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Report No: PAD5022

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR 26.8 MILLION
(US\$36 MILLION EQUIVALENT)

AND A
PROPOSED GRANT

IN THE AMOUNT OF SDR 17.9 MILLION
(US\$24 MILLION EQUIVALENT)

FROM THE CRISIS RESPONSE WINDOW

TO THE
REPUBLIC OF MALAWI

FOR AN

EMERGENCY POWER RESTORATION PROJECT

June 6, 2022

Energy and Extractives Global Practice
Eastern and Southern Africa Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective April 30, 2022)

Currency Unit =	Malawian Kwacha (MWK)
US\$1 =	MWK 812.93
US\$1 =	SDR 0.74

FISCAL YEAR
July 1 – June 30

Regional Vice President: Hafez M. H. Ghanem

Country Director: Mara K. Warwick

Acting Regional Director: Ashish Khanna

Practice Manager: Julia M. Fraser

Task Team Leaders: Dhruva Sahai, Pierre J. Lorillou

ABBREVIATIONS AND ACRONYMS

AWPB	Annual Workplan and Budget
CAPEX	Capital Expenditure
CPF	Country Partnership Framework
CPIA	Country Policy and Institutional Assessment
CRW	Crisis Response Window
DAM	Day ahead market
DPO	Development Policy Operation
EGENCO	Electricity Generation Company (Malawi) Limited
EIRR	Economic Internal Rate of Return
ESCOM	Electricity Supply Corporation of Malawi Limited
ESCP	Environmental and Social Commitment Plan
ESDP	Energy Sector Directions Paper
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMAP	Energy Sector Management Assistance Program
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards
ESSP	Energy Sector Support Project
FI	Financial Intermediary
FIRR	Financial Internal Rate of Return
FM	Financial Management
FNPV	Financial Net Present Value
FTS	ESCOM Financial Turnaround Strategy
FY	Fiscal Year
GBV	Gender-based Violence
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIIP	Good International Industry Practice
GNI	Gross National Income
GoM	Government of Malawi
GRS	World Bank's Grievance Redress Service
ICR	Implementation Completion Report
IDA	International Development Association
IFC	International Finance Corporation
IFMIS	Integrated Financial Management Information System
IPDC	Internal Procurement and Disposal Committee
IPF	Investment Project Financing
IPP	Independent Power Producer
IRP	Integrated Resource Plan
M&E	Monitoring and Evaluation
MCC	Millennium Challenge Corporation
MEAP	Malawi Electricity Access Project
MERA	Malawi Energy Regulatory Authority

MOE	Ministry of Energy
MoNRCC	Ministry of Natural Resources and Climate Change
MV	Medium Voltage
MWK	Malawian Kwacha
NEP	National Electrification Program
NGO	Non-Governmental Organization
NPV	Net Present Value
OE	Owner's Engineer
OE1	Owner's Engineer for Kapichira Rehabilitation Phase 1
OE2	Owner's Engineer for Kapichira Rehabilitation Phase 2
OHS	Occupational Health and Safety
OPEX	Operating Expenditure
O&M	Operation and Maintenance
PDO	Project Development Objective
PIM	Project-level Implementation Manual
PIU	Project Implementation Unit
PP	Procurement Plan
PPA	Power Purchase Agreement
PPE	Personal Protective Equipment
PPIAF	Public Private Infrastructure Advisory Facility
PPSD	Project Procurement Strategy for Development
PRAMS	Procurement Risk Assessment and Management System
PV	Photovoltaic
RAP	Resettlement Action Plan
RBM	Reserve Bank of Malawi
RFQ	Request for Quotation
RPP	Revenue Protection Program
SAPP	Southern African Power Pool
SDG	Sustainable Development Goal
SDR	Special Drawing Rights
SE4ALL	Sustainable Energy for All
SEP	Stakeholder Engagement Plan
SHS	Solar Home System
SOP	Standard Operating Procedures
STEP	Systematic Tracking of Exchanges in Procurement
SVTP	Shire Valley Transformation Project
TA	Technical Assistance
T&D	Transmission and Distribution
ToR	Terms of Reference
UN	United Nations
WBG	World Bank Group

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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name		
Malawi	Emergency Power Restoration Project		
Project ID	Financing Instrument	Environmental and Social Risk Classification	Process
P178914	Investment Project Financing	High	Urgent Need or Capacity Constraints (FCC)

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input checked="" type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input checked="" type="checkbox"/> Hands-on Enhanced Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
17-Jun-2022	30-Nov-2026

Bank/IFC Collaboration

No

Proposed Development Objective(s)

To rehabilitate and increase resilience of the Kapichira hydropower dam and spillways, and transmission and distribution infrastructure damaged by Tropical Storm Ana.

**Components**

Component Name	Cost (US\$, millions)
Component 1: Kapichira Dam Rehabilitation and Strengthening	44.70
Component 2: Transmission and Distribution Network Restoration	15.30

Organizations

Borrower:	Republic of Malawi
Implementing Agency:	Electricity Generation Company (Malawi) Ltd. Electricity Supply Corporation of Malawi, Ltd.

