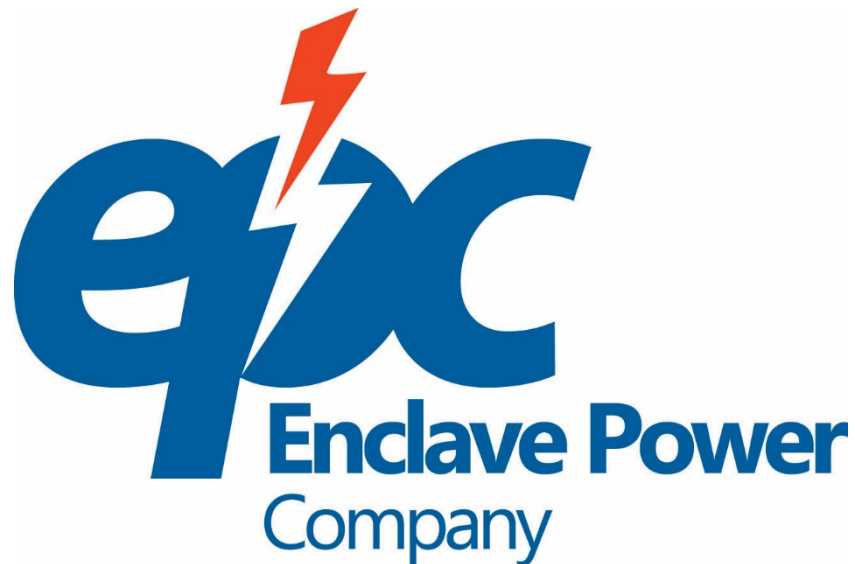




ENCLAVE POWER COMPANY

REVIEW OF ELECTRICITY DISTRIBUTION AND SUPPLY AGGREGATE REVENUE REQUIREMENT AND TARIFF

SUBMITTED TO THE PUBLIC UTILITIES REGULATORY COMMISSION (PURC)

MARCH, 2025

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1 Introduction

1.1 Brief Background on DisCos Electricity Distribution and Supply Operations

Enclave Power Company Limited (EPC) is currently Ghana's only private electricity distribution company. EPC's area of operation covers the 840-acre Multi-Purpose Industrial Park (MPIP) and Export Processing Zone (EPZ) in Tema in the Greater Accra Region and a 2,000-acre industrial park owned by LMI Holdings and currently under development in Dawa, also in the Greater Accra Region of Ghana.

EPC currently has only Special Load Tariff (SLT) customers within its concession areas. There are neither residential nor non-residential, non-SLT customers in EPC's areas of operation. It is likely in the foreseeable future that EPC's operations would come to include residential and non-residential, non-SLT customers, particularly with the development of the 20,000-acre Dawa Industrial City and adjoining residential areas providing residence to the teeming work force expected to be operating from the Dawa Industrial Zone.

Over the previous tariff period (i.e. from 2022 to 2024), EPC continued to experience steady growth with customer numbers growing from 142 industrial / commercial customers at the start of 2022 to 187 by the close of 2024, while annual consumption grew in the same period from 232 GWh to over 315 GWh. EPC's customers are a mix of de-regulated (i.e. free zone companies, not subject to PURC tariff regulation) and regulated (i.e. non-free zone companies) customers. The current consumption mix (based on 2024 actuals) is 74% regulated: 26% de-regulated, with the regulated segment projected to contribute upward of 85% of consumption by 2030.

1.2 Rationale/Objectives Underpinning Tariff Submission

The following are the key rationale/objectives underpinning EPC's tariff proposal.

- EPC aims at achieving full cost recovery in this tariff proposal. As a private company, EPC does not benefit from government subsidies or foreign and other grants that other distribution companies may have access to. It is therefore important that the tariffs approved for EPC enable it to fully recover its operational expenses and capital investments.
- In this tariff proposal, Enclave Power Company (EPC) utilized an exchange rate of GHS16 to 1 US\$ for the entire multi-year tariff period. As a private company, EPC applied this rate with the expectation that the Public Utilities Regulatory Commission (PURC) will maintain the implementation of the Automatic Tariff Adjustment Formula (ATAF) to account for any fluctuations in the exchange rate during the multi-year tariff period. It is therefore important that the approved tariff structure adjust for exchange rate fluctuations, ensuring full cost recovery.
- EPC is in the phase of its life cycle where it is required to make massive capital investments in infrastructure to support the growing demand from its customers, particularly in the greenfield site in Dawa. Having commissioned two of the largest substations and bulk supply

points – the 165 MVA substation in Tema commissioned in January 2015 and Phase 1 of the 396 MVA substation in Dawa commissioned in September 2018 – EPC now has to make further substantial investments in building a new distribution network infrastructure in Dawa and upgrading the existing network in Tema. These projects are intended to be funded using Internally Generated Funds, as the current cost of capital makes it inimical for EPC to rely on commercial loans for its expected expansion. It is therefore imperative that the tariff approved for EPC enables it to fully support and implement the investment plan.

