PROPOSAL FOR REVIEW OF DISTRIBUTION SERVICE CHARGE 1

1. Introduction

The Electricity Company of Ghana Limited (ECG) is the primary Electricity Distribution and Retail Sales Company in southern Ghana. The Company serves an estimated 73 percent of Ghana's population across eight (8) political administrative regions with an active customer population of about 4.87 million as at December 2024. The company's operations are regulated by the Public Utility Regulatory Commission (PURC), the economic regulator, and the Energy Commission (EC), the technical regulator.

As part of the PURC's 2025 Major Tariff review process, and in accordance with the PURC Act, 1997 (Act 538), the Electricity Company of Ghana Limited (ECG) has filed its tariff (Distribution Service Charge - DSC1) proposal for the five-year regulatory period (2025-2029). The DSC1 is the portion of the End User Tariff that is allocated to ECG for its electricity distribution and retail services.

The last major tariff which was approved for ECG in September 2022, resulted in a 5.79% increase in the DSC1, that was from GHp16.1094 to GHp17.0429 per kWh. The increase was significantly lower than ECG's proposed tariff of GHp39.9513 per kWh. Between September 2022 and December 2024, the DSC1 increased by only 11.71%, to set the tariff at GHp19.0384 per kWh through the quarterly automatic Adjustment Formula (AAF). This minimal increase was against the significant depreciation of the Ghana Cedi to the US dollar of approximately 74% between 2022 to 2024. This tariff proposal therefore establishes the need for a cost-recovery tariff to support the business operation and financial viability of the company for the next tariff regulatory period 2025-2029.

2. Executed Works and Performance for the Past Three Years

During the period under review (2022-2024), ECG completed several projects targeted at improvements in Network Capacity and Expansion, System Reliability and Technical Loss Reduction, Supply Voltage, Commercial and Revenue Improvement at a cost of US$408 million. The details of these projects are outlined below:

2.1. System Reliability & Technical Loss Reduction Projects:

The projects below, which include Primary/Switching Substations, 33kV Interconnecting Circuits and 11kV Offloading Circuits were completed during the period.

- **Bibiani Substation**: The project has led to significant supply reliability to the Bibiani Township and environs including Nyinahin, Tano Odumase, Asereso, Sefwi Anhwiaso, etc.
- **Daboase Substation:** The project has led to significant reliability improvement at the Daboase Headworks of the Ghana Water Limited (GWCL), Daboase Junction, Sekyere Krobo and surrounding communities.
- **Awaso Substation**: Areas such as Sefwi Bekwai, Ashiem, Kofigyan have seen tremendous improvement in power supply reliability.
- **Dwenase Substation:** The project has led to significant supply reliability to customers in Dwenase, Nsawora, Nuosua, Anyinabrim, Boako and environs.
- **Afari Substation (Ashanti):** The Afari substation has provided reliable power supply to the new Kumasi Military Hospital, as well as customers within the Aafri township, Nkawie, Toase, Mpasatsia, Gyankoba and surrounding communities.
- **Sewua Substation (Ashanti)**: Supply reliability to Sewua Township, Sewuase, Aputogya, Esereso and surrounding towns have significantly improved.
- **Obuase BSP (Reconstructed)**: The project has led to significant supply reliability to customers within Obuasi Township, Odumasi, Sohenso, New Edubiase, Akokere and Fomena.
- **Tafo BSP (Reconstructed):** Significant reliability to Customers within the Tafo Township and its environs, Koforidua, Osiem, Bunso, Anyinam, Suhum, Nankese, Begoro etc
- **Old Koforidua Substation (Reconstructed):** The project has led to significant supply reliability within the Koforidua Township, Asesewa, Adawso, Nyamekrom, Nkurakan, Tenkon, Aparede and surrounding communities.
- **Kpando Substation (Upgrade):** Upgrade of a 5MVA to a 202/26 MVA Power Transformer has improved system capacity and supply reliability to areas such as Kpando township, Dzigbe, Sovie, Budubudu, Gbefi and Golokwati communities.
- **Takoradi Port Switching Station:** The switching station led to improved operational efficiency within the Takoradi Port expansion enclave and surrounding localities within the Takoradi township.
- **Regional System Improvement Projects, RSIPs (across all operational Regions) -** Improved supply reliability, quality and created redundant circuits across all ECG operational Regions.
- **Special Grid Intensification Projects, SGIPs (across all operational Regions) -** Targeted system intensification projects (i.e., distribution transformer injections, network extensions and system upgrades) have significantly improved power supply reliability, quality and operational flexibility.
- **33/11kV Off-loading Circuits (for completed PSS Projects) -** These projects led to improvements in power supply reliability and stability through the creation of redundant networks to evacuate power and relieve overloaded distribution networks.
- **33kV Overhead & Underground Interconnecting Circuits** - Thes projects led to improvements in network operational efficiency for the completed Substation projects within the Takoradi, Ogbojo, Tafo, Daboase, Obuasi, Awaso and Afari enclaves through a reliable interconnection of substations in a Ring System.

