We observed that ECG allocates 12.5% of the net collections in the CWM for statutory payments. However, these payments are based on allocated amounts rather than specific payments required to settle statutory obligations.</p> <p>To enhance transparency and accountability, we recommend that ECG put in place steps to implement a tracker for statutory obligations and payments. This</p>

³ ECG indicated in our discussions that the reason for using several bank accounts from various banks was to help facilitate access to a wide coverage for collections across Ghana.

No.	Thematic Area	Recommendation details
		<p>tracker would enable ECG to monitor transactions, reconcile allocated amounts with actual payments and prevent errors or omissions</p> <p>Additionally, it would provide a clear audit trail and improve the accuracy of financial reporting related to statutory payments, strengthening ECG's overall financial management process.</p>
6	Redesigning the CWM into a Cloud Based Platform	<p>Technology enabled solutions can drive efficiency, as well as transparency and accountability in critical integrated systems involving multiple stakeholders. In the previous Task 1 report, we recommended that PURC, Ministry of Energy, GESRP and its stakeholders consider moving the CWM into a cloud-based platform. We have included an extract of our detailed recommendation from the previous Task 1 report in Appendix 8 of this report.</p>
7	ECG's digitalisation- Considerations for cybersecurity and data protection	<p>Digitalising ECG's collection and revenue management is an important step to helping improve the efficiency and customer convenience. Digitalisation often opens up institutions to challenges around data breaches, data loss and cyber-attacks. This will become even more critical with the ECSP arrangement and any other similar third-party arrangement in ECG's operations. In our last Task 1 Report, we set out recommendations targeted at the following items for ECG to adopt going forward:</p> <ul style="list-style-type: none"> • Strengthening of its Disaster Recovery System; • Measures to create a cyber defence system for ECGs billing and collection systems; and • Adoption of IT Third party management needs to monitor and assess the risk posed by third parties who provide services to the organisation. <p>We have included our recommendations on ECG's Cybersecurity and Data Protection considerations from the previous Task 1 report in Appendix 8 of this report for reference.</p>

The immediate next steps for us, is the engagement of the Ministry of Energy, PURC and the relevant stakeholders to discuss the key findings from our assessment to inform the relevant action points to be taken forward.

We will also look forward to discussing our recommendations for this review as PURC, GESRP and the other stakeholders take steps to implement them. We emphasise that the issues raised so far are critical to help improve the transparency, strengthen the confidence of stakeholders in the use and objectives of the CWM.

We would like to extend our appreciation to ECG for their willingness to share information/data and offer clarifications as and when required. There was a significant improvement and buy in from ECG towards the activities of this exercise compared to the last review. However, there were

some minor delays and approvals that did not make all the data/information available in good time.

As we take steps to finalise this report and prepare to execute Task 2, we would appreciate their continued support and quick turn around on requests to help ensure that our work is completed within time. We will complete our review of our recommendations from the 2023 Task 1 assessment (1 July 2023 to 30 September 2023) as part of our Task 2 assessment.



Introduction and Background



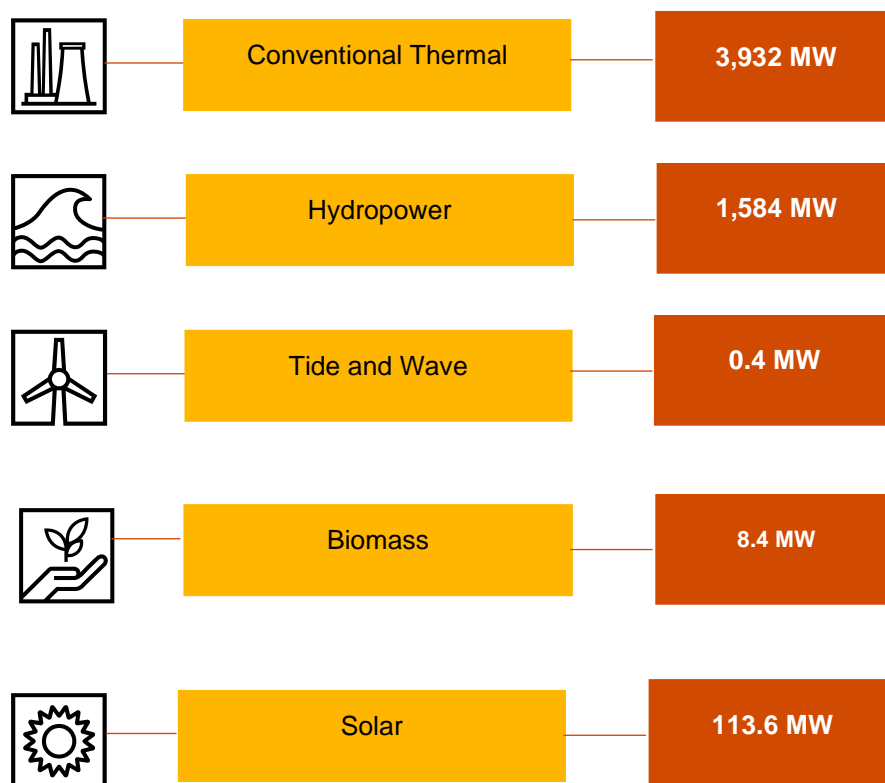
Introduction and Background

1.1 Introduction

1.1.1 An Overview of Ghana's Power Sector

Ghana has approximately 5,638 MW⁴ of installed power generation capacity which is made up of the following sources of power as shown in Figure 1.

Figure 1: Summary of Ghana's Power Generation Capacity



Source: BMI estimate for 2023, US Energy Information Administration (EIA), International Renewable Energy Agency (IRENA), BMI (Fitch Solutions).

Ghana's power sector can broadly be segregated into three major areas: generation, transmission and distribution. The power generation mix in Ghana is supplied from Volta River Authority (VRA), Bui Power Authority (BPA) and Independent Power Producers (IPPs).

Energy produced from the generating stations is transmitted by the state-owned Ghana Grid Company (GRIDCo) throughout the entire country to VRA power sale customers i.e. the distribution and service connections companies, through an interconnected transmission network at 69 Kilovolts (kV), 161kV and 225kV voltage levels.

The transmission grid comprises a matrix of substations and transmission lines. It includes over 4,000 kilometres of high voltage transmission lines operating at 161kV and 69kV and includes an interconnection to Cote d'Ivoire at 225kV.

Distribution in Ghana is carried out by three main distribution utilities, two state-owned (Electricity Company of Ghana [ECG] and Northern Electricity Distribution Company [NEDCO]) and one private sector operator (Enclave Power Company)⁵.

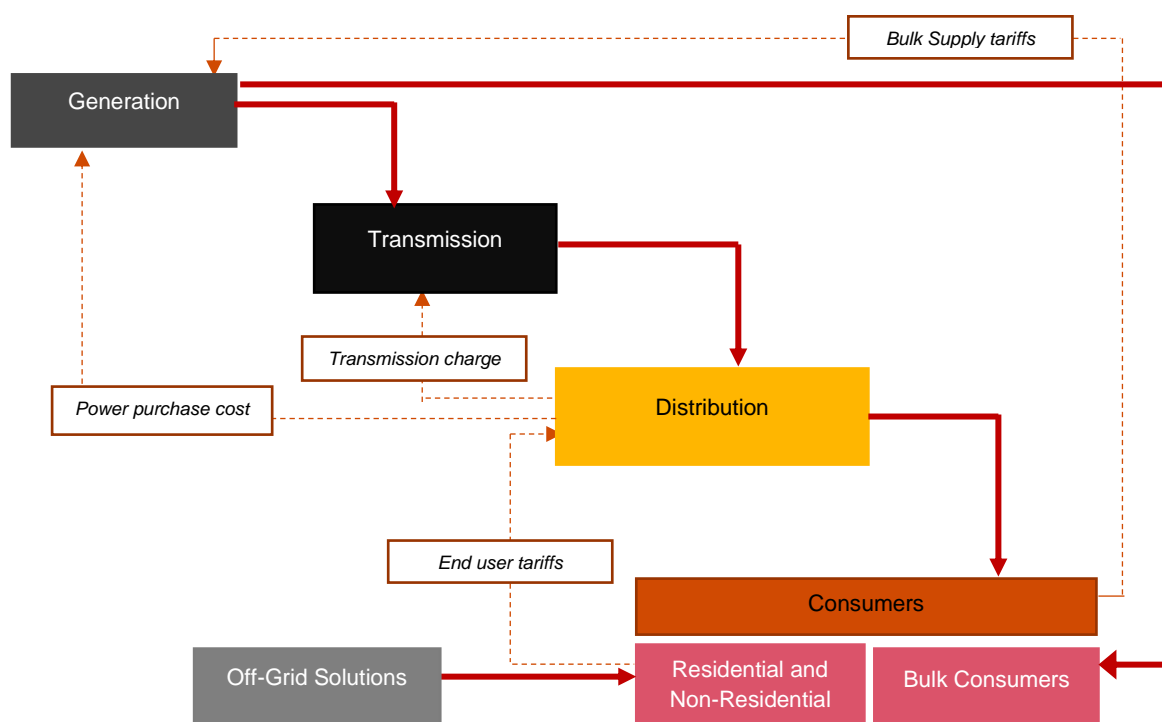
Ghana is noted to have achieved one of the highest electrification rates in sub-Saharan Africa of more than 88.9%⁶.



⁵ Ministry of Energy| Overview of The Ghana Power Sector

⁶ International Energy Agency (IEA)| Share of population with access to electricity data – Ghana (2023). LINK: <https://www.iea.org/reports/sdg7-data-and-projections/access-to-electricity>

Figure 2: Ghana's Power Sector Structure (Tariff/Charges Flow and Flow of Power)



KEY	
	Flow of power (supply and consumption)
	Tariffs/Charges

Source: Ghana Investment Promotion Centre (GIPC) and PwC Analysis

1.1.2 The Public Utilities Regulatory Commission (PURC) and its Role

PURC is a state entity and regulator for the electricity utility services, water utility services and the transportation of natural gas services in Ghana. The PURC under its establishing act (Public Utilities Regulatory Commission Act, 1997 (Act 538) is an independent body and is not subject to the control of any authority in the performance of its function. The PURC's role covers the following functions:

- Examination and approval of utility rates in Ghana;
- Provision of guidelines for rates to be charged for the provision of utility services in Ghana;
- Receive, investigate and settle complaints relating to utility services
- Promotion of fair competition among public entities in Ghana;
- Provision of advice to any person or authority in relation to any public utility in Ghana;
- Protection of the interest of consumers and providers of utility services in Ghana;
- Monitoring and enforcement of standards of performance for the provision of utility services in Ghana;
- Review of reasonableness of pricing under Ghana's Power Purchase Agreements and monitoring their quality of service; and

- Regulation of other public entities in Ghana's power generation sub-sector by approving the Bulk Generation Tariffs.

The following entities all fall within the remit of PURC's regulation:

- Electricity Company of Ghana (ECG);
- Northern Electricity Distribution Company (NEDCO);
- Enclave Power Company Limited;
- Ghana Grid Company (GRIDCO);
- Ghana National Gas Company Limited (GNGC); and
- Ghana Water Company Limited (GWCL).

Under the amended Energy Sector Recovery Programme (June 2023), the following items highlight steps taken to help strengthen PURC's role as regulator in Ghana's power sector:

- Operationalisation of a regulatory financial reporting framework;
- Installation of prepaid meters for non-strategic MDAs in Ghana by ECG and NEDCO;
- Institute regulations and tariffs for full recovery of street lighting costs;
- Completion of periodic adjustment of revenue requirement for ECG and NEDCO (as per quarterly adjustment);
- Review non-residential block tariff structure; and
- Commission regular audit of collections and disbursements of ECG and NEDCO.

1.1.3 The Energy Sector Recovery Programme (ESRP)

The Energy Sector Recovery Programme (ESRP) was launched in May 2019 by the GoG as a roadmap to bring the energy sector into financial balance by 2023. It comprised of an original set of 30 reform actions or Action Items (AIs), split across 3 Phases, that would simultaneously reduce cost and increase revenues while improving the operational performance of sector SOEs. During the ESRP implementation period of 2019 to 2023, the GoG also committed to annual budgetary transfers (Stabilisation Payments) to cover prevailing sector revenue shortfalls to prevent further accumulation of legacy arrears.

The second phase of the AIs consisted of 21 AIs which were to be initiated within the first twelve months after the approval of the ESRP, by May 2020. The adoption of the Cash Waterfall or other appropriate mechanism to increase payment transparency was item 24 (in Phase II) of the ESRP AIs.

In April 2020, the ESRP established the Cash Waterfall Mechanism (CWM) to facilitate a transparent, equitable and timely process of payments to Ghana's power sector value chain from revenues billed and collected by ECG. The core objectives of implementing the CWM were to:

- Create a mechanism that ensures that the revenue collected from the regulated electricity market in Ghana is allocated across the electricity value chain in an equitable and transparent manner;
- Facilitate the process of clearly and comprehensively establishing the gap between the cost of electricity supply and the revenue collected; and
- To ensure transparency, efficient and equitable disbursement of ECG's collections to the power sector players in Ghana.

The scope of the ESRP has since been amended to allow the completion of uncompleted AIs and the implementation of its new AIs (additional 12 AIs) due to the change in circumstances

(particularly, higher than expected exchange rate fluctuation, worse than expected State Owned Enterprise performance, increased power generation and operations cost higher than expected all leading to wider than anticipated sector shortfall of approximately US\$ 8 billion). The amendment (instituted in June 2023) has led to the extension of the ESRP by two and a half years (to 2025). Some of the key AIs largely relevant to the scope of this engagement include:

- Implement mechanisms for enforcing the guidelines of the CWM and NGC.
- PURC to commission regular audit of collections and disbursements of ECG and NEDCo.
- PURC to complete periodic adjustment of revenue requirement for ECG and NEDCo (as per quarterly adjustment).
- PURC to operationalise a regulatory financial reporting framework.
- Develop and institutionalise a framework for inter-utility debt reconciliation and settlement.

1.2 Engagement Background

As part of achieving financial sustainability in Ghana's energy utilities and value chain, the Government of Ghana (GoG) initiated the Energy Sector Recovery Program (ESRP) in May 2019. The ESRP is a comprehensive recovery program that sets out the roadmap of policies and actions required for the financial recovery in the energy sector.

The ESRP implemented a payment mechanism in April 2020, the Cash Waterfall Mechanism (CWM), to ensure transparency, equitable and timely payment of all revenues billed and collected by the Electricity Company of Ghana (ECG) on behalf of the entire electricity generation value chain.

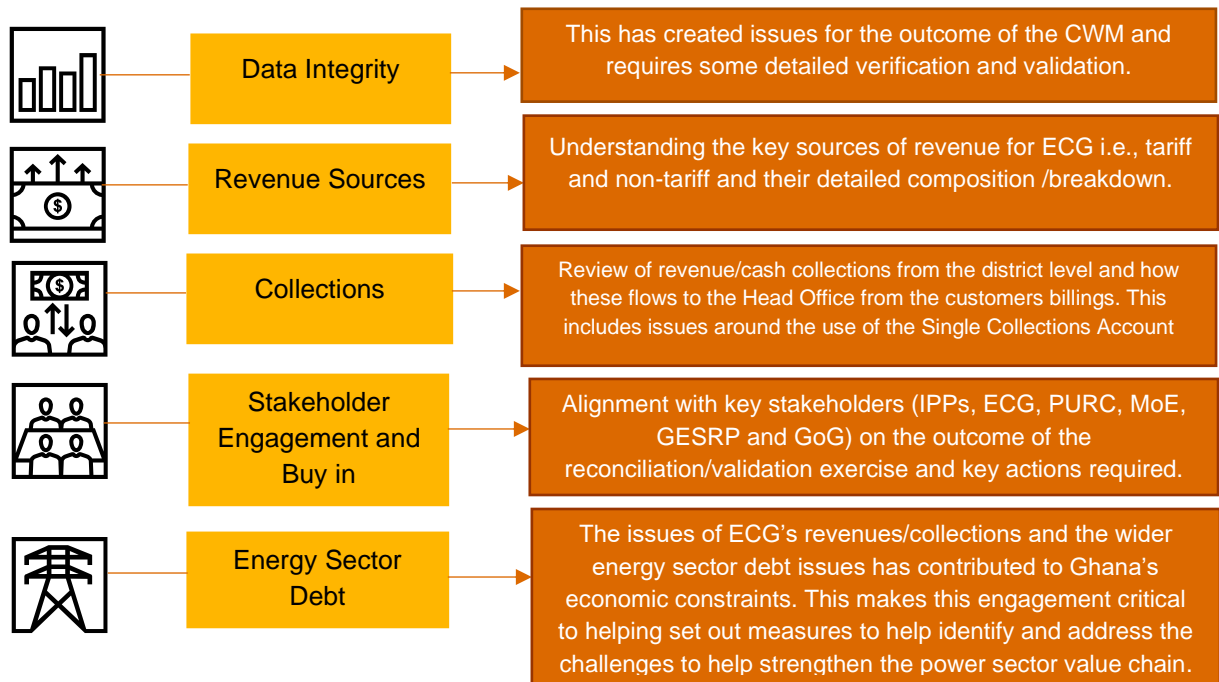
The CWM and the Natural Gas Clearinghouse (NGC) mechanisms were put in place to ensure equity and transparency in the disbursement of energy revenues, equitable allocation of tariff revenue collected by the Electricity Company of Ghana to all parties in the energy value chain.

In June 2023, a presidential directive was issued to GESRP to address the challenges with ECG's compliance with the CWM guidelines. In summary, the objective of the directive sought to improve the financial sustainability of Ghana's energy sector by restructuring the payment mechanism going forward. We have reviewed the details of the directive in the next section of our report.

This engagement seeks to validate electricity sales in terms of kWh and amount billed and collected by ECG over a defined period to confirm if these sales, billings and collections align with the requirements and outcomes of the Cash Waterfall Mechanism and its related payments. The assessment will also validate the cycle of power delivered, corresponding billing and collection as well as the full transfer of these collected funds from the regional and/or district collection accounts into the Single Collections account.

The assessment covers the period of 1 October 2023 to 31 December 2023 (i.e. Task 1).

The following are some of the key challenges in Ghana's power sector that we believe has informed the importance and urgency for this engagement:



As part of the assessment for this engagement, this report's scope, i.e. Task 1, covers the 1 September 2023 to 31 December 2023 (3 months) period.





Review of the Cash Waterfall Mechanism



Review of the Cash Waterfall Mechanism

2.1 Introduction

Our objective and methodology for this aspect of our assessment in line with the ToR is summarised as follows:

- **Our Objective:** Review the CWM allocation determination process, including the methodologies used and the inputs considered.⁷
- **Our Methodology:** We obtained copies of the CWM from ECG and PURC for review (covering the Task 1 period). We also reviewed the PURC Cash Waterfall Mechanism Validation Reports for the Task 1 period.

The Cash Waterfall Mechanism (CWM) has been operational since April 2020, with a primary objective of ensuring equitable and transparent distribution of monthly revenue collections by ECG, based on the invoices submitted by the beneficiaries and the share of each beneficiary in the PURC tariff build up.

After the June 2023 directive from the President of the Republic of Ghana on the revision of the implementation of the CWM due to ECG's non-compliance with the previous guidelines, the updated model was effective from July 2023. In the updated CWM, IPPs (Level A stakeholders) are to be paid approximately USD 43 million on a monthly basis whereas the rest of the cash is split among the rest of the stakeholders/beneficiaries along the value chain (i.e. Level B stakeholders) based on an agreed proportion split (as was previously the case).

Additionally, the directive required ECG to declare monthly minimum collection of GHS 1 billion for disbursement and the Sankofa gas payment excluded for the allocation within the mechanism.