- EPC remains committed to maintaining the high standards of reliability and efficiency it has built over the years. Achieving these high standards will require substantial investments in infrastructure within EPC's network (inclusive of the development of redundancy where required within the distribution network to enhance reliability) as well as development in people and systems to drive efficiencies. It is therefore crucial that the approved tariff structure provides EPC with the necessary funding to support these initiatives, ultimately ensuring a more dependable power supply for the customers.
- Enclave Power Company (EPC) is currently utilizing electrical infrastructure owned by the Ghana Free Zones Authority (GFZA) for its electrical distribution business within the Tema Free Zones Enclave. This arrangement has facilitated EPC's ability to supply electricity to consumers within this designated area. To address the financial obligations arising from this infrastructure usage, it is therefore crucial that the PURC includes a provision for a levy to be charged to electricity users within the Tema Free Zones Enclave. This levy will be remitted to GFZA to cover the costs associated with EPC's use of their infrastructure

2 Initiatives Undertaken Since September 2022 Tariff Review

EPC has undertaken a number of initiatives to improve on the reliability and quality of service to its customers since the September 2022 tariff review. The initiatives are outlined below, grouped under 5 main headings viz. System Reliability Enhancement, System Automation, Loss Control, Capacity Building and Customer Responsiveness.

System Reliability Enhancement

Beginning in 2020, EPC rolled-out its distribution Master Plan for the Tema Enclave to improve supply reliability and quality, reduce unplanned outages and ameliorate the voltage drops experienced by some customers on specific feeders. The Master Plan was developed after extensive load-flow analysis carried out on the network to identify bottlenecks and areas of excessive loading.

The system upgrade was carried out in phases. Phase 1, which was carried out in the 2019 – 2021 tariff period, covered the Feeder 72F4 upgrade. Phase 2, carried out in the 2022 – 2024 tariff period, covered Feeders 72F5 and 72F6 and has significantly improved reliability and quality of supply on these feeders.

It was also observed that severe pollution was creating excessive fouling of the mainly porcelain insulators used on the distribution network. In the upgrade work, the porcelain insulators were replaced with polymeric insulators that offer better reliability in severely polluted environments.

Further work is scheduled right through till 2030 and will involve load re-distribution to ensure all feeders do not exceed the 70% load limit, as well as the creation of ring-mains to replace the existing radial distribution network.

System Automation

A mini-SCADA system was launched in Q1, 2021. Currently, it provides on-line, real-time information of EPC's operational areas in Dawa and Tema. This is the first phase towards full automation of the distribution network to be implemented alongside a telemetering system in the upcoming tariff period (i.e. 2025 -2030).

In view of the above, EPC has launched a pilot telemetering project with some of its major customers as part of its ongoing efforts to enhance system automation and improve service delivery. Ten (10) of EPC's major customers were enrolled on the telemetering platform during this pilot phase. This initiative enables real-time remote monitoring of electricity consumption, ensuring greater accuracy in billing and reducing the risk of discrepancies by providing customers with detailed consumption data. The project also aims at promoting energy efficiency and empowering businesses to optimize their electricity usage. The successful implementation of this pilot will serve as a foundation for a full-scale rollout, further strengthening EPC's commitment to reliability and operational excellence in 2025.

Loss Control

Continued implementation of a rigorous monthly energy balance has helped EPC significantly reduce distribution losses during the out-gone tariff period. Distribution losses reduced from 1.16% in 2021 to less than 1% over the period from 2022 to 2024, well below the target of 3% set for EPC by the PURC. The full roll-out of the telemetering system in the incoming tariff period will provide EPC with an enhanced early-warning system to detect anomalies and fix metering deficiencies promptly, further keeping total distribution losses at the barest minimum.

To bring better robustness and trust into the billing and metering process, EPC continued and expanded in its usage of an enterprise management software introduced in 2020 to aid in billing and collection. The software ties together every stage of the billing process, including validation. The rollout of the management software has ensured EPC registers far fewer errors in billing and collection. In 2024, EPC achieved a collection rate in excess of 98%.

The use of the load-flow analysis software assisted greatly in the design of the network for the Dawa Industrial Zone. EPC's engineers are now fully trained on using same to reduce technical losses due to optimal design of networks and analysis of existing networks to determine bottlenecks and eliminate same.

