



Liberia Electricity Regulatory Commission

LIBERIA ELECTRICITY CORPORATION Distribution Service Area (Margibi County) Inspection Report

Submitted by:

The Technical Regulations Directorate (TRD)

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CONTENTS

1.0 Introduction.....	2
1.1 Objectives of the Inspection	2
Table 1.0: Regulatory Compliance Score Card	3
Table 2.0: Inspection Index	4
2.0 Methodology.....	5
3.0 Inspection Index Findings.....	5
Table 3.0: Summary of Kakata/Margibi Network Regulatory Compliance Score Card.....	10
Table 4.0: Overall Regulatory Compliance Score Kakata/Margibi Network.....	11
4.0 Limitations in Inspection	11
5.0 Recommendations	11
6.0 Conclusion.....	12
Appendix A. Listing of Transformers Installed in Kakata Distribution Service Areas.....	13
Appendix B. Punch List of Defects, Actions Required, and Timeline for Curing Defects...	14
Appendix C. From the field (Exhibit 1).....	19

1.0 Introduction

The Liberia Electricity Regulatory Commission (LERC) is mandated under Section 3.3 B (3)(4) of the 2015 Electricity Law of Liberia (ELL) to conduct audits and inspections of records, facilities, and equipment of licensees as well as to establish, maintain, review, and amend, as appropriate, customer care standards. The Electricity Distribution Code of Liberia (EDCL 16.22.1) mandates a Distribution Licensee to maintain its distribution network in accordance with good utility practice and performance standards to ensure reliability and quality of electricity service, on both a short-term and long-term basis.

In compliance with the 2015 ELL and the 2020 EDCL, the Inspectorate unit of the Technical Regulation Directorate, assisted by the Public Affairs Unit conducted an inspection of the Liberia Electricity Corporation Distribution service areas located in Margibi County. In accordance with the Inspection Manual, the inspection began with an initial Opening Meeting held on February 7, 2025, at the LEC Bushrod Office and a field verification exercise followed in Margibi County from March 17-20, 2025.

The Inspection is based on the identified indexes and Regulatory Compliance Score Card outlined in Table 1.0 and Table 2.0.

1.1 Objectives of the Inspection

The Inspection exercises included Verification of Documents, Field inspection of the 66kV transmission network, Field inspection of the 33kV medium voltage distribution network, and Field inspection of 0.4/.23kV Low voltage distribution networks, and Safety coordination.

The inspection was conducted to accomplish the following objectives:

- to identify obvious structural problems and hazards such as leaning power poles, damaged equipment enclosures, and vandalism,
- to confirm operational equipment functionality and conformity to the technical and safety standards,
- to work with a licensed service provider in the development of a compliance Plan to cure problems identified during the patrol.
- to ensure that appropriate follow-up and corrective action is taken regarding problems identified during the patrol, necessary to improve reliability and quality-of-service delivery to customers in those counties.
- to ensure licensed Service providers shall maintain their distribution network in accordance with good utility practice and performance standards to ensure reliability and quality of electricity service, on both a short-term and long-term basis.

Table 1.0: Regulatory Compliance Score Card

No.	Compliance Status	Grading (%)	Rating	Risk level	Description	Action
1	Compliant (High)	95-100	1	Insignificant	Still operable.	No Action- capture that the asset is still in excellent working condition.
2	Compliant (Medium)	85-94	2	Low	Still operable with reduced performance.	Noteworthy- capture in the next inspection cycle and adjust ranking as needed.
3	Compliant (Low)	75-84	3	Medium	Still operable with degraded performance.	Caution- important action required to address identified issues.
4	Non-compliant	60-74	4	High	Almost inoperable, poor performance.	Urgent- Action required
5	Significantly non-compliant	0-59	5	Very high/ Already failed	Inoperable.	Critical- immediate action required.

Table 2.0: Inspection Index

No.	Inspection Index
1	Documentation Checklist
2	Substation Checklist
3	High Voltage (66kV) Network checklist
4	Medium Voltage (33kV) Network Checklist
5	Low voltage (0.4/0.230kV) Network Checklist
6	Transformer Checklist
7	Metering Checklist
8	Safety Coordination

2.0 Methodology

The inspection was participatory and collaboratively conducted by representatives from the LERC and LEC. Below is the detailed methodology for the inspection exercise.

