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INTERNATIONAL DEVELOPMENT ASSOCIATION

PROGRAM APPRAISAL DOCUMENT

ON

PROPOSED CREDITS

IN THE TOTAL AMOUNT OF
US\$ 250 MILLION

AND CO-FINANCED BY A GRANT
IN THE AMOUNT OF US\$10 MILLION

FROM THE ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAM UMBRELLA 2.0 MULTI DONOR TRUST
FUND

TO THE

REPUBLIC OF GHANA

FOR A

GHANA ENERGY SECTOR RECOVERY PROGRAM

MAY 24, 2024

Energy and Extractives Global Practice
Western and Central Africa Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective May 22, 2024)

Currency Unit = GHANA CEDI (GHS)

US\$ 1 = GHS 13.8533

FISCAL YEAR

January 1 - December 31

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ABBREVIATIONS AND ACRONYMS

AI	Action Item
AM	Accountability Mechanism
AWPB	Annual Work Program and Budget
BAU	Business as Usual
BOG	Bank of Ghana
CAGD	Comptroller and Auditor General
CHRAJ	Commission on Human Rights and Administrative Justice
CIS	Commercial Information System
CPF	Country Partnership Framework
CRM	Cylinder Recirculation Model
CTRC	Central Tender Review Committee
DA	Designated Account
DOF	Director of Finance
DPF	Development Policy Financing
DLI	Disbursement Linked Indicator
DLR	Disbursement-Linked Result
EA	Environmental Assessment
ECG	Electricity Company of Ghana
EC	Energy Commission
ECF	Extended Credit Facility
E&S	Environment and Social
EPA	Environmental Protection Agency
ERP	Enterprise Resource Planning
ESRP	Energy Sector Recovery Programme
ESMAP CCF	Energy Sector Management Assistance Program Clean Cooking Trust Fund
ESMF	Environmental and Social Management Framework
ESSA	Environmental and Social System Assessment
ESTF	Energy Sector Task Force
ETC	Entities Tender Committee
GBV	Gender Based Violence
GDP	Gross Domestic Product
GEDAP	Ghana Energy Development and Access Project
GESTIP	Ghana Energy Sector Transformation Initiative Project
GHACCO	Ghana Alliance for Clean Cooking
GHG	Greenhouse Gas
GIFMIS	Ghana Integrated Financial Management Information System
GOG	Government of Ghana
GRIDCo	Ghana Grid Company, Ltd.
GRS	Grievance Redress Service
GSS	Ghana Statistical Service
HAP	Household Air Pollution

HFO	Heavy Fuel Oil
IA	Implementing Agency
IDA	International Development Association
IFR	Interim Financial Report
IMF	International Monetary Fund
IPF	Investment Project Financing
IPP	Independent Power Producer
ISO	International Standards Organization
IVA	Independent Verification Agency
KHRC	Kintampo Health Research Centre
LMP	Labor Management Procedure
LPGMC	Liquefied Petroleum Gas Marketing Company
LPG	Liquified Petroleum Gas
M&E	Monitoring and Evaluation
MDMS	Meter Data Management System
MMBTU	Metric Million British Thermal Units
MMS	Meter Management System
MoEn	Ministry of Energy
MoF	Ministry of Finance
NDC	National Determined Contribution
NEDCo	Northern Electricity Distribution Company
NES	National Electrification Scheme
NLPGPP	National LPG Promotion Program
NPA	National Petroleum Authority
NPV	Net Present Value
PAP	Program Action Plan
PCU	Program Coordination Unit
PDO	Program Development Objective
PEF	Program Expenditure Framework
PFM	Public Financial Management
PFMA	Public Financial Management Act
PforR	Program for Results
PIP	Performance Improvement Program
PIU	Program Implementation Unit
PPA	Power Purchase Agreement
PPSD	Project Procurement Strategy for Development
PSDP	Petroleum Sector Development Programme
PURC	Public Utilities Regulatory Commission
PV	Photovoltaic
RA	Results Area
SDG	Sustainable Development Goal
SEA/SH	Sexual Exploitation and Abuse and Sexual Harassment
SEforALL	Sustainable Energy for All

SHE	Safety Health and Environment
SEP	Stakeholder Engagement Plan
SIGA	State Interests and Governance Authority
TA	Technical Assistance
ToR	Terms of Reference
US\$	United States Dollar
VRA	Volta River Authority
WAGP	West African Gas Pipeline
WAPP	West African Power Pool



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DATASHEET

BASIC INFORMATION

Project Beneficiary(ies)	Operation Name		
Ghana	Ghana Energy Sector Recovery Program		
Operation ID	Financing Instrument	Does this operation have an IPF component?	Environmental and Social Risk Classification (IPF Component)
P173258	Program-for-Results Financing (PforR)	Yes	Moderate

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Contingent Emergency Response Component (CERC)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Small State(s)	<input type="checkbox"/> Conflict
<input type="checkbox"/> Alternative Procurement Arrangements (APA)	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Hands-on Expanded Implementation Support (HEIS)	

Expected Approval Date	Expected Closing Date
14-Jun-2024	30-Jun-2028
Bank/IFC Collaboration	
No	

Proposed Program Development Objective(s)

The Program’s Development Objective (PDO) is to improve the financial viability of the electricity distribution sector in Ghana and to increase access to clean cooking solutions.



Organizations

Borrower: Republic of Ghana
 Implementing Agency: Electricity Company of Ghana (ECG)
 Contact: Samuel Dubik Mahama
 Title: Managing Director
 Telephone No: 233302676747
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Implementing Agency: GRIDCo
 Contact: Ebenezer Essienyi
 Title: Chief Executive Officer
 Telephone No: 233307011185
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Implementing Agency: Ministry of Energy
 Contact: Wilhelmina Asamoah
 Title: Chief Director
 Telephone No: 233302683981
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COST & FINANCING (US\$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)? Yes
 Is this project Private Capital Enabling (PCE)? No

SUMMARY

Government program Cost	4,700.00
Total Operation Cost	1,234.00
Total Program Cost	1,125.00
IPF Component	109.00



Total Financing	1,234.00
Financing Gap	0.00

Financing (US\$, Millions)**World Bank Group Financing**

International Development Association (IDA)	250.00
IDA Credit	110.00
IDA Shorter Maturity Loan (SML)	140.00

Non-World Bank Group Financing

Counterpart Funding	974.00
Borrower/Recipient	974.00
Trust Funds	10.00
Energy Sector Management Assistance Program	10.00

IDA Resources (US\$, Millions)

	Credit Amount	Grant Amount	SML Amount	Guarantee Amount	Total Amount
National Performance-Based Allocations (PBA)	110.00	0.00	140.00	0.00	250.00
Total	110.00	0.00	140.00	0.00	250.00

Expected Disbursements (US\$, Millions)

WB Fiscal Year	2024	2025	2026	2027	2028	2029
Annual	0.00	80.00	85.00	50.00	30.00	15.00
Cumulative	0.00	80.00	165.00	215.00	245.00	260.00

PRACTICE AREA(S)



Practice Area (Lead)

Energy & Extractives

Contributing Practice Areas

CLIMATE

Climate Change and Disaster Screening

Yes, it has been screened and the results are discussed in the Operation Document

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● Substantial
2. Macroeconomic	● Substantial
3. Sector Strategies and Policies	● Substantial
4. Technical Design of Project or Program	● Moderate
5. Institutional Capacity for Implementation and Sustainability	● Moderate
6. Fiduciary	● Substantial
7. Environment and Social	● Moderate
8. Stakeholders	● Moderate
9. Overall	● Substantial

POLICY COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

Yes No

Does the project require any waivers of Bank policies?

Yes No

Legal Operational Policies

Triggered?



Projects on International Waterways OP 7.50	No
Projects in Disputed Area OP 7.60	No

ENVIRONMENTAL AND SOCIAL

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10: Stakeholder Engagement and Information Disclosure	Relevant
ESS 2: Labor and Working Conditions	Relevant
ESS 3: Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4: Community Health and Safety	Relevant
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Not Currently Relevant
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Not Currently Relevant
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
ESS 8: Cultural Heritage	Not Currently Relevant
ESS 9: Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank’s due diligence assessment of the Project’s potential environmental and social risks and impacts, please refer to the Project’s Appraisal Environmental and Social Review Summary (ESRS).

LEGAL

Legal Covenants

Sections and Description

FA Schedule 2. Section I. D. 1. The Recipient shall (a) through MoEn, recruit or hire no later than three (3) months after the Effective Date, and thereafter maintain at all times during the implementation of the Program, two independent verification agencies (IVA) for the clean cooking component and for the energy sector recovery-related DLIs, all with experience, qualifications and under terms of reference acceptable to the Association, (the “Verification Agents”), to: (i) verify the data and other evidence supporting the achievement of the DLIs/DLRs, as set forth in the table in Schedule 3 to this Agreement; and (ii) recommend corresponding disbursements to be made, as applicable, pursuant to such Schedule 3 and Section IV hereinbelow.

FA Schedule 2. Section I. F. 5. The Recipient shall ensure that the MoEn and ECG no later than three (3) months after the Effective Date, establish, publicize, maintain and operate an accessible grievance mechanism, to receive and facilitate



resolution of concerns and grievances of Project-affected people, and take all measures necessary and appropriate to resolve, or facilitate the resolution of, such concerns and grievances, in a manner acceptable to the Association.

Conditions

Type	Citation	Description	Financing Source
Effectiveness	FA Article IV, 4.01 (a)	The Recipient has entered into a Subsidiary Agreement with the Electricity Company of Ghana Limited (ECG) and the Ghana Grid Company (GRIDCo) in form and substance satisfactory to the Association.	IBRD/IDA
Effectiveness	FA Article IV, 4.01 (b)	The Recipient has developed and adopted the Operations Manual set forth in Section I.B of the Schedule 2 to this Agreement in a manner and substance satisfactory to the Association.	IBRD/IDA
Effectiveness	FA Article IV 4.01 (c)	The Recipient has made available to the Association, the bank account details for the Ministry of Energy (MoEn), ECG and GRIDCo for transfer of funds during implementation.	IBRD/IDA
Effectiveness	GA Article V 5.01 (a)	The execution and delivery of this Agreement on behalf of the Recipient have been duly authorized or ratified by all necessary governmental action.	Trust Funds
Effectiveness	GA Article V 5.01 (b)	The Financing Agreement has been executed and delivered and all conditions relating to its effectiveness or to the right of the Recipient to make withdrawals under it (other	Trust Funds



		than the effectiveness of this Agreement) have been fulfilled.	
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I. STRATEGIC CONTEXT

A. Country Context

1. **Ghana has achieved substantial economic and social progress over the past three decades.** With a population of 33.5 million, Ghana is a lower middle-income country with an annual Gross Domestic Product (GDP) per capita of US\$2,234.2 (2023)¹ Over the past decade, annual economic growth had averaged 5.6 percent and resulted in substantial poverty reduction, as the proportion of the population living on less than US\$2.15 per day had declined from 42.5 percent in 2005 to 25.4 percent in 2020 thus making Ghana a leading country in the fight against poverty in Africa. Human development indicators, including primary and secondary school enrollment, average life expectancy, stunting, and under-five years old mortality, had also improved over the past three decades. Political stability, capital accumulation and rising productivity, a large expansion in education and agricultural production, and rapid urbanization, all contributed to the achievement of this progress.

2. **However, a confluence of pre-existing vulnerabilities and external shocks brought Ghana into a deep macroeconomic crisis in 2022.** Large fiscal imbalances due to weak revenues, expenditure overruns, and significant energy sector financial shortfalls (up to 2.2 percent of GDP), were compounded by the shocks of the COVID-19 pandemic and the impact of Russia's invasion of Ukraine. The large financing needs, with the fiscal deficit reaching about 12 percent of GDP in 2021 and 2022 and debt service-to-revenue of 117.6 percent in 2022², exacerbated debt sustainability concerns and access to international capital markets was curtailed. The impact of the crisis has been felt disproportionately by the vulnerable segments of the population. The international poverty rate (2.15 in 2017 US\$ Purchasing Power Parity) is estimated to have increased to 30.3 percent in 2023, a worsening of 3.5 percentage points since 2022. The inflation shock alone is estimated to have pushed over 800,000 Ghanaians into poverty³. Food insecurity has also worsened.

3. **The economic situation has stabilized over the course of 2023 due to the authorities' effort towards restoring fiscal and debt sustainability, bolstering growth prospects, curbing inflation, and buttressing financial sector stability.** The public finance outlook has improved due to (i) frontloaded fiscal consolidation measures, which have helped to improve the fiscal primary balance by over 4 percentage points of GDP in 2023 and it is on track to achieve a fiscal primary surplus of 0.5 percent of GDP in 2024⁴; (ii) the completion of domestic debt restructuring in 2023; (iii) an agreement in principle with Official Creditors in 2024 for the comprehensive restructuring under the G20 Common Framework in January 2024; and (iv) the completion of the First Review under the IMF's Extended Credit Facility (ECF) and the approval of the First Resilient Recovery Development Policy Financing (DPF-P180718) in January 2024. Despite the impact of ongoing fiscal consolidation and inflation on households purchasing power and investor confidence, growth in 2023 has proven resilient reaching 2.9 percent⁵. Similarly, inflation declined to 23.2 percent in December 2023⁶ from a peak of 54.1 percent in December 2022 due to the firm monetary policy stance of the Bank of Ghana (BOG).

¹ World Bank.

² World Bank and IMF joint Debt Sustainability Analysis.

³ World Bank.

⁴ IMF.

⁵ Ministry of Finance.

⁶ Bank of Ghana.



4. **Several downside risks weigh on economic recovery.** First, spending pressures prior to the elections in 2024 may affect the government’s resolve on fiscal discipline and macroeconomic recovery. Second, delays in the external debt restructuring process may increase the uncertainty surrounding the path to restore debt sustainability. Third, high non-performing loans may further constrain the banking sector’s ability to provide credit to the private sector and support economic recovery. Fourth, the higher-than-expected contingent liabilities from the energy sector could result in additional financing needs. Finally, a fraught global economic environment, marked by conflicts, subdued growth, elevated inflation pressures, and rising trade restrictions could have ripple effects on Ghana (and other developing countries), especially through its impact on commodity prices and flight-to-safety of financial capital..

B. Sectoral and Institutional Context

5. **Ghana has a high electricity access rate and significant excess generation capacity.** The electricity access rate⁷ was estimated at 88.8 percent, with an urban access rate of 95 percent. Ghana is committed to the Sustainable Development Goals (SDGs), of universal access to modern energy services by 2030. The targets for clean cooking include adoption of three million efficient biomass cookstoves, and 50 percent of liquified petroleum gas (LPG) access for cooking by 2030.

6. **Ghana was one of the first countries in Sub-Saharan Africa to unbundle its electricity sector and host independent power producers (IPPs).** Generation is owned by public utilities and IPPs, with the latter accounting for about 2,500 MW of installed generation capacity or 40 percent of the total installed capacity of 5,640 MW by end 2023. The transmission system (6,640 circuit km) is owned and operated by the state owned transmission utility Ghana Grid Company, Ltd. (GRIDCo) while power distribution is carried out by three utilities including the Electricity Company of Ghana (ECG) representing 4.7 million customers in the regulated market i.e. 88 percent of retail power sales in the southern and central parts of the country, the Northern Electricity Distribution Company (NEDCo) representing 10 percent of electricity sales in the northern distribution zone, and Enclave Power Company representing 2 percent of electricity sales in the industrial Tema free zone area. Ghana’s transmission network is interconnected with neighboring countries (Côte d’Ivoire, Togo, Benin, and Burkina Faso) and Ghana is a member of the West African Power Pool (WAPP – P178923)). In 2023, Ghana exported 2,527 GWh to neighboring countries, representing about 11 percent of total energy supplied. The Ministry of Energy (MoEn) is responsible for energy sector policy, while the Energy Commission (EC) and the Public Utilities Regulatory Commission (PURC) are the technical and economic regulators respectively.

7. **Ghana has excess generation capacity largely based on natural gas:** In response to the 2013-2016 “*dumsor*”⁸, non-competitive procurement of emergency power and IPPs were fast-tracked culminating in expensive excess thermal generation capacity.⁹ In the absence of a least-cost power sector plan during the 2012-2016 power crisis, the Government of Ghana (GoG) contracted three Emergency Power Producers (EPPs), and ECG signed power purchase agreements (PPAs) with independent power producers through direct negotiation at expensive prices and above the electricity demand needs of the country. This has resulted in an accumulation of excess thermal generation capacity estimated at about 851 MW by end 2022 with corresponding take-or-pay capacity charges not recognized in tariff determination and therefore an explicit liability for GoG to ensure the financial viability of the sector.

⁷ 2021 Population and Housing Census

⁸ Load shedding due to insufficient generation capacity.

⁹ Ghana has about 5,640 MW of installed power generation capacity comprising 66 percent natural gas-based thermal generation, 3 percent heavy fuel oil-based thermal generation, 28 percent hydropower, and 2 percent other renewable energy. Peak demand is, however, 3,618 MW (2023) (average annual growth of about 10 percent), thereby leading to excess generation capacity. In 2023 the total electricity generated was about 23,527 GWh (39 percent from hydropower, 60 percent from thermal generation and 1 percent from RE). In the last decade, the average annual growth rate in electricity was around 7 percent.



8. **Distribution losses have increased along with a low collection rate, and below cost recovery tariffs thereby undermining utility operational and financial performance:** Reducing system losses and increasing revenue collection will be key to improving the operational and financial performance of power sector utilities in Ghana. In 2022, total distribution losses of ECG were around 28.4 percent¹⁰ with revenue collection rates at 85.6 percent¹¹, and tariffs not covering the cost-of-service. These high losses, low collection rates and below cost-recovery tariffs have affected the financial performance of ECG and it is threatening ECG's commercial viability and the quality of service delivery. GoG's immediate priority is to reduce ECG's commercial losses and improve collection efficiency. The specific design of ECG's revenue protection program shall be improved under the Program for Results (PforR) with critical investments in ECG's commercial management system, and meter management system along with investments in new meters.

9. **The energy sector has become a fiscal burden costing the Government over 2 percent of GDP annually.** Since 2019, the direct subsidy requirement of the energy sector has been on average over US\$ 1 billion annually to balance electricity costs and revenues. The annual revenue shortfall for the power sector in 2023 was estimated at US\$1.3 billion (about 1.7 percent of GDP) and about half of the annual GoG budget spending on social sectors in that year, and it is projected to rise to US\$1.5 billion in 2027 (about 1.8 percent of GDP).¹² These large budget transfers are a source of debt vulnerability and macro-imbalance and these transfers could be reduced if the above structural issues in the energy sector were addressed substantively. Additionally, at the end of 2022, the accumulated power sector deficit was estimated at about US\$1,319 million.

10. **The current economic regulation of the power sector has improved in recent years with the approval of the Multi-Year Tariff Order (MYTO) along with its rate setting guidelines for tariff determination.** The PURC has moved to a MYTO regime for the regulated market, which can address and solve problems and limitations of prior regulations. This includes the definition and systematic application of methodologies and procedures for the determination of revenue requirements of natural gas and electric utilities. Incorporation of MYTO has also increased the predictability and stability of the framework for operation of regulated companies and private sector stakeholders.

11. **The Energy Sector Recovery Program (ESRP) adopted by the Cabinet of Ghana on May 9, 2019, is the GoG's roadmap to restore and sustain the financial viability of the sector.** In response to the above challenges, the Government approved the ESRP with key action items to restore the sector's financial sustainability by end 2023. The three primary objectives of the ESRP are: (i) full restoration of the financial viability of the sector; (ii) curtailment of further accumulation of sector arrears; and (iii) payment of outstanding (legacy) sector arrears. Under the ESRP, the GoG committed about 1 percent of GDP (around US\$0.7 billion) of fiscal revenues to close the projected financial gap in the sector. This also included the establishment of the Delta Fund that is financed through the new Energy Sector Recovery Levy that imposes 20 pesewas (about 3.5 US cents) per liter on petrol and diesel, generating about US\$120-150 million of revenues per year. It also earmarked US\$1 billion from the 2020 Eurobond issuance (ESLA bond) to lower IPP capacity charges under PPAs although these resources were used instead to fund priority financial obligations during the fiscal crisis.

12. **The ESRP actions resulted in the reduction of the energy sector¹³ shortfall, however the target of achieving financial equilibrium was not met.** Under the ESRP, the projected US\$14.3 billion sector shortfall (through end 2023 under a Business-as-Usual scenario) was reduced by US\$6.4 billion to US\$7.9 billion by year end 2023. In addition,

¹⁰ 2022 ECG Financial Statements (Draft)

¹¹ 2022 ECG MIS Data

¹² World Bank estimates

¹³ Refers to Gas and Power Sectors



while 18 of 30 ESRP action items (AIs) were completed, the implementation of the ESRP had suffered delays and the remaining 12 AIs were still under implementation by mid-2023. The ESRP was subsequently extended in June 2023 to December 31, 2025 with seven additional AIs for a total of 19 AIs to be implemented by the new closing date. The impact of the key ESRP actions would be a further reduction of the sector financial shortfall to US\$4.8 billion by end 2025 without Government transfers. With annual Government transfers of about US\$1 billion as agreed under the IMF ECF the same is expected to be reduced further to US\$1.6 billion by end 2025.

Clean Cooking

13. Despite Ghana's status as an emerging middle-income country, around 54.3 percent of its households still relied on solid biomass (31.1 percent rely on firewood while 23.2 percent rely on charcoal) in 2021, as primary fuel used in inefficient rudimentary stoves for cooking. This does not only accelerate deforestation, but it also causes high levels of indoor air pollution to which women and children are most exposed, while also putting women and girls at risk of danger and violence and increasing time poverty while performing fuel-collection tasks. This situation is a reflection of disproportionate inequalities in social standing, economic capability, gender roles and social norms that women often experience from a lack of clean cooking options. The Institute for Health Metrics and Evaluation and the World Bank estimate that more than 11,803 premature deaths that occur each year in Ghana are attributable to household air pollution, which corresponded to a total welfare loss estimated at about US\$3.4 billion per year in 2016.

14. GoG has been promoting the adoption of efficient biomass cookstoves and clean cooking fuels since the early 1990s, and is aiming to reach 50 percent LPG access by 2030. Currently, an estimated 36.9 percent of households have access to LPG – according to the 2021 population and housing census. Improving access to LPG and efficient biomass cookstoves is a priority of Ghana's Sustainable Energy for All (SEforALL) Country Action Plan (2012), Nationally Determined Contribution (NDC- 2015), Renewable Energy Master Plan (2019) and recent revisions to the National Energy Policy (2022). The Government has also introduced the Cylinder Recirculation Model (CRM), effective since 2020, for the marketing and distribution of LPG cylinders to complement its National LPG Promotion Program (NLPGPP). These interventions are expected to encourage private sector participation and investments in the market (on bottling plants, cylinder injection, cylinder exchange points, etc.) thereby increasing LPG accessibility, adoption and sustained use.

15. Although focusing on different energy types, the ESRP and NLPGPP are complementary efforts by the GoG to meet its ambitions on energy access for all by 2030. It demonstrates the government's commitment to tackling the clean cooking access challenge as part of its overall energy access agenda as opposed to delinking it from the broader energy sector policies and planning processes. The high impact SEforALL targets are to provide universal access to electricity for Ghana's island and riverside communities, to increase the productive use of electricity, and to provide universal access to Clean Cooking Solutions. Evidence from countries who have adopted LPG national policies shows that households where women participate in decision-making are more likely to adopt LPG for cooking than those households where men are the sole decision-makers.¹⁴

C. Relationship to the CPS/CPF and Rationale for Use of Instrument

16. This operation is fully aligned with the World Bank Group Country Partnership Framework (CPF) for the Republic

¹⁴ Gould CF, Urpelainen J. The Gendered Nature of Liquefied Petroleum Gas Stove Adoption and Use in Rural India. J Dev Stud. 2020;56(7):1309-1329. doi: 10.1080/00220388.2019.1657571. Epub 2019 Sep 12. PMID: 32508360; PMCID: PMC7274193.



of Ghana for the period of FY22-FY26.¹⁵ The priorities of the GoG are inspired by the 2017 “Ghana Beyond Aid” Vision and guided by the “Coordinated Program of Economic and Social Development Policies” 2017–2024 which focuses on reviving and strengthening manufacturing, improving the country’s energy sector, and promoting export. The proposed Program is aligned with the Focus area 1, Objective 1.3 of the World Bank Group CPF 2022-2026: Enhanced Operational Efficiency in the Energy Sector.

17. **This Program is consistent with the NDCs for Ghana.** According to the updated NDC (2021), Ghana sets its emissions reduction goal to unconditionally lower its Greenhouse Gas (GHG) emissions by 15 percent relative to a business-as-usual scenario emission of 73.95 MtCO₂e₂ by 2030. As part of the national strategy, Ghana has also developed 19 policy actions in 10 priority areas to achieve NDC’s goals in the next decade. This project will contribute to these policy actions by reducing GHG emissions, reducing electricity losses, promoting clean cooking solutions, and integrating smart metering in utility operations.

Rationale for the Use of Instrument

18. **The PforR is the most appropriate instrument for the proposed operation as it allows the World Bank to support the GoG within its own framework while creating the necessary time-bound financial incentives and technical support for results.** The PforR works complementary to the energy sector policy reforms being supported under the World Bank DPF series (First Resilient Recovery DPF (P180718) approved by World Bank Board in January 2024) and the IMF Program (ECF). Through the Disbursement Linked Indicators (DLIs), the PforR framework strengthens the focus on results especially in areas of institutional strengthening and accountability and provides financing directly to the energy sector entities for implementing complementary capital expenditure programs. The Program has the benefit of being integrated into established and comprehensive Government programs, i.e., the Energy Sector Recovery and National LPG Promotion Programs – which grants it the benefit of political ownership that is critical for power sector reforms and increase access to LPG for clean cooking. It also ensures a channeling of funds through a rule-based and transparent mechanism to ensure that the support goes to the energy sector. The Program also provides a very important layer of technical and financial support to ensure that reforms are sustained and achieve the intended outcomes.

19. **The operation also has an Investment Project Financing (IPF) component to provide the necessary investments for distribution utilities (ECG and NEDCo) to reduce their distribution losses and improve collections;** technical assistance (TA) will also be provided for preparation, and implementation support and capacity building to GoG stakeholders and the utilities. Investments under the IPF component are essential for meeting outcomes of the ESRP and the proposed PforR. First, the goods and services (especially advanced metering and other commercial IT systems) to be funded through the IPF component directly contribute to the improvement in operations of distribution utilities by reducing commercial losses, thereby increasing their revenues and contributing to a reduction in the power sector’s financial shortfall. Secondly, lessons from prior engagements in the region indicate that procurement with World Bank procedures would yield lower prices of goods and services compared to purchases made directly by the utility with their own funds and procedures. As a reference, prices of electricity consumer meters reported by ECG in procurement with its own funds are almost four times higher than the same items purchased under classic IPF arrangements with other utilities in the region. The Program design entails the procurement of meters using both the IPF and PforR funds. Given the urgent need for meter installation, a PforR advance shall be used for rapid procurement and deployment of meters using country systems. TA support will ensure that there is adequate capacity in ECG to implement the procurement of meters using lessons of best international experience to realize the benefits of transparency and

¹⁵ CPF report number 157249-GH.



competition under both the IPF and PforR components.

II. PROGRAM DESCRIPTION

A. Government Program

20. **GoG approved the ESRP in May 2019 to articulate the necessary actions to restore and sustain the financial viability of the energy sector.** Nineteen actions were identified by the ESRP to simultaneously reduce costs and increase revenues while improving the corporate governance of energy sector state owned enterprises (SOEs). In addition to the comprehensive suite of reforms and investments identified by the program, the ESRP also secured a commitment by the GoG to finance the annual sector revenue shortfall through stabilization payments from 2019 onwards until the sector is in financial equilibrium to prevent further accumulation of arrears. The ESRP was approved for the period 2019-2023 and it is now extended till December 31, 2025 (including updated action items and revised financial projections of the sector's revenue shortfall). The ESRP provides a high-level governance structure by bringing several stakeholders together, especially MoEn and Ministry of Finance (MoF) through the inter-ministerial Energy Sector Task Force to support energy sector reforms implementation. The ESRP also has beneficial impact for reducing the impact of climate change due to the emissions reductions of about 0.25 MtCO₂ for the period 2020-24 due to the phase out of liquid fuels for thermal generation and the increased efficiencies in generation and distribution.