The table as follows shows the directed formulae for the allocation of the revenue collected to the energy sector players:

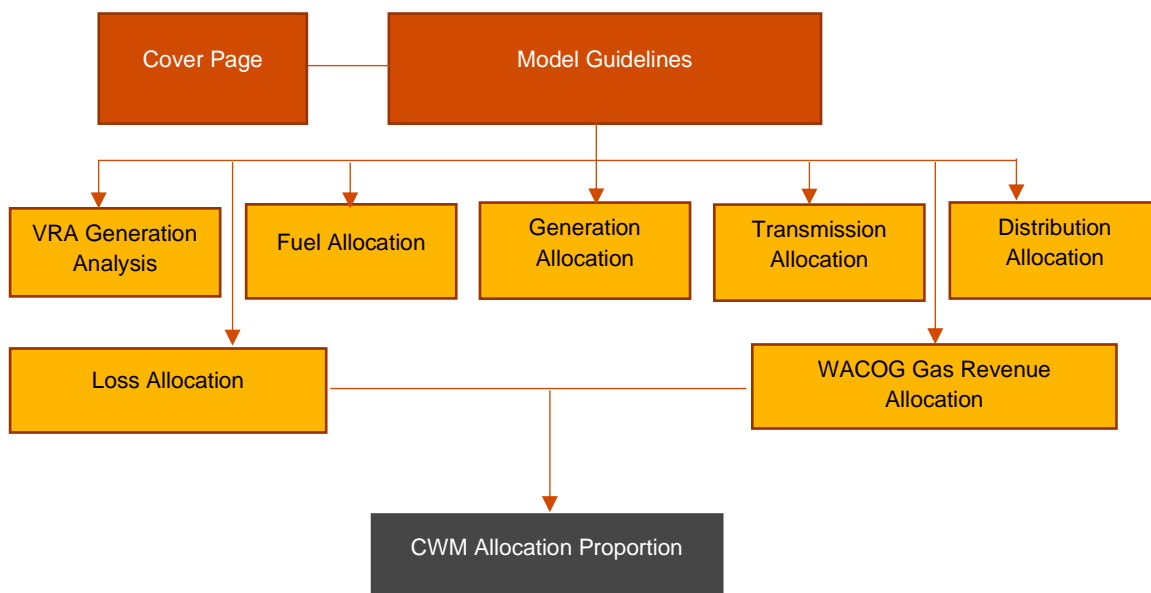
⁷ In line with the ToR the second aspect of this scope requires us to review all revenues collected against electricity received from generators by ECG and delivered to customers, corresponding bills issued and revenue collected and transferred into a single collections account

Table 1 : Allocation of revenue collected by ECG to sector players (CWM beneficiaries)

Collection			
Total collection		A	
Payments to IPPs		B	
Balance for CWM		$C=A-B$	
Statutory Deductions (12.5%)		D	
Net Revenue for Allocation		$E=C-D$	
Allocation			
Electricity Value Chain	Cost	% Allocation	Disbursement
Generation	G	G/T	$(G/T)*E$
Fuel	F	F/T	$(F/T)*E$
Regulatory Levies (Power)	RI	RI/T	$(RI/T)*E$
Distribution	Dis	Dis/T	$(Dis/T)*E$
Transmission	Tr	Tr/T	$(Tr/T)*E$
Total	T	100	

The current CWM model can be summarised as follows:

Figure 3: Summary CWM Model Structure



2.2 Review of model structure and mechanics

The following table sets out our review of the CWM model structure and mechanics. We reviewed the CWM model presented to us for the Task 1 period. These comments are largely similar to those raised in our previous Task 1 review (covering 1 July 2023 to 30 September 2023).

Table 2 : CWM model structure and mechanical review

No.	Thematic Area	Comments
1	General model structure	<p>The model is well structured and defines terminology applied across the model as well as the applicable colour coding.</p> <p>As a form of best practice, the guidelines within the model should also include a detailed description of each sheet within the model structure to present the flow of the framework and the importance of the calculations there. It will be best if the cover page could incorporate this.</p>
2	Formulas and mechanical framework	<p>In general, the formulas and mechanical framework of the CWM are sound and well structured. Due to the sensitive nature of revenue allocations and tariff computations, it will be more prudent for these relatively more sensitive sheets to be protected going forward particularly given the fact that all other stakeholders will only be reviewing the information presented on the computations.</p> <p>We did not identify any problematic formulas within the CWM model. However, we noticed that the Loss Allocation sheet was not formatted per the model architecture framework, and this should be updated for consistency.</p>
3	Errors and inconsistencies	<p>Our review of the CWM model did not show any obvious errors or inconsistencies. The model is relatively robust in the relevant formulas for the allocation analysis.</p>
4	Model security and protection	<p>Given the current structure of the mechanism and how it is shared, it is important for the model to be secured in terms of:</p> <ul style="list-style-type: none"> Internal computations (by PURC) establishing the allocations for generation, fuel, loss and transmission should have restricted access to avoid errors/miscalculations due to cell interference. Version of the model shared with stakeholders such as ECG should provide limited access to provide validated

No.	Thematic Area	Comments
		<p>collections to facilitate automatic CWM allocation computation.</p> <ul style="list-style-type: none"> PURC should also consider establishing an access log and version control system for the CWM model.
5	Considerations for more efficient and transparent operationalisation	An unprotected spreadsheet for the CWM may not be too efficient in holding key stakeholder accountable to validated collections and ensuring that the CWM guidelines are followed. A real time platform that allows PURC and ESRP to monitor and evaluate the mechanism will strengthen its ability to meet the fundamental objectives of the CWM.

2.3 Key Observations and issues identified

The following are some key observations we made during our review of the CWM models we received from ECG and PURC over the Task 1 Period:

- CWM Discrepancies (Declaration vs Disbursement):** We observed that the declared collections and corresponding allocations made by ECG were consistently different from what was actually paid. This according to the CWM reports were due to overpayments/underpayments to beneficiaries particularly those with Tier 2 (Level B) of CWM. The CWM report does not state clearly why this happened and the PURC notes that the CWM Standing committee indicated how this defeats the purpose of the CWM. We generally agree with this position as the guidelines for the CWM are quite clear. It will be important to understand from ECG's perspective why the guidelines were still not followed consistently.
- CWM process:** As mentioned earlier, the allocations and subsequent disbursement often do not completely follow the requirements of the guidelines. It will be useful for PURC to take advantage of technology enabled solutions to facilitate a system that provides real-time data, independent validation and a stronger reconciliation system to support a more efficient monitoring and evaluation process in the CWM declaration process. We have reemphasised our recommendation on the use of technology as a way of strengthening the operationalisation of the CWM (See Section 5, Conclusion and Next Steps).
- Use of an unprotected Microsoft Excel spreadsheet (Data Integrity and Model Security):** We observed that most of the submitted CWM models did not have protected cells to limit users' ability to interfere with allocation formulas either intentionally or by error. Going forward, PURC will need to reconsider the use of Microsoft Excel based spreadsheet for the CWM. To promote the process of transparency and efficient management of the mechanism, the integrity of the data entered into the spreadsheet must be safeguarded. Key cells must be

locked with control access features and enhanced access log features programmed into the spreadsheet to track any attempted changes to the inputs in the model.

As suggested in our recommendation, PURC together with ESRP should consider a shared platform approach to enhance oversight and accountability from ECG, beneficiaries and the key stakeholders of Ghana's value chain to promote confidence in the CWM and its ability to meet its objectives.

Review of ECG's Billing and Invoicing Procedures



Review of ECG's Billing and Invoicing Procedures

3.1 Introduction

This section of the report outlines the processes and steps for ECG's billing and invoicing for both postpaid and prepaid customers. We have detailed the process walkthrough, highlighting the systems, computations and customer categorisation details that inform customer billing and invoicing from ECG.

3.1.1 Our objective for this task

Our primary objective for this task aligns with the second requirement per the Terms of Reference for the Project. In line with this, our assessment seeks to review and assess ECG's billing and invoicing procedures, including the accuracy of metering, tariff application and customer billing.

3.1.2 Our methodology for this task

We initiated our approach with a process walk through discussion with representatives from ECG's Customer Service Directorate (CSD) and Revenue Assurance Department. Based on this, we developed a process map aligning the process walk through with ECG systems and calculations. Using this, we prepared the relevant narrative around the billing and invoicing procedures at ECG and outlined our key observations and recommendations.

3.2 Process Walkthrough

3.2.1 System Overview

ECG's billing process starts with customer onboarding. The customer applies for grid connection and a meter installation at the customer's premises. The customer's data is captured by an ECG staff and shared with the ECG Cash Settlement Platform (ECSP) Vendor using the Zeus application.

The Zeus application is a workflow management system used for customer onboarding and meter readings. During onboarding, an application fee is paid. ECG then inspects and surveys the premises, signs an agreement with the customer, and provides a compliance certificate from the energy commission. After this, the customer pays an installation fee, either via mobile money or at the bank, before the meter is installed. Depending on the type of meter, the customer is classified as either prepaid or postpaid.

Postpaid Customers

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For postpaid customers, the meter reading is captured via the Zeus application and communicated to ECSP Vendor through an interface. The bill then appears on the ECG Application and/or is sent to the customer via SMS. Payments can be made using mobile money through the ECG Application. An ECG staff member can also initiate a transaction for the customer, prompting them to enter their mobile money PIN to complete the process. Alternatively, customers can pay through banks or ghana.gov. No physical cash is accepted at ECG offices.

When a customer makes payment, it is received by ECSP Vendor and ECG's bank account is credited accordingly. From 2024, readings are no longer taken monthly but are now taken quarterly. As such bills given to customers in months where their meters have not been read are on estimated billing basis. Any overestimation or underestimation is adjusted once the actual reading is taken.

For postpaid meters, the Adora system manages all transactions and computes consumer bills. The Adora system was introduced on 3 June 2023, and it operates alongside ECG's legacy metering systems.

Prepaid Customers

ECG employs a Meter Management System (MMS) to centrally manage all its prepaid meters and balances, as well as to remotely update meter configurations. MMS includes a module that communicates with prepaid meters when customers make payments. However, not all meters have been integrated into MMS yet, as some do not meet the necessary requirements for onboarding. For prepaid customers, a token is received after payment via various payment channels, which is entered into the meter to reflect the power purchased.

ECSP Vendor's role in the collection cycle

The ECSP Vendor currently acts as a third-party service provider by offering a system that interfaces with Adora and MMS to confirm and facilitate bill payments. Based on our understanding of the process from discussions with ECG, once a bill is paid to ECG, three reconciliation processes are initiated.

The first process is between the ECSP Vendor and ECG Revenue Assurance Team to ensure customer accounts are accurately credited. This is then followed by a process between the ECSP Vendor and ECG's Finance Department for monetary settlement. The process ends with a consolidation between ECG's Revenue Assurance Team and ECG Finance Department.

3.2.2 Tariff Application

ECG customers are categorised into two billing types: prepaid and postpaid. Prepaid customers buy electricity in advance, while postpaid customers are billed monthly based on their consumption. Both prepaid and postpaid categories include residential and non-residential customers. For tariff application, customers are divided into Special Load Tariff (solely industrial customers) and Non-Special Load Tariff (encompassing both industrial and non-industrial customers). All industrial customers fall under the postpaid category while non-industrial customers could either be prepaid or post-paid.

A. PREPAID CUSTOMERS

Computation for Prepaid Charge

For prepaid residential and non-residential tariffs, consumption thresholds are set based on the kWh consumed. The threshold limits vary between residential and non-residential customers. Consumption thresholds are divided into a graduated schedule: 0-300 kWh and over 300 kWh. The thresholds are calculated as follows:

After the first threshold has been determined, a deduction is made from the total consumption, to obtain the second threshold. The energy charge is subsequently calculated by applying the respective rates for each threshold.

To calculate the total energy charge, the following computation is applied:

$$\text{Prepaid charge (GHS)} = \text{kWh to be consumed} \times \text{PURC Tariff Rate} \times (1 + \text{Levies})$$

For the period under review, quarterly changes were made to the tariff rates. See Appendix 1 for all tariff changes over the period.

Taxes and Levies (Prepaid Customers)

In connection with taxes and levies on prepaid residential customers of ECG, the electricity consumption charge is computed using an upscaled amount of 5% mark up on the total energy charge. This consists of a 2% Government Levy and a 3% Street Light Levy.

For prepaid nonresidential customers of ECG, the electricity consumption charge is computed using an upscaled amount of 25% mark up on the total energy charge.

This consists of 2.5% GETFUND Levy, 15% VAT, 2.5% NHIL, 2% Government Levy and 3% Street Light Levy. Additionally, all customers are charged a mandatory monthly service charge regardless of whether electricity was consumed or not.

B. POST PAID CUSTOMERS

Residential and non-residential customers

For postpaid residential and non-residential tariffs, monthly consumption thresholds are set based on the kWh consumed. These thresholds are determined using a 'Daily Proration' algorithm. The monthly limits vary between residential and non-residential customers.

Lifeline residential customers, who consume between 0-30 kWh, are not charged. Consumption above this threshold is divided into a graduated schedule which is classified into the bands: 0-300 kWh and over 300 kWh. The thresholds are calculated as follows:

$$\text{Daily Limit, kWh} = \text{Monthly limit(kWh)} \times 12 \text{ months} / 365 \text{ days (366 days if a leap year)}$$

To calculate the kWh for a particular month, the Daily Limit is multiplied by the number of days in that month. The resulting value represents the upper limit for the first threshold (0-300 kWh).

For example, for January with 31 days, the calculation is: Daily limit (kWh) × 31 days. Months with 30 days or fewer will result in a lower first threshold, while months with 31 days have a higher threshold.

This method accounts for the number of days electricity is consumed in billing. However, the PURC sets the rates monthly without adjusting for the different number of days in each month.

After the first threshold has been determined, a deduction is made from the total monthly consumption (monthly reading), to obtain the second threshold. The monthly charge (GHS) is subsequently calculated by applying the respective rates to each threshold.

$$\text{Monthly charge (GHS)} = \text{Monthly kWh Consumption} \times \text{Rate}$$

For the period under review, quarterly changes were made to the tariff rates. See Appendix 1 for all tariff changes over the period.

Industrial customers

All industrial customers are postpaid and are billed for their power consumption at a fixed rate. Their monthly power consumption is recorded by their meters, which interface with ECG's system. Some high-consumption industrial customers have negotiated rates through agreements with PURC.

Power factor surcharge

Industrial customers must use at least 90% of the power supplied to them from the grid to be deemed efficient. Failure to meet this threshold results in a power factor surcharge being added to their energy charge. This is calculated as follows:

$$\text{Power factor surcharge (kVA)} = (1 - (\text{Power factor} / 0.9)) \times \text{Maximum demand}$$

This method ensures that industrial customers who are inefficient in their energy consumption incur additional costs.

3.2.3 Process Workflows

In this section of our report, we have summarised the process workflows for ECG's billing and invoicing procedures for its:

- Prepaid Customers.
- Postpaid Customers (including industrial customers)

Figure 4: ECG Billing Process- Prepaid

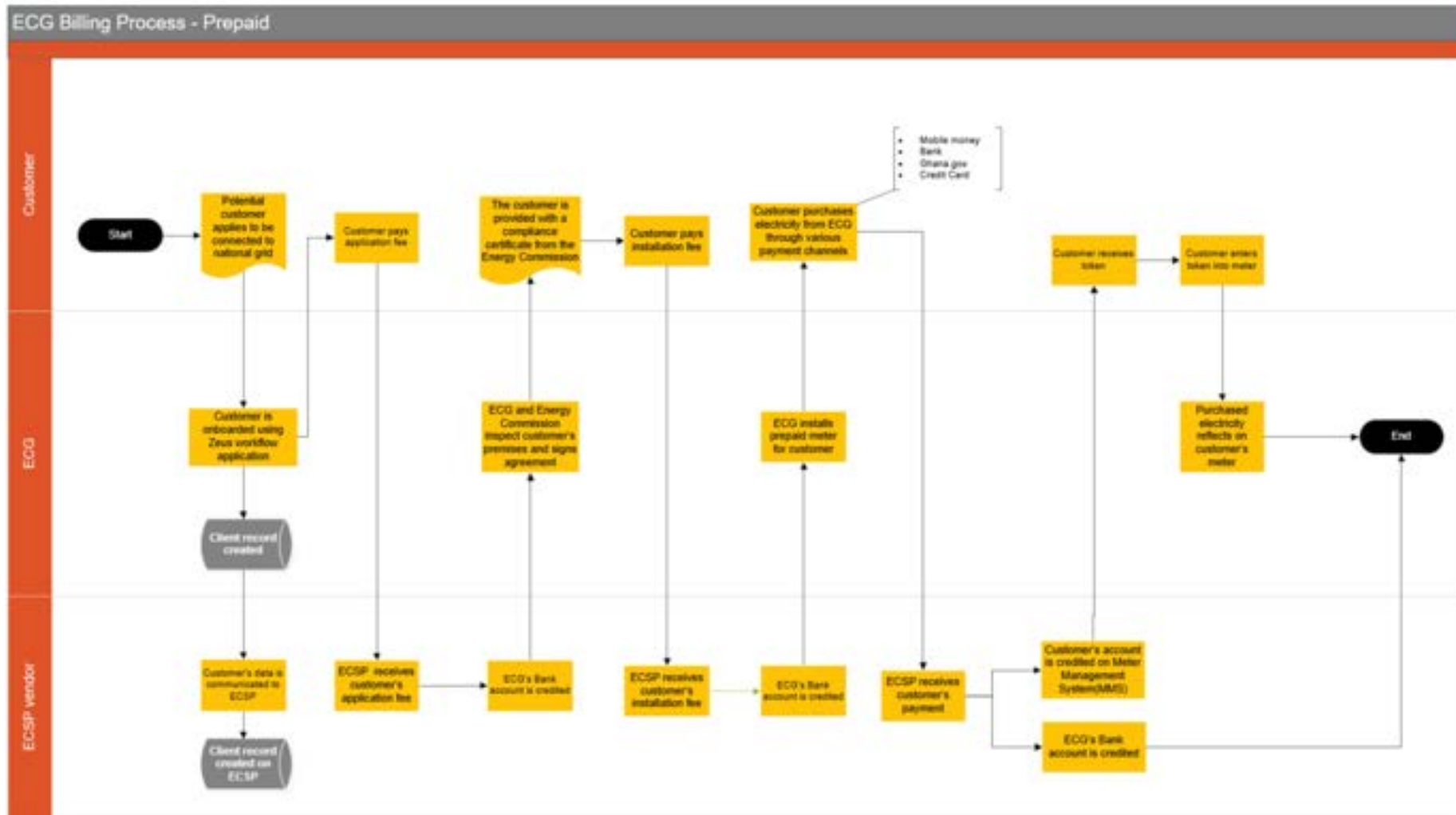


Figure 5: ECG Billing Process- Postpaid (Non – industrial)