Capacity Building

The focus here has been on adequately resourcing the workforce to deliver excellent service to EPC customers. Key highlights here are:

- Specialized training programs in electrical maintenance, protection and control, planning and forecasting to enhance operational efficiency were carried out in the out-gone tariff period.

These training sessions equipped staff with the skills needed to diagnose and resolve network issues swiftly, ensuring improved reliability and safety. Additionally, maintenance personnel are now trained to carry out servicing and repairs on critical substation equipment in-house, reducing reliance on external contractors and minimising downtime.

- Acquisition of specialised vehicles to facilitate maintenance works and improve operational efficiency, ensuring safer and faster response times for fault resolution.

Customer Responsiveness

EPC set up a new Customer & External Relations office to improve customer interaction. Social media platforms have been set up to send and receive instant notifications on faults and feedback on other issues. The company's website has been re-launched and will be used as the portal for customers to access real-time and archived consumption, billing and other data.

2.1 Projects Undertaken and Impact

Completed Projects

- Construction of 5.2 km, 34.5 kV tubular-steel distribution network (80F1 and 80F3 feeders) complete with 3 auto-recloser stations in the Dawa Industrial Enclave Zone as Phase 1 of deployment of distribution network master plan.
- Feeder upgrade works on Feeders 72F5 and 72F6 (11.5 kV) in the Tema Free Zones Enclave to improve system reliability and correct voltage drops.
- Acquisition of multi-purpose boom truck with 4-ton crane and 2-person enclosed cage for safe working at heights. EPC recorded zero lost-time accidents (LTA) during the past tariff period and achieved a significant milestone of 1,000 days worked with no LTA in Q1, 2025.
- Modification of 34.5 kV feeder arrangement at Tema substation (FZ 72) to enable integration of solar power and evacuation from 16.8 MWp rooftop solar plant (Africa's largest single rooftop solar plant) into EPC's distribution network.

On-going Projects

- Roll-out of tele-metering to all customers, scheduled for completion in Q4, 2025. Following the successful pilot involving 10 of EPC's main customers, the rest of the customers will be hooked onto the telemetry platform before the end of 2025.
- Construction of 34.5 kV switching station in the Tema Free Zones Enclave to improve reliability of supply for the SLT-HV customers. The tender process was completed in 2024 and contract has been awarded for the works. The works are expected to be completed mid-2026.

- Construction of 9.8-km, 34.5 kV double-circuit, twin-bundle line to evacuate power from 200 MWp solar farm under construction in Dawa to the Dawa substation (DA 80) to serve customers within the Dawa Industrial Zone.

2.2 Critical Short Term Investment Projects

Following approval by the Public Utilities Regulatory Commission (PURC), the following short-term capital investment projects have been prioritized for implementation. These projects are targeted at addressing transformer capacity limitations, relieving network congestion, and enhancing the reliability and resilience of supply within EPC's distribution network.

- **Transformer Upgrade: 161/34.5kV, 33MVA to 161/34.5kV, 66MVA**
EPC's 34.5kV network is presently experiencing coincidental peak demand that has exceeded the firm capacity of the existing 161/34.5kV, 33MVA power transformer. Operating the transformer beyond its nameplate rating poses risks of thermal overloading, accelerated insulation degradation, and reduced operational life expectancy.
The proposed upgrade to a 66MVA transformer will provide adequate transformation capacity to accommodate present and forecasted demand growth, maintain N-1 operational security, and ensure compliance with reliability standards.

Estimated Cost: USD 700,000

Funding Source: Internally Generated Funds (IGF)

Technical Benefit: Doubles transformation capacity at the substation, thereby restoring adequate firm capacity and eliminating current overloading risks on the 34.5kV network.

Operational Benefit: Ensures continuity of supply, reduces forced outages, and enhances the capacity margin to support future demand growth.

- **4.2 Design, Construction and Commissioning of Phase I of the Tema Free Zones Enclave 34.5kV Indoor Switching Station**

The existing 34.5kV distribution network serving the Tema Free Zones Enclave is configured on a radial topology. This configuration results in congestion on the feeders and limited switching flexibility, thereby exposing large industrial customers to extended outages during contingencies.

The proposed 34.5kV indoor switching station will introduce a ring bus configuration that provides load transfer capability between feeders, reduces congestion, and improves fault isolation and system restoration times. Phase I of the project will be designed and constructed to accommodate future expansions and integration of renewable energy projects in the enclave.

Estimated Cost: USD 1,600,000

Funding Source: Internally Generated Funds (IGF)

Technical Benefit: Provides a meshed network topology, increases fault tolerance, and improves network operational flexibility.

Operational Benefit: Enhances security of supply to key industrial customers such as Rider Steel, Cimaf Cement Company, Cimpur Cement Company, and Ferrofabrik, thereby supporting economic activity in the enclave.