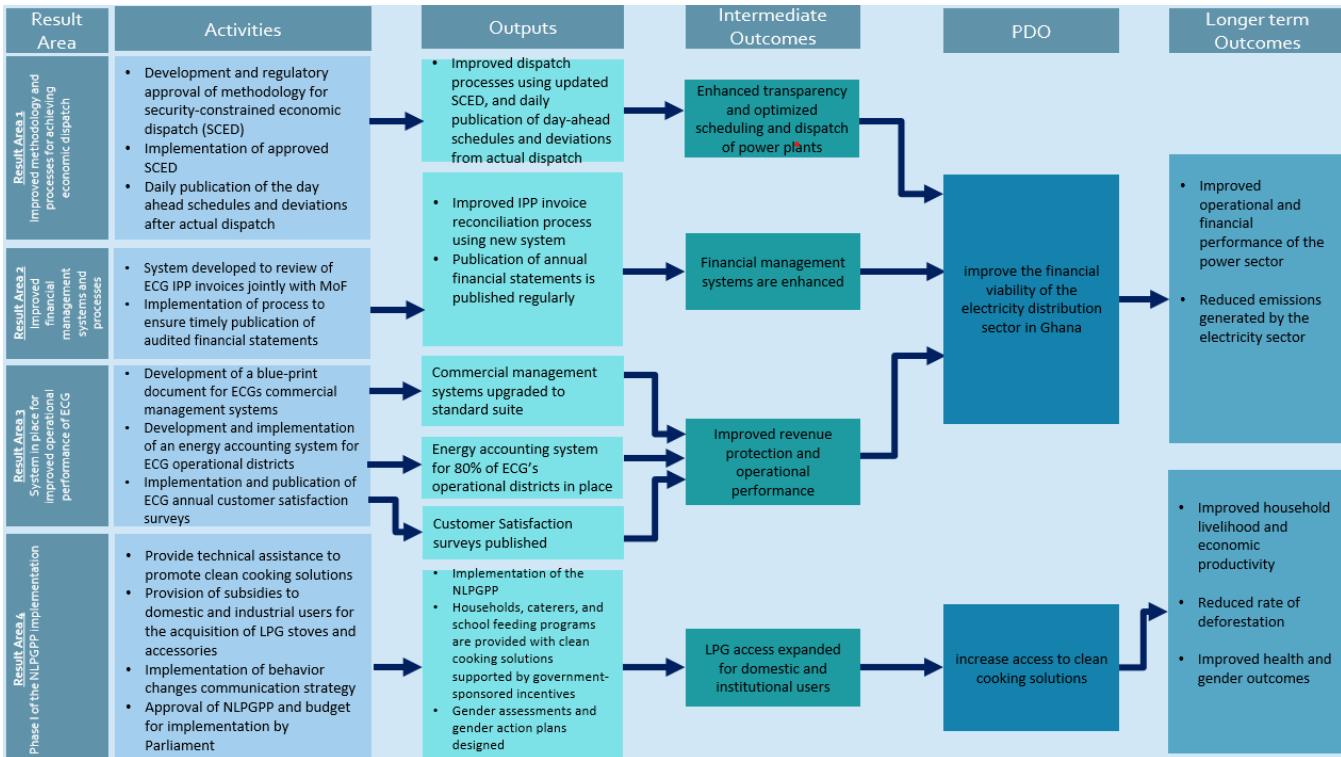
21. **The NLPGPP is aimed at promoting LPG for domestic, commercial, and industrial usage through interventions targeted at various users.** Its goal is to increase access to LPG as a clean and safe fuel for households, commercial caterers and for school feeding. The broad objective of the program is to increase the percentage of the population that have access to LPG for cooking from 36.9 percent in 2021 to 50 percent by 2030. The program is structured to be implemented in multiple phases over the period of 2022—2030. Under it, the GoG intends to provide subsidies to first-time users, incentives for stakeholders and investors and create the enabling environment for expanding access and the use of LPG (as primary fuel). The NLPGPP has been approved by the MoEn and subsequently captured in the GoG's 2022/2023 and 2023/2024 budget statement by the MoF, based on which the MoEn has, out of their Annual Budget Funding Amount committed a total of GHS 7 million funding for program implementation between 2022 and 2024. Over 26,000 LPG stoves have been distributed across multiple regions since 2022 under the program. An additional 40,000 LPG stoves are being procured for distribution in 2024. While MoEn plans to implement NLPGPP over several years. the first phase of the Program has the following objectives: (i) support 450,000 prospective households to acquire LPG stove-packs and (ii) support the acquisition of 7,000 LPG stove-packs for institutions and commercial caterers – including second cycle schools, and thereby increase access to clean cooking for about two million beneficiaries. The PforR will only extend support for the achievement of the domestic and commercial targets under Phase 1 of the NLPGPP.

B. Theory of Change

22. The following results chain demonstrates the link between the activities, including DLIs, intermediate result indicators, and the outcomes to be achieved under the Program.



Figure 1. Linkage of PforR support activities to outcomes and high-level objectives



C. PforR Program Scope

23. **The PforR Program is a subset of the Government’s ESRP program and Phase 1 of the NLPGPP, to reduce the power sector’s revenue gap.** The PforR Program’s scope is defined by the subset of activities of the ESRP aimed at (i) reducing costs of electricity purchases through improved economic dispatch, (ii) increasing revenue collection of the distribution utilities through supporting measures for reducing electricity losses; and (iii) improving the financial management system of ECG. Specifically, this includes initiatives for providing support to implementation of performance improvement programs (PIPs) of the distribution utilities and for improving functions of GRIDCo (both as a system operator and as a transmission asset owner).

24. **The Clean Cooking Component of the Program will support Phase 1 of the GoG’s NLPGPP to increase LPG access to the population for domestic and commercial usage.** The Program will give direct incentives to subsidize the cost of stoves and accessories (stove-packs) – excluding cylinders – for first-time domestic, commercial caterers and second-cycle schools in areas where the National Petroleum Authority’s coordinated CRM is rolled-out. Beneficiaries will obtain cylinders through bottling plants/LPG Marketing Companies to complement the use of their stove-packs received under the CRM. The MoEn will contract a number of Aggregator(s) who have the financial capacity to supply the stove-packs for their timely distribution and when tranche payments are received from the World Bank, the vendor(s) would be paid within a mutually agreed period. The overarching strategic document outlining GoG’s support to the Energy Sector under the NLPGPP is based on the MoEn’s Medium Term Expenditure Framework for 2022-2025. In addition, the Petroleum Sector Development Programme (PSDP) aims to formulate, monitor, and evaluate the implementation of policies related to the petroleum sub-sector. The Petroleum Directorate offers key services including the provision of policy direction to the sector agencies within the petroleum sub sector and promoting the use of modern forms of energy such as LPG and natural gas. The National LPG Promotion Program falls under this



PSDP.

25. The PforR Program shall have the following result areas:

a) Results Area #1: Reduced power system costs through economic dispatch

As power purchases constitute more than 80 percent of the costs of ECG, inefficient scheduling and dispatch of power plants leads to significant increase in costs, which are not passed through in tariffs (tariffs are already below cost of service provision). Further, according to the Ghana Grid code and also best practice, economic dispatch is managed by the power system operator, GRIDCo¹⁶. However, given non-standard PPAs signed by ECG and further modifications to the PPAs through negotiations, there is an opportunity to implement real time economic dispatch towards achieving cost savings. This result area includes Disbursement-Linked Results (DLRs) that incentivize a change in methodology for economic dispatch to (i) provide financial benefits of reduced costs by scheduling and dispatching cheaper generation plants; (ii) improve transparency in scheduling and dispatch, through public disclosures and increased regulatory oversight; and (iii) strengthen the role of various sector institutions involved in scheduling, dispatch and settlement systems. The funds allocated against the DLIs under this RA shall be used to finance critical transmission system elements which shall remove physical network constraints for achieving economic dispatch (see Annex 2). With the implementation of improved methodology for economic dispatch, the gas-based plants with better heat rate are expected to be dispatched more. Further, the reliance on liquid fuels (particularly heavy fuel oil [HFO]) is also expected to go down. Based on detailed system analysis (using hourly dispatch simulation for 2022), the estimated reduction in gas quantity from implementation of economic dispatch is around five million metric million British Thermal Units (MMBTUs) annually.

b) Results Area #2: Improved operational performance of ECG

This Results Area will support the urgent actions that ECG needs to implement to reduce commercial losses and increase collection efficiency required for financial turnaround. ECG bills over half of its customers on a post-paid basis, its collections from these customers are poor leading to an overall collection efficiency of only ~86 percent. Even though the other half of the consumers have prepaid meters, the meters are old (more than 15 years old) and have issues communicating to the Information and Communications Technology backend. As a key intervention, the Program (under both PforR and IPF components) shall support ECG in procuring and installing smart prepaid meters and upgrading the ICT backend (~1.1 million meters representing almost 25 percent of the customer base of ECG). ECG currently has a home-grown non-standard commercial management system with limited capability for generating meaningful management information systems (MIS) to identify areas with high losses or to run targeted revenue protection programs. The Program (under the IPF component) shall support ECG to improve its commercial management and information systems to ensure better revenue management. Further, the DLRs shall support ECG to generate energy accounting reports starting with regions and further refining them to districts to allow ECG to run targeted revenue protection programs. Lastly, the retail electricity tariffs have increased significantly by ~90 percent in Ghana since September 2022, however, it is not clear whether there has been a commensurate increase in quality of electricity supply and other commercial services that are being offered to the citizens. Thus, a DLR supports the very important aspect related to receiving customer feedback on services offered by ECG, and publication of the results by ECG on its website has a bearing on improving the quality and reliability of services offered through investments in network strengthening. The feedback will be disaggregated by gender, opening future opportunities for women to participate in decision making.¹⁷ The improvement of

¹⁶ Defined as ETU or Electricity transmission utility as per the grid code.

¹⁷ Feedback from women as decision makers on household electricity consumption, quality of service to improve decisions on quality and reliability of service, and grid densification and expansion.



ECG's operational performance will be measured through the result indicators of reduction in ECG's technical and commercial losses from the current 28.4 percent (2022) to 19.6 percent in 2027 and improvement in collection efficiency from 86 percent (2022) to 93 percent in 2027 (including both pre-paid and post-paid). More details of the interventions funded from the PIPs of ECG are in Annex 2.

c) Results Area #3: Improved financial management systems and processes at ECG

This Results Area will support the improvement of financial management systems and processes of ECG, to ensure timely publication of their Annual Report and audited Financial Statements. The audit of ECG's annual financial statements is conducted by an auditor appointed by the Auditor General which gets delayed (2021 and 2022 annual audited financial statements are still not published on ECG's website). Further, power purchases are the main cost of ECG (>80 percent), however, there is no system for systematically tracking the payments of invoices from power producers. The DLRs support timely completion of all activities required for publication of annual audited financial statements and implementing an IPP invoicing system.

d) Results Area #4: Increased access to clean cooking solutions

This Results Area will support the development of an enabling environment for cleaner cooking, through (i) policy, advocacy and regulatory development, (ii) business development support to Improved Cookstoves producers, (iii) improved data collection, (iv) improved stove testing services, and (v) consumer education and behavioral change communications. The RA will address the constraints to accelerating household (including female-headed households), commercial caterers' (including those run by women) and schools' access to clean cooking solutions, by providing partial funding to improve affordability of LPG stoves and accessories. This will impact firstly, through end-user cost savings from switching to LPG from charcoal and firewood. This would in turn lead to higher level impacts such as improved health, gender equality (reduction in women's time poverty, better economic opportunities, and reducing exposure to risks, including violence and health issues), climate and environmental benefits due to a reduction in time spent gathering biomass fuels, reduced exposure to cooking smoke and reduced deforestation from fuel harvesting as a result of displaced traditional cookstoves and use of polluting fuels. This DLI/ DLR will support the implementation of Phase 1 of the NLPGPP in areas across the country where the CRM is being rolled out, and it is expected to benefit 450,000 households by giving them access to LPG cookstove-packs, including a strategy to target female-headed households, women and women-owned businesses, reducing health issues and CO2 emissions. It will also benefit 7,000 commercial caterers (including secondary schools). The NLPGPP will provide 70 percent subsidy to the cost of the cookstove-packs (LPG cookstove and accessories). Support for cylinder acquisition will not be included in the scope of the DLR, as it will be covered under the CRM. In addition to areas where CRM is being rolled-out, the program will also be implemented in areas where low-risk LPG filling stations are situated – and will be progressively scaled-up nationwide as the CRM implementation expands. Selection of households and other beneficiaries (favoring women) will be based on Ghana Living Standards Survey/Population and Housing Census quintile of populations ready to switch from charcoal and firewood to LPG and based on guidance in the NLPGPP Operations Manual on gender and safeguard considerations.

26. IPF Component 1: Distribution Utilities' Commercial Loss Reduction Investments [IDA US\$90 million]

This component will finance priority investments defined in ECG's and NEDCo's PIPs aimed at the reduction of technical and commercial losses. Specifically, this component will finance:

- (a) the procurement and installation of smart pre-payment meters (along with associated software) [US\$62.5 million ECG; and US\$10 million NEDCo]
- (b) enhancement to meter management systems (existing systems deployed under MCC financing) [US\$5 million];



- (c) strengthening commercial information system (CIS) [US\$10 million];
- (d) Other associated ICT systems for improving operational efficiency of ECG [US\$2.5 million]

27. IPF Component 2: TA US\$19 million of which IDA US\$16 million and Energy Sector Management Assistance Program Clean Cooking Fund Trust Fund (ESMAP CCF TF) US\$3million¹⁸

This component will finance TA to support project implementation as well as the implementation of the ESRP and NLPGPP with the aim of filling the gaps identified in the technical, fiduciary and safeguards assessments of the Project. Specifically, the TA will support:

- (a) Activities to be implemented by ECG program implementation unit (IDA US\$6 million): Project Management Consultants for smart metering projects, ICT system strengthening, consumer indexing and asset mapping etc. US\$1.2 million of Project Preparation Advance shall be re-financed under this sub-component.
- (b) Activities implemented by MoEn US\$ 19 million of which IDA US\$16 million + ESMAP US\$3 million:
 - i. Operational support to the Program Coordination Unit (PCU), including financing operational costs as well as the costs of independent verification agencies.
 - ii. Support to GRIDCo for procuring and implementing software for economic dispatch and other associated systems including capacity building activities in the area etc.
 - iii. Consultancy services to (i) undertake key sectoral studies, and (ii) provide technical and transaction advisory support to ECG, PURC, State Interests and Governance Authority (SIGA), Energy Commission, GRIDCo and some other key sector and government entities.
 - iv. Consultancy services for supporting clean cooking activities including: (iii) Support key institutions such as MoEn, EC, NPA, Ghana Statistical Service (GSS), Ghana Alliance for Clean Cooking (GHACCO), KNUST-TCC and the Kintampo Health Research Centre (KHRC) on project coordination, clean cooking policy development, national data collection on cooking, promoting the National Clean Cooking Strategy and Investment Prospectus, deploying consumer education and behavior change communication strategies with a gender focus, give business development services to clean cooking enterprises through GHACCO, acquisition of International Standards Organization (ISO) certification for the KNUST-TCC Stove testing lab, and independent verification of deployed stove-packs.
 - v. Capacity building, including training and study tours for sectoral institutions such as MoEn, EC, PURC, GRIDCo, ECG, and others.
 - vi. US\$4.8 million of the Project Preparation Advance shall be re-financed under this sub-component

28. The Program focuses its support on the electricity sector, and on the main electricity distribution utility ECG, and some aspects remain outside of the Program boundary of the PforR. Some aspects not covered by the Program include: (i) gas sector shortfall, as over the last two years its share in the overall combined energy sector shortfall is less. Further, benefit from turnaround of the electricity sector would have a cascading benefit for the natural gas suppliers; (ii) negotiations with IPPs to reduce their costs will also contribute to the reduction of the financial shortfall, however, this is led by the Government, and it is outside the scope of the PforR; (iii) direct financing support from MoF for covering electricity sector shortfall to clear sector arrears; and (iv) regulatory actions for improving cost recovery of tariffs, as this aspect is covered as part of World Bank-financed DPF series (First Resilient Recovery DPF P18071 approved by the World Bank Board in January 2024) and IMF program leading to improved regulatory performance.

29. The Program will support a subset of the ESRP, excluding gas sector activities and the institutional framework of the energy sector, and Phase 1 of the NLPGPP related to the demand side of the LPG market for cooking. (see Table 1

¹⁸ including US\$ 6million Project Preparation Advance (PPA) that shall be re-financed under this component.

**Table 1: Government program supported by PforR**

	Government program	Program supported by the PforR (P)	Reasons for non-alignment
Objective	Improve the performance of the energy sector and increase access to clean cooking solutions	Improve the financial viability of the electricity distribution sector in Ghana; and increase access to clean cooking solutions.	The PforR Program will focus on the electricity sector and on the main distribution utility, ECG. This is because the Government has requested the World Bank's help with the electricity sector's financial recovery; given that ECG is the single-largest distribution utility in the sector where significant improvements are possible; and due to there having been a separate World Bank TA program supporting natural gas reform.
Duration	ESRP 2019-2025 NLPGPP 2022-2030	2024-2027	ESRP was extended till the end of 2025 in 2023, with the assumption that it may achieve its intended targets. However, given significant macro-economic pressures (Fx depreciation, high inflation), the sector turnaround is expected to take longer. Further, actions supported under the PforR Program for distribution utility turnaround are expected to achieve results over at least three years.
Geographic coverage	Nationwide	Nationwide	
Results areas	ESRP: 19 reform actions NLPGPP	RA1-3 RA4	The PforR represents only a part contribution to the Government programs, ESRP and NLPGPP, concentrating on actions to reduce the electricity sector's financial shortfall, improve stakeholder coordination and transparency, and increase access to clean cooking solutions.
Overall Financing	US\$ 4.7 billion covering: a) sector shortfall payments for 2023, 2024, 2025 (US\$3.4 billion) b) PIPs of ECG (US\$871m) c) GRIDCo's operational efficiency improvement (US\$197 million) d) US\$57m to support implementation of the NLPGPP (2022 - 2030) e) Other miscellaneous interventions (US\$17 million)	PforR Program (P) is US\$1,125 of which a) US\$ 871 million for PIP of ECG; b) US\$ 197 million for GRIDCo's operational efficiency improvement c) US\$57 million to support implementation of the NLPGPP	The Program boundary shall be (a) the PIPs of ECG, (b) operational efficiency of GRIDCo (including dispatch efficiency); and (c) implementation of NLPGPP. Payments of energy sector shortfalls shall be excluded from the PforR boundary. Further, for Clean Cooking, the PforR will focus only on stoves and accessories for households and commercial caterers but not cylinders. This is because the cylinders will be handled by the private sector/Liquified Petroleum Gas Marketing Companies (LPGMCs) under the CRM. World Bank Financing of the "PforR Program (P)" is US\$151 million split as US\$144 million IDA + US\$7 million ESMAP (US\$84 million under (a), US\$50 million under (b) and US\$17 million under (c)). This excludes the IPF component cost {US\$109 million which is US\$106 million (IDA) + US\$3 million (ESMAP)}.



Program Financing

30. The total PforR Program financing is US\$1,125 million. Table 2 provides a breakdown of the source of financing for the Program. In addition, there is IPF component in the amount of US\$109 million of which US\$106 million from IDA and US\$3 million from ESMAP. The ESMAP CCF is a Trust Fund that is managed by the World Bank and it will be jointly disbursed with IDA under DLI7 for Clean Cooking and the TA activities corresponding to the implementation of the Clean Cooking components.

Table 2: Program Financing (excluding IPF)

Source	Amount US\$ millions	% of Total
Government	974.00	86.6%
IDA	144.00	12.8%
ESMAP CCF	7.00	0.6%
Total Program Financing	1,125.00	100.0%

D. Program Development Objective(s) (PDO) And PDO Level Results Indicators

31. The Program’s Development Objective (PDO) is to improve the financial viability of the electricity distribution sector in Ghana and to increase access to clean cooking solutions.

32. The following outcome indicators will be used to measure achievement of the PDOs:

- (a) PDO Indicator 1: Financial losses¹⁹ of distribution utilities ECG and NEDCo (US\$ million);
- (b) PDO Indicator 2: ECG Cash Recovery Index (Percentage)²⁰;
- (c) PDO Indicator 3: People provided with clean cooking solutions under the Program (Number) disaggregated by gender (Percentage of women)

E. Disbursement Linked Indicators and Verification Protocols

33. **PforR funding will be disbursed in accordance with DLIs across four Results Areas.** These indicators provide measurable and verifiable assessment of the results areas which would be monitored and verified by an Independent Verification Agency (IVA).

Table 3: DLIs/DLRs

	Results Areas	DLIs	DLRs Year 1 June 30, 2025	DLRs Year 2 June 30, 2026	DLRs Year 3 June 30, 2027
1	Reduced power system costs through economic dispatch	DLI 1: Improved methodology and processes for achieving economic dispatch	GRIDCo has submitted to the Energy Commission the methodology for implementing updated security constrained economic dispatch (SCED) and settlement system taking into consideration the technical and commercial constraints	GRIDCo has received regulatory approval and has implemented an updated SCED and settlement system, including publishing the day ahead schedules, actual dispatch, and deviations (and the	GRIDCo has continued with the implementation of an updated SCED and settlement system, including publishing the day ahead schedules, actual dispatch, and deviations (and the reasons thereof) for the past 24 months.

¹⁹ Excluding operating subsidies. Measured as operating losses (on billed revenue basis minus operating costs and excluding government operating subsidies)

²⁰ ECG Cash Recovery Index (CRI) is a ratio that combines the billing rate (BR) and collection rate (CR) of the utility (CRI = BR x CR calculated annually).



Results Areas	DLIs	DLRs Year 1 June 30, 2025	DLRs Year 2 June 30, 2026	DLRs Year 3 June 30, 2027	
			reasons thereof) for the past 12 months		
	Allocations (US\$50 million)	US\$20 million	US\$20 million	US\$10 million	
2	Improved operational performance of ECG	DLI 2: ECG has improved its collection efficiency	ECG has improved its collection efficiency to 88%.	ECG has improved its collection efficiency to 90%.	ECG has improved its collection efficiency to 93%.
		Allocations (US\$35 million)	US\$10 million	US\$10 million	US\$15 million
		DLI 3: ECG has implemented an energy accounting system	ECG has implemented an energy accounting system for each region and [20%] of the districts in the selected regions and has published the results on their website at the end of each quarter for CY24 [timebound]	ECG has implemented an energy accounting system for each region and [100%] of the districts in the selected regions and has published the results on their website at the end of each quarter for CY25 [timebound]	ECG has implemented an energy accounting system for each region and [100%] of the districts in the selected regions and has published the results on their website at the end of each quarter for CY26 [timebound]
		Allocations (US\$20 million)	US\$5 million	US\$7.5 million	US\$7.5 million
		DLI 4: Improvement in customer services offered by ECG	ECG has published the gender-disaggregated results of annual customer satisfaction surveys	ECG has published the gender-disaggregated results of annual customer satisfaction surveys	ECG has published the gender-disaggregated results of annual customer satisfaction surveys
		Allocations (US\$8 million)	US\$3.5 million	US\$2.5 million	US\$2 million
3	Improved financial management systems and processes at ECG	DLI 5: Improved financial management systems and processes	ECG has published annual audited financial statements by September 30, 2024 for CY2023 [timebound] .	ECG has published annual audited financial statements, including disclosures on financial set-offs against payments received from MoF, and details on power purchase costs by September 30, 2025 for CY2024 [timebound]	ECG has published annual audited financial statements, including disclosures on financial set-offs against payments received from MoF and details on power purchase costs, by June 30, 2026 for CY2025 [timebound] .
		Allocations (US\$15 million)	US\$5 million	US\$5 million	US\$5 million
		DLI 6: Improved system for managing IPP invoices			ECG has implemented a power producers (IPP+VRA) invoicing system integrated with ECG's financial management system.
		Allocations (US\$6 million)			US\$6 million
4	Increased access to clean cooking solutions	DLI 7: Phase I of the NLPGPP implemented	NLPGPP distributes 182,801 stove packs to caterers, schools, and households.	NLPGPP distributes 457,000 stove packs to caterers, schools, and households (cumulative)	
		Allocations (US\$17 million)	US\$7 million	US\$10 million	



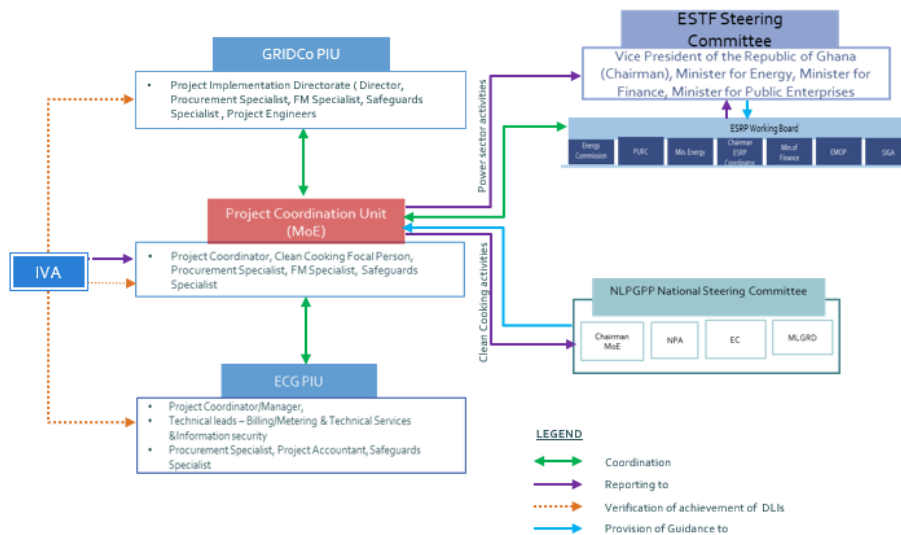
III. PROGRAM IMPLEMENTATION

A. Institutional and Implementation Arrangements

34. The ESRP Inter Ministerial Task Force (ESTF) provides political ownership at the highest level and oversight for the duration of the ESRP implementation. The ESTF is chaired by the Vice President and its members are MoEn, MoF and Minister for Public Enterprises. The ESRP Working Group Board is responsible for the implementation, monitoring and evaluation of the ESRP. It is also responsible for conducting the required analytical work to update the ESRP and coordinate the necessary reporting to the ESTF.

35. The NLPGPP is led by the Ministry of Energy and the key stakeholders are National Petroleum Authority (NPA) (in charge of the CRM), EC and the Ministry of Local Government, Decentralisation and Rural Development (MLGDRD) that provide support with local authorities. The implementation of the NLPGPP is overseen by a National Steering Committee, chaired by the Chief Director and its members include NPA, EC, and MLGDRD.

Figure 2. The PforR within the ESRP and NLPGPP organization structure



36. **PforR Implementing Arrangements.** A PCU has been established at MoEn and is made up of a Coordinator, and Monitoring and Evaluation (M&E) specialist, fiduciary and safeguards experts, as well as a clean cooking focal person. The MoEn PCU is responsible for the overall coordination and implementation of the Program; and for the verification of results of the DLIs for ECG, GRIDCo and MoEn with the support of IVAs. A program implementation unit has also been setup in GRIDCo and in ECG, comprising of staff of the entities to undertake the implementation of their respective activities under the Program. These Program Implementation Units (PIUs) within GRIDCo and ECG are headed by steering committees with oversight responsibility of the activities under the Program. The PCU will coordinate with the respective PIUs and report on the overall progress of the Program to the ESTF and the NLPGPP National Steering Committee.

37. **IPF Implementing Arrangements.** The IPF Component 1 will finance ECG investments and will be implemented by ECG’s PIU and ECG will be the implementing agency that is responsible for the management of funds, as well as for the procurement and installation of the equipment, and for management of environmental and social risks. A dedicated project coordinator, procurement specialist, safeguards specialist, and Financial Management (FM)



specialist will be part of the PIU at ECG. ECG will procure on behalf of NEDCo, pre-payment meters for non-strategic MDAs in NEDCo’s area. An implementation agreement between ECG and NEDCo will be signed to ensure that the activity is executed satisfactorily. No operating costs shall be funded under IPF component 1. The IPF component 2 shall provide TA support through consultancy, operational costs and capacity building activities for selected institutions for clean cooking. This IPF component will be implemented by the ECG PIU, and MoEn PCU. Lastly, under the IPF component 2, ECG shall appoint a project management consultant for monitoring and reporting on smart metering projects to be implemented under the IPF component and PforR.

38. **Project Preparation Advance.** A Project Preparation Advance in the amount of US\$ 6 million has been approved to enable critical capacity building and technical workstreams to be undertaken to support preparation activities.

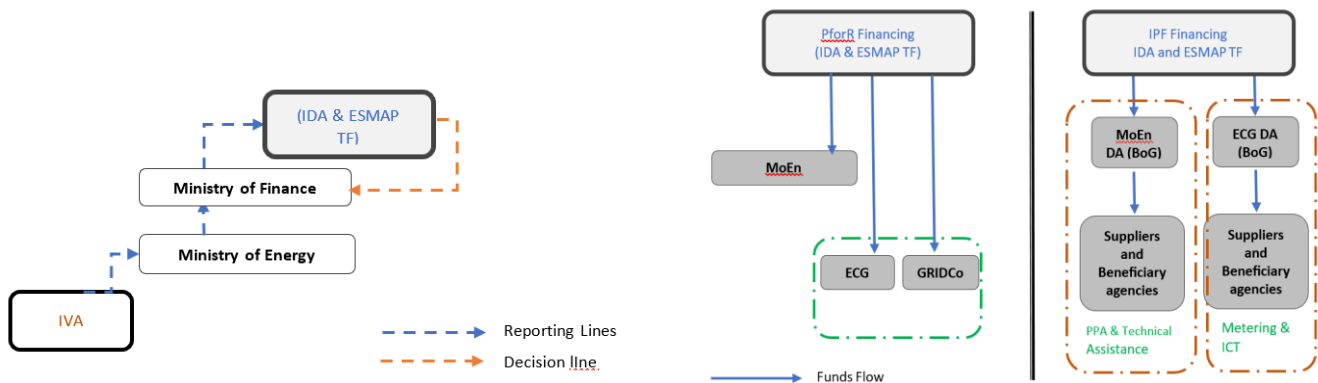
B. Results Monitoring and Evaluation

39. The MoEn PCU will have the primary responsibility for monitoring and evaluation of the MoEn PforR components while the ECG PIU and the GRIDCo PIU will monitor the ECG and GRIDCo PforR activities respectively. The results framework that is being established as part of the PforR will complement and serve as a basis for establishing the tracking framework for the related ESRP and NLPGPP action items as well as building monitoring and evaluation capacity within the ESRP Working Group that will provide oversight and monitor progress toward the achievement of PforR indicator targets. The Program will support the strengthening of the monitoring and evaluation capacity of the ESRP Working Group and the hiring of a dedicated M&E specialist to track the achievement of results over time. The MoEn PCU will hire an IVA for the clean cooking component partly under the Project Preparation Advance and IPF components, and a separate IVA for the energy sector recovery related DLIs, with terms of reference (ToR) acceptable to the World Bank, to verify the achievement of DLI results. The IVA(s) will be financed by the TA Component of the operation following the World Bank’s procurement procedures. The IVA(s) will be contracted within three months of effectiveness of the PforR’s financing agreement. The scope and details of the IVA(s) reports will need to be satisfactory to the World Bank. Further, a subsidiary agreement shall be signed between Government of Ghana and ECG and GRIDCo to clarify the on-lending terms, expected to be similar to the ones in the financing agreement.

C. Disbursement Arrangements

40. For the PforR component, the financing proceeds will be disbursed when the disbursement-linked results have been achieved and verified. The steps for confirming the achieved results are depicted below and will be further detailed in the operations manual.

Figure 3 Results Verification Structure and Fund flow (PforR and IPF)





Disbursements – PforR

- (a) Once the World Bank accepts the notification letter, MoF, through each implementing agency, will initiate a withdrawal application to request funds tied to the DLRs. The World Bank decision letter must be attached to the withdrawal application.
- (b) Withdrawal applications can be submitted after loan effectiveness and should be made electronically through client connection.
- (c) MoF shall share all receiving bank account details with the World Bank after signing, ahead of achieving the DLRs. The advances for the Program shall be limited to 25 percent of the total PforR Component and shall be disbursed to MoEn’s bank account, and MoEn shall promptly (within seven business days) disburse a part of this amount to ECG and GRIDCo, based on the proportion of the amount allocated to the respective DLIs. Each subsequent disbursement, upon achievement of DLRs, shall be made to ECG, GRIDCo, and MoEn after recouping for the advance disbursed to each entity.