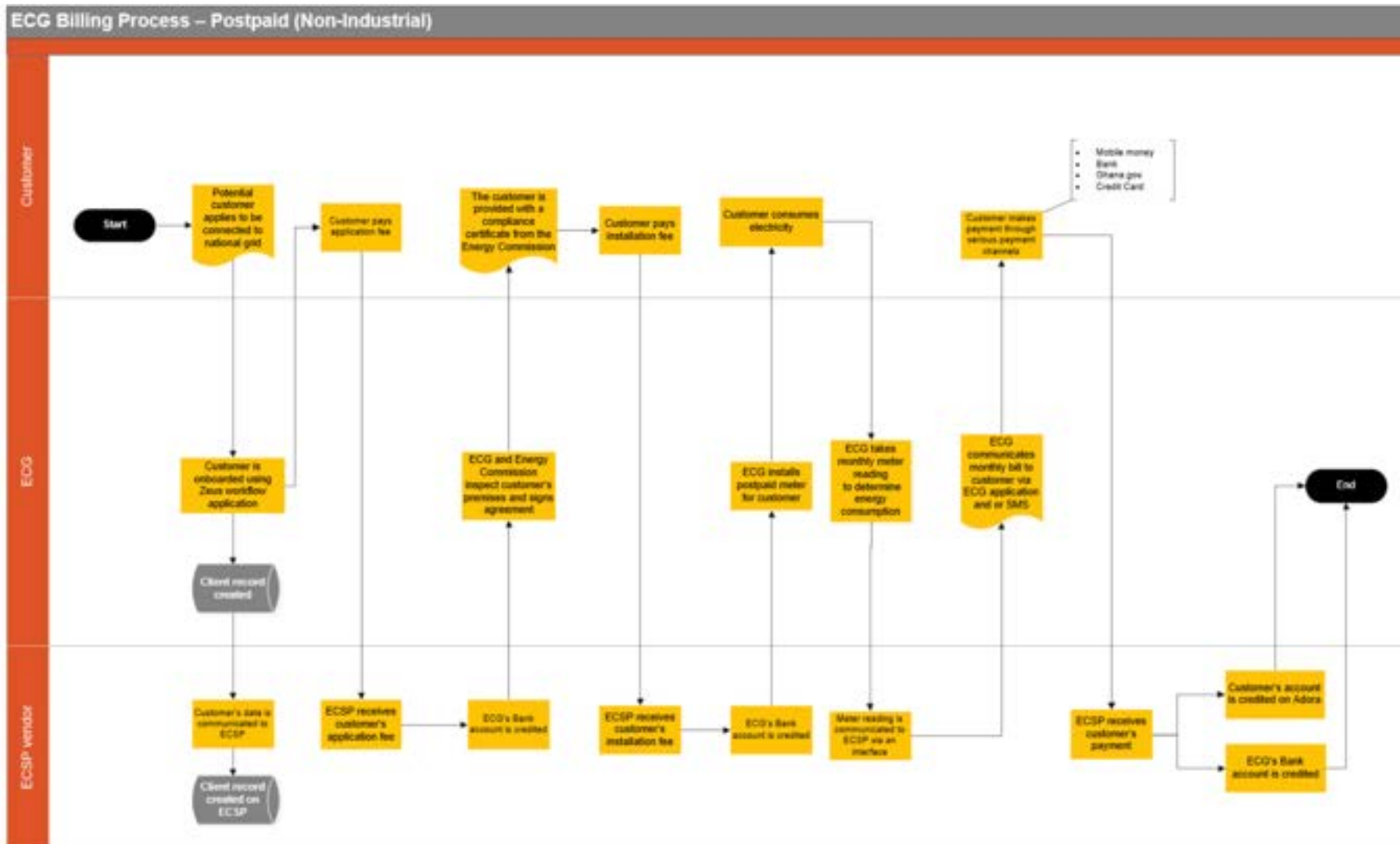
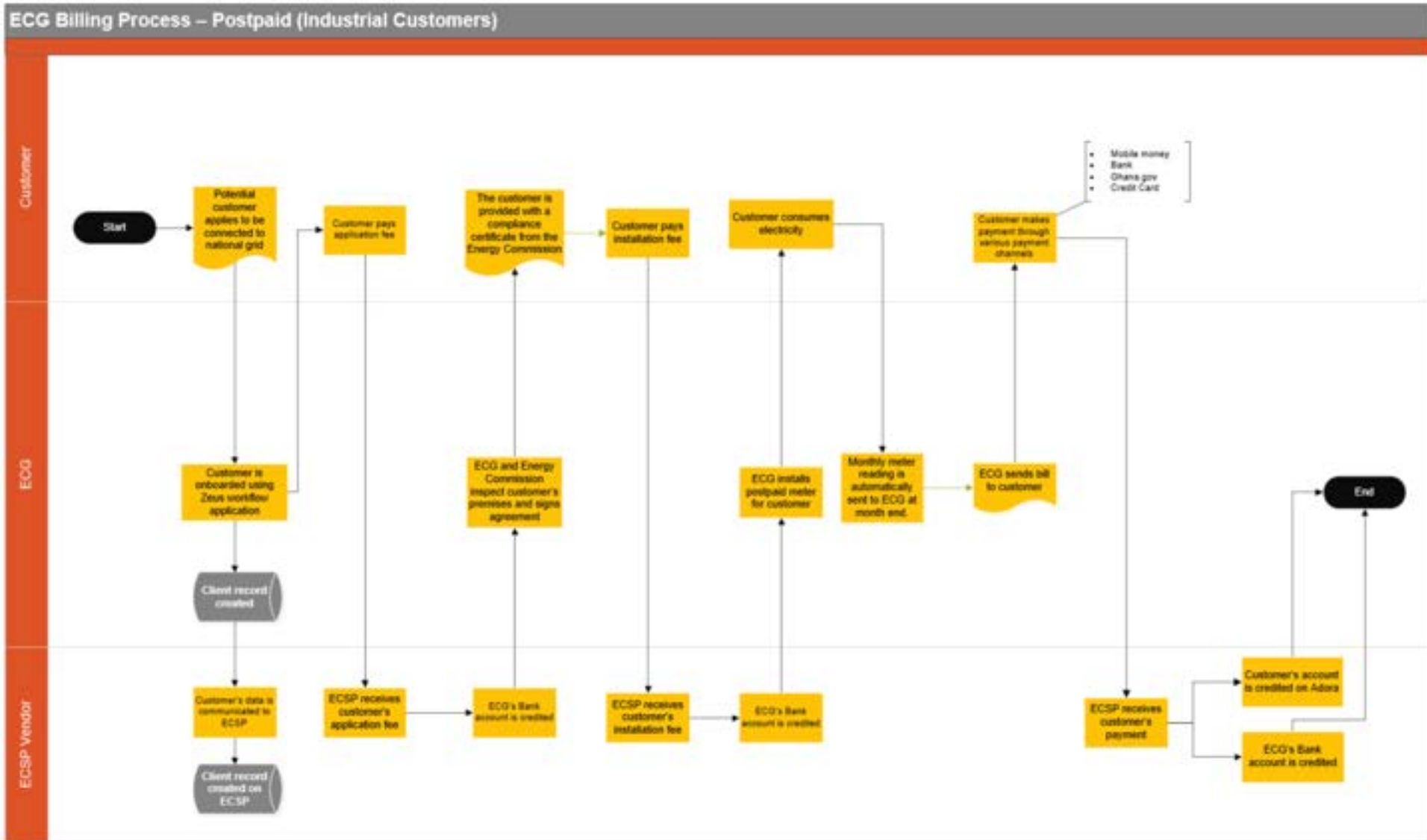


Figure 6: ECG Billing Process- Postpaid (Industrial)



3.2.4 Our Key Observations and Recommendations

Based on our assessment of ECG's billing and invoicing systems, we noted that there are 21 prepaid systems, i.e., 20 legacy systems and a Meter Monitoring System (MMS). To streamline the billing and invoicing process, we suggest that ECG's management take steps to expedite the shift of meters from the legacy systems to MMS to have a central database of all meters and prepaid configurations. This will enable ECG to have a single point oversight and management of all its meters. As part of our work and our data requirements, we received aggregated sales data from the 20 Legacy systems⁸ instead of individual customer billing data. We have informed ECG about this gap in the data and we have requested for individual sales data from the legacy systems.

We recomputed the postpaid customer billings for a sample of customers from the Adora system to verify the accuracy and application of tariffs. Our analysis did not show any discrepancies in the system's data computations.

We also obtained the detailed monthly billings of each postpaid customer from the Adora system. We compared our summaries to the sales report to confirm that the total billings in Adora had reflected on the sales report. However, we noted variances in the completeness test, this has been communicated to ECG as an exception. As of the time of preparing this report, we are yet to receive feedback from ECG on this.

Our analysis indicated that most of the billings are from postpaid customers. Please refer to the Appendix 2 for the details of our analysis.

For the MMS, we have not been able to assess the completeness and accuracy of the prepaid billing and invoicing data from ECG. We have notified ECG about the impact of this on our work. We have requested that ECG expedite the necessary steps to make this information available for our work.

ECG's Zeus (Polymorph) system serves as the source of non-tariff revenue for ECG's operations. We have not been able to assess the data from the system to confirm the accuracy and completeness of the non-tariff revenue. We have requested that ECG expedite the necessary steps to make this information available for our work.

Generally, we recommend that reporting functionalities such as reports to show customer monthly power consumption per band classification is incorporated into ECG's billing and invoicing system. This will enable ECG track actual consumption of customers, and the reasonability of amounts billed to customers as well as track revenue recognised. It would also enable ECG to properly quantify commercial losses, thus informing appropriate measures to reduce these losses over time.

⁸ This was received on 22 November 2024
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General Observations and Specific Key Issues Identified from the Validation Exercise



General Observations and Specific Key Issues Identified from the Validation Exercise

4.1 Introduction

This section of our report highlights the key limitations of the validation exercise as well as key issues we have identified from our review of the available documentation on the project and our recommendations.

4.2 Key documents reviewed

The following table sets out the key documents reviewed as part of our validation procedures.

Table 3 : Summary of Documents Reviewed (Task 1 Period)

No.	Name of document	Format of document	Description	Date received
1	CWM model – October to December 2023	Excel Spreadsheet	<p>This captures total collections made by ECG from October to December 2023 and the expected payments to be made to the CWM beneficiaries as follows:</p> <ul style="list-style-type: none"> • Sunon Asogli. • CENIT. • Karpowership. • CENPOWER. • AKSA Energy. • Amandi. • Early Power. • VRA. • Bui Power. • BXC Solar. • Meinergy. • Safisana. • GNPC. • Ghana Gas. • VRA (NGAS + WAPCO). • PURC. • ECG. • GRIDCO. • Statutory payments. 	18 October 2024
2	Bank statements (received directly from Banks)	PDF documents	<p>The statements show the amounts paid into ECG's accounts and the amounts paid out to CWM beneficiaries as well as for other operational purposes for the period from 01 October 2023 to 31 December 2023.</p> <p>The bank statements received are as follows:</p> <ul style="list-style-type: none"> • ADB. • Bank of Africa. • Calbank. • CBG. 	These were received on different days in a progressive manner.

No.	Name of document	Format of document	Description	Date received
			<ul style="list-style-type: none"> • Ecobank. • Fidelity. • First Atlantic. • GCB. • OmniBSIC. • Prudential. • Republic Bank. • Societe Generale. • UMB. • Zenith. 	
3	Bank statements (received from ECG)	PDF Documents	<p>The bank statements received show the transactions for the periods in question.</p> <p>Bank statements received are as follows:</p> <ul style="list-style-type: none"> • Societe General (1Jan 2023 to 30 Oct 2024). • ABSA (1 Jan 2021 to 26 Feb 2024). • Access (1 Jan 2023 to 31 July 2024). • ADB (3 Jan 2023 to 31 July 2024). • BOA (1 Jan 2023 to 31 July 2024). • Cal bank (1 Oct 2023 to 31 Oct 2024). • CBG (1 Jan 2023 to 31 Jul 2024). • Ecobank (1 Jan 2021 to 31 Jul 2024). • FAB (1 Jan 2021 to 30 July 2024). • FBN (1 Jan 2021 to 30 July 2024). • Fidelity (1 Jan 2021 to 16 Aug 2024). • GCB (1 Jan 2021 to 31 July 2024). • GHIB (1 Jan 2023 to 31 Jun 2024). • GT Bank (1 Jan 2021 to 31 July 2024). • OmniBsic (1 Jan 2021 to 31 Jul 2024). • Prudential (1 Jan 2021 to 31 Jul 2024). • Republic (1 Jan 2021 to 31 Jul 2024). • UBA (1 Jan 2021 to 31 Jul 2024). • UMB (1 Jan 2021 to 31 Jul 2024). • Zenith (1 Jan 2021 to 31 Jul 2024). 	31 October 2024

No.	Name of document	Format of document	Description	Date received
3	Payment vouchers	Photocopied documents	<p>Captures bank transfer advice from ECG to various banks for payments to the following CWM beneficiaries and fuel providers:</p> <ul style="list-style-type: none"> • GNPC. • Ghana Gas. • PURC. • AKSA Energy. • Sunon Asogli. • CENIT. • CENPOWER. • Karpowership. • VRA. • BXC Solar. • GRIDCO. • Amandi. • Meinergy. • Safisana. • Stratcon. 	29 October 2024
4	Debit notes	Photocopied documents	<p>These include debit notes issued by ECG to the various IPPs on behalf of fuel suppliers.</p> <p>Debit notes were received for the IPPs below:</p> <ul style="list-style-type: none"> • VRA. • CENIT. • Sunon Asogli. • Karpowership. • AKSA. • Cenpower. • Amandi. • Gridco. 	5 November 2024
5	Credit note	Photocopied documents	This contains a credit note issued by ECG to GRA to offset their respective debts to each other. This covers debts for the period to April 2024.	6 November 2024
6	Revenue Collections sheet	Excel Spreadsheet	This contains a summary of all revenue collected by ECG for the period from October	18 October 2024

No.	Name of document	Format of document	Description	Date received
			2023 to December 2023. Collections are classified by month and by the type of revenue (tariff and non-tariff).	
7	ECG Accounting Procedures Manual	PDF document	This contains the policies used by ECG in their financial reporting activities.	18 October 2024
	Invoices from IPPs	PDF documents	<p>These include invoices provided to ECG by the various IPPs for fuel, energy generated and transmitted.</p> <p>Invoices were received for the IPPs below:</p> <ul style="list-style-type: none"> • Sunon Asogli. • CENIT. • Karpowership. • AKSA. • VRA. • Amandi. • BUI Power Authority. • Cenpower. • BXC Solar. • Meinergy. • Safisana. 	18 October 2024
9	Single Collections Account	Word document	<p>This document listed all the banks through which ECG received collections and made payments to IPPs. The banks listed included:</p> <ul style="list-style-type: none"> • Fidelity. • GCB. • GT Bank. • CBG. • FAB. • Access. • UBA. • CAL Bank. • Prudential Bank. • OMNI BSIC Bank. 	18 October 2024

No.	Name of document	Format of document	Description	Date received
			The document stated that the list did not include all the banks through which ECG made transactions for their operations.	
10	Status of ECG Account Statements Shared	Excel spreadsheet	This is a list of all bank accounts used by ECG. This includes accounts for revenue collection and operations.	18 October 2024
11	Ledger details 2023	Excel spreadsheet	This contains details of all IPP invoices received by ECG, payments made by ECG, debit notes, credit notes and payments made by GoG and NGC on behalf of ECG.	18 October 2024
12	2023 trial balance	Excel spreadsheet	This contains all the account balances ECG's financial statements.	18 October 2024
13	2023 Sales and levies billed to Finance	Excel spreadsheet	This sheet contains the revenue generated by ECG in each district. The revenue is further aggregated into SLT, Non-SLT, prepaid and revenues from dollar customers.	18 October 2024
14	Fuel payment ledger	Excel spreadsheet	<p>This sheet contains a listing of payments made to fuel and gas providers on behalf of IPPs for the period from October to December 2023.</p> <p>Fuel providers included in this list are:</p> <ul style="list-style-type: none"> • GNPC. • Ghana Gas. 	05 November 2024
15	IPP recon sheets as at December 2023	PDF Documents	<p>These are schedules that list the opening balances, bills, payments by ECG, debit notes, credit notes and payments by GoG and the NGC.</p> <p>The schedules are signed and stamped by representatives from the IPPs and ECG.</p>	29 October 2024
16	Fidelity cashbook (GHS and USD)	Excel spreadsheet	This contains all cash transactions (receipts and payments) that were received in the Fidelity GHS and USD accounts for the period from 01 October 2023 to 31 December 2023.	29 October 2024

No.	Name of document	Format of document	Description	Date received
17	Approved PURC tariff for Q4 2023	PDF document	This contains the approved electricity tariffs for Q4 2023 by PURC.	18 October 2024
18	ECSP Vendor Settlement Report	Excel spreadsheet	This contains the listing of total collections from the ECG Cash Settlement Platform (ECSP) vendor and total commissions paid to vendor for the period from October to December 2023.	18 October 2024

4.3 Summary of our Approach and Methodology

The following table highlights our objective for each task executed per the ToR and the relevant approach and methodology we applied. In the next section, we highlight our key observations and issues flagged in our assessment for the Task 1 period.

Table 4 : ToR scope of work, our objective, approach and methodology

No.	Scope of Work /Task Objective	Our Approach and Methodology
1.	Review the CWM allocation determination process, including the methodologies used and the inputs considered, all revenues collected against electricity received from generators by ECG and delivered to customers, corresponding bills issued and collected, and transferred into a single collection account for declaration by ECG to the CWM including all payment instructions issued to ECG by the CWM for disbursement under CWM guidelines and also all disbursements made out of the single collection account	<p>The first section of this scope relating to the determination process, methodology and inputs review has been completed in Section 2 of this report.</p> <p>The second part of the scope of work was handled as part of the following subsequent workstreams summarised in this table. They include items 5, 12,13 and 14 in this table.</p>
2.	Review and assess ECG's billing and invoicing procedures, including the accuracy of metering, tariff application, and customer billing.	<p>The following methodology was adopted:</p> <p><i>1. Understanding ECG's Billing and Invoicing Process:</i></p> <p>We conducted inquiries with representatives of the Revenue & Billing Department of ECG, to understand ECG's billing and invoicing processes. Through walkthroughs and discussions, we designed a detailed flowchart of the process. This was then compared with ECG's accounting procedure manual.</p> <p>Additionally, our analysis included assessing the computed kWh consumption and tariffs used for both postpaid (Adora) and prepaid (MMS) systems.</p> <p><i>2. Review of Metering Data Accuracy:</i></p> <p>We examined ECG's procedures for recording and maintaining customer meter readings. We also performed a walkthrough of the metering process to assess how readings are captured and subsequently used for billing customers. This assessment was important as it has a direct impact on ECG's revenue collection.</p> <p>Using the metering data, we recomputed the total revenue for both Adora and MMS systems, incorporating the kWh consumption and applicable tariffs on a monthly basis. This approach enabled us to verify the accuracy of the metering data and its impact on revenue generation.</p>
3.	Review and assess ECG's revenue collection and accounts receivables management.	Our approach for this assessment is summarised as follows:

No.	Scope of Work /Task Objective	Our Approach and Methodology
		<p><i>1. Summary Revenue Sheets Comparison:</i></p> <p>We obtained the summary of the revenue sheets and compared them with PwC's recomputed revenue figures derived from ECG's IT systems. This comparative analysis focused on data from ECG's Adora system. This is because as at the date of this report, we have not been granted access to the MMS and legacy systems for further analysis.</p> <p><i>2. Revenue Collection Reconciliation:</i></p> <p>As part of this exercise, we used the revenue collection summaries (provided by ECG) and compared this against independently verified bank statement sweeps conducted by PwC to assess the accuracy of the amounts.</p> <p><i>3. Revenue and Receivables Validation:</i></p> <p>We proceeded to validate and confirm that the revenues recorded by ECG aligned with the cash payments received and the outstanding receivables reported within the period.</p>
4.	<p>Validate that all revenues received by ECG for the reporting period are in alignment with the electricity received and distributed by ECG along with corresponding billing and collections, and amounts declared by ECG to the electricity value chain entities and note any discrepancies.</p>	<p>Our approach for this task is summarised as follows:</p> <p><i>1. Invoice and power delivered validation:</i></p> <p>We obtained ledger details and copies of invoices to support the documentation of transactions within the Task 1 period. The details of each invoice (including the energy delivered [kWh] on that invoice, were documented and compared to the amounts billed by IPPs (See Appendix 9 for details).</p> <p>We also compared these against what was recorded in ECG's ledger to give rise to the liabilities that the ECG owes the individual IPPs. Following this step, we then collated the total kWh received by ECG from each IPP and compared it to the kWh distributed by ECG to its customers.</p> <p><i>2. Revenue received</i></p> <p>We validated the revenue received by ECG by obtaining bank statements supplied by ECG's banks and also using a process of direct bank confirmations to obtain bank statements directly from ECG's banks. We reviewed these statements to confirm that sweeps from various accounts were made into the Head Office collection accounts. All transactions were analysed, and credits received were investigated accordingly to help establish any discrepancies.</p>

No.	Scope of Work /Task Objective	Our Approach and Methodology
5.	Validate that ECG has made timely payment to the electricity value chain entities in accordance with the payment instructions issued to ECG by the CWM and note any discrepancies;	<p>To satisfy the requirements for this task:</p> <ul style="list-style-type: none"> We obtained the CWM models and ledger details for each month within the Task 1 period. We also obtained payment vouchers to enable us to trace all payments per the ledger to the respective bank statements. We agreed the payments made for each IPP per the bank statements and reconciled the total payments to the amounts per the CWM. Variances noted were investigated and explained to be either incomplete payments or exchange differences. We also reviewed the dates of payments for each IPP, regulatory bodies and other beneficiaries, in each month, to validate and confirm that payments were made in accordance with the guidelines per the CWM.
6.	Identify all accounts into which customer cash collections are transferred	<p>Our approach for is summarised as follows:</p> <ul style="list-style-type: none"> We obtained the bank statements for ECG accounts from ECG and simultaneously requested for the statements directly from the banks where ECG held the accounts. We conducted checks to confirm that the bank statements received from ECG were the same as the independently received statement from the banks. Furthermore, we reviewed all receipts and payments records as well as general ledger details to identify each bank account from which payments or receipts have occurred in order that we can obtain the bank statement for analysis After confirmation, we then used our technology enabled solutions to convert, organise and structure the statements to facilitate our detailed transaction analysis. We analysed the data to assess the relevant requirements for items 6,7,8 and 9. We captured our observations and liaised with ECG to offer any clarification on flagged items that were unclear or required documentary confirmation on what they related to. The analysis was further summarised into visualisations to support our observations.
7.	Check that all revenues received at each collection point were transferred in full to the relevant district collection/revenue accounts;	
8.	Check that the daily banked receipts were swept in full into the Head Office Single collection/revenue account;	
9.	Identify any revenue accounts utilised by ECG which are not swept into the district collection accounts and head office Single Collection account;	
10.	Check the inflows into all the operational accounts to determine the sources of such revenue.	<p>Our approach for this task included the following steps:</p> <ul style="list-style-type: none"> We reviewed ECG's bank accounts to identify the accounts used for operational activities. We reviewed all transactions in the bank accounts and aggregated the revenue inflows per the bank statements into Energy Collections (including prepaid meters, non-SLT, Online quotas, set-offs, SLT and swift payments) and Non-Energy Collections (including card and meter replacement fee, UWP, reconnection fee) based on the description per the bank statements.