2.3 Compliance with Directives of the Commission

EPC has fully complied with all directives from the PURC since the last tariff review in September 2022 including application of the preferential tariff for steel companies, despite its inimical effect on the profitability of EPC between September 2022 and December 2023.

3 Key Policy Issues for Tariff Consideration

- a) To support Government's drive to have a minimum of 10% of total electricity generation coming from renewable sources, EPC has embarked on a massive drive to contract significant supply from renewable sources in its energy mix. In addition to supporting the government's vision, introduction of clean energy in EPC's energy mix further enhances the competitiveness of local manufacturers operating within EPC's network on the global market. In 2024, EPC completed the integration of the first renewable plant, the 16.8 MWp rooftop solar plant located in the Free Zones Enclave and is poised to receive further clean energy from solar developments in Dawa from 2026 onwards.

To ensure we gain maximum value from such introduction of clean energy in our mix, we wrote to the PURC (letter dated 24th September 2024 - attached for reference as Appendix 1) proposing a methodology for the integration of the renewable in our regulated quota allocations. We are grateful for the Commission's response to our request contained in your letter dated 30th September 2024 (attached for reference as Appendix 2) and would be grateful for a continued implementation in accordance with your letter as we introduce more clean energy in our mix in the coming years.

- b) EPC proposes the prioritization of the cheapest electricity generation sources for industries / businesses, instead of households. The cost of electricity in Ghana is a significant proportion of the overall cost of business for many industries and inhibits their growth and ability to create jobs. The price of electricity is also a big disincentive for companies seeking to site here in Ghana, with many choosing to locate in other countries where the cost of electricity to industries is lower, denying Ghana of much needed investment. Allocation of the cheapest generation sources to businesses will significantly lower the cost of doing business and drive expansion of businesses and job creation.
- c) The July 2019 tariff review introduced a new methodology for End User Tariffs (EUT) for SLT customers which was based solely on an Energy Charge / kWh consumed. This replaced the old

EUT methodology that was based on both the Energy Charge and a Maximum Demand Charge / kVA. The PURC however introduced a 5th Schedule as part of the gazetted tariffs to enable discos continue to apply the power factor (pf) surcharge based on the Maximum Demand Charge specified in the 5th Schedule. Since the Major Tariff Review of September 2022 however, the PURC no longer publishes the 5th Schedule, and it is unclear to us what Maximum Demand Charge is to be applied in the calculation of the pf surcharge. It is our anticipation that the Commission will address this matter in the current tariff review process.

- d) We anticipate the introduction of a “Time-of-Day” tariff in support of the Government’s 24-hour Economy Policy. We recommend that should a “Time-of-Day” tariff structure be introduced, it should be done under the aegis of the PURC and must cover all aspects of the electricity value chain (i.e. generation, transmission and distribution). Past implementation of similar policies by Government has created significant shortfalls that have not been recoverable by private-sector players like us since we are not entitled to receive any Government grants or subsidies.

4 Proposed Service Delivery and Efficiency Improvements During Tariff Period

EPC will implement the following service delivery and efficiency improvements during the tariff period.

- i. Roll-out of tele-metering to customers. This will eliminate the need for manual meter reading, improve accuracy of meter reading and speed up the billing process.
- ii. Carry out Network Analysis and Systems Studies, as well as Power Systems Audits. The findings from these studies and audits would be used to optimise the network design and improve on maintenance planning and procedures. This is expected to further improve on system reliability and minimise outages and downtimes.
- iii. Acquisition of additional Maintenance Tools and Specialised Equipment to enhance fault detection and speed of carrying out repair works.
- iv. Enhancement of the capability of staff at all levels through extensive and advanced training in various skills.
- v. Improve reliability and quality of supply by continuing to implement the Distribution Master Plan
- vi. Continuation of performance management system (PMS) and associated reward system to improve staff productivity and operational efficiency.

4.1 Service Delivery and Efficiency Targets

EPC’s service delivery and efficiency targets are in line with the provisions set out in Legislative Instruments 1935, 1816 and 2413. The reliability targets have been set based on the Memorandum of Understanding signed between EPC and the Energy Commission in January 2021.

For 2025, the following targets have been set:

- a) Maintain an average uptime per feeder of greater than 99%.
- b) Maintain a total system distribution loss (commercial and technical) of 2.65%.
- c) Response time for customer complaints: 24 hours (commercial); 1 hour (technical)
- d) New service delivery for existing lines: 5 working days (post-payment)
- e) New service delivery for new lines: 10 working days (post-payment)
- f) Customer-end voltage variation of less than 5%.