Disbursements - IPF

- (d) Disbursements under the IPF component will be made primarily as advances for eligible expenditures, with Interim Financial Reports (IFRs) to be submitted quarterly. The IFRs will serve as the basis for withdrawals from the World Bank. To draw down funds, the key Implementing Agencies (IAs) will be required to share an approved Annual Work Plan and Budget (AWPB) for the World Bank’s no objection. The ceiling will be the expenditure forecast for six = months. MoEn and ECG are each required to open one US\$ Designated Account (DA) to receive funds from World Bank and one Ghana Cedi operational account to draw down funds from the US\$ DA for operational expenditures. Both accounts shall be opened at the BOG and should be for project activities only. Once the Bank accounts are opened, MoF is required to formally notify WB about the Bank US\$ account name, number, and other relevant details to be set up in World Bank’s client connection system. The notification should include the details of all signatories on the account.

D. Capacity Building

41. Capacity building and institutional strengthening at key sector agencies are important parts of the Program and will be delivered through IPF Component 2. All activities will consider the inclusion of women at different levels.

IV. ASSESSMENT SUMMARY

A. Technical (including program economic evaluation)

42. **The PforR Program is technically sound and aligned with the proposed actions and activities of the ESRP and NLPGPP.** Specifically, the Program supports the following key components of the ESRP: (i) reduction of the power sector revenue shortfall (through reduction in cost of power purchases as a result of economic dispatch); (ii) commercial and operational performance improvement of the main distribution utility, ECG, including reduction of electricity losses; and (iii) improvement in transparency and stakeholder co-ordination towards improved power sector health. In addition to the various sector level reform actions, the Program includes an investment component (IPF) for some distribution utility-focused actions that are targeted at ECG and NEDCo. The Program also supports implementation of the NLPGPP to increase the use of LPG for cooking – towards the achievement of the 50 percent LPG access goal by 2030.

41. **The PforR will provide complementary efforts to reforms supported under the World Bank supported DPF and IMF program:** The World Bank-financed DPF has an energy pillar that focuses on (i) clearing legacy sector arrears (ii) implementing the cash waterfall mechanism; (iii) mandating competition for all new generation; and (iv) promoting the application of the tariff methodology that includes a glide path towards cost reflectiveness. Together with



regulatory and policy reforms under the DPF, the PforR supports critical elements for sector operational and financial recovery including the realizing of efficiency gains from economic dispatch and lower technical and commercial losses of ECG.

Program Expenditure Framework

43. **The overarching strategic documents outlining GoG’s support under its program are the ESRP (2019-2025) and the Ministry of Energy’s Medium Term Expenditure Framework.** The Government’s ESRP program includes among many action items, financing of (i) power sector revenue shortfall through fiscal transfers until the sector reaches financial equilibrium, (ii) PIPs for the sector’s SoEs, in particular the distribution utilities ECG, and NEDCo; (iii) activities for improving the operational efficiency of GRIDCo; and (iv) technical studies and activities for reforms related to improving policy, regulations, audits, and the use of a cash-waterfall mechanism. The PforR component of the Program funds a slice of the ESRP expenditure framework, including a portion of PIPs for ECG, and activities for operational efficiency improvement for GRIDCo as mentioned below.

44. **The total government program costs amount to approximately US\$4.7 billion.** The PforR Program boundary is part of the extended ESRP Action Items (AIs) which amount to approximately US\$1.125 billion²¹. Total World Bank Program funds amount to US\$151 million, made up of an IDA credit of US\$144 million and a TF of US\$7 million from the ESMAP CCF TF. PforR proceeds will be disbursed upon verification of the achieved results by the IVA to be procured by the MoEn PCU and after approval by the World Bank Country Director.

45. The table below summarizes the Program Expenditure Framework under the ESRP and the NLPGPP programs.

Table 4: Program Expenditure Framework

Item No.	Extended ESRP Action Items	US\$ million est.					Of which World Bank Funding	World Bank%
		MoEn	ECG	GRIDCO	PforR Program (P)			
PforR								
ESRP ¹ 6.1.11	Reduce transmission losses and improve operational performance. <i>Support to GRIDCo relating to (i) strengthening of a critical transmission line to remove constraints of economic dispatch; (ii) implementing SCED</i>			197	197	50 (IDA)	25.4%	
ESRP ¹ 6.1.12	Implement PIPs to reduce distribution losses and increase collection efficiency. <i>Part of PIPs of ECG related to: (i) consumer smart metering (ii) upgrade of commercial management systems (iii) Distribution system strengthening works (iv) ICT systems</i>		871		871	84 (IDA)	9.6%	
NLPGPP ²	Clean Cooking (MoEn medium term expenditure framework)	57			57	17 (10 IDA + 7 ESMAP)	29.8%	
Sub Total					1,125	151		
IPF								
	Metering and ICT investments					90 (IDA)		
	Project Preparation Advance					6 (IDA)		

²¹ Energy Sector Recovery Programme (ESRP) Document | Ministry of Finance | Ghana (mofep.gov.gh)



	TA					10 (IDA)	
	Clean cooking					3 (ESMAP)	
Sub Total						109	
Total						260	

46. The ESRP addendum for extension through December 31, 2025 was issued in June 2023 and covers 19 AIs to be implemented during this period. Of the 19 AIs, only two were included in the Program Expenditure Framework (PEF), specifically, sections 6.1.11 and 6.1.12 of the 2023 ESRP addendum. It is expected that the ESRP will be extended to enable sufficient time to be dedicated for the achievement of ESRP Action Items. The same will be monitored through introduction of a Program Action Plan (PAP) on extension of ESRP by mid-2025.

47. The National LPGPP falls under sub-program 3.2 of the Petroleum Sector Development Programme. The overall objective of the NLPGPP is to ensure access to LPG as a cleaner, safer, and healthier cooking fuel to improve the health and lives of people while creating jobs. The Government in 2017 introduced the National LPG Promotion Policy intending to ensure that at least 50 percent of Ghanaians have access to safe, clean and environmentally friendly LPG for increased domestic, commercial and industrial usage by 2030.²²

Economic Analysis

48. **The economic analysis follows a standard cost-benefit framework, which compares the present value of incurred costs to the stream of attributable benefits.** The direct economic benefits of the Program identified include: (i) technical loss reduction at transmission company due to investments to remove constraints (ii) significant economic benefits from implementing economic dispatch, (iii) technical loss reduction at ECG due to implementation of system strengthening works as part of PIP (iv) household savings from reduced expenditures on cooking fuels and (v) reduced carbon emissions. The commercial loss reduction from ECG and NEDCo, which is the key objective of the Program, has two competing economic effects, with overall positive economic benefits:

- (a) a negative economic benefit because of welfare loss due to lower consumption of electricity (as an immediate response to revenue protection program), which is to an extent balanced by lower production of electricity.
- (b) a positive economic benefit because continued commercial losses would lead to the counterfactual that the power plants shall no longer be able to continue supplying power to ECG, due to very high-power purchase dues, and fiscal constraints on national budget (including hard budget constraints introduced by GoG under the IMF program). The model simulates one key generator outage, leading to loss of service delivery, and consumers substituting grid power (limited to the generator’s contribution to the peak) with more costly coping mechanisms such as diesel gen-sets.

49. **The analysis shows that the Program is economically viable with a Net Present Value (NPV) of US\$293 million at a 10 percent discount rate and EIRR of 16 percent.** The NPV of the Program increases to US\$457 million with an EIRR of 20 percent with climate benefits under the low-price scenario of carbon prices. Detailed analysis is presented in Annex 2. The estimated economic cost of the Program is US\$1,085 million which comprises of results-based financing for the Program including the cost of the revenue protection programs, the operations and maintenance costs of investments, the costs of cookstoves, and associated accessories as well as the cost of LPG for the cookstoves.

Energy Sector Financial Analysis

50. **The financial performance of the electricity sector in Ghana is currently weak.** Both ECG and NEDCo have been running an operating deficit and are dependent on government subsidies to cover their operating losses and

²² GoG NLPGPP paper



investment expenditures. Despite government support, the two utilities have experienced payment arrears which for ECG reached US\$2,422.69 million, and for NEDCo, US\$277.83 million at the end of 2022 (sector's accumulated deficit had reached US\$1.319 billion²³ by the end of 2022). These sector deficits have been partially subsidized by MoF, with the annual budget transfer to the energy sector amounting to US\$680 million in 2022, and US\$798 million in 2023. ECG's cost of supply from 2020 to 2022 was approximately US¢ 13.4/kWh (equivalent to GHS1.04/kWh). During this period, approximately 46 percent of the cost was recovered through energy sales, with an average revenue per unit sold of US¢ 6.2/kWh (equivalent to GHS 0.45/kWh)²⁴. The distribution losses for ECG were 28.4 percent and 27 percent for NEDCo, while the collection losses were 14.4 percent for ECG and 13 percent for NEDCo. Also, in comparison with other IPPs in the region, such as those in Nigeria, where the average PPA price for gas-fired thermal power plants is US¢7.3/kWh²⁵, most IPPs in Ghana have PPAs priced higher than this average, with gas-fired thermal power averaging US¢12.35/kWh²⁶. The commercial regulator, PURC, has not allowed for the addition of these costs in the annual revenue requirement submission of the utilities (excess IPP capacity charges) which has contributed to the annual power sector shortfalls. The financial turnaround of the sector during the ESRP implementation period will be determined by executing key ESRP actions to reduce sector costs while increasing revenues—through the availability of lower-cost generation options (PPA renegotiations), utility efficiency improvements, and tariff adjustments. With the implementation of overall ESRP actions, power sector shortfalls are expected to be reduced to US\$1.03 billion in 2024 and by US\$886 million in 2027.

Table 5. Power Sector Revenue Shortfall 2022-2025 and the Savings Resulting from ESRP Actions

Ghana Energy Sector Shortfall (US\$ million)	2022	2023	2024	2025	2026	2027	Cumulative 22'-27'
Power Sector Shortfall (Business as Usual)		(1,337)	(1,311)	(1,457)	(1,514)	(1,545)	(7,163)
Reduction of PPA costs			21	27	28	28	104
Reduction of system and collection losses			76	139	181	223	620
Quarterly tariff adjustment in line with inflation and FX			121	234	291	353	999
Implementation of tariff for public lighting			62	57	56	55	231
Resulting Power Sector Shortfall		(1,337)	(1,031)	(999)	(957)	(886)	(5,210)
GoG budget transfers to the sector		798					798
Power sector legacy debt – end of 2022	(1,319)						(1,319)
IPP Discount on Legacy Debt	92						92
Revised Power Sector Shortfall (after all ESRP Interventions)	(1,227)	(538)	(1,031)	(999)	(957)	(886)	(5,639)
<i>Gas sector shortfall (Business as Usual)</i>		(138)	(29)	(238)	(109)	(113)	(628)
Total Energy Sector Arrears	(1,227)	(677)	(1,060)	(1,238)	(1,066)	(1,000)	(6,267)
Business As Usual (BAU) Cumulative Energy Sector Arrears	(1,227)	(1,904)	(3,244)	(4,939)	(6,562)	(8,221)	(8,221)

51. **This Program is aligned with the mitigation and adaptation goals of the Paris Agreement.** On mitigation the project under Results Area 1-3, will not contribute to significant GHG emissions and will help to improve the financial viability of ECG. None of these areas will contribute to GHG emissions. Result Area 1 will reduce GHG emissions by lowering the use of gas and liquid fuels through efficient real-time economic dispatch of generation plants. Result

²³ Deloitte 2022 Legacy Debt Validation Report for MoF (excluding components of Bulk Oil Storage and Transportation Company, and Tema Oil Refinery, which serve the downstream petroleum market).

²⁴ May 2023 ESRP working group's financial model submission.

²⁵ 2018-2020 Nigerian Bulk Electricity Trading company invoice and payment.

²⁶ May 2023 ESRP working group's financial model submission.



Area 4 – increased access to clean cooking will help to reduce carbon dioxide emissions and mitigate deforestation. The promotion of non-piped/standalone LPG cooking solutions under the project, aligns with the WBG’s Climate Change Action Plan (2021–2025) – and will advance the Bank’s Green, Resilient, and Inclusive Development (GRID) approach, which pursues poverty eradication and shared prosperity with a sustainability lens. It aligns IDA financing with the Paris Agreement and provides a chance to reduce climate impacts, support low-carbon pathways and help avoid carbon lock-in, in Ghana. The IPF component in this project will enable smart metering and reduce technical and commercial losses, which under the sectoral technical note is not inconsistent with the country’s climate commitments. The Program does not face any serious climate change risks and hazards²⁷, like river, urban, and coastal flooding, water scarcity, extreme heat and wildfires²⁸ and any potential residual risk from climate change in this Program has been minimized and falls under the acceptable threshold level.

52. Maximizing Finance for Development: The operation supports Maximizing Finance for Development by unlocking investments by beneficiaries and most importantly, private sector actors like the LPG Marketing Companies (LPGMCs), to overcome (i) the initial investment challenges mostly faced by end-user who desire to switch to LPG use – thereby ensuring increased access to clean cooking solutions, and (ii) challenges around demand creation thus allowing the private sector entities (LPGMCs) viable business model for investing in LPG cylinders.

B. Fiduciary

53. The fiduciary functions will rely on the existing structures and systems of MoEn, ECG and GRIDCo and the assessments were conducted using information from past and ongoing World Bank-financed projects. The PforR FM assessment feeds into the detailed integrated Fiduciary Systems Assessment (FSA). Findings from the IPF assessment are included in Annex 7.

54. Overall, the assessment of MoEn, ECG and GRIDCo’s control environment indicates that the residual fiduciary risk of the Program is Substantial, after considering mitigation measures. The key strength is that there is a foundation for a strong legal and regulatory framework for Public Financial Management (PFM) in Ghana and this is exemplified by the various laws, regulations, and manuals already in place, for example, the Public Financial Management Act (PFMA), 2016 (Act 921) and the Public Financial Management Regulations, 2019 (L.I. 2378). In addition, the implementing agencies have experience working on World Bank-financed projects and have a pool of skilled and Chartered Accountants to prepare and report on project financial transactions.

55. There is reasonable assurance on the adequacy of the existing country procurement systems and contract management capacity of the IAs. PforR procurements for MoEn, ECG and GRIDCo, will follow the Public Procurement Act, 2003 (Act 663) as amended (Act 914), the “Guidelines on Preventing and Combating Fraud and Corruption in PforR Financing”, dated February 1, 2012 and revised July 10, 2015, and other provisions stipulated in the Financing Agreements. In addition to the above, the IPF components will follow Bank’s “Procurement Regulations for IPF Borrowers”, dated September 2023, and “Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants”, dated October 15, 2006 and revised in January 2011 and as of July 1, 2016”. The Procurement Plan will be prepared in the Systematic Tracking of Exchanges in Procurement (STEP) tool, based on the latest Project Procurement Strategy for Development (PPSD). MoEn, ECG, and GridCo and will each undertake their respective procurements using country Procurement Systems and laws. The FSA, summary is attached as Annex 3. All IAs are declared public entities and have in place the required procurement structures to execute the procurement activities under the PforR. Furthermore, the procurement activities under the program will be

²⁷ See Climate Annex 9 for more details and mitigation and resilience measurements.

²⁸ <https://thinkhazard.org/en/report/94-ghana>



undertaken using Ghana electronic procurement platform GHANEPS which is now mandatory for the conduct of all government procurements. For data analytics, GHANEPS would be used to generate periodic performance and related reports to be used for Program implementation support by the World Bank.

56. The identified reasonable assurance on the adequacy of the existing country procurement systems and contract management capacity of the IAs procurement risks associated with the PforR component are; (i) World Bank debarred entities being awarded contracts under the Program (ii) inflation and Cedi depreciation; (iii) Entity Tender Committee (ETC)/ Central Tender Review Committee (CTRC) approval delays; (iv) internal bureaucracy and contract administration challenges; and (v) perceived governance risks associated with conflict of interest, as well as fraud and corruption. The proposed mitigation measures are: (i) bidders under the Program must be screened against the World Bank debarred website, (ii) introduction of price adjustment formula, on a case-by-case basis, for contract with duration more than six months; (iii) proposed IAs required to review their procurement processes to improve the turnaround time especially ETC/CTRC approvals. (iv) contract Management Training by the World Bank team and (v) stakeholder engagements and regular progress reporting on the Program to assist manage the internal bureaucracy and contract administration challenges. and (vi) proper procurement planning and use of open competition.

57. FM arrangements for MoEn will follow the Public Financial Management Act (PFMA), 2016 (Act 921), Audit Service Act, 2000 (Act 584), while ECG and GRIDCo will follow the PFM Regulations 2019, (L.I 2378), aspects of the PFM Act 2016 (Act 921) relating to SoEs and the SIGA Act 2019 (Act 990), and other provisions stipulated in the Financing Agreements. In addition to the above, the IPF components will follow Bank Policy on IPF dated December 2021, and Directives on IPF dated March 2023.

58. FM risks identified include (i) the timing and sufficiency of budget releases; (ii) processing of commitments and payments outside of the Ghana Integrated Financial Management Information System (GIFMIS); (iii) weak control environments due to delays in addressing internal control weaknesses reported by the external and internal auditors; and (iv) lower than reasonable assurance derived from the external audit due to a perceived lack of independence of the Auditor General. To minimize risks around delays in budget releases, under the ESRP, the Government has included provision of revenues to close the projected financial gap in the sector, establishing the Delta Fund which generates about US\$120-150 million of revenues per year and direct budget transfers of US\$1 billion on average since 2019. MoEn will be required to generate all payments in GIFMIS, as highlighted in the PFM Act 2016, (Act 921) and also in the Program papers, all implementing agencies are required to prepare risk-based internal audit plans for the Program to be approved by a) the Audit Committees of the three IAs, and b) the World Bank and the MoEn is required to submit a Program consolidated audited report yearly, that includes transactions from all three IAs.

59. FM risks for the IPF components include the delayed submission of AWPBs, IFRs, ECG audited financial statements, and disruptions to financial reporting due to potential issues from the newly installed SAP system at ECG. To manage the risk of delayed AWPBs, the IAs are required to adhere to the timelines under their respective budget guidelines and include all project-related estimates in the budget. To ensure the SAP system is working effectively, ECG must share a copy of sample program expenditure reports with World Bank, no later than 45 days after the first withdrawal into the IPF DA, to confirm that the system is able to generate results as expected.

60. For procurement exclusions, contracts for the procurement of goods, works, non-consulting services and consultancy assignments under the Program that exceed the Operational Procurement Review Committee thresholds will be excluded from PforR financing. The PCU will thus periodically monitor the PEF and identify any potential large contracts that may be of high value. Procurement under the IPF components will be handled by MoEn and ECG. Both IAs have procurement staff with extensive experience in public procurement but limited experience in



the use of the Bank Procurement Framework as Consultants were engaged to execute the previous projects i.e. Ghana Energy Development and Access Project (GEDAP - P074191) and Ghana Energy Sector Transformation Initiative Project (GESTIP P163984). Thus, the mitigation strategies proposed are: (i) procurement staff complete the GIMPA training on World Bank Procurement Framework; (ii) close Bank procurement support and supervision; (iii) a detailed Operations Manual to be prepared to guide procurement implementation; and (iv) introduction of price adjustment clause for local currency contract with more than six months duration on a case-by-case basis. The residual procurement risk is Moderate.

C. Environmental and Social

61. The overall Environmental and Social (E&S) risks and impacts of the proposed hybrid operation are adjudged to be Moderate. The E&S risks for the PforR are assessed to be Moderate based on the findings of the Environmental and Social System Assessment (ESSA). The E&S risks of the IPF are also assessed to be Moderate.

62. The overall E&S risk management responsibility of the program will rest with the PCU to be hosted at MoEn. This unit will be staffed with an E&S Specialist and a Gender Specialist deputed from the MoEn with experience in managing World Bank financed projects. The implementation of E&S actions on the PforR component will rest with the key implementing agencies including MoEn, GRIDCo, and ECG. For the IPF component, MoEn and ECG, are the main entities responsible for the management of E&S risks and impacts. The metering activities that NEDCo will benefit from will be implemented by ECG through a Memorandum of Understanding (MOU). Hence, potential E&S risks associated with such activities will be managed by ECG under the MOU to be developed. In addition to the PCU to be hosted at MoEn with adequate E&S staffing, ECG PIU has assigned an E&S Specialist. To further strengthen the implementing agencies E&S risk management capacity, the World Bank will provide training to enhance the application of the relevant ESSs and the relevant WBG Environmental, Health and Safety (EHS) Guidelines during project implementation.

63. Overall, the project is expected to have positive social and environmental impacts as the interventions will improve the reliability of power supply and increase access to clean cooking solutions for households. Some of the key benefits include: (i) reduced reliance on environmentally unfriendly power sources, such as kerosene lanterns, petrol-powered and diesel-powered generators; (ii) reduced use of charcoal and fuelwood through increased access to clean cooking solutions; (iii) reduced GHG emissions and improved air quality; (iv) reduced household air pollution and improved health; (v) better management of energy use, money-saving and cost-reduction efforts; (vi) improved metering to minimize social conflicts that usually arise during the sharing of electricity bills among tenants that share a meter; and (vii) gender-specific benefits from the time saved in not using traditional biomass; and related areas.

64. PforR E&S risks: Based on the ESSA, the following E&S risks have been identified on the PforR interventions (i) inadequate engagement and sensitization of stakeholders and measures for complaint resolutions; (ii) Gender Based Violence/Sexual Exploitation and Abuse and Sexual Harassment (GBV/SEA/SH); (iii) occupational health and safety of workers at ECG and GRIDCo; (iv) exclusion of women from capacity building training for ECG staff; (v) potential exposure of first-time LPG users to household accidents, explosions, and fatalities for the beneficiaries of subsidized clean cooking stoves, (vi) increasing electricity share of household budget due to revenue protection programs; and (vii) economic displacement affecting the livelihoods of persons who may have encroached within the existing corridors of the transmission and distribution infrastructure, occasioned by the upgrade of an existing GRIDCo transmission line and strengthening of ECG distribution network respectively.

65. IPF E&S risks: No major civil works are anticipated under the IPF. It is envisaged that key activities will involve replacement of obsolete and post-paid meters with prepaid meters, acquisition and deployment of rugged mobile



tablets and android handheld units, establishment of metering control centers, linking of customers to distribution transformers and feeders, and installation of stove testing equipment in laboratories. The potential E&S risks and impact may include (i) solid and e-waste generation from obsolete old meters and rugged mobile tablets at their end-of-usage stage; (ii) occupational health and safety hazards to civil workers/contractors replacing meters, establishment of metering control centers, and installation of stove testing equipment in laboratories; (iii) noise and air pollution from heavy duty vehicles that will be used in operations; (iv) electrical and fire hazards to communities during connection of customers to distribution transformers and feeders; (v) tensions and conflicts from customers objection to meter change; (vi) elite capture and exclusion of vulnerable groups from distribution of meters and LPG cooking stoves; and (vii) SH and sexual exploitation and abuse during replacement of meters and connection of customers to transformers. However, these risks will be localized, can be prevented and/or mitigated, and the capacities of the implementing entities in managing these risks is assessed satisfactory.

66. For the IPF component, as the specific locations where meter replacements and establishment of meter control centers are unknown, the client has prepared a combined Environmental and Social Management Framework and Labor Management Procedure (ESMF/LMP) which presents procedures and tools for assessing and addressing E&S risks and impacts. The ESMF/LMP includes an assessment of electronic waste (e-waste) to identify hazardous waste that will be generated by the project (directly or indirectly) and borrower's capacity to manage it. The ESMF/LMP was disclosed in country on May 14, 2024 and on the World Bank website on May 23, 2024. The Program has prepared an Environmental and Social Commitment Plan²⁹, to outline the Client's commitments to screen all sub-projects and preparation of associated Environmental and Social Management Plans during implementation. The client prepared a Stakeholder Engagement Plan (SEP) with specific strategies for engaging all relevant stakeholders on various IPF activities all through the project lifecycle; and consultations will be regularly held with consumer associations, civil society organizations (CSOs) and other relevant parties on how to improve access to Program benefits by stakeholders including people with vulnerabilities and disabilities. The SEP was consulted upon, and disclosed in-country on May 2, 2024 and on the World Bank website on May 13, 2024. For the PforR component, PAPs have been prepared. Using the SEA, and SH screening tool of the World Bank, the SEA/SH risk of this project is considered moderate. Risks related to SEA/SH will be mitigated by requiring contractors and workers of ECG and GRIDCo to sign a workers' Code of Conduct including prohibition and sanctions on GBV/SEA/SH. A GBV Action plan proportionate to the GBV risks identified during project preparation may also be prepared prior to program implementation. GRIDCO's and ECG's complaint resolution mechanisms will be strengthened to include a survivor centered referral pathway for handling GBV cases.

67. **Grievance Redress:** Communities and individuals who believe that they are adversely affected as a result of a World Bank supported PforR operation, as defined by the applicable policy and procedures, may submit complaints to the existing program grievance mechanism or the World Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address pertinent concerns. Project affected communities and individuals may submit their complaint to the World Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of World Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and World Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's GRS, visit <https://www.worldbank.org/GRS>. For information on how to submit complaints to the World Bank's AM, visit <https://accountability.worldbank.org>.

²⁹ Disclosed in-country on May 22, 2024 and on the World Bank website on May 23, 2024.



Citizen Engagement

68. **The Program will increase transparency and allow better access to information in the electricity regulatory framework and in ECG (DLI 3).** Beyond public dissemination of information by the electricity regulators, PURC, and the utility ECG, promoted under the Program, concrete steps are envisaged to ensure citizen engagement under the Program. The ESRP, together with the World Bank, is organizing a workshop inviting stakeholders and CSOs to deepen their knowledge and understanding of the ESRP actions and objectives and the scope of the World Bank financed project. Finally, a program-level feedback system will be established through a grievance redress mechanism. ECG is expected to take feedback from the surveys to design the modification of the customer information system (CIS) to be deployed under the operation.

Climate Change

69. **The GoG is determined to achieve a resilient green economy and is working to put the energy sector on a low-carbon pathway.** The Government aims at fully phasing out liquid fuels by progressively replacing these with gas and renewables, building on its development, climate, energy, and forest policies. The revised NDC of Ghana (2021) include a renewable energy penetration of 10 percent and increased access to sustainable and modern energy services by 2030. The Program supports climate change mitigation through its contribution to electricity loss reduction, and taxes on petroleum products in the form of the Energy Sector Levy. For sector operations, it enhances the ability of sector utilities to manage the system through improved visibility on metering and billing and greater ability to rapidly respond to identified issues. Distribution utilities will also be in a better position to undertake preventative maintenance to reduce disruptions to power supply. The energy accounting systems and smart metering under the operation shall assist in improving energy efficiency measures through lower distribution and customer consumption response respectively. The clean cooking component will help slow the rate of deforestation for better climatic conditions, ensure environmental sustainability, and improve livelihoods and growth. The Program will seek synergies with the ongoing Ghana Landscape Restoration and Small-Scale Mining Project (P171933) to maximize its impact on deforestation.

Gender

70. **The Program will support efforts to increase women's access to clean cooking solutions, reduce time poverty, mitigate risks exposure, improve women's income generating opportunities and employability, and access to information and voice.** Ghana is ranked 100 out of 146 countries in the World Economic Forum 2023 Global Gender Gap Report scoring a total of 0.688. Gender gaps are persistent across the objectives mentioned in the New World Bank Group Gender Strategy 2024-2030 related to expand and enable economic opportunities. Persistent gender gaps in energy access continue to exist particularly in the use of clean cooking technologies and fuels. In Ghana, 34.8 percent of households are run by women. According to the DHS (2022) survey for Ghana, nationwide, slightly more female headed households have access to electricity than male headed households (83.9 percent vs 83.2 percent). However female-headed households are more often prone to using unclean (charcoal) cooking solutions than male-headed households, (41.9 percent vs. 34.4 percent) (DHS,2019). Finally, only 25 percent of energy jobs in ECG are taken by women at all levels. Only 20 percent of all STEM graduates in the country are women, a situation exacerbated by women being less likely than men to be enrolled in tertiary education. In addition, the rate of economic opportunity and participation of women has worsened and as a result women earn 34.2 percent less than men. The program will increase knowledge and awareness on clean cooking by channeling that awareness into strengthened decision-making for cooking and fuels. These are in line with the New World Bank Gender Strategy FY2024-30 and are also in alignment with the NLPGPP. To contribute to close the gender gap in Ghana, the proposed PforR further outlines gender equality and women empowerment. These include: (a) strengthening institutionalization of gender equality in ECG by gathering and presenting data and information by gender and monitoring the inclusion of women in ECG's labor force, (b) increasing reliable and affordable clean cooking solutions for female-headed households, and businesses, and (c)



creating a gender-supportive enabling environment, including shifting gender roles and social norms that hinder women's safety and economic potential.

V. RISK

69. The overall risks to achieving the PDO and the associated results are rated as Substantial due to Substantial ratings in the following risk categories: Political and Governance; Macroeconomic; Sector strategies and policies; and Fiduciary.

70. Political and Governance Risk is rated Substantial: The political risk associated with this Program, stems from the upcoming national elections in December 2024, that could hinder the government's commitment to reforms. The ESRP is however expected to be adopted by the administration post elections given the commitments made by the Government to the IMF, and to the donor community of continuing with energy sector reforms. The need to reduce the sector's financial shortfall, and limit government transfers to the sector will be a strong motivation for continuing with sector reforms under the ESRP. The World Bank will also engage with civil society, donor partners, Non Governmental Organization, the leaders of the opposition, and others, including through the World Bank-led policy notes and the joint African Center for Economic Transformation-led Compact for Ghana, to build support for the continuation of the ESRP program post elections.

71. Macroeconomic Risk is rated Substantial. Ghana has suffered repeated bouts of fiscal crises, currency depreciation and deep-seated inflation. In the near term, these underlying issues are compounded by (i) subdued economic activity; and (ii) domestic and external debt management. As a mitigation measure Ghana is already part of an IMF ECF program and World Bank DPF series, under which Ghana has embarked upon a fiscal recovery program. Ghana has either met or exceeded during 2023, the macroeconomic indicator targets agreed upon under the IMF program. The economic situation has also stabilized over the course of 2023.

72. Sector strategies and policies risks are rated Substantial. Ghana has numerous shortcomings in energy policy making and sector planning. Competing centers of authority rely on often widely different data and planning parameters, leading to an inability to reach consensus. This situation is combined with a tendency for political interference in good policies. Transparency and accountability is weak in most sector institutions. The chronic financial weakness of the power utilities has undermined their corporate governance practices. To mitigate these risks, the Program will include stakeholder consultations and citizen engagement to build a broader consensus in support of power sector reforms. The ESRP inter-ministerial task force is expected to provide cross sectoral coordination.