No.	Scope of Work /Task Objective	Our Approach and Methodology
		<ul style="list-style-type: none"> We analysed this data to establish the relevant sources of the revenue as required.
11.	Check the disbursement from the revenue/collection accounts to the other beneficiaries;	<p>Following Task item 5, we compared the amounts per the CWM with the actual amounts paid to the CWM beneficiaries including the IPPs. Any variances identified were investigated to establish the sources/reason for the observed discrepancies. Unresolved amounts were then compared to the 25.74% allocated to ECG, and any amounts exceeding this 25% threshold were flagged for further review.</p>
12.	Determine whether the disbursements by ECG were in accordance with the CWM allocation percentages per the payment instructions issued by the CWM to ECG;	<p>We reviewed the ECG CWM models for the period to establish the relevant allocations and we compared it with the payments/disbursement data to confirm if there were any variances.</p> <p>We investigated further to understand the reason for the variances over the period.</p>
13.	Confirm the amounts declared weekly as non-tariff revenues (i.e., any revenues not declared by ECG to the CWM);	We compared the CWM non-tariff revenues values to ECG's non-tariff revenue ledger and conducted a variance analysis. Additionally, we requested for the breakdown of the items that make up the non-tariff revenue for the period.
14.	Confirm the payment of the statutory deductions declared by ECG have been disbursed to the various authorities in a timely manner;	<p>Our approach for executing this task included the following steps:</p> <ul style="list-style-type: none"> Statutory payments were computed based on payments made to the Ghana Revenue Authority (GRA), National Electrification Scheme, and Street Lighting Fund. According to the CWM guidelines, 12.5% of total revenue collections, after deducting payments to Tier 1 (IPPs), is allocated for statutory payments. To assess compliance with this guideline, we recalculated the required statutory payment allocations. We conducted a 100% test of payments made towards the National Electrification Scheme, GRA, and Street Lighting Fund. Discrepancies on payment start date observed on a credit note (to be used to offset these statutory payments over a period) led us to obtain prior credit notes to confirm the relevant details.
15.	Check whether ECG is using a single collection account as per MoF directive of June 21, 2023, effective July 1, 2023.	Our approach here was to observe if the bank account operations by ECG reflected this directive or not based on the sweeps and disbursement transactions. We also flagged any discrepancies or items that did not align with this directive.
16.	Undertake a comprehensive assessment of the adequacy, transparency and effectiveness of accounting and overall internal control systems for the revenue collections, transfer, and disbursement mechanisms;	<ul style="list-style-type: none"> We took into account all our observations made during the execution of our scope of work for this period (from task item 1 to task item 15).

No.	Scope of Work /Task Objective	Our Approach and Methodology
17.	Recommend and advise the GOG on how to strengthen internal controls and GOG oversight over ECG's revenue and disbursement structure under the CWM	<ul style="list-style-type: none"> • We identified a number of weaknesses and areas of improvement that will help enhance the role of CWM in promoting transparency and strengthening the power sector value chain. • We summarised our recommendations as part of our conclusion in this report. • Our recommendations also highlighted the relevant stakeholders expected to take the suggestions forward including ECG.
18.	Confirm that key findings and recommendations from the 1 July – 30 September 2023, have been satisfactorily addressed.	We have deferred this task to be completed in Task 2 of this engagement.

4.4 Key Issues and Observations

The following table summarises our key issues and observations from our review of the available data and information covering the scope items for the Task 1 period.

Table 5 : Our Key Issues and Observations-Task 1

No.	Key Finding	Details of findings	Conclusion/Recommendation
1	Differences between collection amounts per CWM and ECG Cash Settlement Platform Report.	<p>We identified that the amounts recorded as collections in the CWM were lower than the amounts per the ECG Cash Settlement Platform Report. The amount per CWM is GHS 2.72 billion while the amount per the ECG Cash Settlement Platform Report for the Task 1 period is GHS 3.29 billion.</p> <p>In summary, the discrepancies observed between the CWM and the amounts per the ECG Cash Settlement Platform Report are captured as follows:</p> <ul style="list-style-type: none"> • October 2023: GHS 404,816,039 • November 2023: GHS 104,768,729 • December 2023: GHS 57,948,229 <p>The total under declaration between CWM and the ECG Cash Settlement Platform Report is GHS 567.53 million.</p> <p>See Appendix 3A for details.</p>	ECG should carry out monthly reconciliations to promptly address and resolve any discrepancies.
2	Differences between collection amounts per CWM and collection amounts per ECG Revenue Collections Sheet.	<p>For the three-month period of October to December 2023, the total amount recorded as revenue collections in the CWM was GHS 2.72 billion while the reported monthly revenue collections for the same period as per the ECG Revenue Collections Sheet amounted to GHS 3.33 billion.</p> <p>Notably, there were issues with both the total collection amounts and the reconciliations between tariff and non-tariff collections.</p>	<p>This inconsistency warrants further investigation to determine the underlying causes and to implement corrective measures to ensure accuracy in reporting.</p> <p>We recommend that ECG does monthly reconciliations to resolve all discrepancies.</p>

No.	Key Finding	Details of findings	Conclusion/Recommendation
		<p>The total under declaration between CWM and the ECG Revenue Collections Sheet is GHS 604.82 million.</p> <p>We have summarised our findings on the discrepancies in Appendix 3B of this report.</p>	
3	Differences between collection amounts per CWM and validated bank collections.	<p>There were discrepancies between the amounts recorded as revenue collections in the CWM for the Task 1 period of October to December 2023 and the amounts validated for each month as collections per the bank statements provided.</p> <p>A net amount of GHS 1.14 billion represent the total amount under-declared for the period when the CWM is compared to the amounts validated per the bank statements. The breakdown is as follows:</p> <ul style="list-style-type: none"> • October 2023: GHS 760,228,193 • November 2023: GHS 226,709,788 • December 2023: GHS 155,821,068 <p>In all the months, validated amounts were higher than CWM amount.</p> <p>See Appendix 3C for details of our finding.</p>	Regular reconciliations should be performed by ECG to ensure that all collections in the various bank statements are appropriately captured in the CWM.
4	Discrepancies identified Between CWM and Non-Tariff Collection Schedule.	<p>A total amount of GHS 15.72 million was identified as difference between the non-tariff revenue collections declared in the CWM and the amounts per ECG Collection Schedule.</p> <p>It is important to note that, discrepancies in the non-tariff revenues collected affect the amount of revenue collections to be shared by Level B IPPs and other beneficiaries of the CWM.</p>	<p>Since ECG has a payment platform in place, ECG should explore the functionalities of the Platform to identify ways to clearly segregate revenue collections into tariff and non-tariff collections.</p> <p>This clear segregation of revenue collections will ensure that accurate amounts are recorded in the CWM for tariff and non-tariff revenue to bring transparency in the CWM process.</p>

No.	Key Finding	Details of findings	Conclusion/Recommendation
		<p>The amount per the ECG Collection Schedule were higher than the CWM declarations for the Task 1 period. This includes:</p> <ul style="list-style-type: none"> • October 2023: GHS 2,643,174 • November 2023: GHS 7,366,787 • December 2023: GHS 5,705,452 <p>All amounts were higher than CWM declaration amount.</p> <p>See Appendix 3D for details.</p>	
5	Commission payments to Vendor.	<p>ECG has contracted the services of a vendor who provides the payment platform used for collecting all revenues on its behalf and making settlements to designated bank accounts of ECG.</p> <p>From our review of the ECG Cash Settlement Platform Report, we noted that the Vendor is entitled to a commission on the total collections they make on behalf of ECG.</p> <p>The ECG Cash Settlement Platform Report indicates an amount of GHS 47.50 million was paid as commissions to the Vendor for the Task 1 period. These commissions were deducted before collection declarations were made in the CWM.</p> <p>See Appendix 3E for further details.</p>	<p>There is currently no provision in the CWM Guidelines for commissions such as this to be deducted before the net amounts (after deductions) are reported in the CWM for allocation.</p> <p>ECG should ensure compliance with the CWM Guidelines in its operations.</p>
6	Emergency fuel purchases by ECG.	<p>In our analysis, we found that ECG makes fuel purchases when necessary to ensure continuous generation of electricity in the country.</p> <p>We observed that the expenses associated with these fuel purchases affect the allocations to the beneficiaries under the CWM.</p>	<p>Despite the impact on its allocations to beneficiaries under the CWM, ECG indicated that they have an obligation to Ghanaians to maintain a stable power supply.</p> <p>To address this issue (and its impact of the CWM), it is crucial for ECG and the Ministry of Energy to improve their coordination to ensure</p>

No.	Key Finding	Details of findings	Conclusion/Recommendation
		<p>In our discussions with ECG, they indicated that emergency fuel purchases are made following directives by the Ministry of Energy, when there is imminent shortage of electricity in the country.</p> <p>Within the Task 1 period, a total amount of GHS 136.74 million was paid out for emergency fuel to the fuel supplier. However, per the CWM, only GHS 18.20 million was declared as payment to the Supplier (in November 2023) within the period. This created a variance of GHS 118.54 million between the declared payments to the Supplier (per the CWM) and the actual payments made by ECG per ECG's payment records.</p> <p>See Appendix 5E for details of payments made to the Supplier.</p>	<p>the timely procurement of fuel to minimise or curtail such purchases.</p> <p>Additionally, implementing a policy for fuel procurement for IPPs under the CWM will be essential to help prevent disruptions and improve transparency issues in the financial allocations, particularly for Level B beneficiaries (who are currently affected by this arrangement).</p>
7	Issuance of debit notes to IPPs on behalf of fuel suppliers by ECG.	<p>We observed that over the Task 1 period, ECG paid some fuel suppliers on behalf of the IPPs. ECG acknowledges this transaction by issuing a debit note to the IPPs. Debit notes serve to reduce ECG's financial obligations to the IPPs.</p> <p>During our validation, we cross-checked the debit notes issued with the bank statements to confirm that the amounts per the debit notes were matched to payments in the bank statements.</p> <p>We however noted that the total amount of debit notes issued which were agreed to the bank statements did not fully cover the total amount declared to be paid to the IPPs per the CWM. The variance is GHS 127.10 million for the Task 1 period. (See Appendix 4 for detailed analysis).</p>	ECG should take steps to ensure that what is declared in CWM is paid in full to avoid the build-up of debts to beneficiaries of the CWM.

No.	Key Finding	Details of findings	Conclusion/Recommendation
		See issue 12 for further commentary on IPP payments.	
8	Credit notes issued to Ghana Revenue Authority (GRA).	<p>In the course of our work, we observed that ECG issued credit notes to GRA to offset its liabilities. The credit notes amounting to GHS 500 million, was intended to offset all outstanding liabilities ECG owes GRA up to April 2024.</p> <p>There is an arrangement between the Government of Ghana (GoG) and ECG on the payment of VAT liability by ECG and the settlement of electricity bills by Ministries, Departments, and Agencies (MDAs). This is done through the issuance of credit notes after the VAT liability and electricity bills of MDAs have been offset.</p> <p>The issuance of these credit notes means that Ministries, Departments, and Agencies (MDAs) who owe ECG will not make any payments for the period covered by the credit notes. This has the effect of depriving the beneficiaries of the CWM of their share of collections had these MDAs paid for the electricity they consumed.</p>	We propose that PURC includes guidelines for credit notes in the CWM model to ensure transparency in payments to regulatory authorities.
9	Directive on the use of a Single Collections Account not adhered to.	According to the CWM Guidelines, ECG is required to maintain a single collection bank account for all revenue collections and subsequent payments to the CWM beneficiaries. This approach is intended to streamline bookkeeping and facilitate easier reconciliation	ECG should take steps to designate and operate a single collections account as per the CWM Guidelines, while utilising other accounts for their remaining operational needs. This will enhance financial oversight and compliance with the CWM module.

No.	Key Finding	Details of findings	Conclusion/Recommendation
		<p>and accounting of revenues as well as collections.</p> <p>However, we noted through our validation procedures that ECG operates multiple bank accounts (84 bank accounts) with 20 different banks.</p>	<p>ECG may consider operating its single collections account with a bank with relatively more extended branches across the country. This will curb the need for several accounts with several banks and help streamline its operations and transparency.</p>
10	<p>Untimely payments made to IPPs and regulatory bodies.</p>	<p>According to the CWM guidelines, ECG is obligated to make payments to the CWM beneficiaries by the 22nd of every month. However, ECG has failed to adhere to this payment timeline.</p> <p>From our review, we also noted that timely payments are not made for statutory deductions such as National Electrification and Street Lighting.</p> <p>The procedures we performed, identified the following:</p> <ul style="list-style-type: none"> • October 2023: USD 11.00 million was not paid on time and GHS 352.00 million was not paid on time. • November 2023: USD 5.00 million was not paid on time and GHS 72 million was not paid on time. • December 2023: USD 10.50 million was not paid on time and GHS 165.00 million was not paid on time. <p>See Appendices 6A, 6B and 6C for details.</p>	<p>ECG should take steps to introduce performance monitoring systems to track adherence to payment schedules.</p> <p>These systems should establish accountability measures for any delays such as periodic reviews and measures to address the root cause of the payment failures.</p>
11	<p>Allocations for statutory payments are not consistent each month.</p>	<p>Based on the CWM Guidelines, ECG is required to allocate 12.5% of net collections, after allocations to Level A IPPs, for statutory payments.</p>	<p>We would like to emphasise the fact that ECG needs to follow the guidelines issued by the CWM in determining the amount to be allocated to statutory agencies.</p>

No.	Key Finding	Details of findings	Conclusion/Recommendation
		<p>From our review of the CWM data covering the Task 1 period, we noted that no amounts were directly described as allocations for statutory payments in the month of November 2023 and December 2023.</p> <p>We however noticed that a total amount of GHS 303.48 million was made as deductions in the CWM against the net revenues after Level A IPP allocations for the two months (November 2023 and December 2023). These deductions were described as tax offsets amounting to GHS 253.48 million in November 2023, and GHS 50 million in December 2023.</p> <p>These amounts were deducted before arriving at net revenue for Level B beneficiaries in the CWM. ECG could not provide us with evidence supporting these tax offsets and the rationale for doing so.</p> <p>The effect of this is that the revenue available for allocation for Level B beneficiaries was reduced by these amounts</p> <p>See Appendix 6C for details of our findings.</p>	<p>Failure to comply with the CWM guidelines will lead to decreased payments for other stakeholders.</p>
12	<p>Differences between amount allocated to the CWM beneficiaries (including IPPs) and the actual amount paid to the beneficiaries.</p>	<p>During our review of ECG's payment ledger, transfer advice, and bank statements, we observed discrepancies in the payments to CWM beneficiaries compared to the allocations made in the CWM.</p> <p>It was observed that ECG consistently failed to remit the allocated monthly amounts stipulated in the CWM. For the Task 1 period the total allocation per CWM to the beneficiaries is GHS</p>	<p>ECG should put in place measures to pay the IPPs the amounts stipulated in the CWM for each month to ensure compliance with the CWM guidelines.</p>

No.	Key Finding	Details of findings	Conclusion/Recommendation
		<p>2.58 billion while the amount paid is GHS 1.97 billion.</p> <p>The total underpayment for the Task 1 period of GHS 609,101,403, indicate significant deviation from the CWM allocations.</p> <p>See Appendix 5 for details.</p>	
13	Pending access to ECG's Information Technology systems	<p>As part of our mandate to assess the CWM, a thorough evaluation of ECG's billing and invoicing processes is required (in line with the ToR for this engagement).</p> <p>This assessment contains several critical areas, including the accuracy of metering, the application of tariffs, customer billing procedures, and the authenticity of billing statements issued to customers. Obtaining access to these systems is essential for verifying the accuracy of the revenues received.</p> <p>As at the time of completing this report, ECG had granted us access to the Adora system but was still putting in place the relevant measures in order to grant us access to the MMS, Zeus and legacy systems for validation.</p>	<p>Limited access to ECG's data systems significantly hinders our ability to conduct a thorough assessment of ECG's billing and invoicing processes.</p> <p>These Systems are critical for revenue validation and accuracy confirmation. To facilitate a complete and accurate evaluation, it is crucial for ECG to provide full access to these systems.</p>
14	Key observations from the billing and invoicing system review	<p>We obtained the detailed monthly billings of each postpaid customer from the Adora system for the period October to December 2023. We compared our analysis to the Sales Report to confirm that the total billings in Adora are consistent with the total billings reported in the Sales Report.</p> <p>While the Adora Systems showed total billing to be GHS 2.81 billion, the Sales Report showed total billings as GHS 3.29 billion. This resulted in a difference of GHS 479 million. As at the time</p>	ECG should take steps to reconcile the differences noted.

No.	Key Finding	Details of findings	Conclusion/Recommendation
		<p>of completing this report, ECG was yet to fully reconcile the difference noted. See Appendix 13 for details of our finding.</p>	
15	Meters yet to be migrated to the Meter Management System	<p>ECG employs a Meter Management System (MMS) to centrally manage some of its prepaid meters and balances as well as to remotely update meter configurations.</p> <p>Based on our assessment of ECG's billing and invoicing systems, we noted that there are 21 prepaid systems, i.e., 20 legacy systems and a Meter Monitoring System (MMS).</p> <p>It was evident that not all meters have been integrated into the MMS yet.</p>	<p>ECG should put in place measures or expedite any current attempts to integrate all meters including those on the legacy systems onto the Meter Management System (MMS).</p> <p>This will create a central database of all meters and prepaid configurations for efficient management.</p>

4.5 Disbursement and Cash Collection Analysis

4.5.1 Introduction

Our analysis in this section of our report was based on our identification, review and analysis of the relevant bank accounts used by ECG in its operations (including for revenue collections and disbursements).