- a) **Preliminary Meeting** - The inspection commenced with a briefing session between the LERC and LEC teams. The LERC staff outlined the primary objectives of the inspection, emphasizing its significance in ensuring reliability and quality of service delivery.
- b) **Documentation Review** - Following the preliminary meeting, LEC was requested to submit the necessary documentation by the end of the inspection, as outlined in the Inspection Manual's "Documentation Checklist". Reports were captured in their original forms to help the team ascertain and validate the integrity of data collected during the inspection exercise.
- c) **Physical Inspection Using the Inspection Manual** - Field inspection was carried out using the checklists from the Inspection Manual.

3.0 Inspection Index Findings

(a) Documentation Checklist: This checklist obligates the LEC to submit several documents to be captured in their original forms to help the team ascertain and validate the integrity of data collected during the inspections. Up to the departure of the LERC team, no document was submitted by LEC:

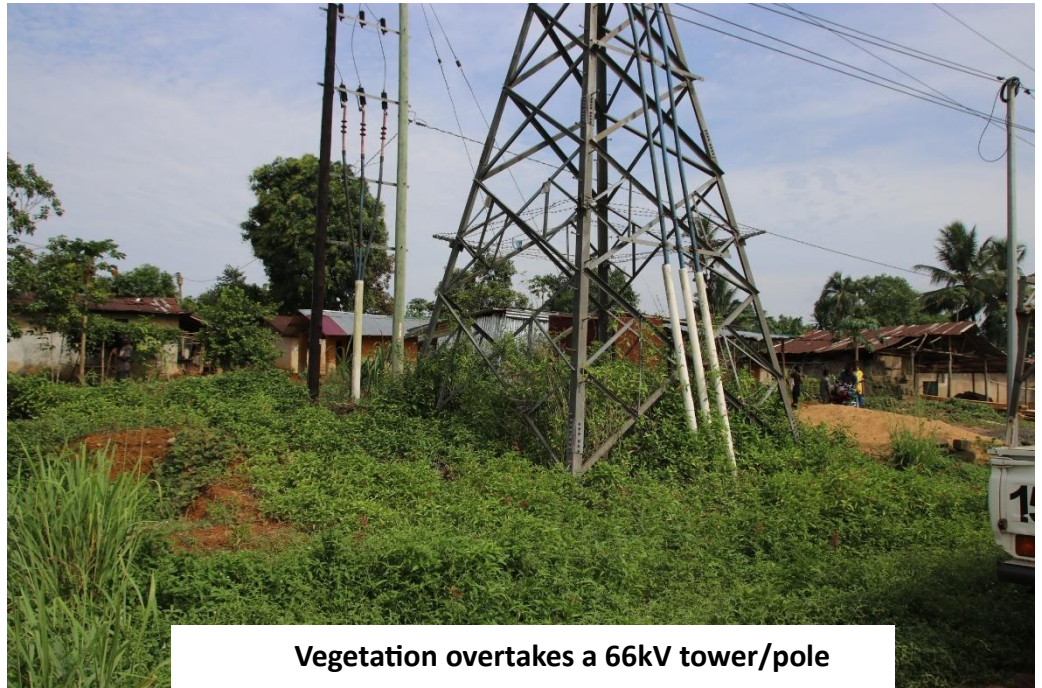
(b) Substation Checklist:

Below are the current data of the substation:

The number of power transformers	1x10 MVA
66kV OHL incomer	Single circuit
66kV OHL incomer capacity	15MW
Outgoing 33kV feeders	2
Substation current peak load capacity	4MW
Spare 33kV breaker	1

The substation surrounding is clean, and all pieces of critical equipment were found to be functional and in order. At the Kakata Substation, LEC has made its best efforts to ensure meeting technical and safety standards. The Kakata substation so far remains the only substation with a visible display of a single line diagram. However, the following key issues were observed:

- ✓ The only access road into the substation is through the gantry while the control building is fenced. This is a hazard, in the future, if there were a fire incident between the gantry, the Operator and all staff on duty will not have access to the road.
- ✓ The substation transformer has a leaking oil issue.
- ✓ There is a crack on one of the CTs installed in the Substation switchyard.
- ✓ Both ACDB and DCDB locking facilities are damaged.
- ✓ There is no separate office for the Management Unit, operations crew, maintenance crew and substation operators. They all work in the Substation which causes distraction to substation operators especially during switching exercises.