73. Fiduciary risks are rated Substantial due to expenditure commitments outside GIFMIS and will be mitigated by an increase in transparency on the disclosure of revenues and expenditures related to the Program. Additionally, capacity will need to be built to avoid delays in procurement processes and execution and mitigate unpredictability of funds transfers from the central government to MDAs. The procurement capacity in the implementing agencies will be strengthened through TA.



ANNEX 1. RESULTS FRAMEWORK MATRIX

Program Development Objective(s)

The Program’s Development Objective (PDO) is to improve the financial viability of the electricity distribution sector in Ghana and to increase access to clean cooking solutions.

PDO Indicators by Outcomes

Baseline	Period 1	Period 2	Period 3	Closing Period
Improve the financial viability of the electricity distribution sector in Ghana				
Financial losses of distribution utilities (ECG & NEDCo) (Amount(USD))				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
1257000000	983000000	628000000	591000000	525000000
➤ of which ECG (Amount(USD))				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
1201000000	935000000	581000000	546000000	481000000
➤ of which NEDCo (Amount(USD))				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
56000000	48000000	47000000	45000000	44000000
ECG cash recovery index (Percentage)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
0.61	0.65	0.68	0.72	0.76
Increased access to clean cooking solutions				
People provided with clean cooking solutions under the Program (Number)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
0	0	182801	274199	457,000
➤ of which, female (Percentage)				
0.00	50	60	70	70.00



Intermediate Indicators by Results Areas

Baseline	Period 1	Period 2	Period 3	Closing Period
Reduced power system costs through economic dispatch				
Reduction in energy generated using liquid fuels (Gigawatt-hour (GWh))				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
288	400	350	300	260
Improved Financial Management Systems and Processes at ECG				
Improved system for managing IPP invoices (Yes/No)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
No	No	No	Yes	Yes
Improved operational performance of ECG				
ECG collection rate (Percentage)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
85	88	90	93	94
Districts for which ECG has implemented consumer indexing in target regions (Percentage)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
0	0	20	100	100
Smart consumer meters installed by ECG (Number)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
0	0	105000	525000	1050000
➤ Under the Project (Number)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
0	0	60000	300000	600000
➤ under the Program (Number)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
0	0	45000	225000	450000
Smart consumer meters installed by ECG in non-strategic MDAs (Number)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
0	0	800	4000	8000
ECG electricity losses (Percentage)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
28.4	28.4	23.8	22.5	19.2
ECG has implemented an improved CIS system (Text)				



Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
No	Needs assesment completed for the As-built CIS system that needs improvement	Agency procured for improving CIS	Priority upgrades for CIS completed	ECG has implemented an updated CIS system
ECG has published the gender-disaggregated results of annual customer satisfaction surveys (Yes/No)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
No	No	Yes	Yes	Yes
Increased access to clean cooking solutions				
LPG Stoves distributed to households,schools and caterers under the Program (Number)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
0	0	182801	274199	457000
>Households (Number)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
0	0	180000	270000	450000
>Schools (Number)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
0	0	105	156	261
>Caterers (Number)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
0	0	2696	4043	6739
LPG use per capita (Number)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
6.43	7.04	7.39	7.75	8.50
Net greenhouse gas emissions reduction resulting from stoves under the program (Metric tons/year)				
Dec/2022	Dec/2024	Dec/2025	Dec/2026	Dec/2027
0	0	500	1000	2282
Women-led cookstove enterprises assisted under the Operation to access business opportunities in the clean cooking value chain (Percentage)				
Dec/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027
0	0	30	40	50
Women-led companies in the clean cooking value chain assisted under the Operation with business development services (Percentage)				
Dec/2023	Dec/2024	Dec/2025	Dec/2026	Dec/2027
0	0	20	30	50

Disbursement Linked Indicators (DLI)



Period	Period Definition
Period 1	July 1, 2024 - June 30, 2025
Period 2	July 1, 2025 - June 30, 2026
Period 3	July 1, 2026 - June 30, 2027

Baseline	Period 1	Period 2	Period 3
1:Improved methodology and processes for achieving economic dispatch (Text)			
GRIDCo has not submitted to the Energy Commission the methodology for implementing updated security constrained economic dispatch (SCED) and settlement system taking into consideration the technical and commercial constraints	GRIDCo has submitted to the Energy Commission the methodology for implementing updated security constrained economic dispatch (SCED) and settlement system taking into consideration the technical and commercial constraints.	GRIDCo has received regulatory approval and has implemented an updated SCED and settlement system, including publishing the day ahead schedules, actual dispatch, and deviations (and the reasons thereof) for the past 12 months.	GRIDCo has continued with the implementation of an updated SCED and settlement system, including publishing the day ahead schedules, actual dispatch, and deviations (and the reasons thereof) for the past 24 months.
0.00	20,000,000.00	20,000,000.00	10,000,000.00
DLI allocation	50,000,000.00	As a % of Total DLI Allocation	33.11%
2:ECG has improved its collection efficiency (Text)			
86	88	90	93
0.00	10,000,000.00	10,000,000.00	15,000,000.00
DLI allocation	35,000,000.00	As a % of Total DLI Allocation	23.18%
3:ECG has implemented an energy accounting system (Text)			
ECG has not implemented a district level energy accounting system	ECG has implemented an energy accounting system for each region and [20%] of the districts in the selected regions and has published the results on their website at the end of each quarter for CY24.	ECG has implemented an energy accounting system for each region and [100%] of the districts in the selected regions and has published the results on their website at the end of each quarter for CY25.	ECG has implemented an energy accounting system for each region and [100%] of the districts in the selected regions and has published the results on their website at the end of each quarter for CY26
0.00	5,000,000.00	7,500,000.00	7,500,000.00
DLI allocation	20,000,000.00	As a % of Total DLI Allocation	13.25%
4:Improvement in customer services offered by ECG (Text)			



ECG has not published the results of its customer satisfaction survey	ECG has published the gender-disaggregated results of annual customer satisfaction surveys.	ECG has published the gender-disaggregated results of annual customer satisfaction surveys.	ECG has published the gender-disaggregated results of annual customer satisfaction surveys.
0.00	3,500,000.00	2,500,000.00	2,000,000.00
DLI allocation	8,000,000.00	As a % of Total DLI Allocation	5.3%
5:Improved financial management systems and processes (Text)			
No	ECG has published annual audited financial statements by September 30, 2024 for CY2023	ECG has published annual audited financial statements, including disclosures on financial set-offs against payments received from Ministry of Finance, and details on power purchase costs by September 30, 2025 for CY2024	ECG has published annual audited financial statements, including disclosures on financial set-offs against payments received from Ministry of Finance and details on power purchase costs, by June 30, 2026 for CY2025.
0.00	5,000,000.00	5,000,000.00	5,000,000.00
DLI allocation	15,000,000.00	As a % of Total DLI Allocation	9.93%
6:Improved system for managing IPP invoices (Text)			
ECG does not have an IPP invoicing system integrated with its ERP	N/A	N/A	ECG has implemented a power producers (IPP+VRA) invoicing system integrated with ECG's financial management system.
0.00	0.00	0.00	6,000,000.00
DLI allocation	6,000,000.00	As a % of Total DLI Allocation	3.97%
7:Phase I of the NLPGPP implemented (Text)			
0	NLPGPP distributes 182,801 stove packs to caterers, schools, and households.	NLPGPP distributes 457,000 stove packs to caterers, schools, and households (cumulative).	N/A
0.00	7,000,000.00	10,000,000.00	0.00
DLI allocation	17,000,000.00	As a % of Total DLI Allocation	11.26%



Monitoring & Evaluation Plan: PDO Indicators by PDO Outcomes

Improve the financial viability of electricity distribution sector in Ghana	
Financial losses of distribution utilities (ECG & NEDCo) (Amount(USD))	
Description	Measured as operating losses (on billed revenue basis minus operating costs and excluding government operating subsidies)
Frequency	Annual
Data source	ECG and NEDCO
Methodology for Data Collection	Annual reports
Responsibility for Data Collection	ECG and NEDCo
ECG cash recovery index (Percentage)	
Description	ECG Cash Recovery Index (CRI) is a ratio that combines the billing rate (BR) and collection rate (CR) of the utility (CRI = BR x CR calculated annually).
Frequency	Annual
Data source	ECG and NEDCO
Methodology for Data Collection	Annual reports
Responsibility for Data Collection	ECG and NEDCo
Increased access to clean cooking solutions	
People provided with clean and efficient cooking solutions under the project (Number) ^{DLI}	
Description	People provided with clean cooking solutions under the project
Frequency	Quarterly
Data source	Signed voluntary agreements and beneficiary information (resident ID number, address, phone number, GPS coordinates, picture, etc.), Monitoring Reports
Methodology for Data Collection	Field visits
Responsibility for Data Collection	MoEn & IVA
of which, female (Percentage)	
Description	This relates to the share of people provided with clean cooking solutions that is female in the beneficiary population.
Frequency	Quarterly
Data source	Beneficiary informations, Monitoring Reports
Methodology for Data Collection	Field visits to a sample of beneficiaries
Responsibility for Data Collection	MoEn & IVA

Monitoring & Evaluation Plan: Intermediate Results Indicators by Results Areas

Reduced power system costs through economic dispatch	
Reduction in energy generated using liquid fuels (Gigawatt-hour (GWh))	
Description	The indicator measures the quantity of electricity generated by the power producers using liquid fuels (such as LCO, HFO) due to lack of availability of gas or any other reason.



Frequency	Annual
Data source	GRIDCo
Methodology for Data Collection	GRIDCo to collect the data using its existing systems.
Responsibility for Data Collection	GRIDCo
Improved operational performance of ECG	
ECG collection rate (Percentage) ^{DLI}	
Description	The indicator measures the collection rate of ECG, based on the agreed methodology. The application of set-off against the payments received from MoF shall be the same as the one that shall be applied for calculation of DLIs
Frequency	Annual
Data source	ECG
Methodology for Data Collection	ECG shall submit the report to the World Bank along with the detailed calculations.
Responsibility for Data Collection	ECG
Smart consumer meters installed by ECG (Number)	
Description	Number of smart consumer meters installed by ECG, as evidenced by data availability in the meter management systems
Frequency	Semi-annual
Data source	ECG's meter management system (MMS)
Methodology for Data Collection	The data shall be collected through PMC reports on number of smart consumer meters installed and data availability in MMS
Responsibility for Data Collection	ECG and its project management consultant
Smart consumer meters installed by ECG in non-strategic MDAs (Number)	
Description	Number of smart consumer meters installed by ECG, as evidenced by data availability in the meter management systems, on customers tagged as non-strategic MDAs
Frequency	Semi-annual
Data source	ECG's MMS
Methodology for Data Collection	The data shall be collected through PMC reports on number of smart consumer meters installed and data availability in MMS
Responsibility for Data Collection	ECG and its project management consultant
Smart consumer meters installed by NEDCo (Number)	
Description	Number of smart consumer meters installed by NEDCo, as evidenced by data availability in the meter data management system
Frequency	Semi-annual
Data source	NEDCo's meter data management systems (MDMS)
Methodology for Data Collection	The data shall be collected through PMC reports on number of smart consumer meters installed and data availability in MMS
Responsibility for Data Collection	NEDCo
ECG electricity losses (Percentage)	
Description	ECG's system losses calculated as the difference between energy input into its network and energy billed
Frequency	Annual
Data source	ECG's annual report
Methodology for Data Collection	ECG shall submit the energy balance report as part of its progress report



Responsibility for Data Collection	ECG
ECG has implemented an improved CIS system (Text)	
Description	ECG has implemented an improved CIS for billing, collection management, and customer complaint management for all its customers (both pre-paid and post-paid customers) and the system is integrated with SAP-Enterprise Resource Planning (ERP) system of ECG.
Frequency	Annual
Data source	Reports submitted by the ICT consultants on the progress of strengthening CIS
Methodology for Data Collection	ECG's reports on the implementation as part of its progress report
Responsibility for Data Collection	ECG
ECG has published the gender-disaggregated results of annual customer satisfaction surveys (Yes/No)	
Description	ECG has conducted annual customer satisfaction survey and published the results on its website, disaggregated by gender (female headed households)
Frequency	Annual
Data source	ECG's website
Methodology for Data Collection	ECG shall provide the information in its progress report
Responsibility for Data Collection	ECG and the third party survey firm appointed by ECG
Districts for which ECG has implemented consumer indexing in target regions (Percentage)	
Description	ECG will conduct consumer indexing in regions and districts based on a sampling methodology
Frequency	Annual
Data source	ECG
Methodology for Data Collection	Application of sampling methodology agreed upon with ECG
Responsibility for Data Collection	ECG
Improved Financial Management Systems and Processes at ECG	
Improved system for managing IPP invoices (Yes/No) ^{DLI}	
Description	The system is being used by the power producer (IPPs and VRA plants) to submit invoices broken down into various components such as capital recovery charges, fixed O&M, variable O&M, and that the system is up-to-date with possible operational lag not exceeding 3 months.
Frequency	Semi-annual
Data source	IVA reports
Methodology for Data Collection	IVA shall report to the World Bank (through Ministry of Energy) on the progress of implementation of the system
Responsibility for Data Collection	ECG and IVA
Increased access to clean cooking solutions	
LPG use per capita (Number)	
Description	The 457,000 LPG stove-packs distributed to HHs and caterers will result in an increase in the consumption of LPG
Frequency	Annual
Data source	MoEn, IVA and NPA M&E reports
Methodology for Data Collection	The IVA will report on the use of the LPG stoves and the NPA will compute the annual consumption based on their M&E framework.
Responsibility for Data Collection	MoEn, IVA and NPA



Net greenhouse gas emissions resulting from stoves under the program (Metric tons/year)	
Description	The depolyment of the 457,000 LPG stove packs will result in the swtiching from woodfuels as primary cooking fuel. This will help slow the rate of deforestation and cut down carbon emission.
Frequency	Annual
Data source	IVA reports
Methodology for Data Collection	Analyzed primary data from beneficiaries
Responsibility for Data Collection	IVA
LPG Stoves distributed to households,schools and caterers (Number)	
Description	Stoves distributed to caterers led by women (70 percent)
Frequency	Quarterly
Data source	Beneficiary informations, M&E Reports
Methodology for Data Collection	Field visits to a sample of beneficiaries
Responsibility for Data Collection	MoEn & IVA
LPG Stoves distributed to households,schools and caterers (Number)	
Description	Stoves distributed to caterers led by women (70 percent)
Frequency	Quarterly
Data source	Beneficiary informations, M&E Reports
Methodology for Data Collection	Field visits to a sample of beneficiaries
Responsibility for Data Collection	MoEn & IVA
LPG Stoves distributed to households,schools and caterers (Number)	
Description	Stoves distributed to caterers led by women (70 percent)
Frequency	Quarterly
Data source	Beneficiary informations, M&E Reports
Methodology for Data Collection	Field visits to a sample of beneficiaries
Responsibility for Data Collection	MoEn & IVA
Women-led cookstove enterprises assisted under the Project to access business opportunities in the clean cooking value chain (Percentage)	
Description	50% of women-led cookstove enterprises assisted to access business opportunities in the clean cooking value chain
Frequency	Semi-annual
Data source	GHACCO
Methodology for Data Collection	Analyzed primary data from GHACCO
Responsibility for Data Collection	MoEn PCU
Women-led companies in the clean cooking value chain assisted under the Project with business development services (Percentage)	
Description	50% of women-led companies in the clean cooking value chain assisted with business development services.
Frequency	Semi-annual
Data source	GHACCO
Methodology for Data Collection	Analyzed primary data from GHACCO
Responsibility for Data Collection	MoEn PCU



Verification Protocol Table: Disbursement Linked Indicators

DLI 1: Improved methodology and processes for achieving economic dispatch	
Formula	100% of the amount allocated against the DLR shall be disbursed upon achievement of the respective DLRs
Description	The DLI supports the preparation and implementation of economic dispatch to minimize costs of power generation for meeting the electricity demand in Ghana
Data source/ Agency	GRIDCo
Verification Entity	IVA
Procedure	<p>For Year 1, verification shall include review of the methodology for security-constrained economic dispatch (including settlement system) submitted by GRIDCo to the regulatory commission (based on a survey conducted by GRIDCo).</p> <p>For Year 2, verification shall include implementation of SCED according to the methodology approved by the Energy Commission, including initiating a pilot on real-time SCED and day-ahead unit commitment based on the results of the survey conducted by GridCo. Further, the hourly dispatch data shall be published for a period of at least 12 months comprising a calendar year (i.e. for either CY24 or CY25). Further, the day ahead schedules (based on Unit Commitment and SCED pilot) for the 6-month period shall be published by 5PM (or according to timelines defined in the regulator approved methodology) for the following day. Similarly, the actual hourly dispatch data for nth day shall be published by end of n+1 day. The reasons for deviations shall be published on a monthly basis.</p> <p>For Year 3, verification shall include continuation of the pilot for real-time SCED and day-ahead unit commitment according to the methodology approved by the Energy Commission and based on the results and assessment of the Year 2 Pilot, including implementing and settlement system. Further, the hourly dispatch data shall be published for a period of at least 24 months comprising a calendar year (i.e. for either CY24 and CY25 or CY25 and CY26). Further, the day ahead schedules (based on Unit Commitment) shall be published by 5PM (or according to timelines defined in the regulator approved methodology) for the following day. Similarly, the actual hourly dispatch data for nth day shall be published by end of n+1 day. The reasons for deviations shall be published on a monthly basis.</p>
DLI 2: ECG has improved its collection efficiency	
Formula	US\$5 million for each percentage point improvement in annual collection efficiency over the previous calendar year (calculated at the end of each calendar year) upto a maximum cumulative disbursement limit of US\$35million. Baseline year shall be CY23.
Description	The DLI measures the improvement in collection efficiency
Data source/ Agency	ECG
Verification Entity	IVA
Procedure	At the end of each CY, the collection efficiency shall be calculated based on a methodology agreed with ECG. At the minimum, the methodology shall include (a) clarifying the revenue billed (by separately showing the line items for strategic and non-strategic MDA bills and public lighting bills); (b) amount collected and separately accounting for the amount retained from public lighting levy, set-offs applied from money paid by MoF on behalf of ECG. Please note that Year 1 denotes a 2% improvement in collection efficiency versus the figure for CY2023, Year 2 denotes another 2% improvement versus the previous year and Year 3 denotes another 3% improvement versus the previous year. In case of change in baseline figure for 2023, there will be a one-time adjustment to remaining targets to match this trajectory of reduction.
DLI 3: Energy accounting system has been developed	
Formula	<p>US\$1million upon publishing of the regional energy accounts, plus amount 'A' at the end of each calendar year. Amount A shall be calculated as:</p> <p>For Year 1: US\$4million X (number of districts for which energy accounting reports have been published / target number of districts)</p> <p>For Year 2: US\$6.5million X (number of districts for which energy accounting reports have been published / target number of districts)</p> <p>For Year 3: US\$6.5million X (number of districts for which energy accounting reports have been published / target number of districts)</p>



Description	This DLI encourages discipline followed by ECG in undertaking energy accounting and publishing the results periodically. 'Energy accounting' means accurate accounting of the energy inflows at various voltage levels of the network and the subsequent energy consumption by the end customers. The target regions for district level energy accounting shall be the following 5 regions: Accra East, Accra West, Tema, Western, and Ashanti West.
Data source/ Agency	ECG
Verification Entity	IVA
Procedure	IVA to verify that ECG have published energy accounting reports for all the regions. The report shall be published for every quarter and shall be assessed at the end of the calendar year for disbursement puposes. The IVA shall verify the data for ECG by accessing the energy accounting module of the CIS at Discom's headquarters and verifying the status of regional and district boundary metering. Further, the IVA shall also assess the status of the consumer indexing in sample districts based on a sampling methodology agreed with ECG. Lastly, ECG shall also prepare business blue-print documents for CIS system and implement an enhanced CIS system by end of Year 3.
DLI 4: Gender disaggregated results for customer satisfaction surveys	
Formula	For each year, the amount allocated against the DLR shall be disbursed upon completion of the annual customer satisfaction survey
Description	The DLI supports improvement in customer services offered by ECG.
Data source/ Agency	ECG
Verification Entity	IVA
Procedure	The IVA to verify that the survey has been conducted by a third-party contracted by ECG and is based on a robust survey methodology (including a terms of reference that covers common customer issues such as time of new connection, various type of complaints raised by customers, time taken to resolve complaints etc.). Further, the survey shall include a standard sampling methodology to make it representative. Lastly, the survey results shall be published highlighting key findings for each year.
DLI 5: ECG has published audited annual financial statements (Text)	
Formula	100% of the amount allocated against the DLRs for each period shall be disbursed upon achievement of the respective results.
Description	The DLI supports timely audit and publication of annual reports and also improving the quality of disclosure with respect to accounting for the grants received from Government of Ghana.
Data source/ Agency	ECG
Verification Entity	IVA
Procedure	For Year 1, verification shall include confirmation of audit for the annual report and its publication on the website of ECG after the necessary statutory approvals (such as AGM if required), within the time frame mentioned in the DLI. For Year 2 and Year 3, together with the actions noted in year 1, the annual report shall include a disclosure mentioning (a) the total amount paid by MoF to ECG or on behalf of ECG towards reducing sector shortfall, (b) the set-offs applied against this payment for settling MDA bills, public lighting shortfall etc. , and (c) details of power purchase costs (or direct costs) disaggregated by power plants and value in GHS million and US\$m terms for each power plant.
DLI 6: IPP invoicing system has been implemented	
Formula	100% of the amount allocated against the DLI shall be disbursed upon achievement of the respective results.
Description	The DLI supports implementation of an IT system that can be used by power plants (IPPs and VRA) to submit invoices to ECG and for ECG to review, verify, approve, and track the invoice payments.
Data source/ Agency	ECG
Verification Entity	IVA
Procedure	The verification will include assessment of the invoicing system to ensure that the system is being used by the power producer to submit invoices (IPPs and VRA plants), broken down into various components such as capital recovery charges, fixed O&M, variable O&M, and that the system is up-to-date with possible operational lag not exceeding 3 months. Further, evidence that the system also captures payment already made to the IPPs against the invoice. Lastly, evidence that the IPP invoicing system is also integrated with SAP-ERP system at ECG.
DLI 7: Increased use of LPG for cooking (Text)	
Formula	US\$37.2 (US\$21.88 from IDA and US\$15.32 from ESMAP) shall be disbursed for each stove distributed (irrespective of type of stove) upto a limit of US\$10million for IDA and US\$7million for ESMAP.



Description	MoEn submits report and IVA samples beneficiaries for result verification.
Data source/ Agency	Signed voluntary agreements and beneficiary information (resident ID number, address, phone number, GPS coordinates, picture, etc.), M&E Reports.
Verification Entity	KHRC
Procedure	The verificaton shall include assessment by the IVA of actual stoves distributed through conducting surveys on a sample basis.



ANNEX 2. (SUMMARY) TECHNICAL ASSESSMENT³⁰

1. **Ghana has a high electricity access rate and significant excess generation capacity.** In 2023, the electricity access rate was estimated at 88.8 percent. Ghana has about 5,640 MW of installed power generation capacity comprising 30 percent hydropower, and 62 percent natural gas based thermal. IPPs currently account for 44 percent of the total power generation in the country. In 2023, the actual peak demand recorded was about 3.6 GW (11 percent growth from the previous year) and the total electricity generated of about 23,550. GWh (39 percent from hydro, 60 percent from thermal generation, less than 1 percent from renewable energy sources). Demand for electricity increases in line with growing economic activities and population. In the last decade, the average annual growth rate in electricity was around 9 percent.

2. **Over the last two decades, Ghana implemented power sector reforms, which successfully attracted the private sector into the power generation segment.** Ghana was one of the first countries in Sub-Saharan Africa to unbundle its power sector and host IPPs, although all pre-reform utilities remain state-owned. The public utility Volta River Authority (VRA) manages two of the three large hydropower plants and its share has now fallen below those of IPPs. The transmission system is owned and operated by GRIDCo, while power distribution is carried out by the ECG and NEDCo – a subsidiary of VRA. ECG has about 4.7 million customers in the southern and central parts of the country and accounts for about 88 percent of retail power sales. NEDCo services the northern distribution zone, which represents about 10 percent of the market, and Enclave Power Company a private distribution service company serves the remaining 2 percent of demand in the industrial Tema free zone area. Ghana’s transmission network is interconnected with neighboring countries (Côte d’Ivoire, Togo, Benin, and Burkina Faso) and the country is a member of the WAPP. In 2023, the country exported 2,527 GWh to neighboring countries, representing about 11 percent of the total electricity produced in the country. MoEn is responsible for energy sector policies while EC and PURC are the technical and economic regulators respectively.

3. **In response to the 2013-2016 power shortages, non-competitive procurement of emergency power was fast tracked that have culminated in expensive excess thermal generation capacity.** In the absence of a least-cost power sector plan during the 2012-2016 power crisis, GoG contracted PPAs above the demand needs of the country. Additionally, ECG signed more PPAs for future power plants at non-competitive prices. This has resulted in an accumulation of excess thermal generation capacity with corresponding fixed costs, not recognized in the tariff determination and therefore an explicit liability for GoG to ensure the financial viability of the sector. To tackle this issue, GoG took the following key measures: (i) in 2019, put a moratorium on the signing of new PPAs and any type of financial guarantee until additional power capacity is required to meet demand; (ii) in September 2019, started bilateral negotiations with all IPPs and Gas Suppliers to agree on a reduction of the terms of the PPAs and Gas Supply Agreements; (iii) in 2018, GoG approved and published a comprehensive least-cost power expansion plan (Integrated Power Sector Master Plan - IPSMP) providing the roadmap for procuring additional generation capacity at least cost, which has been subsequently updated in 2023; and (iv) the Ministry of Energy submitted a legislative instrument to the Parliamentary Committee on Subsidiary Legislation for review requiring competitive procurement for all new generation, an action supported under recently approved World Bank financed DPF series Phase-1. Even though least-cost expansion plans are prepared, there is no implementation mechanism in place that links this power planning and new capacity procurement by the utilities.

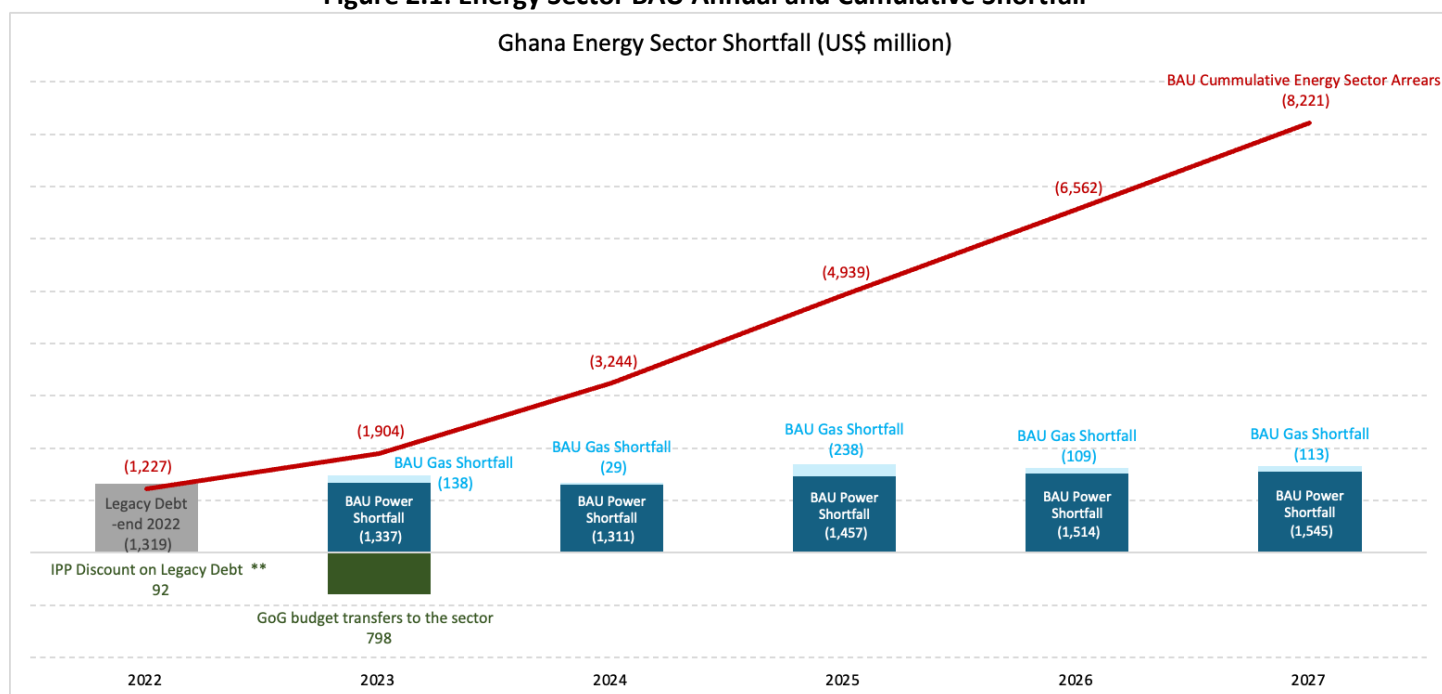
4. **In recent years, non-cost-recovery tariffs (worsened by currency depreciation), high distribution losses, low**

³⁰ Full assessment is disclosed on the World Bank Website: https://documents.worldbank.org/en/publication/documents-reports/documentlist?keyword_select=allwords&srt=score&order=desc&qterm=P173258&lang_exact=



collection rates, caused the energy sector to become a fiscal burden costing the Government about 2.8 percent of GDP annually. Since 2019, the direct subsidy requirement of the energy sector has been over US\$ 1 billion annually to balance electricity costs and revenues. The annual revenue shortfall for the power sector in 2023 was US\$1,337 million³¹, and for the gas sector, it was US\$138 million, bringing the total sector shortfall to US\$1,475 million³². By 2027, without countermeasures, the power sector shortfall is projected to increase to US\$1,545 million³³ and the gas sector's shortfall to US\$113 million³⁴. Additionally, at the end of 2022, the accumulated power sector arrears (legacy arrears) were estimated at US\$1,319 million³⁵. This amount is net of the GHS5.5 billion (around US\$1.18 billion equivalent) provided by GoG to reduce sector legacy debts. Since 2019, GoG has made explicit transfers to the sector averaging US\$1 billion annually to pay outstanding sector bills, including to fuel suppliers and power generators. Besides, the revenue gap is not fully covered by Government's budget and prevents the energy sector utilities to cover their investment needs to improve the quality of service. The energy sector revenue shortfall stems from (i) excess power generation capacity³⁶; (ii) electricity tariffs that are not cost reflective; and (iii) high electricity losses (technical and commercial losses). Without implementation of strong reforms (notably on tariffs, operational and financial efficiency improvements of the main distribution utilities, and PPA renegotiations) the cumulative deficit of the energy sector could reach US\$8.2 billion by 2027³⁷, to be eventually borne by the budget.