4.5.2 Our analysis and findings

Total Revenue Validation (Tariff and Non-Tariff) based on 14 Head Office Accounts⁹

For the period between October to December 2023, ECG reported a revenue of GHS 3.38 billion. However, based on information from the Head Office bank accounts analysed, we calculated a total revenue of GHS 3.87 billion.

Based on our discussions with ECG, they indicated that all funds from the district and regional accounts are transferred to the 14 head office accounts at the end of each month. This results in a GHS 490 million discrepancy between the figures reported from our analysis and those reported by ECG.

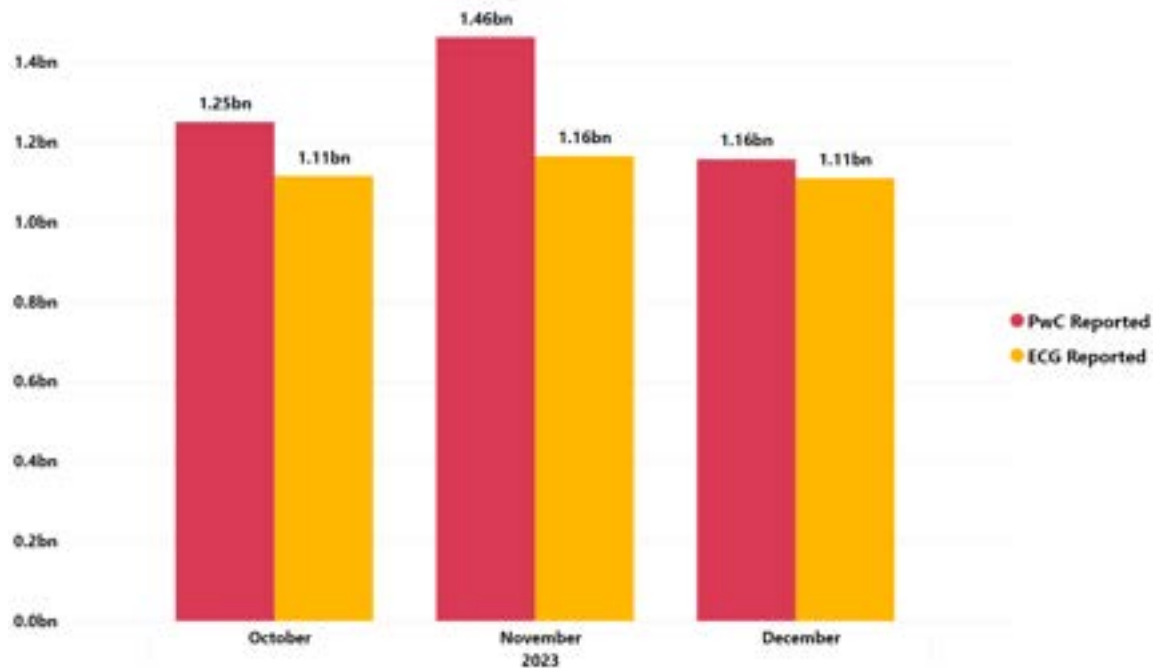
A detailed breakdown of the allocation into the various accounts is provided in the table below. Additionally, a bar chart illustrating this data subsequently follows.

Table 6 : ECG Bank Account Statements Revenue Collection Summary (Task 1)

No.	Bank Type	2023 (Amounts are in GHS)			
		October	November	December	TOTAL
1	UMB 8031	186,422	398,806	142,900	728,128
2	Fidelity 4249	170,334,857	268,882,880	72,360,295	511,578,032
3	OMNIBSIC	121,750	178,150	108,285	408,185
4	First Atlantic	86,870,158	58,528,067	28,928,771	174,326,996
5	Fidelity 4238	619,031,925	728,215,606	624,135,280	1,971,382,811
6	Access Bank	20,546,204	23,489,651	6,507,579	50,543,435
7	CBG Bank	78,122,656	70,263,499	18,705,484	167,091,639
8	GT Bank	12,521,065	22,642,210	153,281,634	188,444,909
9	CAL Bank	21,352,154	31,753,173	11,975,034	65,080,362
10	ADB6401	525,002	203,244	174,029	902,276
11	GCB 1277	219,141,677	233,227,922	233,076,587	685,446,187
12	UBA 1504	20,482,406	23,963,286	6,425,185	50,870,878
13	Prudential	-	-	-	-
14	GCB 2768	-	-	-	-
	Total	1,249,236,465	1,461,746,497	1,155,821,068	3,866,803,837

⁹ ECG indicated to us that they currently operate 14 out of the 84 bank accounts they have as Head Office Accounts.

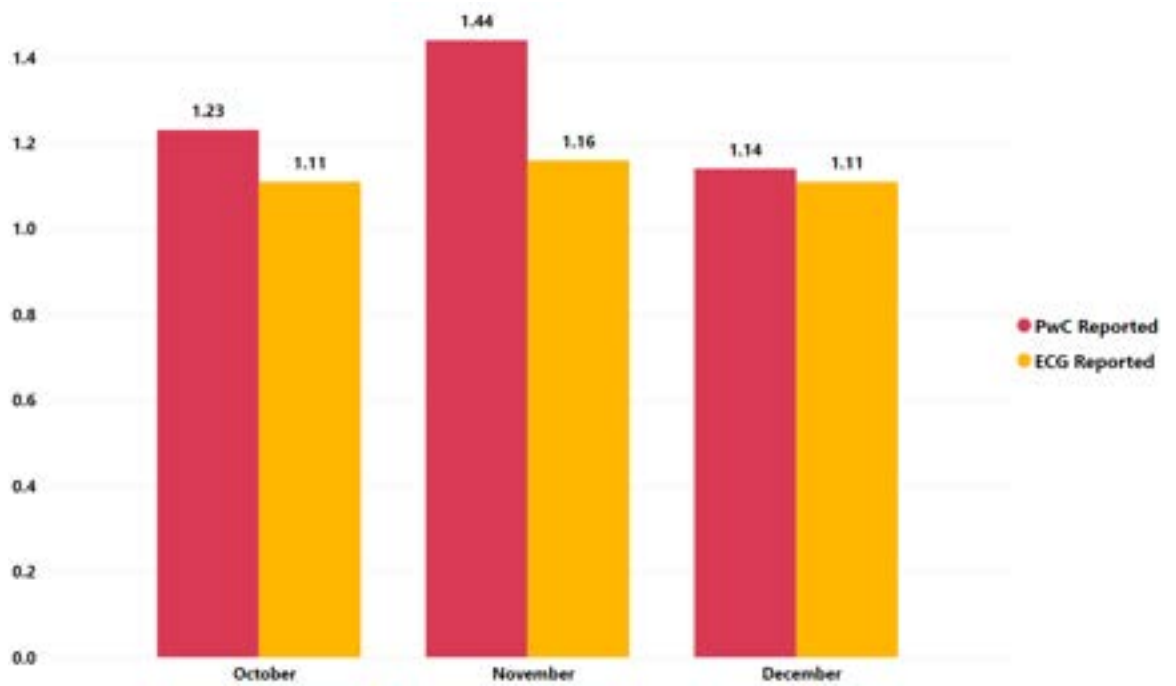
Figure 7: Comparative Analysis of ECG Reported Total Revenue vs PwC Analysis for Task 1 period (in GHS billions)



Total Tariff Revenue Validation for Task 1

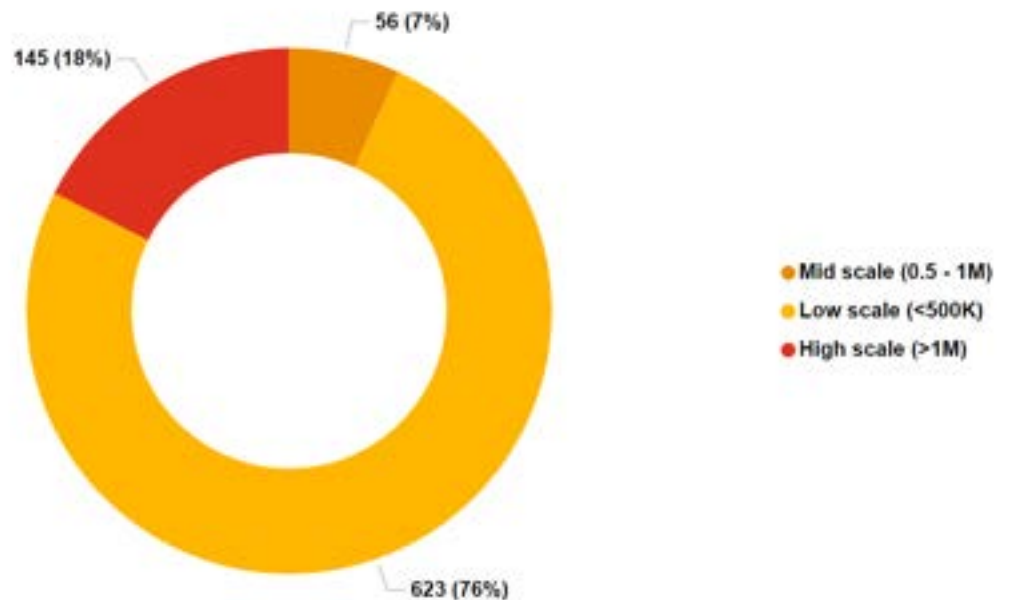
The following chart primarily focuses on the outcome of our analysis of tariff revenue. This tariff revenue is important because it is used to facilitate payments to beneficiaries through the CWM. In our analysis (i.e. our calculated tariff revenues and ECG’s reported tariff revenues for the period), we noted that there were differences of GHS 120 million in October 2023, GHS 280 million in November 2023, and GHS 30 million in December 2023. Through further analysis of the data, we identified some differences between the reported CWM amounts and total collections (tariff and non-tariff revenue) per the bank statements. See Section 4.4 for Key finding number 3 for issue raised.

Figure 8: Comparative Analysis of ECG Reported Total Tariff Revenue vs PwC Analysis for Task 1 period (in GHS billions)



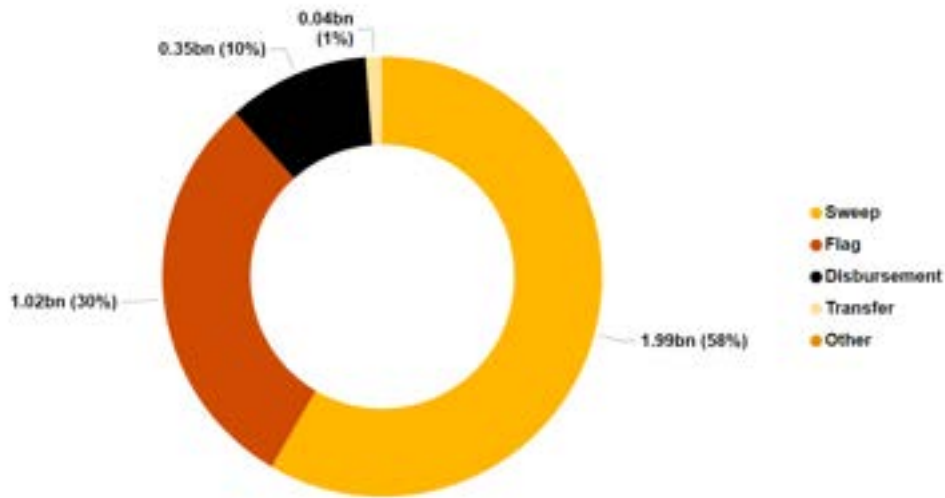
In the pie chart below, we have compiled all debit transactions from the head office accounts and categorised them for further analysis. The analysis shows the various GHS value amounts (grouped) of the transactions observed in the accounts for the Task 1 period.

Figure 9: Number of Flagged Debit Transactions



The following chart shows a breakdown of the categories into which the transactions from the bank statements have been grouped for the Task 1 period.

Figure 10: Breakdown of Debit Amounts by Transaction Type (in GHS billions)



In summary, we identified GHS 350 million in disbursements, GHS 1.99 billion as sweeps, and GHS 40 million as transfers between ECG accounts. However, we were unable to identify some debit transactions primarily due to improper/truncated descriptions in the bank statements and as a result, these transactions were flagged for further review and discussion with ECG for confirmation. Further validation following the review process resulted in Key finding number 12 in Section 4.4 'Key Issues and Observation' section.

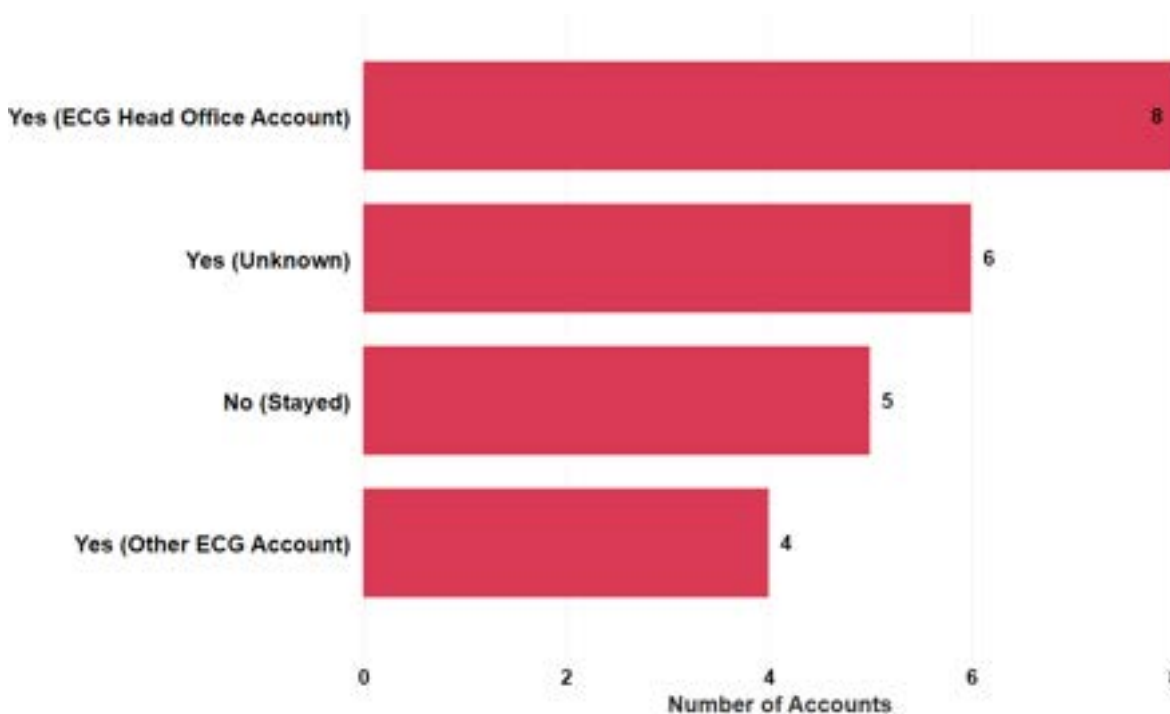
We received a total of 84 bank statements, comprising 14 head office accounts and 70 regional and district accounts. All the 14 head office accounts were analysed. Out of the 70 regional and district accounts 24 bank statements contained relevant data for the analysis period. Among the 24 accounts, 21 accounts were identified as customer cash collection accounts¹⁰, while 3 were accounts for other operational purposes.

¹⁰ A customer cash collection account is defined as any account that shows credits corresponding to daily sweeps and transfers, which are classified as revenue from clients, companies, or other non-energy charges, such as maintenance fees.

Analysis of District and Regional Accounts (Task 1 Period)

As part of our analysis of the ECG bank accounts, we conducted an assessment to verify whether full revenue transfers were made from the collection points to district accounts and if the daily banked receipts were swept into the Head Office Single Collections/Revenue Accounts.

Figure 11: Analysis of Full and Partial Revenue Transfer within the District and Regional Accounts



The above diagram speaks to regional and district accounts and where their revenues were swept/transferred.

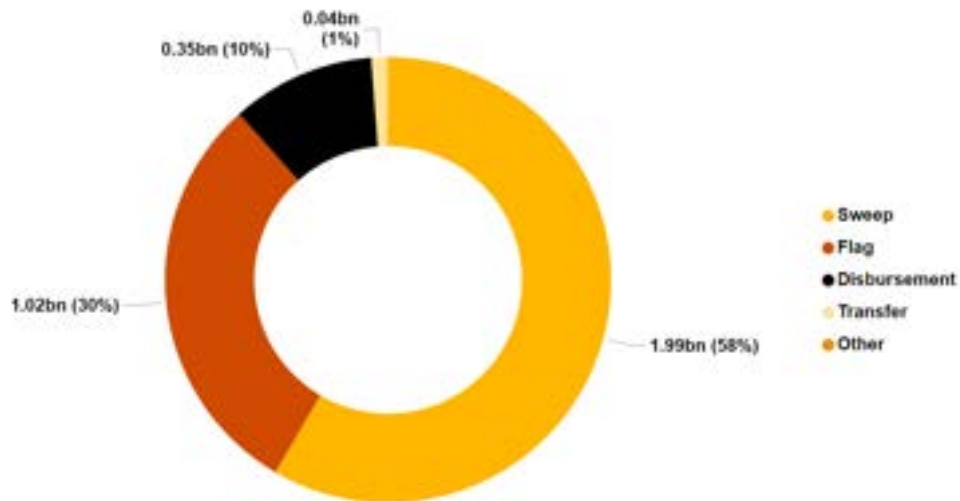
The categories of the transactions captured above are explained as follows:

- **Yes (ECG Head Office Account)** – All incoming revenue was fully transferred to the designated head office accounts.
- **Yes (Unknown)** – All incoming revenue was fully transferred to an account that could not be identified within the list of available accounts from ECG.
- **No (Stayed)** – Not all incoming revenue received in the district and regional accounts was fully transferred to the head office accounts.
- **Yes (Other ECG Account)** – All incoming revenue was fully transferred to an ECG account that was not categorised as a Head Office account.

Upon reviewing all the bank statements, we identified transactions that required further analysis. We conducted a detailed analysis of the regional and district office accounts that received the funds as shown in the following pie chart. Some of the transactions were swept to the head office accounts, others were disbursed to ECG's suppliers, while some others were transfers between various ECG accounts. Additionally, several minor transactions, including E-bundles and smaller charges, which

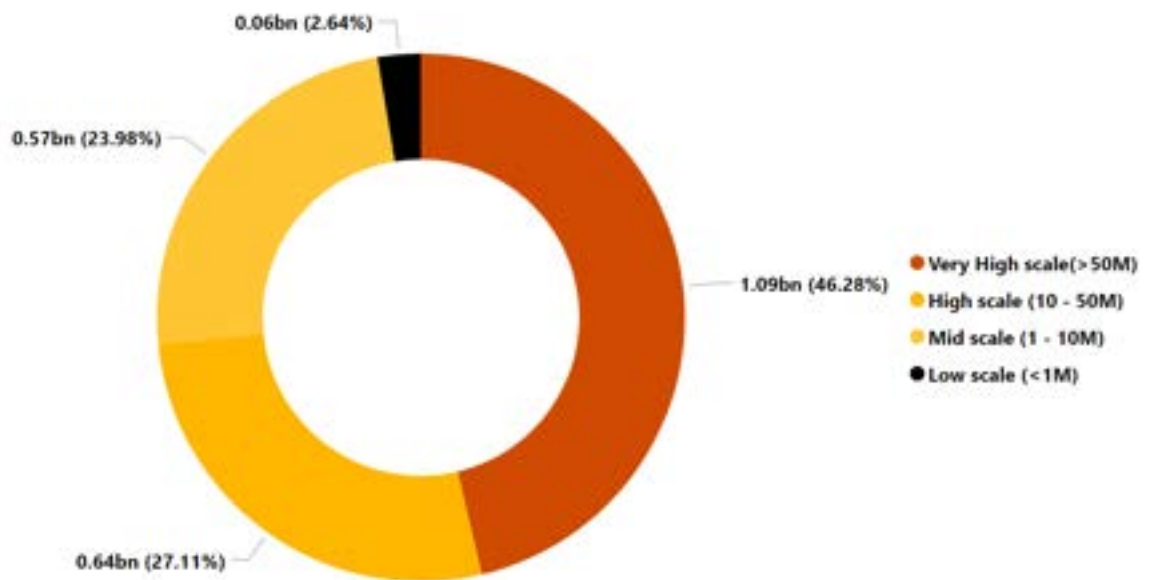
were categorised under "Other" were identified. See Figure 12 below for debit amounts by transaction types.