- ✓ There is no standby generator at the Substation.
- ✓ There is one bathroom for both males and females.
- ✓ The plumbing system in the substation is poor, there is no running water, and the well is in need of repairs.
- ✓ During the rainy season, it is reported that water comes from underground and through the window into the control room.
- ✓ Additional crushed rocks need to be placed in the switchyard.
- ✓ The base radio in the Substation is damaged.
- ✓ The emergency exit door for the Control Building is damaged.
- ✓ There is no locked and tagged system during outage periods.
- ✓ All the equipment in the switchyard is not labeled.

- ✓ There is no emergency lighting system to keep the Substation illuminated during blackouts.
- ✓ There is a register or logbook at the Substation. However, it does not include records of the Power frequency, the power factor, and the reactive power.
- ✓ Absence of substation maintenance history/evidence or maintenance plan.
- ✓ The Substation does not have a switching instruction.
- ✓ The Substation is a high-power zone, hence, there is no fire alarm system.
- ✓ The Substation blast wall/firewall is cracking and hence an identified Hazard.

(c) High Voltage (66kV) Network Checklist:

The high voltage 66kV network is 56.4Km overhead line and is comprised of towers and monopoles carrying 150 square millimeter AAA conductors. This single circuit 66kV OHL is in a good state, and operational, and vegetation clearing is partially complaint. The line begins from the Paynesville substation and terminates at the Kakata substation. The following are key issues observed along this corridor:

- ✓ The clearance in this line route is very low.

- ✓ Indiscriminate bushfire affecting the raiser cables (33kV) from the towers to the poles.

- ✓ Vegetation management is a challenge especially in the corridors from Todee Junction to the Kakata substation. The team was informed that LEC has awarded

contracts to four(4) contractors within the Kakata Feeder base business unit(FBBU) to undertake vegetation clearing management implementation works. However, the contractors are awaiting payments in accordance with contractual arrangements to begin contract execution.



The team inspects the substation

(d) Medium Voltage (MV) Network Checklist:

The 33kV network spanning 51Km and 120 squared millimeters AAA conductors originate from the Kakata Substation and comprise the Kakata to Gate 15 Feeder, and the Kakata to Weala Feeder respectively. The network is partially maintained and managed; vegetation clearing is partially good- The team was informed that LEC has awarded contracts to four (4) contractors within the Kakata Feeder base business unit (FBBU) to undertake vegetation clearing management implementation works. However, the contractors are awaiting payments in accordance with contractual arrangements to begin contract execution; properly sag lines and a total of 30 isolation points along main lines and T-offs. Nonetheless, the following key issues were observed:

- ✓ Indiscriminate startup of bushfires along line corridor leaving the network comprising mostly of wooden poles vulnerable and undermining system reliability. There are evidence of several burnt poles along the Kakata to Weala corridor,
- ✓ LEC has placed some concrete poles at designated locations to replace some of the wooden poles. However, the persistent delays in mobilizing specialized equipment and manpower to perform these works present a potential risk of collapse of the 33kV medium voltage network and financial burden resulting from the damages to be incurred on account of LEC inaction,
- ✓ On the Kakata to Weala Feeder, a building near Republic Entertainment has come very close to the 33kV powerlines providing a very low clearance,
- ✓ There is one broken MV pole on the Kakata to Weala Feeder, on the main Kakata to Weala Road in the World Bank Community,
- ✓ Burnt poles along the Kakata to Weala corridor due to bushfire,
- ✓ Insufficient isolations points within Kakata city present challenges in performing maintenance works and undermines operational flexibility,
- ✓ Partial maintenance activities are executed on account of the lack of spares, specialized equipment and essential materials.



A broken LV pole

(e) Low Voltage network Checklist:

The 0.4/0.23kV network comprises varied sizes of ABC bundled conductors and is inadequately maintained especially in Kakata city.

The following key issues were observed:

- ✓ In Kakata and other places, the LV network is only constructed along the road, there is no additional LV expansion effort by LEC since the World Bank built the network. A good number of people are left without power due to the absence of network expansion activities.
- ✓ In Kingsville, Number 7 Community, on the Kakata to Gate 15 Feeder, about 650m LV poles have rotted, the only means the customer is using to get power is to make use of sticks, trees, and irons to support the LV conductor and their service drops.
- ✓ Connectors are not used to terminate conductors/cables In many areas.
- ✓ Available streetlights are either damaged or are "ON" during the day.
- ✓ Absence of a warehouse to stock spare parts and materials. As a result, available materials and spares are found littering in the substation yard.