4.2 Technical / Operating Performance Indicators/Indices

The regulatory requirements for SAIDI and SAIFI for customers in Metro/Municipal Areas are 48 hours and 6 times, respectively. EPC's 2024 performance against these targets is as follows:

- SAIDI–2.3915 hours/customer
- SAIFI– 0.8031 outages/customer

Following the MOU signed with the Energy Commission, EPC is expected to meet a SAIDI target of 22.6 hours/customer and a SAIFI target of 11.73 outages/customer during the 5-year regulatory period.

5 Key Challenges Likely to Impact Service Delivery

5.1 Metering Including Prepayment Metering

EPC does not have any major challenges currently with metering. It however does not have pre-payment metering, as all its customers are credit customers. In anticipation of entering the household market however, EPC will begin work on developing a pre-payment platform and its associated infrastructure. Further, the introduction of the enterprise management software for billing and collection coupled with the roll-out of tele-metering will only further improve the meter reading and billing process.

5.2 Energy Audit

EPC has in place a rigorous monthly energy balance system that accounts for all power purchases and corresponding sales per feeder. The low level of losses on the EPC network is adequate proof of the efficacy of the current system. This system will continue in place and will be strengthened even further as the company's areas of operation expand.

5.3 Theft of Power, Cables and Equipment

This has become an area of significant concern to EPC in recent years. There has been an upsurge in theft of copper earthing rods and vandalization of steel lattice towers in recent times, particularly within the Tema Free Zones Enclave.

To forestall this problem, EPC has taken the following preventive steps:

- Replacement of copper earthing rods on its network with steel rods
- Intensification of day and night patrols within its operational areas to deter scavengers vandalising the steel lattice towers
- Installation of security fencing (electric) and intruder alarms on perimeters of sensitive installations such as the substations and bulk supply points
- Installation of CCTV cameras at sensitive locations to enable remote monitoring

5.4 Loss Control-Technical and Commercial

EPC has no major challenges with loss control and anticipates that the situation will remain the same within the tariff period.

5.5 Availability/Reliability of Supply- Quality of Service

EPC has no major challenge with availability and reliability of supply. We have consistently recorded supply availability of higher than 99% over the last 5 years. While our customers enjoy voltage quality within mandated limits, we will continue to improve our network to keep voltages within agreeable limits as demand grows apace.

5.6 Suppressed Demand

EPC has no current challenges with suppressed demand.

5.7 Management Information System Including E-Payment

EPC has no current challenges with Management Information Systems.

5.8 Billing and Collection

EPC has a current collection rate in excess of 98% and has no major challenges with billing and collection.

5.9 Organisational Reform & Restructuring

EPC has no current challenge with organisational reform and re-structuring.

5.10 Customer Complaints & Dispute Resolution

EPC had a few complaints during the previous tariff period revolving around metering and billing, mainly from customers disputing meter readings and bills. All metering and billing complaints were resolved amicably between EPC and the affected parties.

One customer referred a matter of disconnection due to unpaid bills to PURC during the tariff period. The matter was successfully resolved by the Commission.

5.11 Resolution of Court Cases

EPC has fully settled an amount of USD 12.9 million to VRA as per the terms of a settlement agreement between the 2 parties (adopted by the High Court as its judgement on a case filed by VRA) in respect of power supplied to EPC between 2009 and 2016. The final instalment payment towards this settlement was made in February 2024 and closes the chapter on a long-standing dispute between EPC and VRA.

5.12 Government and Public Sector Debts

EPC has no Government or Public-sector debts on its books.

5.13 Bad & Doubtful Debts

EPC has no bad or doubtful debts currently on its books.

5.14 Surcharge & Subsidies

As a private company, EPC is excluded from government subsidies that the other distribution companies might have access to. EPC continues to experience difficulties any time Government of Ghana announces special subsidies and interventions as it fails to fully account for what is required by EPC to fully implement these interventions.

5.15 Government Grants

EPC does not benefit currently from any government grants

5.16 Access to Finance and Repayment of Financing Costs

While EPC is generally able to secure funding for its projects and operations, it must contend with a higher cost of financing. Financing costs are at full commercial rates since they are secured from commercial banks with no government guarantee or support.

5.17 Tariff Structure and Rates Design

EPC has no current challenges with the tariff structure and rates design except for the issue of the pf surcharge, as explained previously in section 3.

5.18 Introduction of Wholesale Electricity Market

EPC does not currently anticipate any challenges from the implementation of the wholesale electricity market.

5.19 Wholesale Market Bulk Customers Embedded in Distribution Network

EPC does not have any current challenges with Bulk Customers embedded within its network.