Figure 12: Breakdown of Debit Amounts by Transaction Type (in GHS billions)



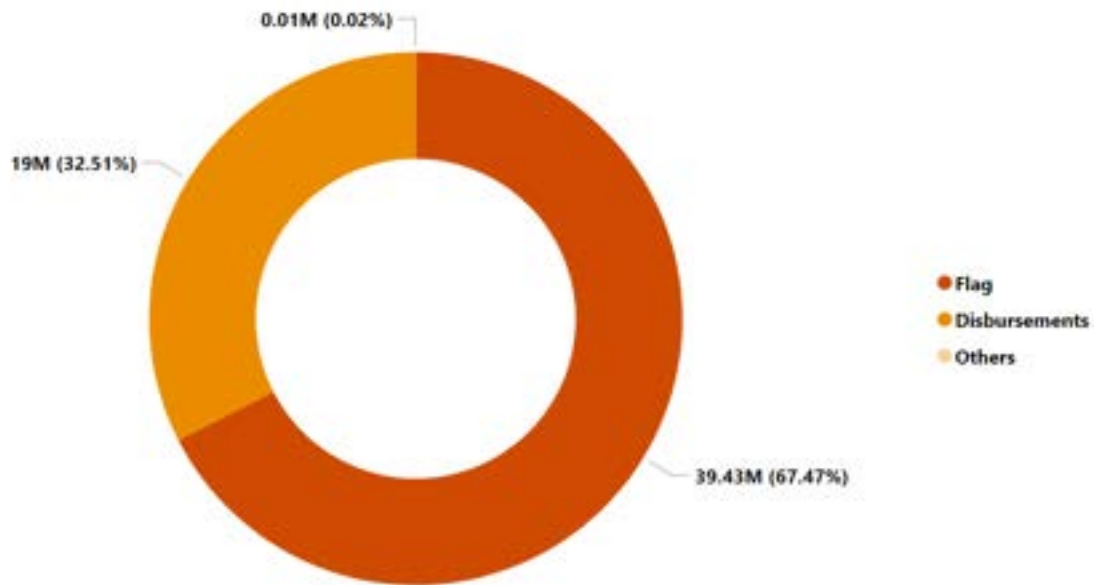
We also performed a detailed breakdown of the debits observed from the accounts by categorising them into various ranges for the district and regional accounts as shown in the pie chart below.

Figure 13: Breakdown of Debit Amounts by Amount Ranges (in GHS billions)



We conducted a similar investigation with the regional and district dollar accounts as shown in the pie chart below.

Figure 14: Breakdown of Debit Amounts by Transaction Type (in USD millions)



The issues identified in this analysis have been included in our assessments and key findings in Table 5 of this report.

Conclusion and Next Steps



Conclusion and Next Steps

5.1 Our recommendations

Based on our analysis of the data and information that was made available to us by ECG within the relevant scope of work set out in the Terms of Reference for Task 1, we have identified the following key recommendations for the attention of ECG, Ministry of Energy, PURC and other relevant stakeholders. Some of our recommendations include those put forward in our previous Task 1 Report (covering the period 1 July 2023 to 30 September 2023) that have not been implemented as well as new recommendations arising out of this review period.

5.1.1 Use of Debit Notes and Fuel Purchases

We recommend that ECG engage in discussions with key stakeholders, including the IPPs and the PURC, Ministry of Energy, to clearly define and agree on the responsibility for procuring fuel for power generation.

ECG's current practice of purchasing fuel on demand, issuing debit notes to IPPs, and, in some cases, paying full prices to non-beneficiaries of the CWM significantly impacts cash outflows, particularly for Level B beneficiaries under the CWM.

Our review of the CWM Guidelines did not indicate that ECG is authorised to purchase fuel on behalf of IPPs. It is unclear why this arrangement has been established between the IPPs and ECG. Further clarification and stakeholder engagement will be necessary to address this issue.

5.1.2 Internal Reconciliation Mechanisms

Our assessment for this Task 1 period revealed discrepancies within ECG's records on the relevant items on revenue and collections. Specifically, there were instances where the amounts reported as collections in the ECG collections sheet differed from those declared in the CWM. We believe that these issues can be easily resolved if ECG conducts a reconciliation between its internal records and the amounts reported in the CWM.

We anticipate that this validation exercise may be taken forward into the foreseeable future. Based on this, these mechanisms will be very useful in supporting the delivery of this engagement with minimal interruptions to ECG's regular operations by making the relevant data/information readily available through the reconciliation mechanisms.

5.1.3 Revenue Data from ECG Cash Settlement Platform (ECSP) Vendor

We recommend that ECG take steps to engage the ECSP Vendor to establish mechanisms to facilitate a clear distinction between tariff and non-tariff revenue collections at the points of collection. This will help ECG maintain accurate records and facilitate a process where all revenue collections are easily reconcilable with the amounts reported in the CWM. We recommend that since the fees charged by the ECSP impacts the CWM beneficiaries, it will be

important in the interest of openness and transparency for ECG to engage the relevant stakeholders on the arrangement with the ECSP.

5.1.4 Review the approach to the Single Collection Account

We recommend that ECG streamlines its banking arrangements to work with either one or, at most, two banks with extensive branch networks¹¹ covering all major parts of the country to align with the 2023 Ministry of Finance directive to operate a single account under the CWM arrangement.

Engaging with a limited number of banks with nationwide reach will enhance operational efficiency and reduce complexities in managing collections at ECG. This approach will allow ECG to maintain a more centralised collection account with each selected bank, eliminating the current reliance on multiple bank accounts with various banks across the country.

A streamlined banking arrangement would bring the following benefits to ECG and improve transparency around the revenue/collections management:

- *Simplified verification:* Consolidating accounts from up to two banks would make it easier to verify sweeps and reconcile collections, ensuring greater transparency and accuracy in financial reporting.
- *Enhanced control:* A centralised account structure reduces the risk of errors or mismanagement associated with handling multiple accounts across various banks.
- *Cost efficiency:* Working with fewer banks can lower administrative costs and banking fees.
- *Improved accountability and transparency:* With a more centralised system, monitoring cash flows and conducting audits (both internal and external) becomes more efficient.

Implementing this recommendation would align ECG's operations (especially in connection with revenue/collections) with the MoF directive on the CWM. Additionally, it will also help improve the efficiency, transparency, and reliability of its revenue collection process.

5.1.5 Develop a Monitoring System for Allocation

We observed that ECG allocates 12.5% of the net collections in the CWM for statutory payments. However, these payments are based on allocated amounts rather than specific payments required to settle statutory obligations.

To enhance transparency and accountability, we recommend that ECG put in place steps to implement a tracker for statutory obligations and payments. This tracker would enable ECG to monitor transactions, reconcile allocated amounts with actual payments and prevent errors or omissions

Additionally, it would provide a clear audit trail and improve the accuracy of financial reporting related to statutory payments, strengthening ECG's overall financial management process.

¹¹ ECG indicated in our discussions that the reason for using several bank accounts from various banks was to help facilitate access to a wide coverage for collections across Ghana.

5.1.6 Redesigning the CWM into a Cloud Based Platform

Technology enabled solutions can drive efficiency, as well as transparency and accountability in critical integrated systems involving multiple stakeholders. In the previous Task 1 report, we recommended that PURC, Ministry of Energy, GESRP and its stakeholders consider moving the CWM into a cloud-based platform. We have included an extract of our detailed recommendation from the previous Task 1 report in Appendix 8 of this report.

5.1.7 ECG's digitalisation- Considerations for cybersecurity and data protection

Digitalising ECG's collection and revenue management is an important step to helping improve the efficiency and customer convenience. Digitalisation often opens up institutions to challenges around data breaches, data loss and cyber-attacks. This will become even more critical with the ECSP arrangement and any other similar third-party arrangement in ECG's operations. In our last Task 1 Report, we set out recommendations targeted at the following items for ECG to adopt going forward:

- Strengthening of its Disaster Recovery System;
- Measures to create a cyber defence system for ECGs billing and collection systems; and
- Adoption of IT Third party management needs to monitor and assess the risk posed by third parties who provide services to their organisation.

We have included our recommendations on ECG's Cybersecurity and Data Protection considerations from the previous Task 1 report in Appendix 8 of this report for reference.

5.2 Our Next Steps

The immediate next steps for us, is the engagement of the Ministry of Energy, PURC and the relevant stakeholders to discuss the key findings from our assessment to inform the relevant action points to be taken forward.

We will also look forward to discussing our recommendations for this review as PURC, GESRP and the other stakeholders take steps to implement them. We emphasise that the issues raised so far are critical to help improve the transparency, strengthen the confidence of stakeholders in the use and objectives of the CWM.

We would like to extend our appreciation to ECG for their willingness to share information/data and offer clarifications as and when required. There was a significant improvement and buy in from ECG towards the activities of this exercise compared to the last review. However, there were some minor delays and approvals that did not make all the data/information available in good time.

As we take steps to finalise this report and prepare to execute Task 2, we would appreciate their continued support and quick turn around on requests to help ensure that our work is completed

within time. We will complete our review of our recommendations from the 2023 Task 1 assessment (1 July 2023 to 30 September 2023) as part of our Task 2 assessment.

7.2.1 Outstanding data and information

In sections 3.2.4 and 4.4 of this report, we have highlighted the outstanding data and indicated our challenges in obtaining them. We will entreat ECG to expedite efforts internally, to provide the relevant data. If the information is not made available within the timelines for submitting our final report we will proceed to state the limitations due to the constraints around outstanding data/information within the Task 1 period.

7.2.2 Task 2 [1 January 2024- 31 December 2024] Review

As indicated in our inception report, we have taken steps to begin our analysis for the first 9 months of the Task 2 period as part of managing efficient workflow for delivering this engagement.

We look forward to working with ECG, PURC, Ministry of Energy and the relevant stakeholders to incorporate some of the processes and mechanisms that will help facilitate the next phase of our exercise.

More importantly, we suggest that concrete steps are taken to address and implement the medium to long term recommendations to help strengthen the CWM going forward. We will be counting on ECG 's support to facilitate our completion of our Task 2 report within the established timelines.

Appendices



Appendices

Appendix 1 – Quarterly Tariff Rates

2023 Quarter 3 Tariff Rates

Tariff Category: EUT	Unit	Effective 1st September 2023
Residential		
0-30 (Lifeline, Exclusive)	GHp/kWh	64.4620
Service Charge: Lifeline	GHp/month	213.0000
31-300	GHp/kWh	142.7485
301-600	GHp/kWh	185.2598
601+	GHp/kWh	205.8442
Service Charge: Other Residential Consumers	GHp/month	1,073.0886
Non-Residential		
0-300	GHp/kWh	128.8793
301-600	GHp/kWh	137.1414
601+	GHp/kWh	204.7263
Service Charge	GHp/month	1,242.8245
SLT-LV		
Energy Charge	GHp/kWh	203.9889
Service Charge	GHp/Month	50,000.0000
SLT-MV		
Energy charge	GHp/kWh	154.8788
Service Charge	GHp/Month	50,000.0000
SLT-HV		
Energy Charge	GHp/kWh	162.5521
Service Charge	GHp/Month	50,000.0000
SLT-HV STEEL COMPANIES		
Energy Charge	GHp/kWh	114.6467
Service Charge	GHp/Month	50,000.0000
SLT-HV MINES		
Energy Charge	GHp/kWh	406.0478
Service Charge	GHp/month	50,000.0000

Source: PURC

2023 Quarter 4 Tariff Rates

Tariff Category: EUT	Unit	Effective 1st December 2023
Residential		
0-30 (Lifeline, Exclusive)	GHp/kWh	64.4792
Service Charge: Lifeline	GHp/month	213.0000
31-300	GHp/kWh	140.5722
301-600	GHp/kWh	185.4354
601+	GHp/kWh	202.7060
Service Charge: Other Residential Consumers	GHp/month	1073.0886
Non-Residential		
0-300	GHp/kWh	126.9145
301-600	GHp/kWh	135.0506
601+	GHp/kWh	201.6051
Service Charge	GHp/month	1242.8245
SLT-LV		
Energy Charge	GHp/kWh	200.8789
Service Charge	GHp/Month	50,000.0000
SLT-MV		
Energy charge	GHp/kWh	152.5176
Service Charge	GHp/Month	50,000.0000
SLT-HV		
Energy Charge	GHp/kWh	160.0738
Service Charge	GHp/Month	50,000.0000
SLT-HV STEEL COMPANIES		
Energy Charge	GHp/kWh	112.8988
Service Charge	GHp/Month	50,000.0000
SLT-HV MINES		
Energy Charge	GHp/kWh	399.8573
Service Charge	GHp/month	50,000.0000

Source: PURC

Appendix 2 – Analysis of data from ECG’s billing and invoicing system

Appendix 2A - Sales without Government Subsidies

Sales without Government Subsidies	
Total Prepaid Sales (GHS)	920,090,961.81
Total Postpaid Sales (GHS)	3,289,213,095.08
Total Sales (GHS)	4,738,379,734.37
Prepaid Percentage	19%
Postpaid Percentage	69%

Source: ECG Sales Report (filtered for Task 1 period)

Note:

- The 19% refers to prepaid customers on both MMS and legacy systems.
- From our analysis, MMS covers the bulk of the prepaid meters.
- The difference of approximately 12% of Total Sales (GS) relates to streetlight and recovery from non-purchase prepayment.

Appendix 2B - Units Supplied

Units Supplied	
Total Prepayment (MMS & Legacy) [Gwh]	734.00
Total Postpaid (Adora) [Gwh]	1,802.51
Total Units Supplied [Gwh]	2,939.39
Total Prepayment Percentage	25%
Total Postpaid Percentage	61%

Source: ECG Sales Report (filtered for Task 1 period)

Note:

- The 25% refers to units supplied to prepaid customers on both MMS and legacy systems
- The difference of 14% of total units supplied [Gwh] relates to streetlight and recovery from non-purchase prepayment.

**Appendix 2C - ECG Billing Data Re-computation-SLT Sales without Levies
[from ECG Adora System]**

DESCRIPTION	MONTH		
	October 2023	November 2023	December 2023
PwC Reported (GHS)	405,359,100.34	427,273,796.16	416,756,131.39
ECG Reported (GHS)	418,855,086.01	419,359,816.92	485,156,803.49
Variances (GHS)	(13,495,985.67)	7,913,979.24	(68,400,672.10)

**Appendix 2D - ECG Billing Data Re-computation- NSLT Sales without Levies
[from ECG Adora System]**

DESCRIPTION	MONTH		
	October 2023	November 2023	December 2023
PwC Reported (GHS)	363,745,553.78	335,547,733.53	422,464,408.56
ECG Reported (GHS)	463,678,037.15	464,250,479.17	543,100,029.07
Variances (GHS)	(99,932,483.37)	(128,702,745.64)	(120,635,620.51)

**Appendix 2E - ECG Billing Data Re-computation- NSLT Comparison-
Total Charge [from ECG Adora System]**

DESCRIPTION	MONTH		
	October 2023	November 2023	December 2023
PwC Reported (GHS)	404,838,477.38	376,102,725.81	470,313,050.99
ECG Reported (GHS)	513,720,575.18	514,360,622.60	602,592,101.67
Variances (GHS)	(108,882,097.80)	(138,257,896.79)	(132,279,050.68)

Appendix 2F - ECG Billing Data Re-computation- SLT Comparison - Total Charge [from ECG Adora System]

DESCRIPTION	MONTH		
	October 2023	November 2023	December 2023
PwC Reported (GHS)	505,824,614.53	533,378,561.11	519,197,794.11
ECG Reported (GHS)	526,217,504.31	526,861,093.58	605,461,197.75
Variances (GHS)	(20,392,889.78)	6,517,467.53	(86,263,403.64)

Appendix 2G - ECG Billing Data Re-computation- SLT Comparison - Total Levies for SLT (covering the period October 2023 to December 2023) [from ECG Adora System]

DESCRIPTION	MONTH			
	VAT	Public light	Gov't levy	Powerfactor SC
PwC Reported (GHS)	179,742,885.16	37,417,185.83	24,935,183.48	7,002,170.00
ECG Reported (GHS)	261,436,997.35	39,657,060.22	26,443,998.71	7,630,032.94
Variance (GHS)	(81,694,112.19)	(2,239,874.39)	(1,508,815.23)	(627,862.94)

Appendix 2H - ECG Billing Data Re-computation- SLT Comparison - Units(kWh) for NSLT [from ECG Adora System]

DESCRIPTION	MONTH		
	October 2023	November 2023	December 2023
PwC Computed (GHS)	220,636,660.00	201,819,793.00	261,555,194.00
ECG Computed (GHS)	254,280,000.00	254,600,000.00	337,360,000.00
Variance (GHS)	(33,643,340.00)	(52,780,207.00)	(75,804,806.00)

Appendix 2I - ECG Billing Data Re-computation- Units(kWh) for SLT [from ECG Adora System]

DESCRIPTION	MONTH		
	October 2023	November 2023	December 2023
PwC Computed (GHS)	264,686,117.00	278,995,759.00	273,085,950.00
ECG Computed (GHS)	309,030,000.00	309,410,000.00	337,830,000.00
Variance (GHS)	(44,343,883.00)	(30,414,241.00)	(64,744,050.00)

Appendix 3 – Reconciliation of Total Collections - Task 1

Appendix 3A - Comparison between collections per CWM and ECG Cash Settlement Platform Report

DESCRIPTION	TOTAL COLLECTIONS (in GHS)		
	MONTH		
	October 2023	November 2023	December 2023
Amount per CWM [A]	701,518,305	1,022,526,491	1,000,000,000
Amount per ECG Cash Settlement Platform Report [B]	1,106,334,344	1,127,295,221	1,057,948,229
Variances [A-B]	(404,816,039)	(104,768,730)	(57,948,229)

Appendix 3B - Comparison between collections per CWM and ECG Revenue Collections Sheet

DESCRIPTION	TOTAL COLLECTIONS (in GHS)		
	MONTH		
	October 2023	November 2023	December 2023
Amount per CWM [A]	701,518,305	1,022,526,492	1,000,000,000
Amount per ECG collections sheet [B]	1,095,197,504	1,144,358,724	1,089,311,142
Variances [A-B]	(393,679,198)	(121,832,232)	(89,311,142)

Appendix 3C - Comparison between collections per CWM and validated bank collections

DESCRIPTION	TOTAL COLLECTIONS (in GHS)		
	MONTH		
	October 2023	November 2023	December 2023
Amount per CWM [A]	701,518,305	1,022,526,492	1,000,000,000
PwC Validated [B]	1,461,746,498	1,249,236,280	1,155,821,068
Variances [A-B]	(760,228,192)	(226,709,788)	(155,821,068)

Appendix 3D - Comparison between collections per CWM and Non-Tariff Collections Schedule

DESCRIPTION	NON-TARIFF COLLECTIONS (in GHS)		
	MONTH		
	October 2023	November 2023	December 2023
Amount per CWM [A]	16,207,602	12,048,000	13,400,000
Amount per ECG Collection Schedule [B]	18,850,776	19,414,787	19,105,452
Variances [A-B]	(2,643,174)	(7,366,787)	(5,705,452)

Appendix 3E - Comparison between total collections per CWM and ECG Cash Settlement Platform Report showing commission paid to ECSP Vendor (in GHS)

DESCRIPTION	MONTH		
	October 2023	November 2023	December 2023
Total collections per CWM [A]	701,518,305	1,022,526,491.85	1,000,000,000
Total collections per ECSP	1,106,334,343	1,127,295,221.27	1,057,948,229
ECSP commission	14,715,962	17,166,932.30	15,619,533
Net amount after ECSP commission [B]	1,091,618,380	1,110,128,288.97	1,042,328,696
Variances [A-B]	(390,100,075)	(87,601,797)	(42,328,696)

Appendix 4 – Debit Notes Analysis (Task 1 Period: 1 October 2023 - 31 December 2023)

DESCRIPTION	MONTH			TOTAL
	October 2023	November 2023	December 2023	
Amount per CWM [A] (in GHS)	93,465,199	86,049,666	147,584,559	327,099,425
Amount Paid to Gas suppliers per bank statement [B] (in GHS)	60,000,000	30,000,000	110,000,000	200,000,000
Variance [A-B] (in GHS)	33,465,199	56,049,666.16	37,584,559	127,099,425

Appendix 5 – Details of ECG disbursements from the collections accounts to CWM beneficiaries from 1 October to 31 December 2023.