Figure 2.1: Energy Sector BAU Annual and Cumulative Shortfall



5. The ESRP adopted by the Cabinet of Ghana on May 9, 2019, and subsequently extended till 2025 is the GoG's

³¹ Equivalent to GH¢14,7294, million at a US\$/GHS 11.02 FX rate, according to the MoF FX scenario.

³² Equivalent to GH¢16,255 million at a US\$/GHS 11.02 FX rate, according to the MoF FX scenario.

³³ Equivalent to GH¢27,672 million at a US\$/GH 17.91 FX rate, according to the MoF FX scenario.

³⁴ Equivalent to GH¢2,032 million at a US\$/GHS 17.91 FX rate, according to the MoF FX scenario.

³⁵ Deloitte 2022 Legacy Debt Validation Report for MoF.

³⁶ Excess power generation capacity contributed significantly to the overall power sector shortfall, accounting for an estimated 4 percent (62 million out of 1,528 million) in 2023

³⁷ Equivalent to GH¢133,186* million at a US\$/GHS 17.91 FX rate, according to the MoF FX scenario.



roadmap to restore and sustain governance and the financial viability of the energy sector to attract competitive private sector investments. The three primary objectives of the ESRP are: (i) full restoration of the financial and commercial viability of the sector; (ii) curtailment of further accumulation of sector arrears; and (iii) payment of outstanding sector arrears. The implementation of the ESRP is governed by the ESTF chaired by the Vice-President of Ghana. Under the ESRP, the GoG committed about 1 percent of GDP (around US\$0.7 billion) of fiscal revenues to close the projected financial gap in the sector, which included the establishment of the Delta Fund that is financed through the new Energy Sector Recovery Levy that imposes 20 pesewas (about 3.5 US¢) per liter on petrol and diesel, generating about US\$120-150 million of revenues per year. In the implementation of the ESRP, the GoG has already: (i) put a moratorium on signing new IPP agreements; (ii) relocation of Karpowership and completion of Takoradi Tema Interconnection Project; (iii) increase electricity tariffs (as mentioned earlier); (iv) rationalizing the weighted average cost of gas to reduce gas sector shortfall (v) settled MDAs electricity payments for 2019; (vi) implemented the ECG Cash Waterfall Mechanism in April 2020 and the Gas Clearinghouse in November 2020; and (vii) revision of the terms of gas supply contracts to ease the short-term mismatch between gas supply and demand.

6. However, the implementation of the ESRP has suffered delays, and the sector financial condition has worsened due to deteriorating macroeconomic conditions (leading to currency depreciation). Given this deterioration in sector financials, new action items that were added under an extension of the ESRP through December 31, 2025 are the following: (i) finalization of new contractual terms with IPPs to decrease capacity charges and Take-or-Pay obligations; (ii) Performance Improvement Programs for ECG and NEDCo to improve operational and commercial performance; (iii) implementation of the MoEn policy on competitive procurement of new power plants; (iv) PURC to implement a quarterly analysis and adjustment of its Weighted Average Cost of Gas; and (v) installation of pre-payment meters at all non-strategic MDA premises.

Table 2.1. Power Sector Revenue Shortfall 2022-2027

Ghana Energy Sector Shortfall (US\$ million)	2022	2023	2024	2025	2026	2027	Cumulative 22-'27'
Power Sector Shortfall (Business as Usual)		(1,337)	(1,311)	(1,457)	(1,514)	(1,545)	(7,163)
Reduction of PPA costs			21	27	28	28	104
Reduction of system and collection losses			76	139	181	223	620
Quarterly tariff adjustment in line with inflation and FX			121	234	291	353	999
Implementation of tariff for public lighting			62	57	56	55	231
Resulting Power Sector Shortfall		(1,337)	(1,031)	(999)	(957)	(886)	(5,210)
GoG budget transfers to the sector			798				798
Power sector legacy debt – end of 2022 *	(1,319)						(1,319)
IPP Discount on Legacy Debt **	92						92
Revised Power Sector Shortfall (after all ESRP Interventions)	(1,227)	(538)	(1,031)	(999)	(957)	(886)	(5,639)
<i>Gas sector shortfall (Business as Usual) ***</i>		(138)	(29)	(238)	(109)	(113)	(628)
	(1,227)	(677)	(1,060)	(1,238)	(1,066)	(1,000)	(6,267)
Total Energy Sector Arrears	(1,227)	(677)	(1,060)	(1,238)	(1,066)	(1,000)	(6,267)
BAU Cumulative Energy Sector Arrears	(1,227)	(1,904)	(3,244)	(4,939)	(6,562)	(8,221)	(8,221)

*Audited Energy Sector Legacy Debt position at year end 2022. This includes MoF/GoG budget transfers ~GHS 551 billion paid towards sector stabilization in 2022;

**IPP discount/haicut provided on existing legacy debt, as part of PPA renegotiation in 2023/2024. Impact expected to reduce 2022 legacy debt position only.

***Focus of PforR is on the power sector. Gas sector interventions are not shown.

7. If the ESRP actions are implemented by 2025, the power sector revenue shortfall will be reduced compared to



a BAU scenario, however, further actions will be needed over the next several years to reach equilibrium. The impact of the key ESRP actions on either the reduction of costs or increase of revenues are the following: (i) reduction of PPA tariffs for operational thermal IPPs - the renegotiation of fixed capacity charges, as well as the switch from liquid fuel production to natural gas for few thermal plants; (ii) improvement in ECG and NEDCO’s operational and commercial efficiency. and (iii) tariff adjustments - the issuance of an MYTO, with energy tariffs adjusted for the yearly inflation rate.

8. **Since 2022, PURC has improved the application of tariff methodologies, and there is limited scope of large tariff increases in the short term.** Despite significant currency depreciation (23 percent from 2021 to 2023) tariffs were increased only by 5 percent between 2016 and mid-2022, with no adjustment to the tariff from October 2019 until mid-2022. This resulted in deterioration of cost reflective tariff levels from 70 percent in 2019 to below 50 percent in mid-2022. Subsequently, the PURC decided to shift to a Multi-Year Tariff regime for transmission and distribution companies and issued MYTO in August 2022, which is a significant step forward. It has also issued quarterly adjustments systematically over the last 5 quarters, adjusting the tariffs for change in key macroeconomic factors including foreign exchange, inflation, cost of fuel, etc. This has resulted in a total tariff increase of above 90 percent from September 2022 through April 2024. Further, the regulator has also rationalized the tariff categories by reducing the number of categories to only three for residential consumers. While, PURC has continued to disallow ‘excess capacity’ charges of power plants in its calculation of annual revenue required, the financial impact is expected to reduce with demand growth.

Table 2.2 Electricity tariff increases since MYTO 2022

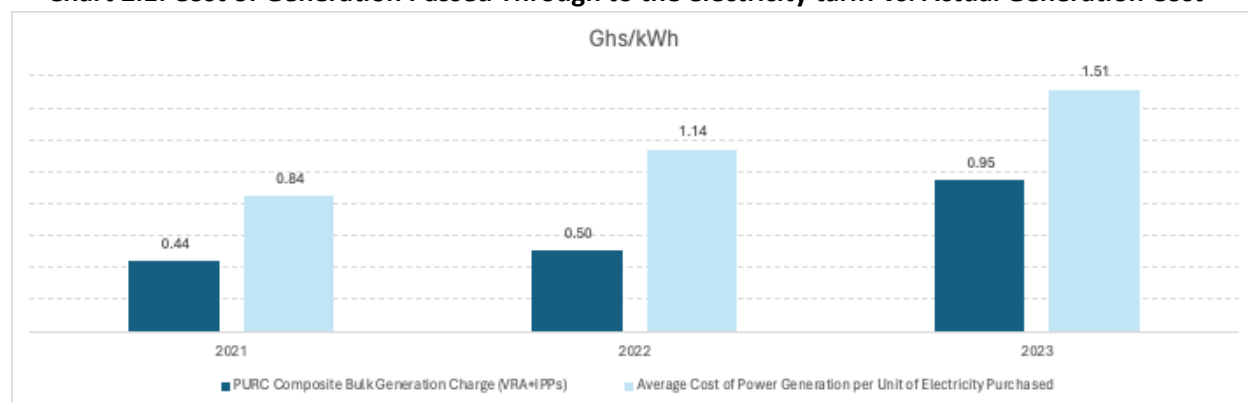
	MYTO	Qtr 1 2023	Qtr 2 2023	Qtr 3 2023	Qtr 4 2023	Qtr 1 2024
Effective Date	1 st Sep, 2022	1 st Feb, 2023	1 st May, 2023	1 st Sep, 2023	1 st Dec, 2023	1 st Apr, 2024
% tariff change	27.15%	29.96%	18.36%	4.22% applied for residential consumers only (excluding lifeline consumers)	-1.52% [reduction]	-6.56% [reduction] for residential consumers with monthly consumption above 300kWh; and -4.98% [reduction] for non-residential consumers with monthly consumption above 300kWh

9. **Despite more than significant increase (above 90 percent) in retail tariffs over the last 18 months, the power sector revenue shortfall has remained high due to high electricity losses.** The main contributors of the non-cost recovery have been: (i) the PURC’s decision to not allow the excess capacity generation costs to the tariff (see figure below); and (ii) exchange rate depreciation not fully passed-on to tariffs, and (iii) high operational inefficiencies in the sector’s utilities reflected in significant aggregated technical and commercial losses, and low collection efficiency³⁸.

³⁸ In 2022, the distribution loss for ECG was 28.4 percent, while NEDCO's stood at 31 percent.



Chart 2.1: Cost of Generation Passed Through to the electricity tariff vs. Actual Generation Cost³⁹



Technical Assessment

10. **Reducing distribution technical and commercial losses and increasing revenue collection will be key to improving the operational and financial performance of power sector utilities in Ghana.** In 2022, the total energy losses of ECG (the largest distribution company accounting for 88 percent of total electricity sales) were around 28.4 percent, with revenue collection efficiency at 86 percent. These high losses and low collection rates have not only affected the financial performance of ECG but it is also a cause of fiscal burden on the government⁴⁰. As highlighted in the ESRP, commercial performance improvement of the distribution utility, ECG is important for sector turnaround. Thus, among other measures ESRP includes the implementation of PIPs for ECG and NEDCo. The summary of interventions in the PIP, and the World Bank support are as follows:

Table 2.3: Summary of ECG PIP and World Bank financing (US\$ million)

Sr. No.	Description of activities	PIP under ESRP	Support from World Bank (IPF Component)	Support from World Bank (PforR Component)	Remarks
1	Commercial system improvement (including improvement in various customer apps etc.)	42	15		World Bank financing includes update to the CIS and Meter Management System
2	Improve energy accounting at district level	78		3	World Bank financing includes check metering at bulk supply points
3	Distribution system improvement projects	309.8		26	World Bank financing includes priority investments in upgrading distribution network (transformers, LT lines etc.)
4	Consumer metering through smart prepaid meters	419.2	62.5	52	IPF component shall include consumer metering in Accra West and Tema; PforR component shall include consumer metering in Western and Ashanti Regions

³⁹ 2021-2023 PURC tariff decision notes.

⁴⁰ In April 2019, the GoG approved a private concession for ECG, with Power Distribution Services (PDS), to improve operational performance. However, the concession was unilaterally terminated by GoG after six months, October 2019, on allegations of an invalid guarantee by PDS to ECG which is currently being contested by the company through international arbitration.



Sr. No.	Description of activities	PIP under ESRP	Support from World Bank (IPF Component)	Support from World Bank (PforR Component)	Remarks
5	Other misc. loss reduction initiatives	22.2	2.5	3	World Bank financing includes implementation of IPP invoicing system under PforR component and other IT investments under IPF
Total		871	80	84	

11. Improving metering and commercial information system is important for commercial performance of distribution utilities as highlighted in the PIP for ECG.

- a. **Conversion of post-paid to pre-paid metering:** Among the 4.7 million customers of ECG, about 50 percent are billed using pre-payment meters, while the other half are on post-paid meters. The revenue collection from post-paid customers of ECG has always been low and has further fallen over the last few years. ECG has found it hard to accurately read these meters and issue bills to the customers based on meter readings. Over the last year, ECG had to resort to provisional or average meter reading to generate bills for more than three months, which is in contradiction to sector regulations. Further, of these post-paid meters, almost 30 percent meters are more than 15 years old, with high failure rates or inaccurate readings. As part of its PIP, ECG proposes to replace a portion of these meters to pre-paid smart meters. The Program will support this transition both under the PforR and under the IPF components, wherein approximately 1 million meters (about 25 percent of the total customer base in ECG) shall be replaced or added. Like ECG, NEDCo also has several customers billed using post-paid meters. The IPF component of the Program shall support NEDCo in deploying prepaid smart meters on priority customers (support to NEDCo shall be limited to 10 percent of the total funds under IPF).
- b. **Improving billing and collection efficiency from pre-paid meters:** Even though ~50 percent customers of ECG are on pre-paid meters; ECG faces several issues with revenue management for these customers. As the meters were procured and implemented over several different timeframes without a comprehensive strategy, each rely on their own back-end IT systems for prepayment vending. ECG is dealing with 13 different prepaid vending systems, some of which are not integrated with other legacy applications at ECG. Further, some makes of these meters are working on obsolete technology and may be rendered useless (approx. 200,000 meters) when the manufacturers stop supporting old platforms. To resolve some of the issues, ECG has deployed a common meter management system (MMS) [deployed under MCC funding], to use a common backend, including common MDMS, common prepayment, common HES system among other applications. However, the MMS requires enhancements to cater to millions of meters that are expected to be deployed on the platform. Further, the MMS needs to be integrated with other commercial business applications within ECG such as CIS. These replacement of smart meters with obsolete technology and enhancement to MMS shall be supported under the IPF and PforR components of the Program. NEDCo has followed a different approach and has used a single MDMS solution for integrating limited makes of meters. The Program, through the IPF, shall support the scale-up of the existing MDMS for deployment of pre-paid smart meters (mentioned in section above).
- c. **Improving the implementation of CIS:** ECG currently uses a home-grown CIS solution, which is itself an amalgamation of multiple bespoke applications running on different platforms. While ECG is actively improving the design of this home-grown applications, it is expected that it will need to deploy a more



standard solution to cater to its growing demands and to implement revenue management systems. This is particularly important as ECG has not been able to produce good quality management reports on revenue and collections. However, it also needs to ensure that together with the deployment of a standard CIS, it also undergoes a business process re-engineering exercise to improve commercial processes. Further, as the deployment of standard CIS would take time, the Program would also support ECG to improve its existing CIS in priority areas including integration with finance modules of ERP, integration with MMS etc.

- d. Identification of non-strategic MDAs and prepayment metering:** Of the total 11,461 MDAs, ECG has identified 11,120 as non-strategic MDAs which shall be provided with prepaid smart meters to improve revenue collection. The unpaid bills for remaining 475 MDAs shall be set-off against the payments received by the power sector from MoF as budgetary support. The Program shall support ECG in implementing pre-paid metering on these non-strategic MDAs (included as part of PforR).
- e. Improving management information around commercial losses through energy accounting system:** While ECG is implementing several revenue improvement drives, it needs to improve its analytical capabilities for better targeting of such initiatives. Further, to manage stakeholder backlash from aggressive disconnections, theft reporting etc., there is a need to publish systematic energy accounting reports disaggregated by districts. This would also allow ECG to increase internal accountability for managing commercial losses. To run such an energy accounting system, ECG needs to improve (i) feeder metering including district boundary metering; and (ii) consumer indexing based on GIS. ECG is implementing consumer indexing using a home-grown solution (CAIMS) but continues to have some other applications run on a parallel GIS system (Hexagon). Thus, the consumer indexing system design needs to be improved and a single system needs to be integrated with other business applications at ECG. The Program shall support ECG in improving implementation of GIS through TA support.

12. ECG needs to continue to invest in its distribution network to ensure improved service delivery and lower technical losses. ECG's capex over the last five years is around US\$250 million including investments in meters. Under the PIP, ECG plans to implement grid strengthening works as several distribution transformers and LV network in all ECG operational areas experience overload situations. In addition to these overload situations, the low voltage networks associated with these distribution transformers also need strengthening. This situation leads to high technical losses and low reliability of supply in the low voltage network. The PIP identifies a need to install several 50 kVA, 100 kVA & 200 kVA distribution transformers and upgrade the sizes of existing conductors and cables. This is expected to improve the quality of power and reduce the level of technical losses in the selected areas.

13. Together with improvement in commercial performance, ECG also needs to improve its customer services. As noted in the PIP, according to the customer satisfaction survey, 89 percent of the customers were not satisfied with the time it took to resolve their complaint, 99 percent had not been to ECG's website, and 95 percent had to visit ECG's office physically to get their complaint handled. 56 percent of the billing related complaints were not resolved within the target time of 24 hours. The reasons trace back to issues with CIS as mentioned in preceding paragraphs, internal business processes, etc. The Program supports ECG in implementing an upgraded CIS, but also instituting a more rigorous mechanism of implementing customer satisfaction surveys, and preparing action plans to resolve key issues.

14. Improvement in dispatch efficiency and increase in the operational performance of electricity transmission infrastructure is a key action contributing to the minimization of system-wide operation cost.



- a. **Improved scheduling, dispatch of power, settlement, and increase in transparency.** Power purchases constitute more than 80 percent of the costs of ECG, and hence, inefficient scheduling and dispatch of power plants can lead to a significant increase in costs, which are not passed through to tariffs (tariffs are already below the cost of service provision). The current dispatch protocol requires the key market players, ECG and VRA, to make nominations for their contracted power plants to GRIDCo, the system operator, who uses these nominations for dispatch to serve system loads. Under the updated methodology, a security constrained economic dispatch shall be implemented to ensure implementation of unit commitment on a day ahead basis and implementation of real time economic dispatch.
- b. **Implementation of efficiency improvement plans to reduce power flow constraints and improve system reliability.** The Ghana National Interconnected Transmission System is made up of over 6,470km of circuits, 70 percent of which are aging and operate at 161 kV voltage levels. Some of these old circuits cause high transmission losses, power system disturbances, and congestion on the National Interconnected Transmission System. To address these issues, GRIDCo needs to fully implement its efficiency improvement plans, which include the construction and upgrade of critical substations, the installation of static VAR compensators, the injection of a number of power transformers, and the upgrade of certain aging transmission lines. One of the major generation enclaves in Ghana is Aboadze, which supplies power to Greater Accra. Power evacuation from Aboadze to Greater Accra is through the 330 kV Aboadze-Pokuase and the 161 kV Aboadze-Cape Coast-Winneba-Kasoa-Mallam transmission lines. Since most loads are connected directly to the 161 kV transmission system, the lower capacity and aged 161 kV line cannot handle the load. Upgrading the old transmission lines to higher capacity ones (330 kV) and replacing compromised towers, fittings, and substation terminal equipment will remove inherent power flow constraints, reduce transmission losses, and improve reliability in the transmission network. As part of the program, the PforR component will support GRIDCo in upgrading the 161 kV Aboadze-Cape Coast-Winneba-Kasoa-Mallam transmission line, since the Kasoa - Mallam transmission section had previously been upgraded under a previous project.

Table 2.4: Summary of GRIDCo efficiency improvement project and World Bank financing (US\$ million)

Sr. No	Description	ESRP amounts	World Bank financing under PforR	Remarks
1	330/225 kV Prestea Substation; 6 No. 50/66MVA 1No. 120/145MVA 161/34.5 kV power transformers; 2 No. 50 MVar, Static VAR Compensators @Prestea & Nayagnia	66		
2	Strengthen Western Corridor: 6 Number of 50/66MVA 1 number of 120/145MVA 161/34.5 kV power transformers; Upgrading 3 No. 161/34.5 kV Substations	70		
3	Aboadze-Cape Coast-Winneba-Kasoa 161 kV Transmission Line Upgrade	60	50	World Bank financing shall be limited to financing the upgrade of this transmission line.
Total		197	50	



15. The economic analysis follows a standard cost-benefit framework, which compares the present value of incurred costs to the stream of attributable benefits. The direct economic benefits of the Program identified include: (i) technical loss reduction at transmission company due to investments to remove constraints; (ii) significant economic benefits from implementing economic dispatch; (iii) technical loss reduction at ECG due to implementation of system strengthening works as part of PIP; (iv) commercial loss reduction in distribution; (v) household savings from reduced expenditures on cooking fuels; and (vi) reduced carbon emissions.

16. The commercial loss reduction from ECG and NEDCo, which is the key objective of the Program, has two competing economic effects, with overall positive economic benefits:

- a. a negative economic benefit because of welfare loss due to lower consumption of electricity (as an immediate response to revenue protection program), which is to an extent balanced by lower production of electricity. The economic loss from this is calculated by assuming the following: (i) lower consumption equal to one-third of the energy accounted for due to commercial loss reduction (both system losses and improvement in collection efficiency); (ii) this welfare loss is valued at willingness-to-pay of US\$0.15 / kWh; (iii) lower production equal to the same value as lower consumption and valued at US\$0.1/kWh (in-line with average cost of production in Ghana). This leads to an economic loss equal to US\$0.05 per kWh of lower consumption.
- b. a positive economic benefit because continued commercial losses would lead to the counterfactual that the power plants shall no longer be able to continue supplying power to ECG, due to very high power purchase dues, and fiscal constraints on national budget (including hard budget constraints introduced by GoG under the IMF program). The model conservatively simulates one key generator outage (Cenpower, representing the marginal plant in dispatch), leading to loss of service delivery, and consumers substituting grid power (limited to the generator’s contribution to the peak) with more costly coping mechanisms such as diesel gensets. This is in-line with observations in Ghana currently where ECG has had to resort to load shedding to the tune of ~300MW due to lack of resources to pay for fuel. The economic benefit from this is calculated similar to the above, i.e. equal to the difference between WTP and cost of production (US\$0.05/kWh).

17. The analysis assumes a technical loss reduction of 0.5 percent at GRIDCo⁴¹ (technical loss at 3.84 percent⁴²) and distribution system losses reduction of 2.3 percent annually at ECG. The benefits from security constrained economic dispatch have been estimated as US\$40 million annually based on detailed system level hourly dispatch analysis.

18. The estimated economic cost of the Program is US\$1,085 million which comprises of results-based financing for the PforR program and the IPF component spread over four years starting with first expenditure in CY25. This comprises US\$197million towards GRIDCo strengthening, US\$871million ECG distribution system strengthening, and US\$17 million expenditure against clean cooking. Assumed investment schedule of 25 percent in 2025, 30 percent in 2026, 35 percent in 2027 and 10 percent in 2028.

Table 2.5: Summary of Economic Analysis (CY 2025-2043)

	CY25	CY26	CY27	CY28	...	CY43
PforR - Cost of Govt. program (US\$mn)						
GRIDCo	49	59	69	20		
ECG	218	261	305	87		
Clean Cooking	14	15	16	12		

⁴¹ For the entire Program

⁴² 2023 ESRP assumption



	CY25	CY26	CY27	CY28	...	CY43
Benefits (US\$m)						
Savings from transmission loss reduction	0	0	0	0		34
Benefits from SCED		40	40	40		40
Savings from technical loss reduction in distribution	5	12	26	27		65
Economic benefit from commercial loss reduction		98	82	79		
--- of which economic loss due to lower consumption	-18	-32	-49	-51		-123
---of which economic loss due to lower consumption	130	130	130	130		130
Environmental Impacts (US\$m)						
Value of avoided emissions Low	10	13	16	17		32
Value of avoided emissions High	21	25	32	34		64
Economic Flows (US\$m)						
Cash Flow without Environmental impacts	-266	-169	-219	51		146
Cash Flow with low environmental impacts	-255	-157	-203	68		178
Cash Flow with high environmental impacts	-245	-144	-187	85		210

19. The analysis shows that the Program is economically viable with an NPV of US\$293 million at a 10 percent discount rate and EIRR of 16 percent. The NPV of the Program increases to US\$ 457 million with an EIRR of 20 percent with climate benefits under the low-price scenario of carbon prices.

Table 2.6: Summary results of Economic Analysis (CY 2025-2043)

	Scenario 1 - Base Case	Scenario 2 - Low cost of carbon	Scenario 3 - High cost of carbon
Discount rate	10%	10%	10%
Costs (US\$ million)	1,085	1,085	1,085
Benefits (US\$ million)	2,781	3,210	3,639
Economic rate of return			
ERR	16%	20%	23%
NPV	293	457	620

20. Similar to economic analysis, a program level financial analysis has also been undertaken with similar set of assumptions and benefits as described in the above sections. The key difference is the methodology for estimation of financial benefits from commercial loss reduction, which are accounted for directly as financial benefit for ECG. Similarly, there are no financial benefits assessed from the clean cooking component.

Table 2.7: Summary results of Program Financial Analysis (CY 2025-2043)

US\$ 'million	CY25	CY26	CY27	CY28	...	2043
Benefits						



C1.1 GRIDCo system strengthening (technical loss reduction and dispatch efficiency)	6	27	49	54		54
C1.2 ECG Distribution system strengthening works	39	72	108	145		145
C1.3,1.4,2.1 ECG commercial loss reduction	26	48	49	49		49
C1.6 Clean cooking (Ministry of Energy)	-	-	-	-		-

Free Cashflow	(255)	(242)	(249)	123		255
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NPV	1,476
IRR	24%

ECG Financial Analysis

21. A detailed financial analysis has also been undertaken for ECG, which is also a key PDO outcome indicator. In 2021 and 2022, ECG’s revenue amounted to US\$1.3billion (GHS7.4 billion) and US\$1.1 billion (GHS8.7 billion). Cost of power purchased at US\$2.1 billion (GHS16.9 billion) in 2022, was the biggest cost, and tariff revenues only accounted for 51 percent of total cost of operations. Non cost reflective tariffs coupled with system losses at 28 percent resulted in a loss before tax at US\$1.2 billion (GHS9.9 billion) in 2022, excluding government grants (sector transfers by MoF). Payable days averaged 361 over 2021-2022.

22. The 2023 revenue billed is projected at US\$1.4 billion (GHS15.6 billion). The significant increase in revenue billed is due to a significant (73 percent) increase in the average end user tariff (from GHS0.91/kWh in 2022 to GHS1.58/kWh in 2023). ECG’s total unit cost of operations increased in cedi terms from GHS 1.7/kWh in 2022 to GHS2.3/kWh in 2023 of which cost of power purchases accounts for 82 percent. The increase in cost (primarily generation cost) is attributed to foreign exchange changes/ cedi devaluation as power purchase costs are US\$ denominated. The MoF’s sector stabilization payment to ECG in 2023 was US\$768 million, consistent with prior years payments to ECG (averaging ~US\$771 million/year). Loss before tax in 2023 including government grant was US\$869 million (GHS1.1 billion).

23. The 2024-2027 projections applied the ESRP assumptions on tariffs, system losses reduction and government grants, with one significant departure. While ESRP assumes a tariff increase in 2024, conservatively, ECG financial analysis presented here does not include this hike (2024 is the election year). However, the model assumes a significant tariff adjustment in 2025, to take the EUT same as ESRP assumptions in 2025. System loss reduction of 2.3 percent per year (2022 baseline at 28 percent) and MoF government grants held constant at the 2023 payment of US\$768M. Capex additions are consistent with disbursements to ECG expected under the P4R totaling US\$164 million (GHS 2.6 billion), and trade payables were held constant at 361 days/year.

24. The 2024 to 2027 projections showed an improvement in ECG’s projected EBITDA from -US\$126 million (GHS 1.7 billion) in 2024 to US\$332 million (GHS5.9 billion) in 2027 (i) due to improved system losses; (ii) increases to revenue primarily due to increased tariffs; and (iii) cost efficiency savings from PPA renegotiation excluding government grant. Losses Before Tax in 2024 is projected at -US\$935M (GHS13.1 billion) reducing to US\$481m (GHS 8.6 billion) in 2027. ECG’s payables days was maintained high at 361 days, but could be improved by an increase in collection efficiency (a 1 percent increase in collection efficiency leads to an improvement in cash of ~US\$15.5 million per year).



Table 2.8: ECG financial Analysis

US\$'M	2021	2022	2023	2024	2025	2026	2027
Revenue	1,281	1,051	1,418	1,288	1,725	1,885	2,052
Gov Grant	797	750	768	768	768	768	768
Direct Costs	(2,070)	(2,046)	(2,124)	(2,086)	(2,177)	(2,298)	(2,396)
Other costs	(170)	(142)	(114)	(96)	(89)	(90)	(92)
EBITDA	(161)	(387)	(52)	(126)	228	265	332
Depreciation	(31)	(38)	(28)	(24)	(22)	(22)	(23)
EBIT	(192)	(425)	(81)	(149)	206	243	309
Interest	(139)	(26)	(19)	(17)	(18)	(20)	(21)
Profit/Loss Before Taxes	(331)	(451)	(100)	(167)	187	223	288
Profit/Loss Before Taxes (Excluding Gov. Grant)	(1,128)	(1,201)	(869)	(935)	(581)	(546)	(481)

US\$/kWh	2021	2022	2023	2024	2025	2026	2027
End User Tariff (EUT)	0.13	0.10	0.13	0.11	0.13	0.13	0.13
Unit Cost of Operations (excl. depreciation)*	0.237	0.209	0.205	0.185	0.177	0.170	0.162
Gap (btw. EUT and Unit Cost of Operations)	(0.11)	(0.11)	(0.08)	(0.08)	(0.04)	(0.04)	(0.03)

*all figures on energy sold basis



ANNEX 3. (SUMMARY) FIDUCIARY SYSTEMS ASSESSMENT⁴³

1. The scope of this assessment is based on the nature and boundaries of the Program expenditure framework that support's the Program, derived from the GoG's ESRP, the National LPG Promotion Programme and includes a review of GoG's PFM systems around FM, procurement, fraud and corruption, which are relevant to the implementation of the Program.
2. Based on our assessment, the Program's fiduciary systems meet the minimum requirements per World Bank Directives and Policies on PforR and provide reasonable assurance that the Program funds will be used efficiently and effectively for the intended purpose once the proposed risk mitigation measures are implemented.
3. MoEn's FM arrangements will follow the Ghana PFM Act, 2016 (Act 921), which regulates FM of the Public Sector and serves as the foundation for all FM policies, regulations and other administrative procedures governing the use and reporting on public funds by all MDAs.⁴⁴
4. ECG and GRIDCo FM arrangements will follow sections 192 to 206 of the Public Financial Management Regulations 2019 (L.I. 2378), the Public Procurement Act, 2003 (Act 663) as amended, aspects of the PFM Act, 2016 (Act 921) relating to SoEs and the SIGA Act 2019 (Act 990). This Act establishes the State Interests and Governance Authority, to oversee and administer the State interests in state-owned enterprises, joint venture companies and other State entities and to provide for related matters.⁴⁵
5. The Program procurement arrangements will follow the Public Procurement Act, 2003 (Act 663) as amended. All three IAs are declared public entities and have in place the required procurement structures per the Act to execute the procurement activities. Furthermore, the procurement activities under the program will be undertaken via the Ghana electronic procurement platform (GHANEPS) which is now mandatory for the conduct of all government procurements in Ghana. This will minimize human interference in the procurement processes, thus improving the efficiency of the process. For data analytics, GHANEPS would be used to generate periodic performance and related reports to be used for Program implementation support by the World Bank.
6. The Program will also be guided by the World Bank's Anti-Corruption Guidelines (ACGs) for PforR operations and the Anti-Corruption Guidelines shall apply to the whole Program. The Commission on Human Rights and Administrative Justice (CHRAJ) is not directly required to report to the World Bank, however, Ghana as a member of the World Bank has committed to uphold human rights and promote good governance. During Program implementation, World Bank and CHRAJ should enter into a MoU, requesting CHRAJ to report at least annually to the World Bank on any allegations or instances of fraud and corruption. ECG and GRIDCo also have processes for reporting on Fraud and Corruption. Specifically for procurement, Bidders participating in the procurement under the Program are to be screened against the World Bank list of debarred entities before contract award to ensure that debarred entities are not awarded contracts under the program. Procurement processes that do not follow this directive will not be eligible for payments under the Program.