(f) Transformer Checklist:

Transformer stations are kept clean, and Circuit breakers are not bypassed. Nonetheless, the following were observed:

- ✓ There are more than five (5) damaged transformer cases in the following areas Mandingo Quarter, Radio Kakata Community, Francis Lewis's Community, Konola Community, and other places. Three (3) pieces of 50kVA transformers were received to replace faulty transformers in the Kakata FBBU service area but due to the unavailability of specialized equipment to undertake the replacement exercise, the transformers were seen stored in the substation yard.
- ✓ More than three (3) distribution transformers have leakage oil problems in the Wenneh town Community and Old 14th Road community respectively
- ✓ Vegetation in the transformer station at Arrow Alliance Group along the Kakata to Gate 15 corridor and the Kakata General Market.
- ✓ Secondary low voltage breaker enclosures have become an attraction for birds nesting at most of the transformer locations.
- ✓ Vandalism of system grounding at most of the Transformer stations

(G) Metering Checklist:

The Kakata Substation has energy meters on all outgoing 33kV feeders and the Voltage (32.3kV) is found to be within the limit, which makes energy accounting possible. However, the following key issues were observed in the field:

- ✓ Most of the pole-mounted meter enclosures are either opened, damaged, or bird nest has taken over the enclosures.
- ✓ There is a serious shortage of meters and most of the meters are installed in locations that violates existing regulations and codes.

(H) Safety Coordination:

Assigned staff at the Kakata/Margibi Corridor Business Unit are safety conscious, have in place a structured organizational culture, and are well-attired in personnel protective equipment (PPE). However, the following key issues were observed:

- ✓ Lack of a fully functional warehouse in Kakata to reduce the risk of delay in resolving critical network abnormalities on a timely basis.
- ✓ Absence of equipment (Crane Truck and Bucket Truck), to resolve critical problems (brunt poles and broken poles) resulting in delayed responses.
- ✓ The Team lacks basic hand tools and spare materials.
- ✓ Mobility remains a critical challenge as current vehicles assigned in Kakata are substantially in a dilapidated and not road worthy state posing hazard to occupants, Notable examples are the vehicles of the maintenance crew and the Feeder base business unit (FBBU) manager.

Table 3.0: Summary of Kakata/Margibi Network Regulatory Compliance Score Card

No.	Inspection Index	Compliance Status				
		1	2	3	4	5
1	Documentation Checklist					X
2	Substation Checklist			X		
3	High Voltage(66kV) Network checklist		X			
4	Medium Voltage(33kV) Network Checklist		X			
5	Low voltage (0.4/0.230kV) Network Checklist		X			
6	Transformer Checklist		X			

7	Metering Checklist				X	
8	Safety Coordination			X		

Table 4.0: Overall Regulatory Compliance Score Kakata/Margibi Network

No.	Inspection Index	Compliance Status				
		1	2	3	4	5
1	Overall Compliance			X		

The overall Compliance status of LEC for the Kakata distribution service areas is compliant (low), has a medium risk level, and is still operable with degraded performance. Important actions are required to address identified issues. (refer to Table 1.0 for explanatory notes on the various ratings of the scorecard and Table 3.0 for compliance rating).

4.0 Limitations in Inspection

Our inspection was dependent on the available records provided by LEC. There were other records that the LEC team couldn't provide to us, which were very crucial to our inspections. Also, the use of the naked eye could not verify the actual conditions of Pin Insulators, cross-arm braces, machine bolts, washers, and other network components.

The findings outlined in this report were those observed only during the period of inspection in Kakata network areas from March 17-20, 2025.

5.0 Recommendations

It is expected that LEC will work towards the attainment of full regulatory compliance in the Kakata distribution network service areas in Margibi County.

Below are lists of recommendations for consideration and actions:

1. The Commission mandates LEC to fully implement and submit to the Commission the list of documents outlined in the Inspection Manual which are requirements in network data management.
2. That the Commission mandates LEC to correct and take all appropriate actions, as highlighted in the punch list, to resolve defective and damaged equipment and improve the network to serve citizens within the network zones.

6.0 Conclusion

The overall Compliance status of LEC Kakata distribution network service areas is compliant (low), has a medium risk level, and is still operable with degraded performance. Significant actions are required to address identified issues. Upon receiving this report by LEC, within 10 days as indicated in the Inspection Manual, LEC shall provide the Commission with a detailed action plan including schedules/timelines if the timelines on the punch list require modification.