2.2 System Automation Projects (SCADA & VIT Projects):

The SCADA and VIT Projects completed have led to improvements in system operations within the distribution network. The projects have led to significant improvements in system operational efficiency through automated control and operation of ECG's distribution network to improve timely remote system response.

The SCADA Projects were targeted at upgrading SCADA centres in Accra, Tema as well as the construction of a new SCADA center in Tarkwa to ensure remote network operations.

The VIT Feeder Automation Scheme has enabled self-correcting of the distribution network without relying on complicated human and communications systems, thereby significantly improving ECG's reliability indices in the following areas;

- **Eastern & Volta:**Improved reliability in Asesewa, Mangoase, Agogo Market, Adawso, Kpetoe, Nkonya, Fodome, Amedzofe, Akatsi, Tanyigbe, Sokode, Have, Sovie Vakpo, Denu etc.
- **Accra & Tema**:Sasabi, Valley View, Shai Hills, Kotoku, Obeyeyie, Nsakina, Adeiso, Amasaman, Mayera, White Cross, London Bar, Tetegu, Berekuso, Ashongman, Taifa Burkina, Teiman etc.
- **Ashanti & Western**:Bonsa, Enchi, Akontonbra, Eikwe, Elobankata, Akwidaa Cape 3 Points, Adientem, Mpintsin, Shamah, Kasaworodo, Aboboya, Kuntenase, Sawaaba, Abona, Mankraso, Manso Nkwanta, Nsuta Agona, Esreso, Nkawie, Yabi, Apire, Tetrem, Sokoban, Kokoben, Ampabame etc.
- **Central**: Studies were completed for optimum locations for installations to begin in 2025/2026.

2.3 Voltage Improvement Projects:

Several low voltage improvement projects aimed at improving quality of power supply across ECG's ten (10) operational regions and 92 operational districts were completed. They included;

- 150No. LV Network Improvement Projects (LVNIP) – All Operational Regions:
- 75No. LV Extension Projects (all operational Regions).

2.4 Commercial Improvement Projects

Some commercial improvement projects aimed at improving service delivery, revenue collection and reducing commercial losses were undertaken during the period. These projects included the following;

Digital Transformation: ECG embarked on a major digital transformation drive in key areas to leverage technology to improve service delivery, eliminate waste, and inefficiency and enhance customer value. These included some new commercial systems such as Customer and Asset Information Management (CAIMS), Adora Billing system and Zeus Customer Management System, and the enhancement of ECG Power App. The inception of these new systems, brought remarkable improvement in the processing timelines, bills generation and bill delivery, service application processes, complaint resolution, etc. Spot billing was also implemented and normal billing timeline reduced by about 40%. SMS or email billing notifications were also rolled out.