⁴³ Full assessment is disclosed on the World Bank Website: https://documents.worldbank.org/en/publication/documents-reports/documentlist?keyword_select=allwords&srt=score&order=desc&qterm=P173258&lang_exact=

⁴⁴ PFM Act, 2016 (Act 921)

⁴⁵ SIGA Act 2019 (Act 990).



7. Based on our assessment, the Program’s fiduciary systems meet the minimum requirements per World Bank Directives and Policies on PforR and provide reasonable assurance that the Program funds will be used efficiently and effectively for the intended purpose, once the proposed fiduciary risk mitigation measures are implemented.

Risk Assessment

8. Overall, the assessment of MoEn, ECG and GRIDCo’s control environment indicates that the residual fiduciary risk of the Program is Substantial, after considering mitigation measures.

9. FM risks identified include the timing and sufficiency of budget releases, processing of commitments and payments outside of GIFMIS, weak control environments due to delays in addressing internal control weaknesses reported by the external and internal auditors, and lower than reasonable assurance derived from the external audit due to a lack of independence of the Auditor General.

10. Regarding the risk of budget release delays, the team has engaged with the Government on some energy sector financial recovery actions under the ESRP and will continue during the implementation of the Program. Government’s efforts include its commitment of approximately 1 percent of GDP (around US\$0.7 billion) of fiscal revenues to close the projected financial gap in the sector, the establishment of the Delta Fund which generates about US\$120-150 million of revenues per year, direct budget transfers of US\$ 1 billion on average since 2019 to cover the energy sector's financial shortfall and ensuring no additional energy sector arrears over the next three years under the IMF program. It is expected that the Government will continue to support the energy sector financially for the duration of the PforR program.

11. To minimize the risk of weak control environments due to delays in addressing internal control weaknesses reported by the external and internal auditors, DLI 8 of the ongoing PFM Service Delivery PforR (P176445), requires prompt follow up on audit recommendations commencing in fiscal year 2024. The PFM service delivery PforR (P176445) is also supporting the roll-out of a comprehensive cloud-based system to store and effectively track all internal and external audit recommendations. To mitigate the risk around delays in the submission of audited accounts, ECG under DLI 5 of this PforR, is required to submit audited financial statements within six months of the end of each year. In addition, MoEn, ECG and GRIDCo internal auditors to prepare risk-based internal audit plans for the Program to be approved by (i) the Audit Committees of the three IAs, and (ii) the World Bank.

12. The assessment revealed that commitments and payments are made outside of the GIFMIS system in the case of MDAs. Failure to use the GIFMIS system to process all payments, results in a high level of accrued arrears. This happens especially where a purchase order is raised in the GIFMIS system, but payment is made outside of the system using external resources and the payment is not reflected in the system. This results in an overstated balance of accrued arrears. To mitigate this risk, MoEn is required to follow the PFM Act 2016, (Act 921) guidelines which requires all payments to be made through GIFMIS. This requirement will also be reiterated in the Program documents. Where payments cannot be made due to insufficient budget allocations, MoEn is required to present a request to parliament for a supplementary budget from GoG or specify the source of any additional funding they may have.

13. The Auditor General’s reports are usually issued timely, however, for ECG, there are delays in the publication of its annual reports including audited financial statements. This is expected to be addressed by DLI 5 of this PforR where ECG is required to provide audited financial statements within 6 months of the year end.



14. In the Public Expenditure and Financial Accountability (PEFA) 2018 report, transparency of legislative scrutiny of audit reports, scored a D, given that Committee reports are not published on an official website or by any other means easily accessible to the public'. Auditor independence scored an A in the 2018 PEFA report, however this should be revisited given the ruling provided by a Ghanaian court on May 31, 2023, confirming that the removal of the ex-AG was unlawful. This increases the risk of undue influence on audit findings for MoEn and ECG. Although the Ghana Audit Service is in the process of revising the Audit Service Act 2000, (Act 584) to ensure it aligns with best practices, the revisions do not directly address the concerns regarding the unconstitutional actions highlighted in the May 31, 2023, Supreme Court ruling. To mitigate the risk of undue influence of audit findings, the World Bank will request for a Program specific audit by a private firm acceptable to the World Bank, until such a time when the issues around lack of independence are addressed. In addition, the World Bank is required to engage with the borrower on the strengthening of auditor independence during impending DPF discussions.

15. The World Bank debarred entities being awarded contracts under the Program. **Mitigation Measures:** Bidders participating in procurement under the Program, must be screened against the World Bank list of debarred entities before contract award, to ensure that debarred entities are not awarded contracts under the Program. Procurement processes that do not follow this directive will not be eligible for payment under the Program.

16. Procurement risks include:

- **The World Bank debarred entities** being awarded contracts under the Program. **Mitigation Measures:** Bidders participating in procurement under the Program, must be screened against the World Bank's list of debarred entities before contract award, to ensure that debarred entities are not awarded contracts under the Program. Procurement processes that do not follow this directive will not be eligible for payment under the Program.
- **Inflation and Cedi Depreciation:** The macroeconomic situation in Ghana has led to high inflation rates and sharp depreciation of the Ghana Cedis over the past year which has affected price predictability as well as procurement activities. The current economic context has led to low procurement turnout, contract non-performance amongst others. **Mitigation Measures:** Introduction of price adjustment formula in contracts of more than six months duration, on a case by case basis, to compensate for any unforeseen inflation and/or depreciation of the local currency.
- **ETC/CTRC Approval Delays:** Procurements at MoEn are impacted by approval delays at the ETC and/or Central Tender Review Committee (CTRC) due to irregular sitting times. This has unduly delayed most MoEn procurements. **Mitigation Measures:** Proposed IAs required to review their processes for evaluations and award of contracts as well as have discussions with the World Bank on the next steps to improve the turnaround time especially approvals by ETC/CTRC.
- **Internal Bureaucracy and Contract Administration Challenges** including delays in the preparation of TORs/specifications, payment delays, bureaucratic bottlenecks, monitoring and supervision of service providers and records keeping. **To mitigate this risk;** (i) Training is required in contract management, and IAs are to review their existing processes and agree on ways to reduce the bottlenecks from internal bureaucracies, and (ii) stakeholder engagements and regular progress reporting on the Program to assist in managing the internal bureaucracy and contract administration challenges.
- **Perceived Governance Risks** associated with conflict of interest, as well as fraud and corruption. **Mitigation Measures:** ensure proper procurement planning and use of open competition to address perceived governance risks.

17. **Procurement Exclusions:** Contracts for the procurement of goods, works, non-consulting services and consultancy assignments under the Program that exceed the Operations Procurement Review Committee thresholds will be excluded from the PforR financing. The PCU will periodically monitor the PEF and identify any potential large contracts that may be of such a high value.



18. **Program Governance and Anticorruption Assessment:** Complaints of citizens including fraud and corruption (F&C) will be handled under the entire program by the Commission on Human Rights and Administrative Justice (CHRAJ). CHRAJ provides independent multi-purpose complaint-handling functions for the public sector. It combines the roles of the anti-corruption agency, ombudsman, and the country’s human rights commission. It is empowered to investigate corruption allegations and breaches of the code of conduct for public officers and human rights abuses. In its 2021 annual report, CJRAJ reported 40 cases classified under the Anti-Corruption mandate of the Commission and 39 were resolved. The total number of cases reported dropped by 118 percent from 158 cases in 2020. We did not identify any cases reported under MoEn.

19. **Procurement and Financial Management Capacity and Areas for Improvement:** MoEn, GRIDCo and ECG have well-staffed accounting units and acceptable systems to process financial transactions. Staff capacity is continuously strengthened through various GoG and donor projects and Programs including the ongoing PFM reform project (P151447) and Economic Management strengthening project (P152171). Based on discussions with key staff at MoEn, GRIDCo and ECG’s accounting, budgeting and internal audit units, both institutions have personnel that can adequately manage and report on Program funds.

20. In terms of procurement capacity assessment at MoEn, ECG and GRIDCo, all the three proposed IAs are declared public procurement entities and have in place the required procurement structures per the Public Procurement Act 663 as amended in 914. Also, all the IAs have staff with extensive public procurement experience but limited experience in the use of the World Bank procurement regulation. There is however the need to improve contract management and record keeping. See table below for additional details and mitigation measures for the risks identified during the assessment.

Table 3.1: Procurement Risk and Mitigation Measures

	Risk Factor	Assessment and Observation	Mitigation Measures
1	Accountability for Procurement Decisions in the Implementing Agency	Satisfactory – responsible procurement structure in place at MoEn for implementing procurement	N/A
2	Internal Manuals and Clarity of the Procurement Process	Moderately Satisfactory – MoEn procurement manual in place	More guidance and support required
3	Records keeping and Document Management System	Satisfactory – manual and electronic files	Continuous training
4	Staffing	Satisfactory – A directorate in place with Procurement Director. Assigned procurement staff have been trained by the Bank to boost their capacity under IPF procurements under the program.	Continuous training
5	Procurement Planning	Satisfactory – experience in procurement planning procedures in international and national procurement	Continuous training
6	Procurement Documents (Bidding and Proposals Documents, Shortlist Report, Evaluation)	Moderately Satisfactory – experience in procurement documentation preparation for international and national procurement	Continuous training to improve understanding of the World Bank Standard Procurement Documents
7	Advertisement, Proposal submissions etc.	Satisfactory – experience in adverts publication and structure for receiving procurement proposals in place	



8	Evaluation and award of contracts	Unsatisfactory – structure in place by MoEn for the composition of evaluation teams, review of evaluation reports and recommendation of evaluation outcomes but processes are slow	Need to improve on turnaround time especially approvals by ETC/CTRC.
9	Review of Procurement Decisions and Resolution of Complaints	Satisfactory - structure (committee) in place by MoEn management for review of procurement decisions and resolution of complaints	
10	Contract Management and Administration	Unsatisfactory – structure in place for multi-team composition by MoEn management for contract management and administration but contract implementation is slow	Training in contract management and reduce bottlenecks from internal bureaucracies.
11	Procurement Oversight	Moderately Satisfactory – standing committee including legal by MoEn management for procurement oversight in place	

Table 3.2 FM Risk and Mitigation measures

	Risk	Mitigation Measure	Responsible IA	Type of Action	DLI #	Timing
Financial Management						
1	Delays in Budget releases	Continuous engagement with GoG counterparts on steps taken by the Government to commit funding to the Program throughout implementation.	MoEn	N/A	N/A	Continuous
2	Delays in the provision of timely audited financial statements by ECG.	ECG is required to ensure that audited financial statements are made publicly available on their website no later than six months after the year end.	ECG	DLI	DLI 5	six months after the year end
3	Purchase Orders, Commitments and Payments may be processed outside of GIFMIS	Ensure that MoEn processes all transactions through GIFMIS as per the PFM Act 2016, Act 921. Sanctions will apply for non-conformance.	MoEn	N/A		Immediate
4	Concerns around Auditor Independence	The Program audit will be undertaken by a private firm until the issues around independence are satisfactorily addressed.	MoEn	N/A	N/A	Auditor should be competitively selected within one month of Program Effectiveness.
5	Delays in the implementation of audit recommendations.	MoEn, ECG and GRIDCo internal auditors to prepare risk-based internal audit plans for the Program to be approved by (a) the Audit Committees of the three IAs, and (b) the World Bank.	MoEn, ECG and GRIDCo	PAP	N/A	Continuous



	Risk	Mitigation Measure	Responsible IA	Type of Action	DLI #	Timing
	Instances of fraud and corruption may not be reported to the World Bank	World Bank will enter into a MoU, requesting CHRAJ to report at least annually to the World Bank on any allegations or instances of fraud and corruption.	CHRAJ	PAP	N/A	Within one month of Program effectiveness.

21. **Procurement Planning:** Based on the procurement assessment of the three IAs, it is noted that all the planned procurements emanated from user departments and the plans are linked to funds budgeted according to end-user needs. Procurement was realistically planned with goods, works, non-consulting services and consulting services correctly categorized under the applicable procurement method with the appropriate timelines. Procurement activities also had adequate descriptions in the plan. However, realistic procurement planning and value for money can be improved by ensuring that budgets are derived only from specifications and market research.

Implementation Support

The FM and Procurement teams’ will be involved in mission meetings to work with the task teams to review fiduciary-related achieved results and DLIs. During the missions, the Fiduciary team will take the opportunity to resolve any potential implementation issues and carry out relevant training or institutional capacity building.

22. Fiduciary support will be risk-based and include the following: (i) Monitoring of implementation progress and working with the task team to support the achievement of Program results; (ii) Support to the Borrower to resolve implementation challenges; (iii) Monitoring the performance of the fiduciary systems, including the implementation of the PAP, impact on assessed fiduciary risks to the Program and, as relevant, compliance with the fiduciary provisions in the legal covenants; (iv) Review of bi-annual reports, annual audit reports, reports from the in-depth review, internal audit reports and any other relevant reports, identify key issues and their impact on fiduciary risk and follow up on corrective action; and (v) the FM and procurement implementation support missions will be consistent with a risk-based approach, and carried out at least once a year.



ANNEX 4. SUMMARY ENVIRONMENTAL AND SOCIAL SYSTEMS ASSESSMENT⁴⁶

1. The ESSA for the Ghana Energy Sector Recovery Program was conducted in compliance with the World Bank's requirements. The purpose of the ESSA is to evaluate the adequacy and effectiveness of the legal and regulatory framework of the energy sector to guide environmental and social impact assessments, as well as institutional set-up and capacity to plan, implement, monitor, and report on the environmental and social measures. The specific objectives of the assessment were to: identify the potential direct and indirect environmental and social impacts/risks applicable to the Program interventions; evaluate the national policy and legal framework related to management of environmental and social impacts of the Program interventions; evaluate the institutional capacity for environmental and social impact management within the Program system; prescribe institutional arrangements for the identification, planning, design, preparation, and implementation of projects under the Program to adequately address environmental and social sustainability issues; evaluate the national policy and legal framework and institutional capacity with respect to the core principles (CPs) of the PforR instrument; and describe actions to fill the gaps that will input into the PAP.

2. The ESSA is undertaken to ensure consistency with the six core principles outlined in paragraph 8 of the World Bank Policy for Program-for-Results Financing to effectively manage Program risks and promote sustainable development. These six principles are:

- **Environment:** Promote environmental and social sustainability in the Program design; avoid, minimize, or mitigate adverse impacts, and promote informed decision-making relating to the Program's environmental and social impacts.
- **Natural Habitats and Cultural Resources:** Avoid, minimize, or mitigate adverse impacts on natural habitats and physical cultural resources resulting from the Program.
- **Public and Worker Safety:** Protect public and worker safety against the potential risks associated with: (i) construction and/or operations of facilities or other operational practices under the Program; (ii) exposure to toxic chemicals, hazardous wastes, and other dangerous materials under the Program; and (iii) reconstruction or rehabilitation of infrastructure located in areas prone to natural hazards.
- **Manage Dislocation:** Manage economic displacement or dislocation of economically active people in a way that assist the affected people in improving, or at the minimum restoring, their livelihoods and living standards. The Program is not directly responsible for land acquisitions but should ensure that institutions responsible for implementing the activity have the required systems to manage private land acquisitions.
- **Vulnerable Groups:** Give due consideration to the cultural appropriateness of, and equitable access to, Program benefits, giving special attention to the rights and interests of the Indigenous Peoples and to the needs or concerns of vulnerable groups.
- **Social Conflict:** Avoid exacerbating social conflict, especially in fragile states, post-conflict areas, or areas subject to territorial disputes.

3. The ESSA analyses the system for environmental and social management as relevant for the Program vis-à-vis each of these principles. The gaps identified through the ESSA and subsequent actions to fill those gaps directly contribute to the Program's anticipated results to enhance institutional structures related to the Program activities. The ESSA analysis presents a detailed description of the Program activities and the baseline conditions for existing environmental and social management systems. The Report draws on baseline information and presents an analysis of the existing system vis-à-vis

⁴⁶ Full assessment is disclosed on the World Bank Website: https://documents.worldbank.org/en/publication/documents-reports/documentlist?keyword_select=allwords&srt=score&order=desc&qterm=P173258&lang_exact=



the core principles for environmental and social management in World Bank Policy and Directive for Program-for-Results financing and presents a PAP that will be incorporated into the overall Program credit documentation.

4. The ESSA does not cover activities that would be implemented under the IPF. The environmental and social risk and impacts of the IPF activities would be evaluated and managed using the World Bank’s Environmental and Social Framework and the relevant E&S instruments will be developed.

Assessment of Program Consistency with Core Principles

5. The relevance of each of the six PforR Environmental and Social Core Principles to the PforR is outlined as follows:

Table 4.1: Relevance of E&S Core Principles

Core Principle	Rationale
<i>Overarching Core Principle 1: Environmental and social management procedures and processes are designed to (a) promote environmental and social sustainability in the program design; (b) avoid, minimize, or mitigate against adverse impacts; and (c) promote informed decision-making relating to a program’s environmental and social effects.</i>	The overarching core principle is considered relevant since the PforR would require environmental and social management procedures and processes to manage E&S risks that would be associated with project activities relating to all the program areas. The main social risks will be associated with: (i) potential increase in tariff and its impact on poorer households (Program Area 1), (ii) discrimination and social conflicts relating to the appointment of ECG’s top management (Program Area 2). The production, distribution and use of LPG stoves (Program Area 3) could be associated with public and occupational health and safety risks.
<i>Core Principle 2: aims to avoid, minimize, or mitigate adverse impacts on natural habitats and physical cultural resources resulting from the Program.</i>	This core principle is considered not relevant since the PforR does not support any activities that may affect natural habitats and physical cultural resources. The upgrade of existing distribution network would be undertaken under the IPF component of the Program and the associated potential impacts on natural habitats and physical cultural resources would be evaluated and mitigated through the World Bank’s Environmental and Social Framework.
<i>Core Principle 3: aims to protect public and worker safety against the potential risks.</i>	This core principle is considered relevant since the PforR activities on the production, distribution and use of LPG stoves (Program Area 3) would have potential public and occupational health and safety issues.
<i>Core Principle 4: Manage land acquisition and loss of access to natural resources in a way that avoids or minimizes displacement, and assist the affected people in improving, or at the minimum restoring, their livelihoods and living standards.</i>	This core principle is considered partially relevant since the PforR does not support any activities that may require land acquisition and loss of access to natural resources. However, the upgrade of an existing GRIDCo transmission line (DLI 1) and rehabilitation of ECG distribution network (DLI 3) may occasion some minor economic displacement affecting the livelihoods of persons who may have encroached within the existing corridors of the transmission and distribution infrastructure.



<p><i>Core Principle 5: Give due consideration to the cultural appropriateness of, and equitable access to, Program benefits, giving special attention to the rights and interests of the Indigenous Peoples and to the needs or concerns of vulnerable groups.</i></p>	<p>There are no groups in Ghana that meet the World Bank's criteria for Indigenous Peoples. However, this core principle is considered partially relevant since there are marginalised and vulnerable groups including women, youths, the elderly and persons with disabilities that would be impacted by the Program. There is a possibility of elite capture and the exclusion of vulnerable groups in Program activities. It is important that the Program gives attention to groups vulnerable to hardship or disadvantage, including as relevant the poor, the disabled, women and children, the elderly, or marginalized ethnic groups. Women may be marginalised during appointments of top management members. If necessary, special measures are taken to promote equitable access to Program benefits. There is also possibility of GBV, sexual exploitation and abuse and SH as employees strive to appoint persons into managerial positions.</p>
<p><i>Core Principle 6: Avoid exacerbating social conflict, especially in fragile states, post-conflict areas, or areas subject to territorial disputes.</i></p>	<p>Generally, the proposed Program areas will not exacerbate social conflict, nor will it operate in a fragile state context, a post-conflict area or in areas subject to territorial disputes. However, this core principle is considered partially relevant since the potential increases in the cost of electricity could lead to citizen unrest and demonstrations, as it can fuel general price increases. There could be conflicts due to disconnection of customers that are owing or those that may have tampered with meters. There could be discrimination against the appointment of women into higher positions in ECG. Workers of ECG may protest issues such as change of management. Current managers may not agree with new performance management systems and may organise their constituency to agitate against its implementation. Discrimination in the production and distribution of LPG stoves could result in social conflict.</p>

6. The consideration of which core principle is relevant to the PforR informed the remaining analysis of the ESSA as related to: (i) the assessment of E&S benefits, risks and impacts policy; (ii) the legal and regulatory framework; (iii) the assessment of institutional E&S systems; and (iv) the recommendations and actions for improving capacity for Program implementation.

Environmental and Social Impacts and Risks of the Program

7. Overall, the PforR is expected to have positive social and environmental impacts as the interventions will improve the reliability of power supply and increase access to clean cooking solutions for households. The benefits include: (i) reduced reliance on environmentally unfriendly power sources, such as kerosene lanterns, petrol-powered and diesel-powered generators, firewood, and candles; (ii) reduced use of charcoal and fuelwood, which are key contributors to deforestation and negatively impact climate change; (iii) increased access to clean cooking solutions; (iv) reduced GHG emissions and improved air quality; (v) reduced household air pollution and improved health; (vi) increased awareness on the importance of environmental management at the institutional level that has an effect outside of the Program investments; (vii) better management of energy use, money-saving and cost-reduction efforts, which will increase income for households; (viii) gender-specific benefits from the time saved in not using traditional biomass; (ix) increased distribution efficiency and reliability, which increases the number of hours that electricity is available and thus increases opportunities for children to study, thereby enhancing educational outcomes; (x) reliable power supplies to boost



economic growth and facilitate the creation, or growth, of jobs – especially small (or one-man operated) businesses, which largely employs, and empowers, women; and (xii) strengthened local capacity to deliver on the Program activities.

8. The PforR is also expected to generate negative environmental and social impacts and risks including: (i) increasing electricity share of household budget as electricity becomes increasingly unaffordable for many residential consumers, which would significantly impact poor households; and (ii) potential exposure of first-time LPG users to household accidents, explosions, and fatalities.

Legal and Institutional Frameworks

9. Environmental Assessment (EA): Ghana has comprehensive policies, regulations, and laws in place for EA. The current procedures and sectoral guidelines provide the framework to (i) screen subprojects for potential environmental and social impacts; (ii) determine the level of environmental and social analysis and specific plan to be prepared based on the outcomes of the screening; (iii) review the results of the assessment and plan and clear environmental permitting process; (iv) monitoring and follow-up; and (v) determine penalty and sanctions for violations and infractions to the system. The EA Regulations of 1999 (LI 1652) is considered an important tool both at the central government and local/district government levels. The EA regulatory framework aligns well with the World Bank's PforR Environmental and Social Commitment Plan.

10. Ghana has strong institutions in place for EA. Ghana's Environmental Protection Agency (EPA) is one of the oldest and experienced environmental agencies in Africa. EPA has over 35 years of experience. It is an energetic and experienced organisation and has maintained a leadership position in EA. It generally obtains good cooperation from both the private sector and government agencies, and it has and uses its enforcement authority when developments proceed without following the regulations.

11. Vulnerable Groups: Ghana has a fairly good number of legislations and policies to support the needs or concerns of vulnerable groups. The Disability Policy and the Persons with Disability Act, 2006 (Act 715) seek to mainstream the needs of persons with disabilities into the national development process. The Domestic Violence Act, 2007 (Act 732) provides for the protection of women and children from domestic violence including GBV and the Children's Act, 1998 (Act 560) as amended, provides for the rights of the children, maintenance, and adoption, regulate child labour and apprenticeship. The National Social Protection Policy provides a framework for holistic and proper targeting of vulnerable households for rehabilitative, restorative, protective, and facilitative support. There is multiple government effort to mainstream interest of underserved or marginalised people and vulnerable groups in development projects. However, more effort is needed to ensure such support is well structured to provide sustainable and balanced benefits to vulnerable people.

12. Inadequate E&S Coordination: Within the energy sector broadly, planning processes are still fragmented along institutional lines, although efforts are being made to integrate environmental and social concerns into the development process. To bring environmental and social risk management planning into the mainstream of the planning process, effective mechanisms for coordination and integration of roles amongst relevant institutions is required. Institutions involved in the ESRP mostly do not have a permanent or institutionalised collaborative arrangement (MOU, Memorandum of Agreement) with other organizations in the sector for environmental and social assessments. This gap situates environmental and social assessments and implementation of mitigation measures within silos and hinders effective coordination of the assessments. Enforcement of regulations and compliance will require effective inter and intra-institution coordination. In addition, the expertise required at the local authority level should not be different from that



of similar experts at the national level. Experts at local authorities should be given the same training as their counterparts at the national level.

13. To improve sector coordination, the ESSA recommends that the ESRP should establish an Environmental and Social Safeguards Advisory Committee with representation from the EPA, Energy Commission, Forestry Commission, Lands Commission, National Labour Commission and Department of Social Development to facilitate smooth coordination of environmental and social activities, leverage capabilities of the different institutions, create synergies, and eliminate duplication of efforts.

Institutional E&S Systems Assessment

14. The institutions assessed included MoEn, PURC, EC, GRIDCo, NEDCo, ECG and NPA. The ESSA identified the institutional strengths and gaps as related to the Policies and procedures for environmental and social due diligence, E&S capacity, and stakeholder engagement and grievance mechanisms. The ESSA presents recommendations to strengthen institutional level systems for managing potential impacts and risks on environmental, social, health and safety.