Appendix A. Listing of Transformers Installed in Kakata Distribution Service Areas

LIBERIA ELECTRICITY COOPERATION (LEC)					
33KV TRANSFORMER INSTALLED WITHIN THE KAKATA FBBU NETWORK					
KAKATA WEALA AND KAKATA GATE 15TH					
ITEM	LOCATION	SIZE	TX. NO.	CONDITION	FEEDER
1	Morris farm community	15kVA	TX-1	GOOD	KAKATA-WEALA
2	Morris farm community 1	50kVA	TX--2	GOOD	KAKATA-WEALA
3	Morris farm residence	15kVA	TX-3	GOOD	KAKATA-GATE15
4	Cooper farm yellow machine	25kVA	N/A	GOOD	KAKATA-GATE15
5	Grimers farm	500kVA	N/A	GOOD	KAKATA-GATE15
6	Number 7 community	15kVA	TX-1A	GOOD	KAKATA-GATE15
7	Number 7 community	25kVA	TX-1B	GOOD	KAKATA-GATE15
8	Bong mines road	15kVA	TX-1A	GOOD	KAKATA-WEALA
9	Bong mines road	15kVA	TX-2B	DAMAGE	KAKATA-WEALA
10	Bong mines road	25kVA	TX-3	DAMAGE	KAKATA-WEALA
11	Bong mines road	15kVA	TX-4A	DAMAGE	KAKATA-WEALA
12	Bong mines road	15kVA	TX-4B	GOOD	KAKATA-WEALA
13	Bong mines road CARTER HIGH	50kVA	TX-5	GOOD	KAKATA-WEALA
14	Bong mines road	15kVA	TX-6	GOOD	KAKATA-WEALA
16	Bong mines road	15kVA	TX-7A	GOOD	KAKATA-WEALA
17	Bong mines road	15kVA	TX-7B	GOOD	KAKATA-WEALA
18	Bongmines road Gotumo town	15kVA	TX-8	GOOD	KAKATA-WEALA
19	Gotumo town comm.	15kVA	TX-9	GOOD	KAKATA-WEALA
20	Gotumo town comm.2	15kVA	TX-10	GOOD	KAKATA-WEALA
21	Gotumo town comm3	50kVA	TX-11	GOOD	KAKATA-WEALA
22	Bong mines road	15kVA	TX-12	GOOD	KAKATA-WEALA
23	Bongmines road	25kVA	TX-15	GOOD	KAKATA-WEALA
24	Bong mines road Guest house	15kVA	TX-15	GOOD	KAKATA-WEALA
25	Bong mines road	50kVA	TX-16	GOOD	KAKATA-WEALA
26	Bong mines road Gagarage	100kVA	TX-17	GOOD	KAKATA-WEALA
27	NP Gas station	25kVA	TX-58	GOOD	KAKATA-WEALA
28	Bolola road	50kVA	TX-59	GOOD	KAKATA-WEALA
29	Worldbank junction	25kVA	TX-57	GOOD	KAKATA-WEALA
31	Worldbank COMM.	15kVA	TX-24A	GOOD	KAKATA-WEALA
32	World bank comm2	15kVA	TX-24B	GOOD	KAKATA-WEALA
33	World bank comm3	15kVA	TX-23	GOOD	KAKATA-WEALA
34	World bank comm4	25kVA	TX-22	GOOD	KAKATA-WEALA
35	World bank comm5	15kVA	TX-21	GOOD	KAKATA-WEALA
35	World bank comm 6	25kVA	TX-21B	GOOD	KAKATA-WEALA
36	Kakata City Hall	50kVA	TX-51	GOOD	KAKATA-WEALA
37	New kakata comm.	50kVA	TX-50	GOOD	KAKATA-WEALA
38	Bolola road	15kVA	TX-63B	GOOD	KAKATA-WEALA
39	Bolola road	15kVA	TX-62	GOOD	KAKATA-WEALA
40	Bolola road	25kVA	TX-65	GOOD	KAKATA-WEALA
41	New kakata second road vai town	25kVA	TX-52	GOOD	KAKATA-WEALA
42	New kakata second road comm	25kVA	TX-53	GOOD	KAKATA-WEALA
43	New kakata second road comm 2	25kVA	TX-54	GOOD	KAKATA-WEALA
44	Wenneh town junction	50kVA	TX-55	GOOD	KAKATA-WEALA
45	Wenneh town comm	25kVA	TX-64	GOOD	KAKATA-WEALA
46	Telecom comm	25kVA	TX-28A	GOOD	KAKATA-WEALA
47	Telecom comm RADIO	15kVA	TX-28B	GOOD	KAKATA-WEALA
48	Telecom comm 14 road	25kVA	TX-27	GOOD	KAKATA-WEALA
49	Telecom comm 14 road	15kVA	TX-26	GOOD	KAKATA-WEALA
50	Telecom comm 14 road	15kVA	TX-25A	GOOD	KAKATA-WEALA
51	14TH ROAD	15kVA	TX-25B	GOOD	KAKATA-WEALA
52	14TH ROAD-1	25kVA	TX-34	GOOD	KAKATA-WEALA
53	14TH ROAD WATER TOWER	25kVA	TX-36	GOOD	KAKATA-WEALA
54	BUZY QUARTER JUNCTION	25kVA	TX-38	GOOD	KAKATA-WEALA
55	Mandigo quarter	50kVA	TX-39	GOOD	KAKATA-WEALA
56	Mandigo quarter	15kVA	TX-40B	GOOD	KAKATA-WEALA
57	Mandigo quarter	25kVA	TX-40A	GOOD	KAKATA-WEALA