5.20 Embedded Generators and Interconnection

The high cost of electricity from the national grid and the downward spiral in generation cost from renewable sources (particularly solar) in the last few years has driven some customers to seek cheaper self-generation alternatives. Several of EPC's customers have sought alternate supplies in the form of

off-grid renewable energy plants. There is a real risk of EPC having stranded assets should this trend continue. EPC has sought to mitigate this risk by the gradual introduction of clean energy in its mix.

5.21 Power Procurement from Independent Power Producers and Renewable Energy Generators

EPC currently sources most of its power requirements from VRA. EPC has also signed an MOU with Helios Solar Company to supply electricity from a 16.8 MWp roof-top solar project and started receiving supply from Helios in September 2024.

5.22 Human Resource-Skilled Manpower

Being a small player in a relatively niche market, EPC faces the challenge of losing its human resource to its bigger rivals after investing a lot in training. To combat the loss of these trained employees, and to retain key staff, EPC is working on bridging the remuneration gap between itself and its larger peers and creating opportunities for professional development. EPC also prides itself on having a strong company culture, and a positive work environment.

6 Strategies to Address Key Challenges

The strategies to address the key challenges identified have been highlighted alongside the challenges enumerated above.

7 Total Distribution Utility System Load at Peak

Since the last tariff proposal, EPC has seen its coincidental peak demand grow from 54 MVA to 70 MVA, while non-coincidental peak demand has grown from 61 MVA to 100 MVA over the same period. We anticipate coincidental our peak demand climbing beyond 120 MVA, with non-coincidental peak demand rising beyond 150 MVA by 2030. The expected growth is expected to come mainly from the Dawa Industrial Zone.

Based on these projections, there will be a need to upgrade transformer capacity in the Tema substation (FZ 72) and to continue with expansion work on our distribution network and secondary substations to handle the anticipated growth.

8 Regulated Market-Non-Special Load Tariff Customers

EPC currently does not have any Non-Special Load Tariff Customers.

9 Regulated Market-Energy Commission Licensed Bulk Customers Embedded in Disco Network

There are currently 5 regulated licensed bulk customers embedded in EPC's network. These are:

- Rider Steel Ghana Limited – Steel Mill
- Ciments de L'Afrique (CIMAF) – Cement production
- CBI Ghana Limited - Cement production
- B5 Plus – Steel Mill
- Ferro Fabrik – Steel Mill

In 2024, sales to the 5 regulated bulk customers listed above made up 59% of EPC's total sales (i.e. 185 GWh out of a total 315 GWh).

10 Base Load

EPC's base load is currently at 60 MVA, up from 28 MVA as at the start of the previous tariff period. Although this still remains a small proportion of the base load for the entire country, the growth far outstrips the national growth rate and it is expected that EPC will count for a significant percentage of national demand in the next 5 years.

Currently all of EPC's regulated load is supplied from VRA's portfolio of generation assets

11 Forecast of Energy to be Purchased

From 2025, EPC will continue to source its power for the regulated market mainly from VRA while it gradually increases the proportion of solar energy in its mix. Initially, the solar energy purchases will be directed towards EPC's de-regulated customers. It is not anticipated that any of the solar energy purchases will be for the regulated market in the upcoming tariff period.

In 2024, EPC purchased 308 GWh of power from VRA. This was a significant increase in energy demand from the 232 GWh purchased in 2021, at the start of the previous tariff period. This increment was mainly because of the re-operationalization of a major steel mill which ceased operations in 2020. EPC projects that its power purchases will rise to about 803 GWh by 2030.

The table below gives the projected power purchases and the projected sources of supply from 2024 to 2030.

Generating Station/Plant	2024 (Actual)	2025	2026	2027	2028	2029	2030
VRA	308	374	396	478	484	558	638
IPPs	-	-	-	-	-	-	-
Others	7	24	95	95	165	165	165
TOTAL	315	398	491	573	649	723	803

Table 11.1 – Power Purchase Projections (GWh) and Sources of Supply

11.1 Non-Conventional Energy - Renewable Energy

EPC has commenced in earnest the introduction of renewable energy supply sources (particularly, solar generation sources) into its supply mix. This supply is mainly targeted at serving its de-regulated customers. The table below projects the quantum and type of renewable sources to be included in the mix during the tariff period.

Renewable Energy (GWh)	2025	2026	2027	2028	2029	2030
Hydro<100MW						
Waste to Energy						
Biomass						
Wind						
Solar	24	95	95	165	165	165
Wave						
TOTAL	24	95	95	165	165	165

12 Distribution System Losses at Various Voltage Levels

Supply to customers is mainly at the 34.5 kV and 11.5 kV level. There is some distribution at 415 V and 240 V level, but total consumption at this voltage level is very minimal so distribution losses at this Voltage level are not tracked separately from the 34.5 kV and 11.5 kV losses.

