LIBERIA ELECTRICITY CORPORATION

Liberia Electricity Sector Strengthening and Access Project — **LESSAP Phase 1.**

“Exceeding expectations in Liberia's energy sector”

Brown Bag Launch (BBL)

World Bank Country Office, Liberia · October 8, 2026

ESMAP Energy Sector Management Assistance Program · ELECTRIFYING AFRICA · MISSION 300 #PoweringAfrica · WORLD BANK GROUP

LESSAP **Phase I.**

Project Development Objective (PDO)

To increase access to electricity and improve the operational efficiency of the Liberia Electricity Corporation (LEC).

LESSAP Phase 1 Financing
$64.2 m

Duration
5 yrs 3 mo 18 days

Project timeline

Approval
Mar 12, 2021

Effectiveness
Jul 12, 2022

Closed
Jun 30, 2026

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Phase 1 Financing & **Component Allocation.**

Financing source	Instrument / reference	US$ million
IDA Scale-up Window Credit	Credit No. 6850	**29.0**
IDA Concessional Credit	Credit No. 6851	**15.0**
IDA Grant	Grant No. D7850 — SDR 10.5 million (US$14.4 million equivalent)	**14.4**
Japan Policy and Human Resource Development Grant	Grant No. TF B5412	**2.7**
Energy Sector Management Assistance Program Grant	Grant No. TF B5153	**2.5**
Total LESSAP Phase 1 Financing	Project ID: P173416	**64.2**

LESSAP MPA Financing Envelope

US$190m

Multiphase Programmatic Approach envelope, including indicative IDA financing of US$180 million.

Project **Components.**

Component allocation
US$53.90m

Component 1

Rehabilitation and Expansion of Electricity Infrastructure and Systems, and Access Expansion

US$31.20m

a) Distribution network rehabilitation, densification, and expansion

b) Revenue Protection Program

c) Establishment of a Supervisory Control and Data Acquisition (SCADA) system

Component 3

Technical Assistance for Institutional Reform, Capacity Building of Sector Institutions, and Implementation Support to LEC

US$14.50m

a) Support for Management Service Contract and transition to full-time sustainable management

b) Technical assistance, training, and capacity building of sector institutions and project implementation support

c) Support to sector policy and regulations

Component 4

Emergency Sustainable Generation Support

US$8.20m

a) Repair of Unit 1 of Mount Coffee Hydropower Plant and the generation of spare parts

b) Technical support and capacity building for sustainable operation of the power plant

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Activity A — Distribution Network
Rehabilitation, Densification & Expansion.

Medium- and low-voltage network expansion with improved last-mile reach for homes, businesses, and public lighting.

406 km

Total network

100 km MV + 306 km LV

77,225 kVA

Transformer capacity

Installed in project area

21,592

Households

Connected

3,462

Non-residential customers

Businesses and institutions

3,833

Streetlights

Public lighting installed

Community voice

"My community, including my own household, has lived without electricity for the past 14 years. This project finally brings us hope and economic opportunities."

Community Chairman, Yellow Flower Community, Brewerville, St. Paul District, Monrovia

Component 1 · Activity A · Key achievements

Impact in the **Project Area.**

US$1.4m

Revenue collected from customers connected in the project area as at Jul-26

107,960

People with electricity in the project area (21,592 households × standard household size)

69

Project communities metered

10,365

Women with electricity connected in the project area (female-headed households)

Electrification: VOA Community lit up with joy

Residents celebrated as electricity reached the VOA Community for the first time — a milestone bringing light, hope, and new opportunities to households and families.

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Activity B — **Revenue Protection Program.**

50,000

Prepaid meters deployed

What was done

Meters installed for customers who were unmetered or irregularly connected, supporting formal customer registration and consumption monitoring on the LEC grid.

Expected results

Fewer illegal connections, expanded billing coverage, and increased revenue protection.