58	Francis louise farm junction	25kVA	TX-19	GOOD	KAKATA-WEALA
59	Francis louise farm COMM 1	25kVA	TX-18	GOOD	KAKATA-WEALA
60	Francis louise farm COMM 2	15kVA	TX-58	GOOD	KAKATA-WEALA
61	Francis louise farm COMM 3	15kVA	TX-60	GOOD	KAKATA-WEALA
62	Madina comm	15kVA	TX-20	GOOD	KAKATA-WEALA
63	World bank up hill	50kVA	TX-25B	GOOD	KAKATA-WEALA
64	Via town	100kVA	TX-49	GOOD	KAKATA-WEALA
65	Total gas station kakata main street	100kVA	TX-48	GOOD	KAKATA-WEALA
66	Kakata main street parking	100kVA	TX-47	GOOD	KAKATA-WEALA
67	NEW 14TH ROAD	15kVA	TX-35A	GOOD	KAKATA-WEALA
68	NEW 14TH ROAD	25kVA	TX-35B	GOOD	KAKATA-WEALA
69	NEW 14TH road	15kVA	TX-33	GOOD	KAKATA-WEALA
70	NEW 14TH ROAD	25kVA	TX-32	GOOD	KAKATA-WEALA
71	C-H Rennie hospt.	100kVA	TX-61	GOOD	KAKATA-WEALA
72	C-H Rennie COMM 1	15kVA	TX-30A	GOOD	KAKATA-WEALA
73	C-H Rennie COMM 2	15kVA	TX-30B	GOOD	KAKATA-WEALA
74	C-H Rennie COMM 3	25kVA	TX-29	GOOD	KAKATA-WEALA
75	GIO KAKATA MAIN ST. 1	15kVA	TX-42	GOOD	KAKATA-WEALA
76	GIO KAKATA MAIN ST. 2	15kVA	TX-41	GOOD	KAKATA-WEALA
77	BWI SCHOOL	200kVA	N/A	GOOD	KAKATA-WEALA
78	SACKIE FLOWO	50kVA	TX-44	GOOD	KAKATA-WEALA
79	BASSA COMM. 1	25kVA	TX-34A	GOOD	KAKATA-WEALA
80	BASSA COMM. 2	15kVA	TX-34B	GOOD	KAKATA-WEALA
81	GBANDI COMM 1	25kVA	TX-14	GOOD	KAKATA-WEALA
82	GBANDI COMM 2	25kVA	TX-15	GOOD	KAKATA-WEALA
83	KAKATA MARKET	15kVA	TX-37	GOOD	KAKATA-WEALA
84	BASSA TOWN RROAD 1	15kVA	TX-45	GOOD	KAKATA-WEALA
85	BASSA TOWN RROAD 2	15kVA	TX-45B	GOOD	KAKATA-WEALA
86	BASSA TOWN ROAD @ BARKOLLE	50kVA	TX-46A	GOOD	KAKATA-WEALA
86	JETTY FACTORY	3MVA	N/A	GOOD	KAKATA-WEALA
87	SRC-FACTORY JETTY	200kVA	N/A	GOOD	KAKATA-WEALA
88	JETTY GATE	25kVA	N/A	GOOD	KAKATA-WEALA
89	INDINA COMPANY ARCA	500kVA	N/A	GOOD	KAKATA-WEALA
90	Weala opp.police station	25kVA	TX-1C	GOOD	KAKATA-WEALA
91	METHODIST COMPUS WEALA	25kVA	TX-2C	GOOD	KAKATA-WEALA
92	Weala main street	50kVA	TX-3C	GOOD	KAKATA-WEALA
93	GERMAN CAMP ROAD	50kVA	TX-4A	GOOD	KAKATA-WEALA
94	GERMAN CAMP ROAD ROAD	15kVA	TX-4B	GOOD	KAKATA-WEALA
95	GERMAN CAMP ROAD DEAD END	25kVA	TX-5	GOOD	KAKATA-WEALA
96	WEALA MOQUS	50kVA	TX-6A	GOOD	KAKATA-WEALA
97	BARCLAYFARM JUNCTION WEALA	50kVA	TX-6B	GOOD	KAKATA-WEALA
98	BARCLAYFARM JUNCTION WEALA COMM.	25kVA	TX-7	GOOD	KAKATA-WEALA
99	SALALA RUBBER CORPORATION SCH.	25kVA	TX-8	GOOD	KAKATA-WEALA
100	SEN. NAYAHU	25kVA	N/A	DAMAGE	KAKATA-WEALA
101	CINTA COMM	50kVA	TX-9A	GOOD	KAKATA-WEALA
102	LELENA COMM WEALA	25kVA	TX-10	GOOD	KAKATA-WEALA
103	CINTA COMM CLINIC	25kVA	TX-9B	GOOD	KAKATA-WEALA
104	CLINTON	15kVA	TX-11	GOOD	KAKATA-WEALA
105	BORKEY TOWN 1	25kVA	TX-12	GOOD	KAKATA-WEALA
106	BORKEY TOWN 2	15kVA	TX-13	GOOD	KAKATA-WEALA
107	JENNITA	25kVA	TX-14	GOOD	KAKATA-WEALA
108	KONOLA	15kVA	TX-15	GOOD	KAKATA-WEALA
109	KONOLA	15kVA	TX-16	GOOD	KAKATA-WEALA
110	KONOLA MISSION	25kVA	TX-18	GOOD	KAKATA-WEALA
111	KONOLA SARDIA FARM	15kVA	TX-17	GOOD	KAKATA-WEALA
112	ETTA SETTA TUCKER FARM	25kVA	TX-20	GOOD	KAKATA-WEALA
113	ALLEN FARM	15kVA	TX-21	GOOD	KAKATA-WEALA
114	TOVIA BROWNELL FARM	25kVA	TX-22	GOOD	KAKATA-WEALA
115	Cooper farm SCHOOL	50kVA	TX-23	GOOD	KAKATA-WEALA
116	SAN. COOPER FARM RESIDENCE	15kVA	TX-24	GOOD	KAKATA-WEALA
117	CONFERENCE HALL GBEFEHLA	15kVA	N/A	GOOD	KAKATA-WEALA