ECG Power App: The enhancement of ECG Power App paved the way for a cashless payment system. This is the main payment platform for both prepaid and postpaid customers. Customers can also use any of the various E-payment channels (Ghana.Gov, Banks, USSD-mobile payment short code, G-Money, POS, Credit Card, and Direct Transfer). Customers access their bills on the Power App and conveniently pay on same platform. Customers can also make service applications, report complaints, etc. on the ECG Power App. This customer-focused intervention eliminated several inconveniences including the long hours of waiting in lines to pay electricity bills at Customer Service Centers (CSC). The enhancement of ECG Power App boosted revenue collection efficiency to 87% by the end of 2024.

Loss Reduction Project: The Loss Reduction Project (LRP) was deployed to address cash flow challenges with meter procurement and availability, reduce commercial losses and increase revenue collection. The project involved the installation of smart prepayment meters and the standardization of the wiring system. By the end of 2024, 1,078,181 smart meters had been installed for overage or faulty meters and for new service connections.

Distribution Transformer and Boundary Metering: To help improve energy accounting, these metering projects were implemented. The Distribution Transformer (DT) metering is aimed at enhancing the downstream energy accounting to identify losses and improve transformer load management. A total of 30,000 DT meters are to be installed at the end of the project, with 3,142 installed by the end of 2024. The installation of boundary meters aimed at demarcating regions and districts to measure energy losses within districts and regions and help determine the appropriate technical loss reduction interventions. Metering has been completed for five regional boundaries (Tema, Western, Central, Eastern, and Volta) as well as nine districts within these regions. Regional boundary installations are ongoing in Accra East, Ashanti West, Ashanti South and Ashanti East regions.

These interventions and others are yielding expected results as the system losses at the end of 2024 reduced from 28.41% in 2022 to 27.05%.

3. Rationale for Proposed Review in Tariffs (2025-2029)

Inadequacy of DSC1: The current DSC1 is approximately 11.38% of the electricity value chain cost (EUT), compared to the industry standard of between 30-33% for the electricity distribution business. Coupled with this, is the minimal increase (11.71%) in the prevailing tariff, which widened the already existing gap between the cost recovery tariff and the PURC-approved tariff, making the DSC1 woefully inadequate to cover ECG's operational costs.

Inadequate tariff impacts negatively on the company's operational sustainability as critical investments required to maintain supply quality and reliability are often jeopardized with dire consequences experienced by ECG and also customers. That is the inability to maintain the infrastructure, or invest in necessary upgrades increases ECG's financial debt, hampers efforts to achieve regulatory benchmarks, leads to dependence on government bailouts, and public criticism due to customer dissatisfaction. The need to address the inadequate DSC1 cannot be overemphasized, as it defines the financial viability of ECG and its ability to thrive in a fast-changing energy sector, while meeting the expectations of the rapidly growing and diverse customers. It is expected that the regulator will support this case for adequate tariff, and structure the DSC1 to achieve full cost recovery to cover operational cost and investments.

Recovery of Investment Costs: Investments are essential to maintaining and expanding infrastructure to help meet both current electricity demand and future ones. Capital investments require substantial financing which ideally must be recovered through the tariff. The last regulatory period saw significant investment geared towards network capacity and expansion, system reliability improvement, technical loss reduction and voltage improvement, commercial and revenue improvement as discussed above. The recovery of these capital investments remain key in ensuring that ECG would be financially viable and can continue to invest in the future.

A full cost recovery tariff over the specified period would support ECG's short- and long-term investment planning and ensure steady infrastructure development to sustain the company's distribution network and provide reliable and quality power supply at all times. The capital recovery charge for these improvement projects undertaken during the last three years are therefore expected to be recovered through the tariff (DSC1).

4. Tariff Proposal

Technical Assumptions: The energy growth rate (sales) is projected to be 6.9% on average during the Tariff Period of 2025-2029, increasing from 13,155 GWh in 2025 to 16,942.31 GWh by 2029. System loss, currently at 27.05% in 2024, is estimated to decrease by 1% per annum during the tariff period. Power purchases are also projected to grow at 5.51% on average from GWh17,777.03 in 2025 to 21,720.91 in 2029.