34,200

Commercial loss-reduction interventions from the 50,000 meters

What was done

Faulty meters replaced; unmetered or illegally connected households and businesses regularized.

Expected results

Accurate billing, reduced energy theft, and improved revenue collection.

30

Large-customer transformers supplied

What was done

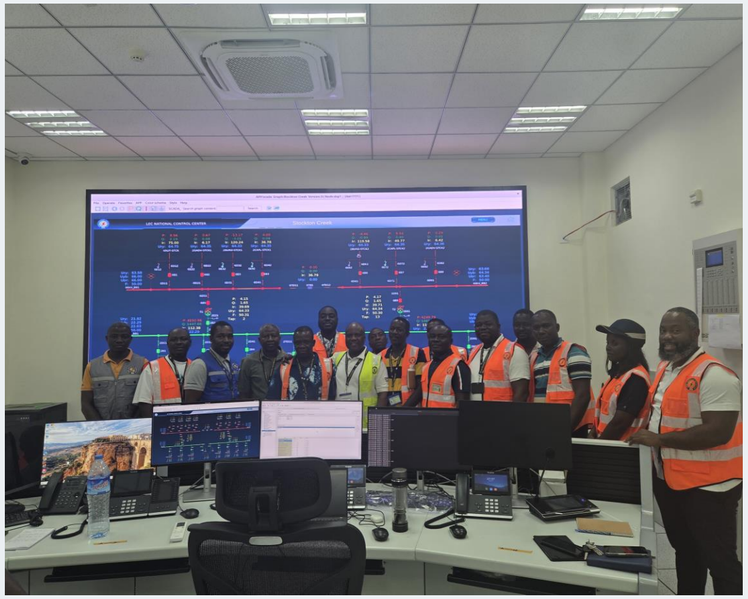
Dedicated transformers provided to improve service quality and metering arrangements for large customers.

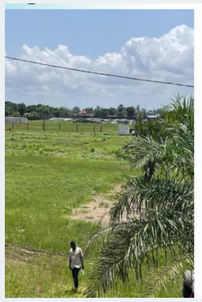
Expected results

More reliable supply, better load management, and stronger billing for large customers.

Activity C — **SCADA & National Load Dispatch Center.**

Key area	Achievement / progress	Quantified result	Status
National Load Dispatch Center	Bushrod NLDC building and supporting electrical, security, fire-safety, and auxiliary systems completed.	**1 NLDC completed**	Completed
SCADA installation	SCADA equipment installation progressing across substations and power plants.	**82% complete**	Advanced Continues in LESSAP 2
Organization & staffing	SCADA/EMS and NLDC structures approved, with dedicated operational personnel appointed.	**Structures approved; staff mobilized**	Completed
Specialized training	Manufacturer-led and technical training delivered to strengthen LEC's operational capacity.	**5 engineers — China 16–20 AC/DC & UPS 8 advanced SCADA**	Ongoing Continues in LESSAP 2
Knowledge transfer	LEC technical staff deployed alongside the contractor during equipment installation.	**On-the-job training**	Ongoing Continues in LESSAP 2
Substation integration	Strategic substations and generation facilities targeted for centralized monitoring and control.	**10 locations**	In progress Continues in LESSAP 2
Operational transformation	Real-time monitoring, centralized control, faster fault detection and restoration, and improved network reliability.	**National grid operations**	Final integration





Top: LEC staff at the National Control Center. Below: NLDC site in March 2025 and the completed NLDC building.