Appendix B. Punch List of Defects, Actions Required, and Timeline for Curing Defects

No.	Location	Defect	Action Required	Completion Date
1	Kakata City; Kakata- Weala corridor	Burnt poles and rotten poles	Replace with concrete poles or steel poles.	By April 15,2025
2	KRTTI Campus	Badly leaning LV Pole	Replace Pole	By April 15,2025
3	Kakata City and Towns along Kakata to Weala corridor	Birds nesting in LV breaker enclosures	Remove bird nesting and initiate regular inspection	By April 10,2025
4	Kakata substation	Absence of Standby Deisel Generator	Install Standby Genset	April 30,2025
5	Kakata	Use of dilapidated and not road worthy vehicles	Replace with road worthy vehicles	June 30,2025
6	Kakata Substation	Cracks in transformer blast wall	Investigate structural integrity and take corrective actions	May 30,2025
7	Kakata	Absence of staff office	Identify suitable area and relocate all staff not assigned in substation	April 30,2025
8	Kakata substation	Absence of safe vehicle entrance and exit routes	Construct new safe vehicle entry and exit routes and permanently lock existing entrance.	June 30,2025
9	Kakata substation	Absence of ware housing facility	Install warehouse, discontinue littering of materials in substation yard, and have a warehouse management team on the ground.	April 30,2025