Table 4.2: Institutional E&S Systems Assessment

Institutions	Policies and procedures for environmental and social due diligence	Organizational E&S Capacity	Stakeholder Engagement and Grievance Mechanisms
MoEn	The MoEn has developed a Health, Safety, Security and Environment manual for the energy sector.	<p>The MoEn has implemented a number of World Bank Group financed projects with successful outcomes, including the Ghana Energy Development and Access Project (P074191) and the Ghana Energy Sector Transformation Initiative Project (P163984).</p> <p>MoEn has a Safeguards Officer responsible for coordinating E&S risks management for projects.</p> <p>MoEn relies on EPA for advice and guidance on environmental and social assessments.</p>	<p>Stakeholder Engagement: MoEn broadly engages all relevant stakeholders in the development of energy sector policies and as part of project planning and implementation.</p> <p>Grievance Mechanism: MoEn has a general process by which stakeholders can lodge complaint by visiting the ministry or through email and phone call.</p> <p>Gap: A well-structured Grievance Mechanism with clear roles and responsibilities was not identified. The non-inclusion of specific timelines to guide resolution of the complaint at every level of the mechanism is a problem.</p>
PURC	PURC has systems for managing social risks associated with the PforR especially for vulnerable groups. It has a pro-poor policy in place to ensure that tariffs do not unduly exacerbate social risks to vulnerable groups or life-line consumers. However, there is the need to strengthen the policies and enhance capacity for improved social risk planning, monitoring and reporting.	<p>PURC has trained and qualified personnel that advises the commission on social issues.</p> <p>PURC relies on EPA for advice and guidance on EAs.</p> <p>As part of efforts to ensure a high standard of performance in the provision of energy utility services, officials of the PURC routinely undertake fact finding missions to monitor the performance of the District Offices of ECG and NEDCo.</p>	<p>Stakeholder Engagement: PURC broadly engages all relevant stakeholders in the development of sector regulatory guidelines and as part of project planning and implementation.</p> <p>PURC has prioritized consumer education during the past decade.</p> <p>Statistics from the Consumer Service Bureau of the PURC show that there has been a marked increase in public awareness of the Commission and its functions.</p> <p>Grievance Mechanism: The PURC has a digitalised consumer complaints unit for</p>



Institutions	Policies and procedures for environmental and social due diligence	Organizational E&S Capacity	Stakeholder Engagement and Grievance Mechanisms
		<p>The monitoring covers criteria such as Ambience & Comfort for Consumers, Provision of Suggestion Boxes, Availability of Schedule of Charges, Consumer Education, Use of Complaints and Responses Files, New Service Connection Policy, Metering Policy, Staff Disposition & Attitude towards Consumers, Response Time to Faults, Availability of dedicated telephone line, and Promotion of Payment Options. Owing to the foregoing, a greater number of consumers are finding redress to their energy utility service complaints through their complaints resolution procedures.</p>	<p>addressing internal and external grievances and is mandated to receive complaints on behalf of the utility companies.</p> <p>Gap: The process and procedures for citizens to engage with the PURC on issues relating to tariff increments and change of meters are unclear. In view of that, increases in the cost of electricity could lead to citizen unrest and demonstrations.</p> <p>Opportunity: Although the PURC has highly trained and qualified personnel, there is opportunity to engage more staff to enhance consumer education and public appreciation of the social issues related to the PforR.</p> <p>Recommendation: The ESSA recommends that PURC should identify life-line customers likely to be affected by the tariff increases for support. Social effects, especially due to tariff increases, should be addressed through the PURC. PURC should ensure that impacted communities and vulnerable groups are consulted during design and implementation of the program. The PURC should map stakeholders with a focus on specific concerns of the vulnerable, challenges they face in accessing benefits; available or required subsidies. It is recommended that disaggregated data on beneficiaries (women, differently abled, Below Poverty Line, ethnicity, and minorities) is periodically tracked with respect to access to services. Infrastructure and service delivery must also integrate universal design principles to facilitate access to differently abled, senior citizens, women, and other vulnerable groups.</p>
EC	The EC has operationalized the Health, Safety, Security and Environment manual for the energy sector.	There is a whole directorate dedicated to environment, climate change and energy efficiency, which ensures decision-making on the environment at the highest level in the EC.	<p>Stakeholder Engagement and Grievance Mechanism: As part of the project planning and implementation, EC engages all relevant stakeholders. EC also has a general process by which stakeholders can lodge complaint.</p> <p>Gap: A well-structured Grievance Mechanism with clear roles and responsibilities was not</p>



Institutions	Policies and procedures for environmental and social due diligence	Organizational E&S Capacity	Stakeholder Engagement and Grievance Mechanisms
		<p>EC has personnel that advise the Commission on environmental and social issues. The commission also relies on EPA for advice and guidance on environmental issues and assessments.</p> <p>The EC has implemented donor-funded projects with satisfactory outcomes on environmental and social management.</p> <p>The EC is an active player in the ECOWAS Regional Center for Renewable Energy and Energy Efficiency (ECREEE).</p> <p>Gap: The environment directorate is quite under-staffed and the lack of training of existing staff obstructs effective integration of environmental and social issues. Training of staff on environmental and social issues is episodic. There is systematic grievance redress mechanism in place.</p> <p>Recommendation: The systems in place for managing E&S and social risks associated with the PforR could be improved. In particular, there is opportunity to build capacity of the EC to monitor environmental and social risks of the stakeholders they regulate. There is also the need to strengthen policies and enhance capacity for improved E&S planning and reporting.</p>	<p>identified. The non-inclusion of specific timelines to guide resolution of the complaint at every level of the mechanism is a problem.</p>
<p>Northern Electricity Distribution Company</p>	<p>It is important to note that, NEDCo is a wholly-owned subsidiary of VRA.</p> <p>Environmental and Social Policies: NEDCo has an Environmental and Social Management System with a Corporate Environmental Policy Statement which commits to ensuring continuous</p>	<p>Environmental and Social Units and Staffing: NEDCo has an Environment & Sustainable Development Department with core staff of scientists and engineers, technicians, mechanics, boat crews and administrative support staff, involved in EA, reforestation,</p>	<p>Stakeholder Engagement and Grievance Mechanism: As part of the project planning and implementation as well as the EA process, NEDCo prepares stakeholder engagement plan and puts in place a Grievance Mechanism. Grievances about NEDCo can also be submitted to the PURC.</p>



Institutions	Policies and procedures for environmental and social due diligence	Organizational E&S Capacity	Stakeholder Engagement and Grievance Mechanisms
	<p>improvement of environmental performance that minimizes potential impacts of all its operations on the environment in accordance with the principles of sustainable development and complying with national and international environmental protection regulations.</p> <p>Health and Safety Policy: NEDCo has a Health and Safety Policy which outlines the principles of good occupational health and safety practices. It is aimed at promoting the wellbeing of personnel and preventing workplace accidents; an ill Health Policy to promote best practices in ill health prevention and to promote healthy lifestyles and an Environmental Policy to safeguard and mitigate the impact of our operations on the environment through the use of an Environmental Management Plan and an Emergency Preparedness Plan.</p> <p>Corporate Social Responsibility (CSR) Policy: NEDCo’s CSR Policy requires the Authority to conduct its business in a socially responsible and ethical manner; protect the environment and guarantee safety in its operations as well as respect and support the impacted communities in their development effort.</p> <p>Safety, Health and Environment Standards for Contractors: NEDCo has a “Safety, Health and Environment Standards for Contractors” to guide the contractors in the execution of their jobs coupled with periodic site visits by our safety personnel. To improve compliance of third-party contractors, NEDCo includes a requirement in the tender documents for contractors to provide an HSE plan before the award of contract.</p> <p>Discrimination and Sexual Harassment: Specified in the Code of Ethics, NEDCo prohibits sexual or any other kind of harassment of employees by others at the workplace or while conducting the business of the Authority elsewhere. Sexual harassment includes but not limited to:</p>	<p>dredging, water quality monitoring, etc. Within the Department is an Environment Section which is involved in EA and audit, and they collaborate on social and environmental management issues with many other units in NEDCo, such as departments of Engineering Planning and Development, Engineering Design and Construction, and Real Estate. The ESD Department oversees preparation of EISs, maintains liaison with EPA, and manages the process of NEDCo’s compliance with LI 1652. It prepared the VRA “Corporate Environmental Policy Statement” and the draft “Policy Framework”.</p> <p>VRA is very experienced and accustomed to carrying out environmental and social impact assessments to international standards. Its corporate environmental policy is well articulated and commits the agency to follow all EPA Regulations. Its practice is to apply international good practice whether or not there is external financing in a project. Its ESD Department is well staffed and managed, and obviously respected by the VRA workforce and supported by senior management. Notwithstanding the gaps identified, the ESSA concludes that VRA has highly satisfactory Environmental and Social Management System required to manage the E&S risks associated with the PforR.</p>	<p>NEDCo undertakes free, prior, and informed consultations if people are potentially affected (positively or negatively) to determine whether there is broad community support for the program. The Authority also ensures that Project-Affected People participate in devising opportunities to benefit from exploitation of customary resources or indigenous knowledge, with the consent of the affected persons.</p>



Institutions	Policies and procedures for environmental and social due diligence	Organizational E&S Capacity	Stakeholder Engagement and Grievance Mechanisms
	<ul style="list-style-type: none"> • Unwanted sexual advances and indecent exposure • Request for sexual favours as basis for employment, promotion, transfer and loans • Unsolicited verbal, audio-visual or physical/sensory conduct of sexual nature • Repeated invitations for social relationship when one party has stated these invitations are unwelcome • Displaying sexual suggestive visuals or audio material in the workplace • Transmitting (texting, emailing) of sexual offensive or suggestive materials <p>Gaps: Health and Safety: A challenge VRA sometimes face is Safety Compliance of third-party contractors. Gender Inclusion: Though the management has indicated their preparedness to give more female engineers greater opportunities, the ESSA did not identify any documentary evidence of a specific gender and social inclusion policy or plan.</p>		
<p>GRIDCo</p>	<p>Environmental and Social Policies: GRIDCo has an Environmental and Social Management System with a Corporate Environmental Policy Statement which commits to ensuring continuous improvement of environmental performance to minimize the impacts of all its operations on the environment, in line with the principles of sustainable energy sector development, in addition to complying with National and International Environmental Protection Standards and Regulations and make Environmental considerations a priority in Business Planning.</p> <p>Occupational and Community Health and Safety: GRIDCo has systems and measures that promote community, individual, and worker safety through the safe design, construction, operation,</p>	<p>Environmental and Social Units and Staffing: GRIDCo has a unit with staff responsible for the development of Environmental and Social Studies with respect to the BHP such as the Environmental and Social Management Plans, ESIA, Salvage Archaeology, Health Impact Assessment Study, and the acquisition of environmental permits, among others.</p> <p>The ESSA concludes that GRIDCo has satisfactory Environmental and Social Management System required to manage the potential E&S risks and impacts associated with the PforR.</p>	<p>Stakeholder Engagement and Grievance Mechanism: As part of the project planning and implementation as well as the EA process, GRIDCo prepares stakeholder engagement plan and puts in place a Grievance Mechanism. Grievances about GRIDCo can also be submitted to the PURC.</p> <p>Disclosure of E&S Policies and Framework: Key policies and frameworks that guides environmental and social management are not readily available or accessible on their websites.</p> <p>Recommendation: The ESSA recommends that GRIDCo should disclose its corporate environmental and social policies. Plans and reports.</p>



Institutions	Policies and procedures for environmental and social due diligence	Organizational E&S Capacity	Stakeholder Engagement and Grievance Mechanisms
	<p>and maintenance of physical infrastructure, or in carrying out activities that may be dependent on such infrastructure with safety measures, inspections, or remedial works incorporated as needed. In addition, GRIDCo do provide its workers with Personal Protective Equipment (in the form of overalls, helmets, goggles, gloves).</p> <p>Gap: Gender Inclusion: The ESSA did not identify any documentary evidence of a specific gender and social inclusion policy or plan.</p>		
<p>Electricity Company of Ghana Limited</p>	<p>Environmental and Social Policies: ECG generally has corporate environmental and social policies and frameworks that guide its operations in the planning and implementation of projects as required by the national regulations and policies and standards of development partners. For instance, ECG has an Environmental and Social Management System and has developed the following E&S frameworks/Manual and Plans:</p> <ol style="list-style-type: none"> a. Environmental and Social Management Framework (2018) for Contractor Management and contains Biodiversity Management, Water and Air Quality Management, Waste Management, Hazardous Materials Management, Site Rehabilitation and Landscaping Management and Cultural Property Protection Management. b. Safety and Health Policy Guidelines and Procedures Manual (2020) which outlines an integrated approach to management of Safety and Health considerations in ECG. The manual has been developed to ensure all major risks and hazards to people, the environment or ECG assets have been identified and that suitable mitigations or controls are implemented to assure that the risks associated with ECG 	<p>Environmental and Social Units and Staffing: ECG has a Safety Health and Environment (SHE) Division, SHE Officers and SHE Committee at the national level with the responsibility of assessing and managing environmental and social risks and impacts. The Division conducts environmental due diligence and ESIA's. ECG has E&S Officers with the responsibilities to for developing and maintaining programs which promote sound safety, health, and environmental management. The Division is required to take appropriate measures to protect human health and safety and the natural environment. Although the SHE Division is housed under the Operations Directorate, it is a cross cutting area that effectively collaborates and work closely with all Directorates, Divisions, and district offices in all ECG regions. In terms of institutional capacity, the SHE Officers within the Division have the requisite qualification and experience to prepare ToR for the environmental and social safeguards instruments, guide consultants in the preparation and review of the instruments and</p>	<p>Stakeholder Engagement and Grievance Mechanism: Stakeholder engagement is a core part of the activities of the institutions involved in the PforR, prior to implementing any project. ECG undertakes stakeholder engagement as part of the environmental and social due diligence process and in some instances conduct citizen's survey to seek feedback from customers to improve service delivery. ECG has a SEP which outlines the strategies and approaches to be used in engaging with all stakeholder groups for projects and activities within the Company's operations. The SEP is an integral part of Environmental and Social Management System . In accordance with the accepted best practices, the Company uses the SEP to continue the consultative process with key stakeholders throughout the operational areas. ECG has a web-based inquiry and complaints redress system and round-the-clock customer call centre to receive and address customer complaints. It is accessible 24 hours a day all days of the week. This mechanism makes room for verification and follow-ups. It allows for anonymous reporting and for aggrieved parties to provide further particulars to present grievance. It also encourages consumers/lay people affected by the project to report. ECG also has active social media pages for engaging stakeholders and customers.</p> <p>Gaps:</p>



Institutions	Policies and procedures for environmental and social due diligence	Organizational E&S Capacity	Stakeholder Engagement and Grievance Mechanisms
	<p>operations and activities are eliminated or as low as reasonably practicable.</p> <p>c. Emergency Preparedness and Response Plan (2020) which provides guidelines for identifying, preventing, minimizing, and managing injuries, accidents and risks to all staff and stakeholders. The plan if effectively implemented will steer the company's commitment to eliminating harm to staff, contractors and the general public. The plan ensures that potential emergencies that may impact the health and safety of all staff, contract workers, affected communities, women and children are identified and handled effectively.</p> <p>d. Gender and Social Inclusion Policy (2020) with the objective of improving organisational culture and operational performance in line with international best practices and standards by advancing gender equality, diversity, and social inclusion. According to the ECG, the policy commits to having a workforce comprising 40 percent women (currently 24.4 percent), with 40 percent of women in leadership positions (currently 11 percent) in the company by 2035. The policy also commits to zero tolerance of sexual harassment in the workplace, more gender equitable recruitment and hiring practices, and maternity and paternity leave.</p> <p>Public and Worker Safety: ECG has systems and measures that promote community, individual, and worker safety through the safe design, construction, operation, and maintenance of physical infrastructure, or in carrying out activities that may be</p>	<p>oversee their implementation. However, it is important to note that the Division is understaffed.</p> <p>Gaps: Limited E&S Capacity at Subnational Level: At the regional and district level, ECG's Technical Officers with limited capacity on Safeguards are required to take up responsibilities for E&S management which results in limited commitment, dedication, and availability to institutionalise safeguards implementation and enforcement at the subnational level. For example, Maintenance Officers also serves as Safety Officers and District Engineers double as Safety Representatives at the District Level. ECG's district level officers have limited capacity on monitoring and supervising the procedures and processes to assess the potential impacts of project activities.</p> <p>Staff Development: Staff development policy or plan which should direct staff development programmes and promote and strengthen women in leadership roles was not clearly evident, especially at the regional and district level offices of ECG. The Ad hoc nature of staff development has led to a situation where some few workers have over benefited while other staff have never had the opportunity to be trained.</p> <p>ECG has in place systems for managing E&S and social risks associated with the PforR. However, there is the need to strengthen policies and enhance capacity for improved E&S planning, monitoring and reporting.</p>	<p>Nondisclosure of E&S Policies and Framework: The policies and frameworks that guides environmental and social assessments are not readily available or accessible on their websites. Individuals and groups are required to write formally to request them and there is no indication whatsoever on how long this process might take. Policies and frameworks of Energy Sector institutions should be made available online through the websites of the relevant authorities and ministries.</p> <p>Grievance Redress Mechanism: A gap in the grievance redress mechanism is the non-inclusion of specific timelines to guide resolution of the complaint at every level of the mechanism. For instance, the complaints reporting framework of the ECG does not indicate how many hours or days it takes to resolve specific issues and beyond which the complaint could be escalated to the next level. Also, the framework is generic and not tailored for workers or sub-contractors. ECG's Grievance Redress Mechanism does not have clear guidance on how issues of Sexual Exploitation, Abuse and Harassment should be addressed.</p> <p>Social Inclusion: ECG's commitment to ensure social inclusion has been sporadic.</p> <p>Sexual Harassment: Even though ECG's Gender and Social Inclusion Policy commits to zero tolerance of sexual harassment strategies for preventing sexual harassment are not very evident.</p> <p>Recommendations:</p> <ul style="list-style-type: none"> • ECG should disclose environmental and social policies, plans and reports. • ECG should enhance its grievance redress mechanism to include specific timelines to guide resolution of the complaint at every level of the mechanism.



Institutions	Policies and procedures for environmental and social due diligence	Organizational E&S Capacity	Stakeholder Engagement and Grievance Mechanisms
	<p>dependent on such infrastructure with safety measures, inspections, or remedial works incorporated as needed. In addition, ECG do provide its workers with Personal Protective Equipment (in the form of overalls, helmets, goggles, gloves). In 2018, ECG launched its Code of Conduct for staff and third-party contractors to guide their behaviour, attitude, and conduct in the discharge of their responsibilities. The Code of Conduct outlines rules for social norms, rules, and responsibilities of proper practice for an individual worker, a party, or an organisation to ensure professionalism, objectivity, transparency, and effectiveness in service delivery. There is evidence on the use of recognised good practice in the production, management, storage, and transport of hazardous materials and electronic wastes generated through program construction or operations.</p> <p>Social Considerations - Indigenous Peoples and Vulnerable Groups: Generally, ECG undertakes free, prior, and informed consultations if people are potentially affected (positively or negatively) to determine whether there is broad community support for the program. The Company ensure that Project-Affected People participate in devising opportunities to benefit from exploitation of customary resources or indigenous knowledge, with the consent of the affected persons. Furthermore, the ESSA established that they give attention to groups vulnerable to hardship, including, as relevant, the poor, the disabled, women and children, the elderly, or marginalised ethnic groups.</p> <p>Social Conflict: ECG has Human Resource Management procedures and mechanism for handling conflicts resolution and appeals. The institutions have the ability to handle (i) labour management, and (ii) potential tensions/conflicts between staff and</p>	<p>Recommendation: ECG should strengthen its staff to adequately monitor environmental and social compliance performance at the national and sub-national level.</p>	



Institutions	Policies and procedures for environmental and social due diligence	Organizational E&S Capacity	Stakeholder Engagement and Grievance Mechanisms
	<p>customers. For project specific activities the institutions usually put in place Grievance Redress Committees and arbitration process. Arbitration only works where the parties to a dispute agree to resolve a difference through arbitration. As required by the Ghana Constitution, the institutions also allow for the right of access to the court of law by any person who has an interest or right over an affected property.</p> <p>Gaps: E&S Policies and Framework: ECG’s ESMF is generic and largely focuses on the Environmental and Social Performance Standards of the International Finance Corporation (IFC) and does not adequately address the World Bank’s requirements for an ESMF. Again, the ESMF does not include sub-projects screening tools or checklist.</p> <p>Recommendation: The ESSA recommends that:</p> <ul style="list-style-type: none"> • ECG should develop environmental and social screening tools and update their E&S instruments in line with the potential risks and impacts of the IPF activities. ECG should update its ESMF. • ECG should develop strategies for preventing sexual harassment. • ECG should include sexual exploitation and abuse and sexual harassment prevention measures in the Code of Conduct for workers and third-party contracts. • ECG should update its Gender Action Plan with the objective to increase women participation in Program activities. • ECG should develop a staff development policy to direct staff development programmes and promote and strengthen women in leadership roles especially at the regional and district level offices of ECG. 		



Institutions	Policies and procedures for environmental and social due diligence	Organizational E&S Capacity	Stakeholder Engagement and Grievance Mechanisms
	<ul style="list-style-type: none"> ECG’s Training Centre should incorporate environmental and social risk management into its courses to improve the capacity of its staff in all its agencies. 		

Environmental and Social Risk Rating

15. Based on the findings, of the national and institutional assessments, the ESSA recommends that the Environmental and Social Risk is rated Moderate mainly due to a good regulatory and institutional frameworks and systems on EA in the country that are able to manage environmental risks from the types of investments and scale and magnitude of impacts.

Environmental and Social Actions

16. The ESSA analysis presented has identified strengths and gaps in the Government’s environmental and social management system. For the effective implementation of the PforR, the ESSA recommends the following Program Action Plan (PAP) which is aligned to the identified potential environmental and social risks and impacts associated with the Program.

Table 4.3 Environment and social actions

No.	Action Description	Responsibility	Timing	Completion Measurement
Environmental and social due diligence				
1.	ECG to update its Gender Action Plan with the objective to increase women participation in Program activities.	ECG’s PIU	Throughout project implementation	Gender Action Plan revised and approved by ECG’s Management
2.	GRIDCo to strengthen their current Right of Way Management Frameworks to provide for livelihood restoration for economically displaced people	GridCo	Before the start of the construction activities of transmission line	Procedures for Livelihood Restoration updated and cleared by the World Bank
Institutional Capacity Enhancement:				
3.	The PCU and PIU maintain Safeguards Specialists to support the program in planning, managing, and reporting on environmental and social issues and compliance.	MoEn’s PCU and ECG and GridCo’s PIUs	Throughout project implementation	Safeguards Specialists available
E&S Monitoring and Verification:				
4.	MoEn, through IVA, to submit a half-yearly E&S monitoring and verification report (as part of Program progress	MoEn	Throughout project implementation	Terms of reference for the IVA include requirements on E&S monitoring; MoEn has



	reporting) covering all activities of the Program			submitted the reports to the Bank
Stakeholder Engagement, Grievance mechanism and Information Disclosure				
5.	MoEn, ECG, and GRIDCo have a fully functional grievance redress mechanism with a referral pathway for SEA/SH cases	MoEn’s PCU and ECG and GridCo’s PIUs	Three months after effectiveness	Grievance Mechanisms of implementing institutions fully functional. Report on grievances
6.	MoEn, ECG and GRIDCo to disclose relevant E&S policies, frameworks, plans and reports	MoEn’s PCU and ECG and GridCo’s PIUs	Throughout project implementation	All relevant E&S instruments duly disclosed in a timely manner.

Stakeholder Consultations

3. Formal and informal stakeholder consultations have been an integral part of the ESSA process during the project preparation phase. For the preparation of the ESSA, Bank specialists undertook a series of meetings and engagements with various stakeholders including government and regulatory agencies, power producers and distributors, industry associations, and technical experts aimed at information- gathering and risk analysis. Virtual Public Consultation for the ESSA for the proposed Ghana Energy Sector Recovery PforR was held on September 14, 2021. Feedback received in the consultation process has been incorporated in the ESSA report.



ANNEX 5. PROGRAM ACTION PLAN

Action Description	Source	DLI#	Responsibility	Timing		Completion Measurement
Annual implementation report of the ESRP regularly disclosed	Technical	NA	ESTF	Recurrent	Yearly	ESRP Annual Implementation report is published in MoEn and Energy Commission websites
Approve and disclose a revised ESRP document that extends the closing date of the program to 2028	Technical	NA	Energy Sector Task Force	Due Date	30-Sep-2025	Updated ESRP document available at MoEn and Energy Commission websites
ECG to update its Gender Action Plan with the objective to increase women participation in Program activities.	Environmental and Social Systems	NA	ECG's PIU	Other	During program implementation	Gender Action Plan revised and approved by ECG's Management
The PCU and PIU maintain Safeguards Specialists to support the program in planning, managing, and reporting on environmental and social issues and compliance	Environmental and Social Systems	NA	MoEn's PCU and ECG and GridCo's PIUs	Other	Throughout implementation	Safeguards Specialists available



MoEN, through IVA, to submit a half-yearly E&S monitoring and verification report (as part of Program progress reporting) covering all activities of the Program	Environmental and Social Systems	NA	MoEn	Other	Throughout program implementation	Completed report with, recommendations about E&S issues, including the progress of the implementation of actions shared with the World Bank and other relevant stakeholders.
MoEN, ECG, and GRIDCo have a fully functional grievance redress mechanism with a referral pathway for SEA/SH cases	Environmental and Social Systems	NA	MoEn’s PCU and ECG and GridCo’s PIUs	Other	Within 3 months after effectiveness	Grievance Mechanisms of implementing and beneficiary institutions fully functional. Report on grievances.
MoEN, ECG and GRIDCo to disclose relevant E&S policies, frameworks, plans and reports	Environmental and Social Systems	NA	MoEn’s PCU and ECG and GridCo’s PIUs	Other	Throughout Program Implementation	All relevant E&S instruments duly disclosed in a timely manner.
MoF to make available, bank account details for funds to be transferred to the implementing agencies upon Program signing.	Fiduciary Systems	NA	Ministry of Finance	Other	Before effectiveness	Bank account details for implementing agencies submitted by MOF.
ECG management to work closely with the audit committee to implement audit recommendations in a timely manner	Fiduciary Systems	NA	ECG	Recurrent	Continuous	Audit recommendations implemented in a timely manner.



ECG shall ensure smart pre-paid meters, distribution strengthening works under the Program (PforR component) shall be procured through competitive bidding	Fiduciary Systems	NA	ECG	Recurrent	Continuous	Contracts are awarded through competitive bidding
GRIDCo to strengthen their current Right of Way Management Frameworks to provide for livelihood restoration for economically displaced people	Environmental and Social Systems	NA	GRIDCo	Other	Before the start of the construction activities of transmission line	Procedures for Livelihood Restoration updated and cleared by the World Bank



ANNEX 6. IMPLEMENTATION SUPPORT PLAN

1. **The Ghana Energy Sector Recovery Program's implementation strategy is based on the identified program risks outlined in the SORT and the assessed capacity of the Implementing Agencies.** The implementation strategy based on risk will remain flexible to address any challenges that may arise during implementation. The World Bank will provide implementation support, and additional technical and operational experts, including World Bank staff and external consultants, can be brought in as needed. A proactive communication channel will be maintained with implementing agencies, key oversight agencies, and bodies such as the Energy Commission, Public Utility Regulatory Commission, the ESRP Working Board, the ESTF, the NLPGPP Steering Committee, and other important sector stakeholders.
2. **The scope of implementation support will be comprehensive in order to accommodate the complexity and scale of the operation.** Specific areas of support include (i) review of implementation progress and achievement of Program results and DLIs; (ii) support for resolving issues with Program implementation; (iii) enhancement of institutional capacity; (iv) monitoring of the adequacy of systems performance and compliance with legal agreements; and (v) support to the Ministry of Energy in monitoring changes in risks. The World Bank will continuously monitor these factors and undertake early interventions where required.
3. **Provision for capacity building support is provided to strengthen implementation capacity.** TA has been included in the Program to strengthen the capacity of the key sector agencies coordinated by the Ministry of Energy.

Implementation Support Plan

4. The multifaceted implementation support program will focus on:
 - (i) **Technical inputs.** The World Bank will make available relevant and necessary technical expertise during the three year Program implementation. The support started during preparation and will continue until effectiveness before being intensified during the initial six months of the rollout of the program.
 - (ii) **Fiduciary requirements and inputs.** The team will consistently supervise FM and procurement arrangements. This support will be provided to MoE, GRIDCo, and ECG and carried out as required as part of the Program supervision plan and as needs emerge.
 - (iii) **Safeguards.** The team will monitor the compliance of MoE, ECG, and GRIDCo's compliance with the ESSA over the course of Program implementation, and technical guidance will be provided accordingly, including training on E&S management if required.
 - (iv) **Implementation-Progress Monitoring.** The team will monitor implementation progress in accordance with the agreed M&E and verification protocols. The Project Coordination Unit at the Ministry of Energy is the central unit that will provide additional monitoring of the GRIDCo and ECG ensuring the achievement of the DLI
5. The primary implementation support activities for each stage of Program development and implementation can be seen below.



Table 6.1: Implementation Support

Program stage	Focus	Skills Needed	Resource Estimate
Before Effectiveness	Support for: Preparation and continuous implementation of Project Preparation Advance activities Institutional strengthening Training on guidelines, safeguards and DLIs data gathering	Technical, FM, Procurement, Safeguards, M&E	<ul style="list-style-type: none"> Ongoing FM, Procurement and Safeguards engagement with PIEs Provision of training support as needed Technical expert support/visits as needed
First three months	Support for: <ul style="list-style-type: none"> Procurement training and supervision FM training and supervision E&S monitoring and reporting, training and supervision DLI, indicator and results areas monitoring and reporting 	Governance, Technical, FM, Procurement, Safeguards, M&E, reporting, data management, communications	<ul style="list-style-type: none"> Ongoing FM, Procurement and Safeguards engagement with PIUs Provision of training support as needed Technical expert support/visits as needed Implementation support mission
Up 48 months	Support for: <ul style="list-style-type: none"> DLI, indicator and results areas monitoring and reporting; results areas; Procurement management Citizen engagement FM and disbursement FM and disbursement monitoring and reporting E&S monitoring and reporting 	Reporting, Technical, FM, Procurement, Safeguards, M&E, citizen engagement	<ul style="list-style-type: none"> Semi-annual implementation support mission Technical expert support/visits on demand basis Quarterly monitoring of disbursements

6. Task Team skills mix requirements for implementation support over the course of the three-year Program implementation is shown below.

Table 6.2: Task Team Skills and Resources

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
Project management (task team leaders)	60	10-12	Accra , Washington, DC
FM specialist	15	-	Accra
Procurement specialist	15	-	Accra
Technical specialists	15	5-10	Accra , Washington, DC



Skills Needed	Number of Staff Weeks	Number of Trips	Comments
Environmental issues	10	-	Accra
Social development issues	10	-	Accra
Communications	10	3-4	Accra
Gender issues	2	-	Accra
Administrative support	20	-	Accra , Washington, DC



ANNEX 7. INVESTMENT PROJECT FINANCING COMPONENT

1. MoEn and ECG are the main implementing agencies for IPF-related activities. MoEn's Financial Management (FM) arrangements will follow country systems, and World Bank Policy and Directives on IPF while ECG will adopt some aspects of the country systems and follow its existing FM arrangements and World Bank policy and directives on IPF. Both the MoF and Comptroller and Auditor General (CAGD) will have oversight responsibilities and will be signatories for payments and withdrawal applications.

2. Despite the introduction of the PFMA, 2016 (Act 921), Public Financial Management Act 2019 (L.I. 2378) and GoG's quest to improve the robustness of the PFM systems and processes, some FM risks were identified during the assessment, and these include delays in the submission of AWPB, IFRs, ECG audited financial statements, and disruptions to financial reporting due to potential issues with the newly installed SAP system at ECG. To manage the risk of delayed AWPB's, the IAs will follow their existing budgeting processes and timelines and include all project-related estimates in the budget. To minimize the risk of technical issues caused by the newly installed SAP system, ECG must request share a copy of Program expenditure reports with World Bank no later than six months after effectiveness to confirm that the system can generate accurate Program specific reports for the IPF components.

A summary of the key findings of the financial management arrangements is presented as follows:

Budgeting Arrangements.

3. ECG follows budgeting guidelines as stipulated in the Public Financial Management Act 2019 (L.I. 2378). ECG's budgeting process begins with a planning letter from the Managing Director to all Directorates, to inform ECG of the pillars on which the year's budget will stand. The planning and budgeting process involves multiple stakeholder consultations, a review by the budget committee, Management authorization, and board approval by December each year. ECG also prepares quarterly variance analysis reports to monitor differences between estimates and actual expenditure. The budget arrangements are considered satisfactory.

4. MoEn will follow GoG's budgetary guidelines issued by MoF in the PFM Act, 2016 (PFMA) Act-921 and in the 2014 Programme Based Budgeting framework. The PFM Act 2016 (Act 921) provides guidelines on budget preparation, management, and approval process. The 2014 Programme Based Budgeting framework defines strategic planning and budgeting with expenditure outlays to identify results, making it easier to relate planned program expenditures to expected results across MDAs and MMDAs.

5. The MoEn medium term expenditure framework will be prepared with due regard to government policy. The cycle begins with the dissemination of a circular each year and involves Stakeholder consultations, review meetings and layered approvals by the Chief Director, the Minister and Parliament. Once approved, the Minister issues expenditure ceilings in respect of the annual budget every quarter. This information is uploaded into the GIFMIS Budget and Expenditure Module known, as Hyperion. The responsibility for preparing the consolidated Program annual budget rests with the Government implementing team and should be available by November 30 of each year preceding the year of implementation.

Accounting Arrangements.



Staffing

6. The MoEn Director of Finance will be responsible for the overall fiduciary aspects of the IPF components of MoEn activities. The primary responsibility of the Director of Finance is to ensure that throughout implementation there are adequate financial management systems in place that can report adequately on the use of project funds. The MoEn Director of Finance (DoF) will be supported by a dedicated project Accountant who is a controller staff. The project accountant will be responsible for the day-to-day FM accounting and reporting procedures.

7. The ECG DoF will have overall FM responsibility of the IPF component. The DoF is a Chartered Accountant with over 15 years of experience and is supported by three Chartered Accountants with over 10 years of experience, namely, the Acting General Manager for Treasury, General Manager, Financial Accounting, and General Manager, Management Accounting. The team will also be supported by a Chartered Accountant, who will be designated as an Accountant on this project. ECG's Director of Finance will ensure that the project is implemented in accordance with the final project operations manual, project financial covenants and ECG accounting manual. The project accountants at ECG have World Bank funded reporting experience where ECG has supported the generation of reports for projects such as GEDAP.