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Component 1 · Key achievements

Transformer Workshop & **Rehabilitation.**

Achievement	Key result	Operational benefit
Distribution transformers supplied	441 transformers ranging from 50 kVA to 2,000 kVA	Supports network rehabilitation, reinforcement, and expansion
Distribution equipment supplied	34 LVDBs, MCCBs, 1,323 lightning arresters, protection equipment and accessories	Improves distribution-system protection and reliability
Transformer workshop modernized	Building rehabilitated and extended; repair, testing, lifting, and oil-filtration equipment installed	Enables local inspection, diagnosis, repair, rewinding, testing, and commissioning
Staff capacity strengthened	LEC technical personnel received operations and maintenance training	Builds in-house capability and reduces reliance on external repair services
Workshop commissioned	Completion Certificate issued 23 January 2025; official handover completed April 2025	Modern facility placed into operational service
Complementary civil works	Epoxy flooring, lighting, ventilation, access ramp, and landscaping	Improves safety, workflow, and operational efficiency
Transformers repaired and returned to service	237 transformers repaired between January 2025 and September 2026	Increases transformer availability and reduces equipment downtime
Current repair capacity	6–8 transformers per week	Faster restoration and lower maintenance costs

Before Workshop prior to rehabilitation

After Rehabilitated and commissioned, 2025

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Components 3 & 4 — **Institutions, Capacity & Generation.**

Component 3

Institutional Strengthening, Capacity Building and Sector Regulation

LEC management transition

Transitioned from the Management Service Contract to a full-time Local Management Team. An interim team maintained continuity before the new Managing Director's appointment on 14 March 2025 and Senate confirmation on 22 July 2025.

Result: sustainable local leadership and improved operational continuity.

PIU staffing and capacity building

All six core PIU functions staffed. Training in finance, procurement, safeguards, regulation, and internal audit reached 91% of the 181-person training indicator.

Result: stronger project delivery, fiduciary controls, and sector oversight.

Component 4

Emergency Sustainable Generation Support

Repair of Unit 1 and spare parts

Mount Coffee Unit 1 was repaired and officially handed over to LEC on 22 July 2026. The Contractor received the Operational Acceptance Certificate, confirming project completion and transfer of the rehabilitated unit into service.

Technical support and capacity building

PIU and local LEC staff supervised the Unit 1 repair and supported sustainable plant operations.

22 MW
Generation restored

100%
Of target achieved

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LESSAP I Investments Are Translating into **Sustainable Revenue.**

1 · Connections — revenue from World Bank metering investments (Sep 2023 – Jul 2026)

Year	WB 50,000 meters	LESSAP 1 project area	Combined
2023	US$634,001	—	**US$634,001**
2024	US$4,572,758	—	**US$4,572,758**
2025	US$6,824,661	US$866,784	**US$7,691,445**
2026*	US$1,913,430	US$619,929	**US$2,533,360**
Total	**US$13.94m**	**US$1.49m**	**US$15.43m**

Combined revenue rose from US$634,001 in 2023 to US$4.57m in 2024 and US$7.69m in 2025. *2026 data runs through mid-July.

3 · Unit 1 repair — energy and gross value (28 May – 1 Aug 2026)

28–31 May	June	July	1 Aug	**Total · 66 days**
1,790 MWh	**13,362 MWh**	**13,776 MWh**	**443 MWh**	**29.37 GWh**
$0.39M	$2.89M	$2.98M	$0.10M	**$6.34M**

2 · Transformer workshop — US$152,855 invested has returned more than ten times its cost

237

Transformers repaired

January 2025 – August 2026

$1.69–1.94M

Net savings vs buying new

At LEC standard transformer prices

11–13×

Return on the investment

Repaid by May 2025

4.8 days

Average turnaround, 2026

Down from 8.4 days in 2025

16 / month

Repairs in 2026 — 2.4× the 6.8 a month before the investment

128 of 128

2026 year-to-date target met exactly

81%

Of transformers received in 2026 repaired, against 38% in 2022–2024

Unit 1's contribution is taken directly from its own energy meter in the daily reports (cumulative reading, day-on-day difference) — not apportioned or estimated.