Voltage Levels	2025	2026	2027	2028	2029	2030
34.5kV-11.5kV	2.65%	2.62%	2.59%	2.56%	2.53%	2.49%
33kV-11kV	-	-	-	-	-	-
415V-240V	-	-	-	-	-	-

13 Customer Population by Classification at Characteristics

The total customer population for EPC stood at 187 as at December 2024. There were no NSLT customers within EPC's operational area as at the end of that same period.

The breakdown of the active customer classes by voltage level is as follows:

- SLT – LV (415 V – 240 V) Customers – 96
- SLT – MV (11.5 kV) Customers – 73
- SLT – HV (34.5 kV) Customers – 18

A total of 12 customers are licensed by the Energy Commission as Bulk Customers.

The breakdown of the customer classes by de-regulated (free zones) and regulated (non-free zones) is as follows:

- Free Zones Customers – 36 (19.25%)
- Non-free Zones Customers – 151 (80.74%)

The table below shows the projected growth in customer numbers and provides the split between active and non-active customers.

Category	2025	2026	2027	2028	2029	2030
Active Customers	198	215	230	249	272	290
Non-active Customers	4	5	5	6	8	10
Total	202	220	235	255	280	300

13.1 Regulated Market- Non-Special Load Tariff Customers

There are no Residential NSLT customers in EPC's network.

13.1.1 Residential Customers

There are no Residential NSLT customers in EPC's network.

Category	2025	2026	2027	2028	2029	2030
Lifeline	-	-	-	-	-	-
Medium	-	-	-	-	-	-
High	-	-	-	-	-	-
Total	-	-	-	-	-	-

13.1.2 Non-Residential Customers

There are no Non-Residential NSLT Customers in EPC's network.

Category	2025	2026	2027	2028	2029	2030
Non-Residential	-	-	-	-	-	-

13.1.2b Special Load Tariff Customers

Category	2025	2026	2027	2028	2029	2030
SLT-LV	105	110	115	120	125	130
SLT-MV	73	75	80	85	90	95
SLT-HV	20	30	40	50	65	75
Total	198	215	235	255	280	300

These are active customer numbers

13.2 De-regulated Market-Energy Commission Licensed Bulk Customers Embedded in Disco Network

Category	2025	2026	2027	2028	2029	2030
Bulk (MV)	6	6	6	6	7	7
Bulk (HV)	-	2	4	8	12	15
Total	6	8	10	14	19	22

14 Energy Allocated to Public Lighting (GWh)

All streetlights within EPC's network are fully metered and charged to the account of the relevant meter owners. There is therefore no energy allocated to public lighting.

Category	2025	2026	2027	2028	2029	2030
Streetlight Consumption	-	-	-	-	-	-

15 Distribution Company's System Load Data**Table-1 Disco System Load Data (MVA) 2025-2030**

Parameter	2025	2026	2027	2028	2029	2030
Total System Load @ Peak	75.0	82.5	90.8	99.8	109.8	120.8
Regulated Market (Non-SLT Customers)	-	-	-	-	-	-
Regulated Market (SLT including Bulk Customers)	65.25	71.77	78.96	88.83	95.52	105.09
Regulated Market (Energy Commission Licensed Bulk Customers Embedded in Disco Network)	63.75	70.58	75.48	86.29	92.02	104.09
Projected Base Load	60.0	66.0	73.0	84.5	90.0	100.0

16 Capital Expenditure**Table-2 Summary of Capital Investment Plan (Million GHS) 2025-2030**

Item	2025	2026	2027	2028	2029	2030
Capital Cost	35.92	39.6	26.39	57.59	4.95	
Initial Spares						
Additional Capitalisation						
Renovation & Modernisation (R&M)						
Rehabilitation & Resettlement (R & R)						

16.1 Capital Expenditure Financing Plan

Table-3 Summary of Capital Expenditure Financing Plan (Million GHS) 2025-2030

Item	2025	2026	2027	2028	2029	2030
Accumulated Depreciation	31.85	71.91	115.47	164.42	213.98	263.55
Retained Earnings	31.55	69.41	114.83	169.35	234.77	313.27
Commercial Borrowings:						
Domestic						
Foreign						
Additional Equity Contribution By Shareholder(s)						
Grants:						
Domestic						
Foreign						
Tariff Revenue (Revenue from Projected Capacity Charge)						

17 Operation and Maintenance Costs

Table-4 Operation and Maintenance Costs (Million GHS) 2025-2030

Item	2025	2026	2027	2028	2029	2030
Fixed O & M Costs	6.57	8.80	9.85	12.06	15.13	18.91
Variable O & M Cost						