10	Kingsville	Damaged LV poles	Replace all damaged poles and properly sag LV cable	April 30, 2025
8	Margibi Distribution service area	Partial vegetation management	Initiate comprehensive vegetation management and control program	May 30,2025
9	Margibi Distribution service area	Limited distribution network	Initiate Network expansion and reinforcement program	December 30, 2025
10	Margibi Distribution service area	Absence of safety awareness to discourage bush fires and vandalism to grounding	Initiate awareness programs	April 10,2025
11	Jeety Rubber Factory	Absence of operation coordination with LEC	Initiate a coordination Plan to improve advance notices of switching to curtail abrupt interruptions	April 15,2025
12	Kakata substation	Damaged substation exit door and damaged locking facilities on ACDB and DCDB.	Repair or replace damaged door and repair ACDB and DCDB locking facilities.	April 15, 2025
13	Kakata substation	Inadequate bathroom and poor plumbing system	Improve with corrective actions taken	April 30,2025
14	Kakata substation	Inadequate lighting during black outs	Improve lighting challenges by acquiring Rechargeable DC lights	April 30,2025
15	Margibi Distribution service area	Wrongful installation of customer premise meters	Relocate to appropriate locations as specified in	July 30,2025

			regulations and codes	
16	Substation Switchyard, Kakata City and Konola Community	Leakage transformer oil (station transformer & distribution transformer) and damaged distribution transformers.	Resolve all leakage oil issues and replace all the damaged transformers.	June 30, 2025
17	Kakata Substation	Damaged base radio.	Repair or replace base radio, communication is very important in substation management.	April 30, 2025
18	Kakata Substation	Equipment not labeled and soil/ground overtaking crushed rocks in switchyard.	Label all equipment and put additional crushed rocks in switchyard.	April 30, 2025
19	Kakata Substation	(A)Lack of records on Power frequency, power factor, and reactive power. (B)Lack of maintenance record.	(A) All register or logbook at the Substation should include records of the Power frequency, the power factor, and the reactive power. (B) Make available maintenance record.	May 1, 2025
20	Kakata Substation	Lack of switching instruction.	Make available switching instructions	June 30, 2025

		Lack of fire alarm.	Put in place fire alarm system.	
21	Kakata to Weala Feeder, a building near Republic Entertainment. Kakata to Gate 15	Low 33kV Clearance Bushfire damaging raiser conductors/cables.	Shift the lines or use sleeves on the conductors. Clean the spot, place crushed rocks and fence raiser cabling points.	June 30, 2025
22	Kakata, Kakata to Weala and Kakata to Gate 15	Damaged and defective streetlights.	Repair or replace all damaged and defective streetlights	June 30, 2025

23	Kakata Substation	Cracked CT	Resolved cracked CT in switchyard.	June 30, 2025
24	Kakata and environs	Inadequate metering.	Ensure metering is done in communities.	June 30, 2025

Appendix C. From the field (Exhibit 1)



A pole damaged by bushfire



The team tours LEC facility in # Seven



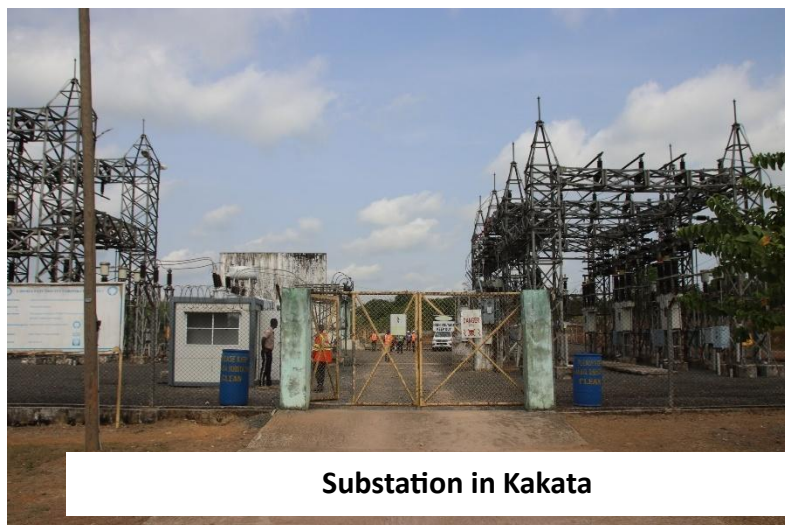
A pole damaged by bushfire



The team inspects a breaker with bird nest



66kV being undermined



Substation in Kakata



A technician removes a bird nest from a breaker



A LV line in a plum tree



A pole damaged by bushfire



The team reviews the substation diagram