Economic and Financial Assumptions: Macroeconomic variables, mainly inflation and exchange rates have further diminished the already inadequate DSC1 and made business operations increasingly unsustainable. The impact of the GHS:US$ rate on the DSC1 was the most significant. In September 2022, the approved DSC1 was set at GHp17.0429 per kWh, which was equivalent to 2.2674 US cents per kWh. In the last three years to December 2024, the DSC1 has only increased to GHp19.0384 per kWh, translating to 1.2374 US cents per kWh through the AAF. This indicates that the Annual Revenue Requirement (ARR), represented by the DSC1 in dollar terms, has decreased in value by 45.43% due to the depreciation of the cedi between 2022 and 2024.

In terms of cost projections, the actual cost of service for ECG in 2024 serves as the basis for determining the cost during the Tariff Period, using an average annual inflation rate of 8%. The current PURC exchange rate of GHS 10.3052 to US$1 was assumed to determine tariff requirements for new investment.

4.1 Proposed Revenue Requirement over the Tariff Period

ECG's ARR during the 2025-2029 tariff period averages GH¢9,503.53 million per year. Operations and Maintenance Costs account for 35%, while Human Resources Costs make up 18%. Depreciation and Return on Revalued Net Fixed Asset Expense are 16.07% and 23.35%, respectively. Capital Recovery Payments for critical short-term projects represent only 7.26%, with the remainder comprising of working capital costs and taxation.

4.2 Proposed Tariff and Percentage Change over Existing Tariff

ECG proposes an increase in Distribution Service Charge (DSC1) from GHp19.0384/kWh to an average of GHp61.8028/kWh during the regulatory period 2025-2029 based on the projected electrical energy volumes, costs & revenues, and regulated assets and the critical short-term investments required to maintain the distribution network. This proposed increase in DSC1 which is 225%, is the portion of the End-User Tariff allocated to ECG by the PURC.

4.3 Recommendations

- Collapse of tariff bands (i.e two bands for residential and flat rate for non-residential)
- Adopt the Bank of Ghana exchange rate in the tariff mechanism.
- Allocate the Service Charge exclusively to ECG to cover the cost of meter replacement.
- Introduce Public Lighting Tariff to account for public lighting consumption.
- Ensure full cost recovery for new investment in the distribution network.
- Adopt Weighted Average Cost of Fuel (WACOF) for fuel pricing.
- Ensure full cost recovery for all generation plants.
- Include the full cost of the Reserve Margin (18%) in the generation cost.

5. Expected Service Outcome/Service Targets Based on Proposed ARR and New Investment

Although ECG is currently performing well in meeting the regulatory benchmarks for its network reliability indices (System Average Interruption Duration Index – SAIDI; and System Average Interruption Frequency Index – SAIFI), further improvements are needed to meet the SAIFI benchmark. The proposed investments, once completed, are expected to reduce ECG's SAIDI from 32.5 hours in 2024 to 19.2 hours by the end of 2029. Similarly, these investments, along with enhancements to the planned preventive maintenance schemes, will reduce the SAIFI by approximately 44%, from 16 in 2024 to 9 by 2029.

Sales are expected to increase by 18.18% from GHS18,926 billion in 2024 to GHS22.36 billion in 2025 and by an average of 8% per annum between 2025 to 2029. Revenue collection efficiency is estimated to increase from 87% in 2024 to 90% in 2025 and thereafter by 2% annually.

During the tariff period, the company will continue to deploy about three million smart prepaid meters for the replacement of faulty and overage meters and for new service connections. Also, the completion of the Distribution Transformer and Boundary Metering projects would ensure the implementation of an accurate energy accounting process to identify and tackle high losses. The system loss at the end of 2024 was 27.05%, this is expected to reduce to 22% by the end of the regulatory period. The company will also strengthen its cybersecurity posture to ensure system availability and resilience. The ECG Power App would continue to be enhanced to offer customers easier access and more convenience.

6. Conclusion

The approval of this proposal would support the execution of critical projects and interventions aimed at enhancing service delivery to customers. It will enable ECG to continue to provide a reliable and quality electricity supply to meet current and future demand within the Southern Distribution Zone.