18 Administration and General Costs

Table-5 Administration and General Costs (Million GHS) 2025-2030

Item	2025	2026	2027	2028	2029	2030
Fixed Admin & Gen Costs	30.84	36.82	44.19	52.87	63.44	63.90
Variable Admin & Gen Cost						

19 Human Resource Costs- Employee Costs

Table-6 Human Resource Costs (Million GHS) 2025-2030

Item	2025	2026	2027	2028	2029	2030
Fixed HR Costs	16.65	19.65	18.73	21.26	22.95	26.25
Variable HR Cost						

20 Public Education

Table-7 Summary of Public Education Costs (Million GHS) 2025-2030

Item	2025	2026	2027	2028	2029	2030
Stakeholder Communication & Sensitisation (Public Education)	0.100	0.150	0.200	0.250	0.350	0.350

21 Financing and Interest Costs:

Table-8 Financing and Interest Costs (Million GHS) 2025-2030

Item	2025	2026	2027	2028	2029	2030
Interest on Foreign Loans						
Interest on Domestic Loans						
Interest on Working Capital Loan	0.41	0.46	0.51	0.56	0.60	0.65

22 Return on Equity

Table-9 Equity Financing Costs (%) 2025-2030

Item	2025	2026	2027	2028	2029	2030
Rate of Return	15	15	15	15	15	15

23 Depreciation

Table-10 Equity Financing Costs (%) 2025-2030

Item	2025	2026	2027	2028	2029	2030
Rate of Return						

24 Projected Electricity Distribution Revenue Requirement:

Table-11 Summary of Distribution Company's Revenue Requirement (Million GHS) 2025-2030

Item	2025	2026	2027	2028	2029	2030
A. Capital Recovery Component (CRC)						
B. Fixed O & M Component (FOMC)	6.57	8.80	9.85	12.06	15.13	18.91
C. Revenue from Energy Charge						
D. Reactive Power Charge						
E. Revenue from Open Access- Wheeling						
F. Fixed Charges						
F1. Service Connection Charge						
F2. Reconnection Charges						
F3. Interconnection Charges						
F4. Separate Metering Charges						
F5. Penalties-Illegal Connection						
F6. Revenue from Rural Electrification Levy						

The table below gives the summary of the costs that have been factored into the determination of the proposed distribution service charge. All costs are in Ghana cedis.

	2025	2026	2027	2028	2029	2030
Depreciation	38,925,371	46,882,296	54,140,727	68,039,408	78,320,802	91,209,678
Int. on Foreign Loans	-	-	-	-	-	-
Int. on Local Loans	-	-	-	-	-	-
ROCE	43,324,011	55,194,694	69,902,341	87,857,033	109,477,137	135,210,170
Int. on Working Capital	404,397	484,452	556,188	622,542	686,166	749,565
Op & Mtnc Expenses	6,569,233	8,799,173	9,845,881	12,063,009	15,128,060	18,907,898
Admi & Gen. Expenses	10,462,859	12,367,447	14,840,936	17,652,422	21,182,906	21,637,627
H.R Expenses	23,853,945	24,064,318	25,257,354	27,812,045	29,494,761	32,356,007
Corporate Tax	49,129,356	58,955,227	70,746,273	84,895,527	101,874,633	122,249,559
Total	172,669,173	206,747,607	245,289,700	298,941,985	356,164,464	422,320,504
kWh Billed	367,949,304	388,277,995	467,888,706	469,138,819	539,733,145	617,122,134
COST/kWh	0.47	0.53	0.52	0.64	0.66	0.68

The proposed Distribution Service Charge (DSC-1) for the tariff period commencing 2025 is GHp 57. Distribution Service Charge attributable to Generated Electrical Energy lost in Distribution (DSC-2) will be determined by the Commission.

The DSC-1 shall be added to DSC - 2, the Transmission Service Charge (TSC 1 & TSC 2) and the Bulk Generation Tariff (BGT) as determined by PURC, to fix the tariffs for consumers i.e. the End User Tariff.

F-1D	Distribution Sub-Transmission Data
F-2D	Distribution Network Capacity Parameters Data
F-3D	Distribution Substations Data
F-4D	Distribution System Capital Outlay Data
F-5D	Distribution Fixed Assets Schedule
F-6D	Distribution Fixed Assets Depreciation Schedule
F-7D	Distribution Project Cost Data (Foreign Costs)
F-8D	Distribution Project Cost Data (Local Costs)
F-9D	Capital Expenditure Funding/Financing Plan
F-10D	Operation and Maintenance Cost Data
F-11D	Administration and General Cost Data
F-12D	Human Resource Cost Data
F-13D	Customer Costs Data
F-14D	Working Capital Requirement Data
F-15D	Summary of Distribution Costs
F-16D	Relevant Documentation In Respect of Distribution Tariff Proposal