Systems

8. MoEn currently uses GIFMIS to prepare and report on its activities. It is expected that the project will be included on the GIFMIS platform to process and report on MoEn project activities. MoEn is required to engage the GIFMIS Secretariat to migrate to include the project on the GIFMIS platform and ensure that the Chart of Accounts includes key activity codes for the project to facilitate effective reporting.

9. GIFMIS is maintained by the GIFMIS Secretariat and runs on the Ghana National Data Center platform. GIFMIS has advantages including reducing human intervention in the payment process.

10. FM assessments revealed that some purchase orders, commitments, and payments are initiated outside of GIFMIS. Failure to use GIFMIS as required per the PFM Act 2016 (Act 921), results in increased liabilities or accrued arrears. This happens where PO's are raised in the system but the corresponding payment is made outside of the system without creating dummy payments to clear the liabilities. Payment for expenditure outside GIFMIS is not allowed per the PFM Act 2016 (Act 921), however, this happens across many sectors, where external funds are used to settle liabilities.

11. This risk applies to MoEn and all other institutions using GIFMIS. From discussions with MoEn, all transactions for goods and services, CAPEX, etc. go through GIFMIS. Approximately 4 percent of their transactions do not go through GIFMIS. This relates to funds of the NES project which were garnished resulting in MoEn opening a commercial bank account and using MS Excel for reporting on the NES project activities.

12. To mitigate the risk MoEn is required to adhere to PFM Act 2016, Act 921 which requires all commitments and payments to be processed in GIFMIS. This requirement will be highlighted in the PforR Program Operations Manual and the act of circumventing GIFMIS must be avoided to prevent sanctions as indicated in the legal framework.

13. Where budget allocations are insufficient, MoEn is required to go to parliament for a supplementary budget to pay from GIFMIS. The Appropriation Act gives a ceiling to each MDA and where this is expected to be exceeded, the MDA is required to show the source of funding.



14. ECG is currently using SAP . To ensure that the migration from SunSystems to SAP was satisfactory, ECG is required to share a Program specific report with the World Bank on ECG transactions to confirm that the system is generating accurate reports that can be relied on by the stakeholders.

Internal Control & Internal Auditing.

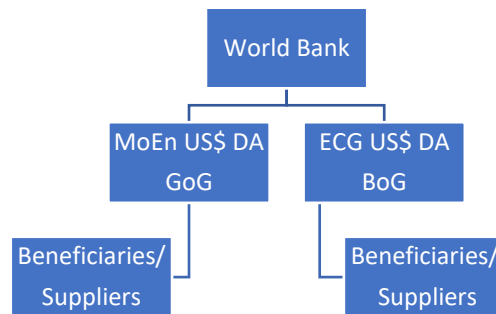
15. MoEn's internal controls will rely on 's established accounting and internal control guidelines as documented in Internal Audit Manuals and PFM Act 2016, (Act 921) , while ECG will rely on guidelines in the Public Financial Management Act 2019 (L.I. 2378),. and aspects of the PFM Act 2016, Act 921 that relate to SoEs. . MoEn and ECG have functioning internal audit units which helps to promote a sound control environment for transaction processing.

16. ECG's Internal Audit unit headed by the Director of audit who is supported by over 20 internal audit staff. The Accounting and Internal Control procedures meets the minimum requirements as per World Bank Guidelines and Directives on IPF.

17. The MoEn and ECG Internal Audit Heads are required to include the Program in their internal audit work plan and therefore, the internal audit team is required to periodically perform risk-based audits to monitor project activities and provide periodic internal audit reports. MoEn and ECG will maintain a fixed assets log for assets to be acquired or created using project funds. The internal audit will submit at least one internal audit report to the World Bank each year.

Funds Flow and Disbursements

18. ECG and MoEn will each maintain a US\$ designated account at the BOG, to receive funds from the World Bank. Both IAs will also open a local currency project account for operational activities and to transfer funds to suppliers and beneficiaries. Disbursement will be report-based for both MoEn and ECG.



19. Once the accounts are opened by MoEn and ECG, the MoF is required to provide the World Bank with the Bank account details and a list of designated signatories for the project to be set up in client connection. MoEn and ECG through MoF, are required to notify the World Bank of any changes in signature authority, either electronically in Client Connection or through an updated authorized signatory Designation Letter. The procedures and modalities, signatories etc. for operating the designated accounts and project accounts will be further clarified and outlined in the Operations Manual.

Disbursements



20. Funds from IDA will be disbursed directly from the World Bank to the project US\$ DA maintained at the BOG for MoEn and ECG.. The request for funds will be done based on Withdrawal Applications duly signed by at least one representative from each of the following: MoF, MoEn and CAGD and supported by Unaudited IFRs using the report-based modalities and will include Budget Execution Reports generated from GIFMIS together with forecast expenditures against achievement of DLRs. Detailed disbursement arrangements can be found under the disbursements section of this document

Disbursement Categories

21. Based on the project design there will be three disbursement categories for IPF component as follows:

Table 7.1: Disbursement Categories

Category	IDA Allocation (US\$ million)	% of expenditures to be financed (inclusive of Taxes) IDA	ESMAP Allocation(US\$ million)	% of expenditures to be financed (inclusive of Taxes) GPE	Total
(1) Goods, non-consulting services, consultants' services, for part 1 of the IPF Component – ECG.	90	100	0	100	90
(2) Goods, non-consulting services, consultants' services, Operating and Training costs* for part 2 of the IPF Component of the Program. - MoEn	5.2	100	3	100	8.2
(3) Goods, non-consulting services, consultants' services, for part 2 and Operating and Training costs* for part 1 and 2 of the IPF component of the Program - ECG.	4.8	100	0	100	4.8
(4) Project Preparation Advance Activities	6	100	0	100	6
Total Amount	106		3		109

Operating and training costs may not exceed 12 percent of the category allocation.

Financial Reporting Arrangements

22. MoEn and ECG will be responsible for preparing quarterly unaudited IFRs for the IPF Components and will submit the IFRs to the World Bank no later than 45 days after the end of each quarter. The project coordinator shall review and sign off on the IFR before the MoEn and ECG Finance Directors submit the IFR to the World Bank. The existing IFR arrangement, including the IFR format currently in use at MoEn for GESTIP, would apply for the IPF Components.



23. The MoEn and ECG Finance Directors will be responsible for ensuring that these reports - Unaudited IFRs are prepared on time and submitted to all stakeholders including the World Bank in line with the timelines as per the Financing Agreement. These reports should show clearly as a minimum;

- (a) A statement of sources and uses of funds by component and by category
- (b) A budget variance report comparing the utilization of approved budget against expenditure (*useful to the TTL to monitor implementation and fund utilization*)
- (c) A Designated Account reconciliation statement
- (d) List of current commitments i.e. signed and ongoing contracts
- (e) A cash forecast for six months (to be the basis of requesting for additional funding)

24. Formats of the various periodic financial monitoring reports to be generated from the financial management system will be developed and discussed with the client prior to negotiation. The financial reports will be designed to provide relevant and timely information to the project management, implementing agencies, and various stakeholders monitoring the project's performance.

25. In addition, MoEn and ECG will prepare annual financial statements at the end of each fiscal year following acceptable accounting standards. The financial statements will comprise, at a minimum, (i) sources and uses of funds (summary of expenditures shown under the main program headings and by main categories of expenditures for the period) and (ii) notes to the financial statements, including background information, the accounting policies, detailed analysis and relevant explanation of the main accounts/major balances to name a few. In addition, MoEn and ECG shall provide, as an annex to the financial statements, an inventory of fixed assets acquired according to asset classes, dates of purchase, location, and cost.

External Auditing

26. MoEn and ECG will each be responsible for providing separate audited financial statements and management letters for the IPF components of the Program. Due to the risk of the perceived lack of independence of the Auditor General, the IPF components will be audited by a competitively appointed independent auditor acceptable to the World Bank. Detailed notes to be included in the audited financial statements will incorporate activities financed under the project. The auditor will express an opinion on the Financial Statements in compliance with acceptable auditing standards and provide a management Letter giving observations and comments, providing recommendations for improvements in accounting records, systems, controls and compliance with financial covenants in the Financing Agreement. External audits will be conducted annually, and the audit report and management letter will be submitted to the World Bank within six months after the end of the financial year.

Implementation Support Plan

27. Based on the risk rating of the project and the current FM arrangement, it is expected following effectiveness, that in the first year of implementation, there will be at a minimum two onsite visits to ascertain adequacy of systems and how effective the country systems are being used to support implementation. The FM implementation support mission will include ensuring that strong financial management systems are maintained throughout project tenure. In adopting a risk-based approach to FM supervision, the key areas of focus will include assessing the accuracy and reasonableness of budgets, their predictability and budget execution, compliance with payment and fund disbursement arrangements and the ability of the systems to generate reliable project-specific financial reports.



Conclusion

28. A description of the project's financial management arrangements as documented in the preceding paragraphs indicates that they satisfy the World Bank's minimum requirements per World Bank policy on Investment Project Financing. The overall FM risk for the IPF components is assessed as 'Moderate' based on the solid foundation of a strong legal and regulatory framework for PFM in Ghana, and based on MoEn's experience with past World Bank funded projects. MoEn and ECG will be required to maintain financial records, submit quarterly unaudited IFRs to IDA as per guidelines in the FA and submit annual audited accounts no later than six months after the end of each fiscal year.

Procurement

29. Procurement under the IPF component of the program will be in accordance with the World Bank's "Procurement Regulations for IPF Borrowers" (Procurement Regulations), dated September 2023 and the "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants", dated October 15, 2006 and revised in January 2011 and on July 1, 2016, as well as other provisions stipulated in the Financing Agreements. The Procurement Plan will be prepared in the STEP tool, based on PPSD, and will be updated as and when required.

30. ECG and MoEn are the proposed IAs for the IPF component. Both IAs have procurement staff with extensive experience in public procurement using national procurement procedures but limited experience in the use of the Bank Procurement Framework as Consultants were engaged to execute the previous projects i.e. GEDAP and GESTIP. Furthermore, summary of the PPSD indicates that the operational context for the procurement under the Project is favorable as the political, sustainability and technological parameters are encouraging. The economic terrain is however not favorable due to the recent high inflation and rapid depreciation of the Ghana Cedis which could affect market predictability and pricing. It is expected that the micro and macro stability being pursued by the Government especially through the IMF program will aid in improving the procurement environment to make it more competitive, realistic, and facilitate the achievement of value for money.

31. Thus, the strategies proposed to mitigate these inherent risks are: (i) procurement staff complete the GIMPA training on the World Bank Procurement Framework; (ii) close World Bank procurement support and supervision; (iii) a detailed Operations Manual to be prepared to guide procurement implementation; and (iv) introduction of price adjustment clause for local currency contract with more than six months duration on a case by case basis. The residual procurement risk after implementation of these mitigation measures is thus assessed as Moderate.



ANNEX 8. CLEAN COOKING

1. **Ghana, like a number of other countries in sub-Saharan Africa, faces significant negative impacts from lack of access to clean cooking.** According to the 2021 Population and Housing Census, 54.3 percent of Ghana’s population cook with polluting biomass fuels on rudimentary stoves. This practice has significant health, environment, and gender impacts – as it contributes to high levels of household air pollution (HAP). Air pollution is currently the second largest cause of death in Africa, exceeded only by AIDS⁴⁷. According to the World Bank, 11,803⁴⁸ premature deaths that occur each year in Ghana are attributable to household air pollution – to which women and children are most exposed. Other impacts of reliance on biomass for cooking include time and opportunity cost, particularly for women – including time spent on gathering and preparing fuel, food preparation and inefficient cooking, and on cleaning of soot-covered cooking utensils. World Bank data from more than 70 “Time-use Surveys” across various geographical areas – including Ghana, shows that fuel collection consumes an average of 1.3 rural household’s hours per day (ranging from 30 minutes to more than six hours)⁴⁹. Clean cooking interventions are therefore most beneficial for women even in situations where the households are headed by men, as women still retain the primary responsibility of fuel sourcing and cooking. Other impacts include environmental degradation from local harvesting of biomass, and climate impacts from both deforestation and emission of black carbon during burning of biomass. Because of these cross-cutting impacts, the economic cost of not transitioning to clean cooking is estimated at US\$19 billion for Ghana, of which US\$13.7 billion is attributable to the health impacts of HAP, while the remainder arises from other impact areas such as climate and environmental degradation.

2. **Despite significant government of Ghana effort to increase LPG access to the population, the rate of access have stayed below the target.** Since 1989, Ghana Government policy has focused on LPG as substitute for firewood and charcoal in cooking, but the goal of achieving 50 percent of the population using LPG for cooking has been moved from 2015 to 2020 and now to 2030. Through the National LPG Promotion Program (NLPGPP) and the new the LPG CRM, GoG aims to expand LPG access from the current 36.9 percent to 50 percent of the population by 2030.

3. **Amongst the clean cooking solutions available to date, LPG remains the only scalable solution that has demonstrated positive impact on health.** When in use, it undergoes complete combustion, produces no residue and particulate matter, which means minimum maintenance cost and lesser carbon footprint. LPG is widely considered a transitional fuel, with the **lowest carbon content of any of the off-grid fuels such as kerosene and coal**. It has the potential of decarbonizing the sector until cleaner energy forms, such as electricity or ethanol, are available and affordable in the market. Based on these considerations, and the acceptability of LPG by end users, the GOG has been focusing on increasing access to LPG to reach its SDG 7 targets.

4. **Notwithstanding, the GOG recognizes that its clean cooking goals cannot be achieved without balancing its attention to the promotion of efficient and cleaner utilization of biomass.** Studies around the world have shown that households that adopt LPG and other clean cooking fuels do not make a full transition away from biomass. Instead, they “stack” the new stoves with the old traditional stoves. Moreover, the Ghana Living Standards Survey 7 estimates

⁴⁷ <https://www.thelancet.com/action/showPdf?pii=S2542-5196%2821%2900201-1>

⁴⁸ The Global Health Cost of Ambient PM_{2.5} Air Pollution, PMEH-WBG, 2020

⁴⁹ Acuna Castillo, Nathyeli Yethzi; Zhang, Yabei; Ochieng, Caroline Adongo; Adams, Norma; Schomer, Inka Ivette; Wu, Jingyi-000550051; Pinto, Alisha Noella; Greene, Jennye Elizabeth; Morris, Ellen; Matinga, Magi. *Opening Opportunities, Closing Gaps : Advancing Gender-Equal Benefits in Clean Cooking Operations (English)*. Washington, D.C. : World Bank Group.



that about 0.5 million households engaged in agro-processing activities⁵⁰ which involved the use of solid biomass fuels on traditional cookstoves. These activities together generate an estimated sales value of GHC639 million annually – making them a significant part of Ghana’s economy. Other market segments include caterers engaged by the GoG under the Ghana School Feeding Programme. As of 2021, the GoG had engaged 32,496 caterers – who provided meals to feed 3,448,065 pupils in 10,832 public basic schools in each school-going day, across the country⁵¹. Additionally, the government’s “Free Senior High School” policy has also expanded the scope of school-feeding activities in secondary schools due to increased student population. Apart from these public institutions, the informal food vendors, and restaurants/commercial caterers are significant user group of biomass for cooking. Access to both LPG and efficient biomass cookstoves therefore remain embedded in Ghana’s SEforAll Country Action Plan (2012); updated Nationally Determined Contributions (NDCs- 2021) which targets the deployment of 3 million efficient biomass cookstoves by 2030; the National LPG Promotion Policy (2017); the Renewable Energy Master Plan (2019); and the National Energy Policy (ongoing revision).

5. Awareness on clean cooking options remains low both for households and institutions, hampering market development. A considerable proportion of households and productive users of energy (PUE) have either not been reached or convinced to switch to clean cooking solutions. There are less routine market-activation initiatives (via mainstream or social media) focused on the value-proposition and savings attributable to the range of available clean cooking products in the market that addresses consumer awareness and demand barriers. These roles can’t also be left to cookstove manufacturers or distributors due to budgetary constraints, and the need to ensure that consumers are provided with accurate information necessary to make well-informed decisions on the range of products available in the market.

6. Consistent with PforR Operations, program activities will be tailored to fit in the National LPG Promotion Programme and by extension, the Cylinder Recirculation Model (CRM):

(a) **Direct incentives to low-income Households, Schools, and Commercial Enterprises to switch to LPG.**

The program will target 450,000 households and 7,000 commercial enterprises (including 261 second-cycle schools) in its first phase of implementation (2024-2027). The stoves will be distributed directly to the beneficiaries (largely women) who qualify⁵². The households and other beneficiaries will be those located in areas where the CRM is being implemented or LPG supply is guaranteed, based on lessons learnt from the Rural LPG Promotion Program. The subsidy amount is 70 percent of the cost of the cookstove pack, comprising of a two-burner stove, one regulator, three yard hose, two pieces of clips, and fire blanket. The subsidy will be one-off, with the goal of helping households and commercial enterprises to overcome the high upfront costs that do hinder transition, allow them to experience the benefits of cooking with LPG, and overcome perceptions that cooking with LPG is unsafe and costlier than charcoal. The expectation is that after the initial cost barrier is overcome, they would be able to finance the continuous use of LPG with their displaced expenditure on woodfuels. The inherent risk with such program design, however, is the potential to leave the very poor behind – as those at the lowest income bracket may not have the ability to refill their cylinders after the subsidized ones have been used up. This risk is somehow mitigated by the concurrent efforts by government to disseminate efficient biomass stoves under separate programs – such as the Korean Improved Cookstoves Clean Development Mechanism Project. Those who miss out on the NLPGPP are expected to be covered under the improved biomass cookstove projects and this

⁵⁰ Cooking oil processing, cassava processing into gari or chips, groundnut oil/paste processing, home brewed drinks, fish processing, rice parboiling, meat processing, shea-butter processing, amongst others

⁵¹ Budget Statement and Economic Policy of the Government of Ghana, 2022 Financial Year

⁵² Because women within the households will be the cookstove recipients and primary users of the stoves, the impact estimates have utilized numbers receiving the stoves rather than number of females in the household.



approach is consistent with how other countries⁵³ like Indonesia, South Africa, India, etc., have overcome the initial barriers to LPG adoption.

(b) TA for implementation and sector's development (through IPF component)

The TA will finance support services for implementation of the NLPGPP as well as offer the following sector-wide assistance:

- (i) Support the MoEn and the Energy Commission on clean cooking policy development, promotion of the National; Clean Cooking Strategy and Investment Prospectus, and sector coordination; the NPA on behavior change communication (with a gender focus); obtaining ISO certification for the KNUST-TCC stove testing lab to enhance research and further development of modern stoves; institutional strengthening, and business development support services for ICS enterprises through the GHACCO, support the GSS on clean cooking data collection, etc. Capacity building on gender will help to ensure that program activities incorporate specific actions that will narrow gender gaps, and that appropriate indicators are selected to monitor this progress.
- (ii) Operational support to the PCU, including project management support and financing operational costs as well as the costs of IVA.
- (iii) Deployment of a comprehensive public education and awareness campaign (targeting both men and women)
- (iv) M&E (including sex-disaggregated indicators) Collection of data on clean cooking

Definition and Targets of DLI7/DLRs: "Increased use of LPG for Cooking"

7. The program will increase access to LPG for both households and commercial users – including schools. Both the household and commercial components (261 second-cycle schools, restaurants, and other commercial operators) will support beneficiaries to switch from biomass (firewood and charcoal) to the use of LPG as primary fuel for cooking.

8. The projected impact of the Clean Cooking component of the PforR, if LPG access is expanded to 450,000 households and 7,000 commercial catering enterprises (in which 261 will be secondary schools) under Phase 1 of the NLPGPP includes:

- (i) 2,000,000 people to benefit
- (ii) 70 percent of the 450,000 beneficiary households and the 7,000 commercial enterprises will be women
- (iii) Over US\$3.6 million savings for HH on fuel expenditure/year⁵⁴
- (iv) 2,282 MtCO₂eq abated/year
- (v) 538,346 Mt of woodfuel saved/year.

Verification Protocol and Data Sources

9. **The DLI Indicator is** Increased Use of LPG for Cooking for Households and Commercial Caterers (including schools). PforR proceeds will be disbursed upon IVA's verification of achievement of results on this indicator. The verification

⁵³ Regional experience is scant as very few countries in Africa have implemented concrete interventions on LPG, beyond setting national policies and targets. Senegal has had experience with LPG subsidies, but these were nationwide non-targeted subsidies.

⁵⁴ 2021, Ghana Energy Survey, Kintampo Health Research Centre and the Columbia World Projects



will be done by an IVA to be procured by the PCU and expected to be the KHRC due to their past experience and track record in this specialized area.

10. During implementation (2024 – 2027), the IVA will verify program activities that contribute to the results based on the report prepared by the MoEn against Phase 1 target of the NLPGPP. Verification will include items such as number of stoves packs procured for households and caterers (including schools), delivery of the stove packs to households and caterers, number of qualified low-income households that have received subsidized LPG stoves, total amount of cookstove subsidies issued in a reporting period in a given location, number of enterprises that have benefited from technical support disaggregated by gender, among other variables as defined in the ToR of the verification agent. The Verification report is expected to include the following (i) a catalog of eligible clean stoves that meet the project technical criteria, which includes manufacturer information and stove model information (unique ID's); (ii) shipping evidence and related receipts (if imported); and (iii) vendor contracts, sale and receipt records, and other proofs including stove model, stove price, transaction date, guaranteed after sales-service, signed voluntary agreements, and beneficiary information (resident ID number, address, phone number, GPS coordinates, picture, etc.). Considering the large number of stoves expected to be distributed, the verification will be done on a sampling basis following the NLPGPP Operations Manual, to check evidence and confirm the reported number of stoves delivered and calling the beneficiaries to confirm receipt of the cookstove packs.

Table 8.1: Clean Cooking Output and Outcome Indicators

Project Cooking Intervention Objective: Increased Access to LPG for Cooking		
Project Target: 450,000 HH and 7,000 Caterers		
Outcome: Improved access to clean cooking in Ghana		
Outcome indicator 1.1	Number of people who gained access to clean cooking resulting from the CCF co-financed project	<ul style="list-style-type: none"> ○ 450,000 households (1,800,000 people) ○ 261 Second-cycle Schools (130,500 people) ○ 6,739 Commercial Caterers (26,000 people)
Outcome indicator 1.1.1	Of which female beneficiaries	70%
Outcome indicator 1.2	Amount of investments mobilized (including both public and private financing)	<ul style="list-style-type: none"> ○ Public Funds (GoG) = US\$3 million ○ Private Funds (LPGMC's) = US\$4 million <p>Excluding is the estimated €335 million⁵⁵ of investment needed to expand and reengineer the supply chain and effectively implement the new LPG distribution model</p>
INTERMEDIATE OUTCOME: Government has adopted policies and regulations to support public and private sector investment in clean cooking		
Intermediate outcome indicator 1.1	Number of policies and regulations adopted by the governments to support clean cooking market development	Clean Cooking policy
Intermediate outcome indicator 1.2	Proactive actions to promote female employment/entrepreneurship and gender co-benefits	<ul style="list-style-type: none"> ○ 600 women in leadership positions are trained to be advocates and champions in clean cooking and gender equality. ○ 50% of women-led cookstove enterprises assisted to access business opportunities in the clean cooking value chain.

⁵⁵ 2019, Global LPG Partnership | Kreditanstalt für Wiederaufbau (KfW) | European Union



		○ 50% of women-led companies in the clean cooking value chain assisted with business development services
OUTPUTS:		
Output 1.	Strategies, policies, regulations to support clean cooking	Clean Cooking Policy
Output 2.	Innovative technology, business, and financing approaches, incorporating both women’s and men’s preferences and needs	Not applicable

Implementation Arrangement of the DLI7

11. MoEn will be responsible for the implementation of the NLPGPP, and the Clean Cooking Component will have a National Steering Committee to play a coordinating role. The National Steering Committee is expected to include representatives of the MoEn, NPA, EC, MLGRD – and chaired by the MoEn.

12. The frequency and extent of implementation support by the World Bank to the Program will be flexible towards addressing implementation challenges as they arise. The implementation support will be carried out through support missions, as well as through regular interactions with the NLPGPP Steering Committee. The MoEn has the primary responsibility in monitoring and evaluating the PforR. The results framework established as part of the PforR, coupled with the NPA’s comprehensive M&E system (developed with GESTIP support) will complement and serve as a basis for establishing a framework to track achievement of results on the clean cooking component over time. The Clean Cooking Component (DLI7) of the PforR will be financed by the World Bank IDA (US\$10 million), with a US\$7 million co-financing from the ESMAP CCF⁵⁶ – totaling US\$17 million. ESMAP will fund the TA activities of the Project with an additional US\$3 million.

Table 8.2: Clean cooking component financing

Item	Source	Amount (US\$ Million)	% of total Budget
1	International Development Association (IDA)		
1.1	IDA Credit	300.00	50.00
2	Trust Funds		
2.1	Energy Sector Management Assistance Program (ESMAP)	10.00	50.00
3	Total Financing	20.00	100.00

13. The MoEn’s estimated a budget of US\$112 million for the entire NLPGPP (2022 – 2030). Out of which about US\$57 million is required to implement Phase 1 (2024 – 2027). The funding gap of about US\$4 million under Phase 1, is expected to be partially covered by the 30 percent end-user contributions, investments by LPGMC’s, and GoG’s Annual Budget Funding Amount.

⁵⁶ The World Bank’s US\$500 million (CCF) announced at the September 2019 Climate Action Summit on Energy Transition Track in New York will help to accelerate progress toward universal access to clean cooking by 2030 with initial contributions pledged by Denmark, Norway, and the United Kingdom. The CCF will provide financial and technical support, primarily through results-based funding grants, to help countries incentivize the private sector to deliver modern cooking services.



ANNEX 9. CLIMATE CHANGE, NATURAL HAZARD RISKS, AND ADAPTATION OPPORTUNITIES

1. Resilient infrastructure development in Ghana includes consideration of existing natural hazards⁵⁷ and ongoing climate change. Relevant risks for this project include wildfire, flooding, droughts, and extreme heat, which is expected to increase due to climate change. Figure 9.1 details the geographical risks.

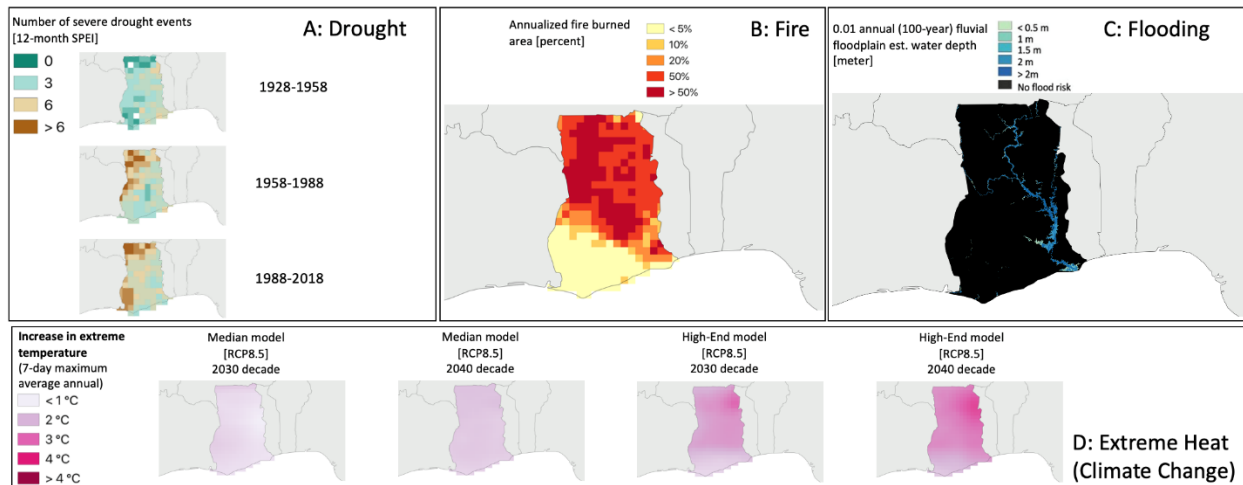


Figure 9.1: Key hazard risks in Ghana and their geographic distributions. Data detail areas that are at relatively high risks of droughts⁵⁸ (A), wildfires⁵⁹ (B), and flooding (0.01-probability annual event)⁶⁰ (C). Projected extreme heat map are also shown (D), represented by increases from climate change through the 2030 and 2040 decades of the hottest week of the year⁶¹.

2. Wildfire and flooding are recognized as a ‘high’ risk in Ghana¹ under current climate conditions, and climate change is expected to exacerbate these risks⁶². The wildfire risk is severe in most of the country, with some less exposed parts in the southwest (Figure 9.1). Flooding varies geographically and seasonally, but the most severe exposure is localized around Lake Volta. Climate change models predict some increase in flooding frequency in the region⁶³. In most locations, the increase in maximum temperatures over a seven-day average across each decade is approximately 1-2°C in the median model for the 2030 decade, while the higher end model shows significant increases of 2.5-4°C by 2040. Water scarcity caused by droughts is a concern in the northwest and west of the country, and historical data show that the situation is getting worse.

⁵⁷ ThinkHazard database, Ghana. The World Bank (2021). <https://www.thinkhazard.org>

⁵⁸ Vicente-Serrano et al, 2010. A Multiscalar Drought Index Sensitive to Global Warming: The Standardized Precipitation Evapotranspiration Index, *Journal of climate*, 23(7), 1696-1718

⁵⁹ Giglio, L., Randerson, J., & Van der Werf, G. (2013). Analysis of daily, monthly, and annual burned area using the fourth-generation global fire emissions database (GFED4). *Journal of Geophysical Research: Biogeosciences*, 118(1), 317–328.

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Resilience ‘of’ and ‘through’ Project Considerations

3. Given the risks identified in the screening, specific considerations will be given to resilience measures that could help mitigate the impacts of wildfire, flooding, and extreme heat. However, the project plans to build on the ECG (utility company) financial resilience and asset management. The measures taken in the project will enable ECG to ensure future mitigation and adaptation measures when planning the Program. This project will support the urgent actions that ECG needs to implement to reduce commercial losses and increase collection efficiency required for financial turnaround (as envisaged under ESRP). Due to the nature of the financial tool used and project design the financial, managerial (governance), and economic resilience of the ECG will be enhanced. However, in the Result Area #4 access to households, commercial caterers and schools for clean cookstoves and fuels will address reduction of GHG emissions, which will built on economic resilience of the communities and enhance climate and environmental benefits.