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LESSAP I — **Results at Completion.**

Reported results as at 30 June 2026

404,795 **People received new or improved electricity service**

117% of revised target

345,000 revised target

+59,795 people

Access and operational efficiency

Female beneficiaries
257,905
147% achieved
175,000 revised target

New electricity service
388,715
120% achieved
324,000 original target

Improved electricity service
16,080
77% achieved
21,000 original target

Connections regularized
34,200
86% achieved
40,000 original target

Infrastructure, capacity, and generation

Distribution lines
406 km
107% of revised target
380 km target

Transformer capacity
77,225 kVA
91% of revised target
85,000 kVA target

Households connected
21,592
80% of revised target
27,000 target

Non-residential customers
3,462
1,437% achieved
241 revised target

Generation restored
22 MW
100% achieved
Mount Coffee Unit 1

Institutional delivery

Optimal organization structure, competitive recruitment, full-time fiduciary management, and citizen feedback each achieved 100% · 181 staff trained (91% of target) · Women in LEC workforce 20% (80% of target) · SCADA installed; operational go-live planned for December 2026.

Lessons **Learned.**

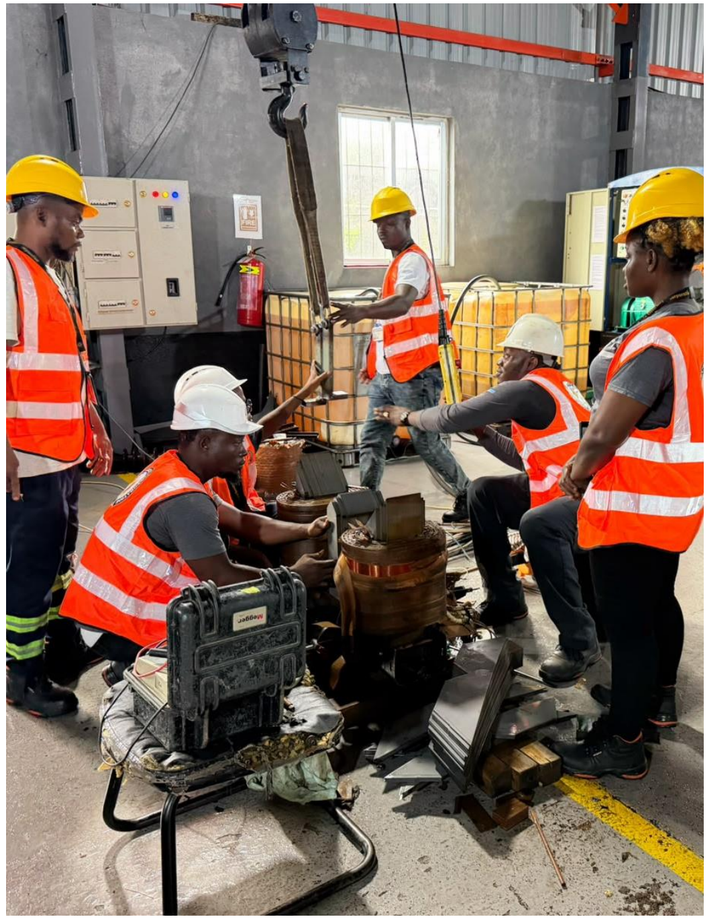
1. **Integrate infrastructure with commercial sustainability.** Network expansion should be accompanied by metering, customer regularization, and revenue protection to translate increased access into sustainable utility revenue.

2. **Build institutional capacity alongside infrastructure.** Investments in physical assets are more sustainable when staff training, institutional systems, and operational capacity develop at the same time.

3. **Strengthen in-house maintenance capability.** The transformer workshop showed that local repair capacity reduces equipment downtime, lowers maintenance costs, and improves service restoration.

4. **Pair technology with skills and knowledge transfer.** SCADA/NLDC investments require dedicated staffing, specialized training, and continuous on-the-job knowledge transfer to deliver sustainable operational benefits.

5. **Measure outcomes and value — not only physical outputs.** Tracking access, revenue, operational savings, and generation alongside infrastructure outputs gives stronger evidence of impact and supports better management decisions.



Thank **You.**

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