Appendix 5A - Total Value Analysis

DESCRIPTION	MONTH			TOTAL
	October 2023	November 2023	December 2023	
Amount per CWM Level A (GHS)	479,300,000	531,191,776	600,000,000	1,610,491,776
Amount per CWM Level B (GHS)	206,010,703	410,657,063	350,000,000	966,667,767
Total Amount per CWM (GHS) - [A]	685,310,703	941,848,839	950,000,000	2,577,159,543
Amount Validated (GHS)	437,000,000	411,000,000	335,000,000	1,183,000,000
Amount Validated (USD)	11,000,000	12,000,000	24,000,000	47,000,000
Amount Validated in GHS and PwC Translation of USD to GHS – [B]	641,300,000	559,200,000	767,558,140	1,968,058,140
Variance (GHS) - underpayment/(overpayment) – C=[A-B]	44,010,703	382,648,839	182,441,860	609,101,403

Appendix 5B - Level A IPPs

DESCRIPTION	CEN POWER MONTH			AMANDI MONTH		
	October 2023	November 2023	December 2023	October 2023	November 2023	December 2023
Amount per CWM (USD)	10,000,000	10,000,000	10,000,000	7,000,000	7,000,000	7,000,000
Amount per CWM (in GHS equivalent)	110,000,000	123,500,000	139,534,884	77,000,000	86,450,000	97,674,419
Amount Validated (USD)	4,000,000	5,000,000	7,000,000	-	-	7,000,000
Amount Validated (in GHS equivalent)	66,000,000	55,000,000	33,000,000	77,000,000	77,000,000	-
Variance (USD)	-	-	-	-	-	-
Variance (GHS) - underpayment/(overpayment)	-	6,750,000	8,860,465	-	9,450,000	-

Note: Level A IPPs have their allocations declared in USD. ECG is then required to pay them in USD and/or agreed equivalent in GHS.

DESCRIPTION	SUMON ASOGLI MONTH			CENIT MONTH		
	October 2023	November 2023	December 2023	October 2023	November 2023	December 2023
Amount per CWM (USD)	7,000,000	7,000,000	7,000,000	5,000,000	5,000,000	5,000,000
Amount per CWM (in GHS equivalent)	77,000,000	86,450,000	97,674,419	55,000,000	61,750,000	69,767,442
Amount Validated (in GHS equivalent)	77,000,000	77,000,000		55,000,000	55,000,000	55,000,000
Amount Validated (USD)			3,000,000			
Variance (USD) underpayment/(overpayment)	-	-	4,000,000	-	-	-
Variance (GHS) - underpayment/(overpayment)	-	9,450,000	-	-	6,750,000	14,767,442

Note: Level A IPPs have their allocations declared in USD. ECG is then required to pay them in USD and/or agreed equivalent in GHS.

DESCRIPTION	KARPOWERSHIP			AKSA		
	MONTH			MONTH		
	October 2023	November 2023	December 2023	October 2023	November 2023	December 2023
Amount per CWM (USD)	7,000,000	7,000,000	7,000,000	7,000,000	7,000,000	7,000,000
Amount per CWM (in GHS Equivalent)	83,300,000	86,450,000	97,674,419	77,000,000	86,450,000	97,674,419
Amount Validated (in GHS equivalent)	7,000,000	7,000,000	7,000,000	77,000,000	77,000,000	77,000,000
Variance (USD)	-	-	-	-		
Variance (GHS) - underpayment/(overpayment)	-	-	-	-	9,450,000	20,674,419

Note: Level A IPPs have their allocations declared in USD. ECG is then required to pay them in USD and/or agreed equivalent in GHS.

Appendix 5C - Level B IPPs

DESCRIPTION	EARLY POWER MONTH		
	October 2023	November 2023	December 2023
Amount per CWM (GHS)	132,205	141,776	-
Amount Validated (GHS)	-	-	-
Variance (GHS) - underpayment/(overpayment)	132,205	141,776	-

DESCRIPTION	VRA MONTH			AMERI MONTH		
	October 2023	November 2023	December 2023	October 2023	November 2023	December 2023
Amount per CWM (GHS)	13,846,649	12,152,806	32,645,410	-	-	-
Amount Validated (GHS)	-	-	-	-	-	-
Variance (GHS) - underpayment/(overpayment)	13,846,649	12,152,806	32,645,410	-	-	-

DESCRIPTION	BUI MONTH			BXC SOLAR MONTH		
	October 2023	November 2023	December 2023	October 2023	November 2023	December 2023
Amount per CWM (GHS)	8,962,161	17,169,414	62,929,724	376,964	429,346	1,506,934
Amount Validated (GHS)	-	20,000,000	16,000,000	-	-	-
Variance (GHS) - underpayment/(overpayment)	8,962,161	(2,830,586)	46,929,724	376,964	429,346	1,506,934

DESCRIPTION	MEINERGY MONTH			SAFISANA MONTH		
	October 2023	November 2023	December 2023	October 2023	November 2023	December 2023
Amount per CWM (GHS)	379,125	350,208	1,541,886	7945	13021	51476
Amount Validated (GHS)	-	-	-	-	-	-
Variance (GHS) - underpayment/(overpayment)	379,125	350,208	1,541,886	7,945	13,021	51,476

DESCRIPTION	GNPC C'DUTY MONTH			GNPC SERVICE CHARGE MONTH		
	October 2023	November 2023	December 2023	October 2023	November 2023	December 2023
Amount per CWM (GHS)	-	-	-	47,074,159	24,332,838	70,892,159
Amount Validated (GHS)	-	-	-	60,000,000	-	40,000,000
Variance GHS - underpayment/(overpayment)	-	-	-	(12,925,841)	24,332,838	30,892,159

DESCRIPTION	GHANA GAS MONTH			VRA (NGAS +WAPCO) MONTH		
	October 2023	November 2023	December 2023	October 2023	November 2023	December 2023
Amount per CWM (GHS)	21,367,849	44,813,174	48,298,738	-	1,473,011	-
Amount Validated (GHS)	-	20,000,000	40,000,000	-	-	-
Variance (GHS) - underpayment/(overpayment)	21,367,849	24,813,174	8,298,738	-	1,473,011	-

DESCRIPTION	REGULATORY LEVY - GAS MONTH			REGULATORY LEVY - POWER MONTH		
	October 2023	November 2023	December 2023	October 2023	November 2023	December 2023
Amount per CWM (GHS)	23,328,828	14,409,383	25,892,620	1,694,363	1,021,260	2,501,042
Amount Validated (GHS)	-	10,000,000	30,000,000	-	-	-
Variance (GHS) - underpayment/(overpayment)	23,328,828	4,409,383	(4,107,380)	1,694,363	1,021,260	2,501,042

DESCRIPTION	ECG MONTH			GRIDCO MONTH		
	October 2023	November 2023	December 2023	October 2023	November 2023	December 2023
Amount per CWM (GHS)	45,876,629	31,702,299	67,892,626	15,186,537	9,166,026	22,447,384
Amount Validated (GHS)	-	-	-	25,000,000	20,000,000	44,000,000
Variance (GHS) - underpayment/(overpayment)	-	-	-	(9,813,463)	(10,833,974)	(21,552,616)

Appendix 5D - Statutory payments

DESCRIPTION	STATUTORY PAYMENT MONTH		
	October 2023	November 2023	December 2023
Amount per CWM (GHS)	27,777,288	-	-
Amount Validated (GHS)	-	-	-
Variance (GHS) - underpayment/(overpayment)	-	-	-

Appendix 5E - Stratcon fuel payments

DESCRIPTION	STRATCON FUEL PAYMENTS MONTH			TOTAL VARIANCE
	October 2023	November 2023	December 2023	
Amount per CWM (USD)	-	-	-	-
Amount per CWM (GHS)	-	18,200,000	-	-
Amount Validated	18,200,000	18,540,000	100,000,000	-
Variance (USD)	-	-	-	-
Variance GHS - underpayment/(overpay ment)	(18,200,000)	(340,000)	(100,000,000)	(118,540,000)

Note: Where a USD payment was made as shown in row 4 in the Table above, the GHS equivalent has been shown in row 5 in the table above.

Appendix 6 – Reconciliation for statutory payments

Appendix 6A – Timely and untimely payments to CWM Beneficiaries

OCTOBER				
CWM Beneficiaries	Date of payment	Amount USD	Amount GHS	Timely payment Yes /No
	25/10/2023	4,000,000		N
Cenpower	24/10/2023		66,000,000	N
Gridco	06/10/2023		25,000,000	Y
Amandi	23/10/2023		77,000,000	N
VRA (including support)	-	-	-	-
	-	-	-	-
Bui Power	-	-	-	-
Sunon Asogli	23/10/2023		77,000,000	N
PURC (transmission plus gas)	-	-	-	-
	-	-	-	-
BX Solar	-	-	-	-
Meinergy	-	-	-	-
Safisana	-	-	-	-
CENIT	23/10/2023		55,000,000	N
Early Power	-	-	-	-
AKSA	23/10/2023		77,000,000	N
	02/11/2023	4,000,000		N
Karpowership	24/10/2023	3,000,000		N

NOVEMBER				
CWM Beneficiaries	Date of payment	Amount USD	Amount GHS	Timely payment Yes /No
Cenpower	24/11/2023	5,000,000		N
	27/11/2023		22,000,000	N
	22/11/2023		33,000,000	Y
Gridco	05/12/2023		20,000,000	N
Amandi	22/11/23		77,000,000	Y
VRA (including support)	-	-	-	-
	-	-	-	-
Bui Power	05/12/2023		20,000,000	N
Karpowership	22/11/2023	7,000,000		Y
Sunon Asogli	22/11/2023		77,000,000	Y
	-	-	-	-
PURC (transmission plus gas)	04/12/2023		10,000,000	N
BX Solar	-	-	-	-
Meinergy	-	-	-	-
Safisana	-	-	-	-
CENIT	02/11/2023		55,000,000	Y
AKSA	22/11/2023		77,000,000	Y

DECEMBER				
CWM Beneficiaries	Date of payment	Amount USD	Amount GHS	Timely payment Yes /No
Cenpower	09/01/2024		33,000,000	N
	28/12/2023	2,000,000		N
	22/12/2023	5,000,000		Y
Gridco	21/12/2023		44,000,000	Y
Amandi	28/12/2023	4,000,000		N
	22/12/2023	3,000,000		Y
VRA (including support)	-	-	-	-
	-	-	-	-
Bui Power	21/12/2023		16,000,000	Y
Karpowership	22/12/2023	5,500,000	-	Y
	28/12/2023	1,500,000	-	N
Sunon Asogli	27/12/2023	3,000,000	-	N
PURC (transmission plus gas)	21/12/2023		30,000,000	Y
	-	-	-	-
BX Solar	-	-	-	-
Meinergy	-	-	-	-
Safisana	-	-	-	-
CENIT	03/01/2024		55,000,000	N
AKSA	29/12/2023		77,000,000	N

Appendix 6B – Total of timely and untimely payments to CWM Beneficiaries in USD and GHS

TOTALS	TIMELY		UNTIMELY	
	GHS	USD	GHS	USD
October	25,000,000	-	352,000,000	11,000,000
November	319,000,000	7,000,000	72,000,000	5,000,000
December	90,000,000	13,500,000	165,000,000.00	10,500,000

Appendix 6C – Reconciliation for total statutory payments

DESCRIPTION	MONTH			TOTAL
	October 2023	November 2023	December 2023	
Amount per CWM [A]	27,777,288	**253,482,500	**50,000,000	331,259,788
Amount paid National electrification & Street Lightening	-	-	-	-
Amount paid GRA (credit note) [B]	-	-	-	-
Variance [A-B]	27,777,288	253,482,500	50,000,000	331,259,788

NOTE: ** These amounts relate to tax offsets as described in the CWM.

Appendix 7 – Correspondences with ECG

Appendix 7A- PwC Request to ECG (1)-Additional Data Request and Systems Access



The Managing Director
Electricity Company of Ghana (ECG)
Electro Volta House
Accra, Ghana.

Attn: Moses Okley

21 November 2024



Dear Sir

Progress Update: Validation of Electricity Company of Ghana (ECG) Revenue/Collection Accounts

We are writing to formally inform you that we have successfully conducted our procedures following the access granted to the Adora Information Technology ("IT") System. We appreciate your team's continued efforts to support us in gaining access to the MMS, Zeus, and Legacy IT Systems, which remain outstanding. In accordance with the Scope of Services outlined in the Contract, we require access to these IT Systems to carry out the following tasks:

- Review and assess ECG's billing and invoicing procedures, including the accuracy of metering, tariff application, and customer billing;
- Review and assess ECG's revenue collection and accounts receivables management; and
- Undertake a comprehensive assessment of the adequacy, transparency and effectiveness of accounting and overall internal control systems for the revenue, collections, transfer and disbursement mechanisms.

Additionally, we would like to indicate that our request for a copy of the Hubtel contract remains outstanding. This contract is critical for understanding the deductions applied (1.5%–3% of gross amounts collected via the Hubtel Platform), in the "Hubtel Settlement Report" provided by ECG and its impact on the Cash Waterfall Mechanism. The lack of access to the remaining IT Systems and information presents a significant limitation to our ability to perform meaningful analysis and achieve the objectives of this assignment.

We kindly request your assistance in providing the outstanding items no later than Friday, 22 November 2024, to ensure we meet the deadline for this time-sensitive engagement. The final reports are expected to be issued on 29 November 2024. We would like to have a meeting with you and your team on Tuesday, 26 November 2024, to provide an update on the work and discuss our findings.

Thank you for your continued cooperation and support in helping us complete this assignment successfully.

Yours sincerely,

for: PricewaterhouseCoopers (Ghana) LTD

Prince Aduftee
Director

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Kingsley Okezu-Ewli · Richard Ansong · Samuel Kingsford Arthur · Lydia Pweduwa · Destiny Atabitsay
Dzidzedze Fiajoe · Prince Aduftee · Clara Amarteillo-Taylor · Ulyssa Akpata

Appendix 7B- PwC Request to ECG (2)-Additional Data Request and Systems Access



The Managing Director
Electricity Company of Ghana (ECG)
Electro Volta House
Accra, Ghana.

Attn: Moses Okley

4 November 2024

Dear Sir

Subject: Validation of Electricity of Ghana (ECG) Revenue/Collection Accounts

As a follow up to our earlier discussions, we write to formally request for access to your Information Technology ("IT") system and ECG's contract with Hubtel. This will enable us to carry out the tasks required under our engagement with the Ministry of Energy on the above-mentioned assignment.

We will require access to your IT system to carry out the following specific tasks per the Scope of Services as outlined in the Contract:

- Review and assess ECG's billing and invoicing procedures, including the accuracy of metering, tariff application, and customer billing;
- Review and assess ECG's revenue collection and accounts receivables management; and
- Undertake a comprehensive assessment of the adequacy, transparency and effectiveness of accounting and overall internal control systems for the revenue collections, transfer and disbursement mechanisms.

Furthermore, we would also like to request a copy of the Hubtel contract, as the "Hubtel Settlement Report" shared with us by ECG indicates that Hubtel applies deductions of between 1.5% and 3% to the gross amounts collected using the Hubtel Platform. Access to the Hubtel Contract would help us understand the impact of the deductions on the Cash Waterfall Mechanism.

The lack of access to the IT System and information may present a significant limitation to the conduct of our work and may hinder our ability to perform any meaningful analysis towards the achievement of the overall objectives of the assignment.

Accordingly, we request that you grant us access to the IT System and the requested information as soon as possible but preferably not later than Tuesday, 5 November 2024 in order that we can meet the deadline on this time sensitive engagement.

We will be counting on your usual cooperation and support to complete this engagement.

Yours sincerely,

for: PricewaterhouseCoopers (Ghana) LTD

Prince Adufutse
Director

PricewaterhouseCoopers (Ghana) LTD
PwC Tower, A4 Ringwood Lane, Cantonments City, PMB CT 42, Cantonments, Accra, Ghana
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Directors: Wyczynsky Ashiagbor · Michael Asiedu-Antwi · Maxwell Darkwa · Ayesha Bedwei · George Arhin
Nelson Opoku · Eric Nipah · Edward Gomado · Abeku Gyan-Quansah · Hayfron Aboagye
Kingsley Owusu-Ewli · Richard Ansong · Samuel Kingsford Arthur · Lydia Pwadura · Destiny Attatsitsey
Dzidedze Fiafio · Prince Adufutse · Clara Amarteillo-Taylor · Uyiola Akpata



Appendix 7C- PwC Request to ECG (3)-Preliminary Data Request



The Managing Director
Electricity Company of Ghana (ECG)
Electro Volta House
Accra, Ghana.

Attn: Moses Okley



17 October 2024

Dear Sir

Subject: Validation of Electricity Company of Ghana (ECG) Revenue/Collection Accounts

We would like to formally notify you that we have signed our contract with the Ministry of Energy in connection with the above-mentioned engagement. As discussed with you in our meeting on 10 October 2024, we are submitting the enclosed data request for your urgent attention in order for us to commence our work.

Kindly note that this list is not exhaustive. We may request for additional information based on the analysis of the information provided.

We will be counting on your cooperation and support to complete this engagement.

We appreciate the opportunity to work with you.

Yours sincerely,

for: PricewaterhouseCoopers (Ghana) LTD

Prince Adufutse
Director

PricewaterhouseCoopers (Ghana) LTD
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Nelson Opoku - Eric Nipah - Edward Gomado - Abeku Gyan-Quansah - Hayfron Aboagye
Kingsley Owusu-Ewi - Richard Ansong - Samuel Kingsford Arthur - Lydia Pwedu - Destiny Adasitsey
Dzidzodzoe Flodoo - Prince Adufutse - Clara Amarteifo-Taylor - Ulyssa Akpan

Project: VALIDATION OF THE ECG REVENUE/COLLECTION ACCOUNTS ENGAGEMENT - 2024

Date: 17 OCTOBER 2024

Subject: DRAFT INFORMATION REQUEST LIST

Note: The following information is being requested for the coverage period of 1 October 2023 – 31 December 2023 (Task 1) and 1 January 2024 – 30 September 2024 (Task 2 – Part 1). Subsequently, we will request the same information for the period: 1 October 2024 – 31 December 2024 (Task 2 – Part 2) once the period has elapsed.

Please note that this list is not exhaustive, and we may request for additional information based on the analysis of information provided.

No.	Document	ECG Comments
1.	GUIDELINES, MANUALS AND POLICIES	
1.1	Cash Waterfall Mechanism	
1.2	Billing and Invoicing	
1.3	Revenue Collection and Account Receivables	
1.4	Internal Control Systems	
1.5	Schedule of tariffs for the period under review	
2.	BILLING AND REVENUE COLLECTION – TARIFF	
2.1	Head Office Data	
2.2	Regional Offices Data	
2.3	District Offices Data	
3.	BILLING AND REVENUE COLLECTION – NON-TARIFF	
3.1	Head Office Data	
3.2	Regional Offices Data	
3.3	District Offices Data	
4.	BANK STATEMENTS AND RECEIPTS	
4.1	Chart of Accounts	
4.2	Collection Accounts	
4.3	Disbursement Accounts	
4.4	Other Official Accounts	
4.5	Details of accounts that sweep into the single collection account	
4.6	Details of the single collection account (identification of tariff & non-tariff revenue)	
4.7	Disbursements made from the single collection account in line with CWM Guidelines	
5.	POWER	
5.1	Schedule of Power Received by ECG (in units and amount)	
5.2	Corresponding Schedule of Power Distributed by ECG (in units and amount)	
5.3	Corresponding Schedule of Bills Raised, Revenue Received & Cash collections (Tariff and Non-Tariff)	

No.	Document	ECG Comments
6.	CASH WATERFALL MECHANISM	
6.1	Access to CWM	
6.2	Data from the Cash Waterfall Mechanism for the period under review	
6.3	Schedule of Payment to Value Chain	

Appendix 7D- PwC Request to ECG – On Preliminary General Observations and Key Specific Issues



The Managing Director
Electricity Company of Ghana (ECG)
Electro Volta House
Accra, Ghana.

Attn: Moses Okley

26 November 2024

Dear Sir

Subject: Validation of Electricity of Ghana (ECG) Revenue/Collection Accounts

As a follow-up to our letter dated 22 November 2024, we write to express our intent to discuss our key findings from the current assignment to date and the status of our recommendations from the previous Task 1 review (1 July 2023 to 30 September 2023). We proposed 27 November 2024 (at 3pm) to discuss with your management team.

Ahead of the meeting, we will share our preliminary findings and observations from this Task 1 period as well as the status of the implementation of our recommendations from our previous Task 1 period via email by tomorrow morning.

We will be counting on your usual cooperation and support to complete this required task as part of our engagement.

We look forward to the discussions.

Yours sincerely,
for: PricewaterhouseCoopers (Ghana) LTD

A handwritten signature in black ink, appearing to read 'W. King'.

Winfred King
Director

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Directors: Wyczynsky Ashagbor · Michael Asiedu-Antwi · Maxwell Darkwa · Ayesha Bedwei · George Arhin
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Dziedzze Fladjo · Prince Adufuse · Clara Amarteifo-Taylor · Uyiola Akpata

**Appendix 8 – Recommendations from final Task 1 report for the period 1
July 2023 to 30 September 2023**

Appendix 8A- CWM Review Recommendations (Task 1-1 July 2023 to 30 September 2023)

Based on the fundamental objectives of the CWM, which includes transparency, timeliness and equitability (per agreed allocations) of payments we believe the model for the CMW should be upgraded into a cloud-based platform . Currently, as per our comments on the functionality and the system within which the mechanism is applied, there is room for improvement on in the operationalisation of the model. Although we agree with the process of quarterly reconciliation and validation to meet the fundamental objectives of the CWM, we recommend that in the medium term the mechanism be restructured into a secure cloud-based platform with independent auditor support.

In this proposed system, selected staff at ECG, PURC, ESRP and the representatives of the tiers of beneficiaries (including the IPPs) will be given a unique access key to log on to the cloud-based platform. On the platform, the ECG representative will log in the validated and reconciled tariff revenue from the Single Collections Account in line with the Government's directive. Once this is keyed in, a back-end algorithm will allocate the amounts per the established regime or allocation and work out the relevant tariffs applicable across the value chain within the model. The system will also require the beneficiaries to enter the confirmed receipts from ECG per the CWM. This will also be validated by the auditor to confirm that the validated CWM amount is what is paid to the relevant beneficiaries, and they can confirm via the system the amount received. The beneficiaries will be required to upload proof of receipt of payment and ECG will also upload proof of payment. This will help check the problem of differences in amounts paid to beneficiaries relative to the amounts declared on the CWM. The cloud-based platform will also provide a dashboard feature and access to PURC and ESRP for monitoring to confirm that the validated amounts are declared correctly, and the disbursements align with the allocation to the beneficiaries. It is important to mention that only PURC and ESRP will have overview access of the entries into the CWM. The section of the platform for beneficiaries will only show a text box for entry of the amount received from ECG and an upload button to share the relevant documentation (receipt and evidence of bank transfer). ECG will be able to view the allocations to inform the payments it is required to make to the beneficiaries.

The platform can be developed on a combination of Microsoft Power BI, secured Microsoft Excel driven connection and developed cloud-based platform to manage the 4 systems connected by the platform. This will include:

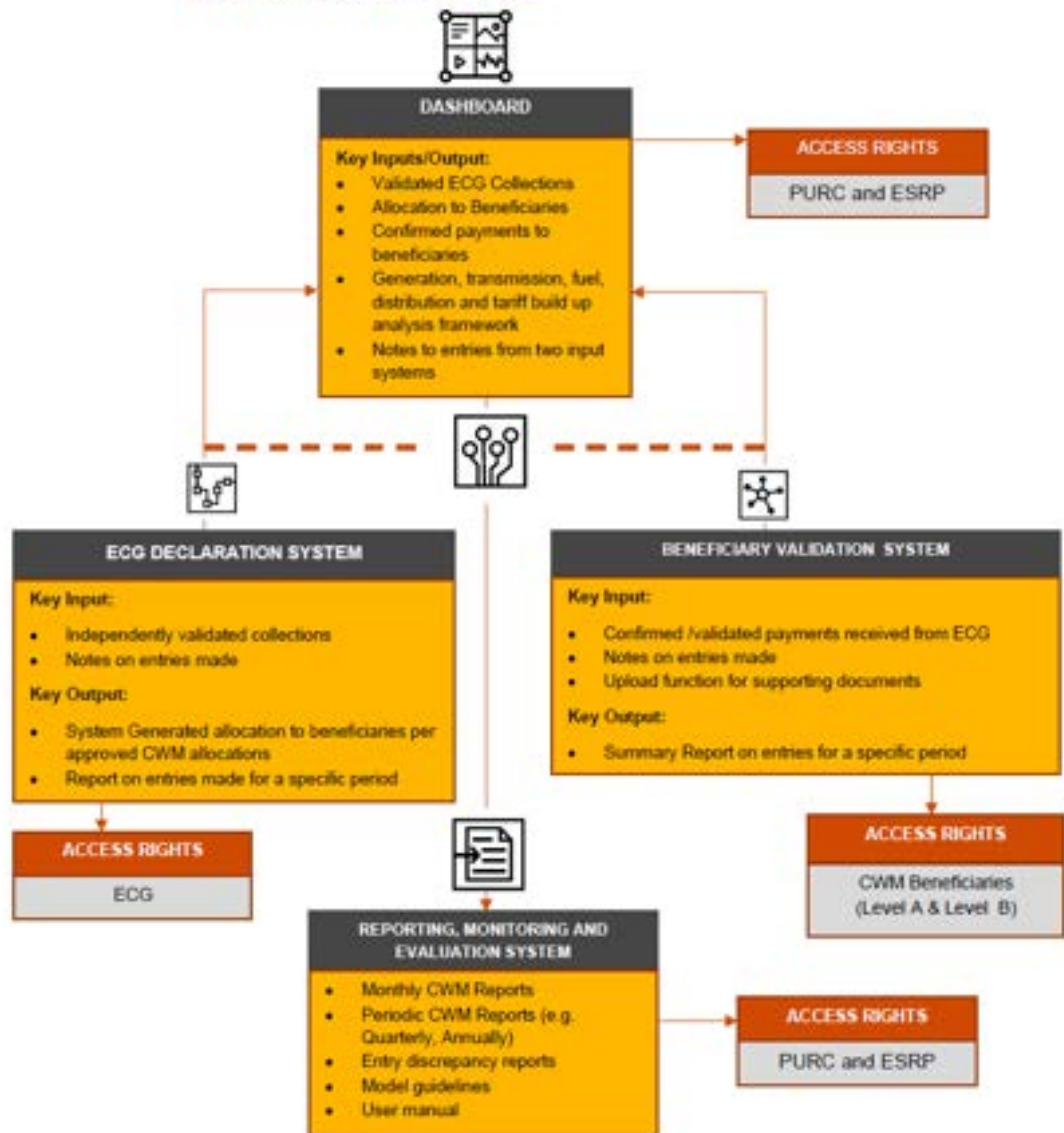
- A dashboard;
- ECG CWM Declaration System

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- Beneficiary Validation System
- Reporting, Monitoring and Evaluation System

The following diagram is a high-level schematic showing how this proposed secured cloud-based system could work to help manage a more resilient, efficient and transparent system.

Figure 4: Proposed CWM Platform



Appendix 8B- Cybersecurity and Data Protection Recommendations (Task 1-1 July 2023 to 30 September 2023)

Appendix 8b. Cybersecurity and Data Protection Recommendations

Based on our understanding of the cybersecurity incident and the contractual agreement between ECG and Hubtel Limited for business improvement, we have identified three (3) main areas for consideration:

Disaster Recovery

ECG should prioritise adopting disaster recovery (DR) system as extensively as possible. This will involve developing the necessary framework and processes to prepare for the recovery of critical applications, systems, and infrastructure after a disaster or outage.

IT systems at ECG can go offline unexpectedly due to unforeseen events or circumstances, such as natural events, power outages, cyber-attacks and security issues. From our interactions with management, we noted that there were no backups taken to recover the data which was lost during the period of the cyber incident.

This inadvertently affected ECG's ability to bill its customers using the CMS application and had to resort to estimated billing to continue operations. This further validates the need for a comprehensively documented disaster recovery and business continuity policy which should be put in place to protect data loss as well as facilitate the recovery of sensitive data and critical systems.

Management of ECG should develop a comprehensive DR plan which captures mission critical or critical applications and related infrastructure with their acceptable required recovery timelines to avoid future significant business disruption. The DR plan needs to be reviewed on a frequent basis to make sure its current with all the applications and infrastructure in the environment including their respective requirements (Recovery Time Objective (RTO) and Recovery Point Objective (RPO)).

Application and data recovery at a minimum need to be tested on an annual basis and documentation put in place to ensure preparation and response to events that threaten to impact critical IT services.

Cyber Defence

ECG suffered a cyber-attack which resulted in the disruption of its activities. From our discussion with management, the root cause of the cyber-attack has still not been determined, whether the attack was internal or external. A forensic investigation should be undertaken to find the root cause and provide the necessary recommendation to improve the IT environment and systems.

Considering ECG's size, coupled with the sensitive data and critical infrastructure it handles, it is advisable for the establishment of a robust cyber defence, with capabilities that cover all functions, including threat Intelligence, threat hunting, incident response and controls validation to ensure a timely incident response and a base level security to protect assets. The Cyber Defence program should have the ability to prevent cyber-attacks from infecting a computer system or network. The program needs to put in place processes and practices that will defend the network, its data, and nodes from unauthorised access or manipulation by implementing protective procedures such as: firewalls, network detection and response, endpoint detection and response to identify, analyse, and report incidents that occur within a network. As the threat landscape continues to increase, cyber defence strategy and tactics adopted should have a common goal, which is to prevent, avoid disruption and respond to cyber threats.

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An appropriately documented and approved incident response plan needs to accompany the cyber defence program which can respond to threats. When Incident response capabilities are not established, this leads to an inability to respond as needed causing inappropriate access and exploitation of confidential and sensitive data. There needs to be a well-defined process to assign a level of importance or urgency to incidents which helps in the remediation of issues in a timely manner. The contract Service Level Agreement (SLA) between ECG and Hubtel needs to describe specific definitions of incidents (data breaches, security violations) and events (suspicious activities), the actions to be initiated by and the responsibilities of both parties. A well-defined process needs to exist to assign a level of importance or urgency to incidents, which determines the order in which they will be investigated to promote the timely remediation of issues.

ECG needs to carry out periodic incident response exercises such as tabletop and threat hunting. Cybersecurity awareness and training should be carried out periodically with employees not just IT staff to help ward off threats especially social engineering. Physical security measures need to be put in place to restrict unauthorised access to sensitive and confidential areas especially the server room.

Third Party Solutions

IT Third party management needs to be adopted by ECG to monitor and assess the risk posed by third parties who provide services to their organisation. This allows for performing a comprehensive third-party risk assessment that will help the organisation in making risk-informed decisions. Additionally, this will provide ECG a holistic view of their third-party risk and as to whether adequate controls have been implemented to mitigate or reduce those risks. For effective IT third party management, ECG needs to have a centrally governed, collaborative, and technology-enabled solution to holistically assess the risks impacted by the organisation's interactions with third parties.

With ECG's service/third party arrangement with Hubtel, it brings onboard a new risk which needs to be clearly identified and documented as part of the risk assessment process. Due to the nature and infrastructure that Hubtel provides to augment ECG's business process and activities, Hubtel has their application solution serving as a hot replacement for ECG's billing and collection processes. Management of ECG should perform adequate due diligence and a cyber risk assessment on Hubtel to obtain assurance that the vendor has considered and implemented fundamental cybersecurity best practices.

Inadequate scanning for security vulnerabilities or protecting the IT environment may lead to a breach of ECG or Hubtel's network, resulting in unauthorised data access or disruption to services rendered. There is a need to put in place adequate controls and procedures to prevent this. ECG needs to scan for vulnerabilities on a periodic basis across all relevant IT Assets including systems being managed and provided by Hubtel. The scan for vulnerabilities needs to include scanning of: Network Device Vulnerabilities, System Vulnerabilities, Server Vulnerabilities, especially API endpoints, gateways and unused ports.

Due to the three areas of consideration mentioned, we recommend that Management of ECG contract the services of a consultant to assist with the implementation of ISO/IEC 27001:2022, an international information security framework which would help establish a robust Information Security Management System (ISMS). At a minimum, the ISO/IEC 27001:2022 standard seeks to

ensure that ECG has implemented basic cybersecurity controls to ensure the security of sensitive customer information and company data.

Appendix 9 – Power invoice validation (invoice amounts and power delivered to ECG)

DESCRIPTION	SUNON ASOGLI MONTH			CENIT MONTH		
	October 2023	November 2023	December 2023	October 2023	November 2023	December 2023
Amount per Ledger (USD)	(35,483,212)	(30,700,206)	(19,025,941)	(5,957,384)	(4,339,318)	(3,928,162)
Amount per Invoice (USD)	35,483,212	30,700,206	19,025,941	5,957,384	4,339,318	3,928,162
Variance (USD)	-	-	-	-	-	-
Energy Delivered Kwh	269,119,800	234,142,800	144,144,000	40,774,700	23,698,000	19,438,100

DESCRIPTION	AKSA MONTH			AMANDI MONTH		
	October 2023	November 2023	December 2023	October 2023	November 2023	December 2023
Amount per Ledger (USD)	(9,760,851)	(8,881,163)	(9,271,120)	(19,024,987)	(17,264,584)	(18,849,766)
Amount per Invoice (USD)**	9,760,851	8,881,163	9,271,120	19,024,987	17,264,584	18,849,766
Variance (USD)	-	-	-	-	-	-
Energy Delivered Kwh	60,629,240	45,840,550	56,407,820	137,517,200	125,026,100	136,607,800

** This included an adjustment for credit notes issued to IPPs over the Task 1 period.

DESCRIPTION	CENPOWER MONTH		
	October 2023	November 2023	December 2023
Amount per Ledger (USD)	(20,180,554)	(25,140,540)	(30,449,054)
Amount per Ledger (GHS)	(4,308,977)	(4,177,369)	(4,289,064)
Amount per Invoice (USD)	20,180,554	25,140,540	30,449,054
Amount per Invoice (GHS)	4,308,977	4,177,369	4,289,064
Variance (USD)	-	-	-
Variance (GHS)	-	-	-
Energy Delivered Kwh	84,289,466	215,295,526	223,096,890

Appendix 10 – Validated disbursements vs CWM amounts

DESCRIPTION	MONTH			TOTAL
	October 2023	November 2023	December 2023	
Total amounts declared per CWM (GHS) [A]	685,310,703	941,848,839	950,000,000	2,577,159,543
Validated payments to CWM beneficiaries (GHS) [B]	641,300,000	559,200,000	767,558,140	1,968,058,140
Amount retained by ECG after payment to CWM beneficiaries (GHS)[C=A-B]	44,010,703	382,648,839	182,441,860	609,101,403
ECG allocated amount per CWM (GHS) [D]	45,876,629	31,702,299	67,892,626	145,471,554
Excess of disbursement over CWM Allocation (GHS) [C-D]	(1,865,926)	350,946,540	114,549,234	463,629,849
ECG disbursement within CWM allocation?	Yes	No	No	

Appendix 11 – Fee ranges for Related non-tariff services

Fee ranges (in GHS)	Related non-tariff services
1	Application fee
100	Application fee (Standard)
200	Application fee (Premium)
150	Application fee (Express)
840	Separate meter request (Standard)
960	New service request (Standard)
1,224	New service request (Standard)
1,560	New service request (Standard)
1,800	New service request (Standard)
2,055	Separate meter request (Premium)
2,100	New service request (Express)
2,280	Additional load request (Standard)
2,304	New service request (Standard)
2,544	Additional meter request / New service request
3,000	New service request (Premium)
3,504	New service request (Standard)
3,624	New service request (Standard)
4,060	New service request (Express)
5,304	New service request / Additional meter request
5,424	New service request / Additional meter request
5,800	New service request (Premium)
8,064	New service request (Standard)

Appendix 12 – Analysis of cash inflows into ECG’s collection accounts for the period from 1 October 2023 to 31 December 2023

No.	Item	MONTH		
		October 2023	November 2023	December 2023
1	UMB 1110001498037 [in GHS]	186,422.02	398,806.97	142,900.00
2	FIDELITY 1300034294249 [in GHS]	170,334,857.20	268,882,879.50	72,360,295.52
3	OMNIBSIC 10021260017 [in GHS]	12,1750.00	178,150.00	108,285.00
4	FIRST ATLANTIC BANK 0024011101013 [in GHS]	86,870,158.23	58,528,067.25	28,928,771.43
5	FIDELITY 1300034294238 [in GHS]	619,031,925.70	728,215,606.40	624,135,280.10
6	ACCESS 90100713431 [in GHS]	20,546,204.39	23,489,651.61	6,507,579.56
7	CBG 497756100007 [in GHS]	78,122,656.73	70,263,498.99	18,705,484.30
8	GT BANK 201102109110 [in GHS]	12,521,065.38	22,642,210.40	153,281,634.7
9	ADB 5082000087084701 [in GHS]	2,170.00	3,830.00	3,637.57
10	CAL BANK 1400001285547 [in GHS]	21,352,154.27	31,753,173.60	11,975,034.67
11	ADB 1161000010146401 [in GHS]	525,002.08	203244.68	174,029.57.00
12	GCB 1011130011277 [in GHS]	219,141,677.70	233,227,921.50	233,076,587.00
13	UBA 104897101504 [in GHS]	20,482,406.71	23,963,286.76	6,425,185.88
14	PRUDENTIAL	-	-	-
15	GCB 2768	-	-	-
	Total Collections (Bank Statements) [A]	1,249,238,450.00	1,461,750,328.00	1,155,824,705.00
	Total Collections (CWM) [B]	1,095,197,503.60	1,144,358,723.98	1,089,311,141.83
	Difference in Collections [A-B]	154,040,946.40	317,391,604.02	66,513,563.17

Appendix 13 – Adora Sales Analysis compared with ECG Sales Report

No.	Period	Category	PwC Analysis from Adora System (GHS)	ECG Sales Report (GHS)	Variance
1	Oct- Dec 2023	NSLT	1,251,254,254	1,630,673,299	(379,419,045)
2	Oct-Dec 2023	SLT	1,558,400,969	1,658,539,795	(100,138,826)
TOTAL			2,809,655,223	3,289,213,094	(479,557,871)



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