PROJECT FINANCING DATA (US\$, Millions)**SUMMARY**

Total Project Cost	60.00
Total Financing	60.00
of which IBRD/IDA	60.00
Financing Gap	0.00

DETAILS**World Bank Group Financing**

International Development Association (IDA)	60.00
IDA Credit	36.00
IDA Grant	24.00

IDA Resources (in US\$, Millions)

	Credit Amount	Grant Amount	Guarantee Amount	Total Amount
Malawi	36.00	24.00	0.00	60.00
Crisis Response Window (CRW)	36.00	24.00	0.00	60.00
Total	36.00	24.00	0.00	60.00

**Expected Disbursements (in US\$, Millions)**

WB Fiscal Year	2022	2023	2024	2025	2026	2027
Annual	0.00	7.28	15.65	17.26	13.71	6.11
Cumulative	0.00	7.28	22.92	40.19	53.89	60.00

INSTITUTIONAL DATA**Practice Area (Lead)**

Energy & Extractives

Contributing Practice Areas**Climate Change and Disaster Screening**

This operation has been screened for short and long-term climate change and disaster risks

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

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



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

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

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
Cultural Heritage	Relevant
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 Covenants

Sections and Description

PA Schedule, Section I,A,1(b) - EGENCO to select and hire, by not later than 4 months after effectiveness, and



thereafter maintain, the services of an engineering consulting firm with qualification and experience and under terms of reference acceptable to IDA, to perform the functions of owner's engineer and assist EGENCO's PIU with the implementation of its respective parts of the Project.

Sections and Description

PA Schedule, Section I,B,1(b) - ESCOM to select and hire, by not later than 4 months after effectiveness, and thereafter maintain, the services of an engineering consulting firm with qualification and experience and under terms of reference acceptable to IDA, to perform the functions of design and supervision engineer and assist ESCOM's PIU with the implementation of its respective parts of the Project.

Sections and Description

PA Schedule, Section I,F,1(b) - EGENCO to, by not later than twelve (12) months prior to the impoundment of the reservoir of Kapichira Dam, prepare a detailed Emergency Preparedness Plan for the operation of the Kapichira Dam and its hydropower generation facilities.

Sections and Description

PA Schedule, Section I,F,1(c)(i) - EGENCO to, by not later than six (6) months prior to the impoundment of the reservoir of Kapichira Dam, prepare a detailed O&M Manual for the operation of the Kapichira Dam and its hydropower generation facilities.

Sections and Description

FA Schedule 2 Section I.A.1 - GoM (MoE) to establish, by not later than thirty (30) days after effectiveness, a Project Steering Committee (PSC) with mandate, terms of reference and resources satisfactory to the IDA, to provide oversight and high-level coordination of Project implementation, address any issues raised by the Project Implementing Entities (i.e. ESCOM & EGENCO), and monitor the implementation of the Project.

Conditions

Type	Financing source	Description
Disbursement	IBRD/IDA	No withdrawal shall be made by EGENCO under Category (1) until and unless EGENCO has: (a) executed and delivered its respective Subsidiary Agreement; (b) established and staffed with key personnel the EGENCO-PIU; and (c) prepared and adopted its respective Project Implementation Manual.
Type	Financing source	Description
Disbursement	IBRD/IDA	No withdrawal shall be made by ESCOM under Category (2) until and unless ESCOM has: (a) executed and delivered its respective Subsidiary Agreement; (b) established and staffed with key personnel the ESCOM-PIU; and (c) prepared and adopted its respective Project Implementation Manual.



I. STRATEGIC CONTEXT

A. Country Context

1. Malawi is a landlocked country in southeastern Africa, bordered by Zambia, Tanzania, and Mozambique, with a population of about 18 million people of which 52 percent are women and girls. The population growth rate is estimated at about 3 percent per year (Malawi Economic Monitor, December 2021), and the population is expected to reach 23 million by 2025. Malawi remains a rural economy; however, the country is urbanizing at an annual rate of about 3.5 percent, higher than the average for Sub-Saharan Africa. The country remains one of the world's poorest countries, with over half of its population living in poverty. In 2020, the proportion of poor households living below the poverty line of US\$1.90 per day (2011 purchasing power parity) stood at 68 percent of the population.¹ The gross national income (GNI) per capita was estimated at US\$430 in 2021². Malawi ranked 174 out of 189 countries on the United Nations Human Development Index in 2020.³ Food inflation increased to 12.8 percent and non-food inflation to 9.5 percent, combining into a headline figure of 11.1 percent year-on-year in November 2021.

2. Malawi's economy has shown only modest growth over the past decades and faces significant development challenges. Malawi's gross domestic product (GDP) per capita grew at an average of 1.5 percent per year from 1995 to 2018 before the COVID-19 pandemic, which was about half the growth rate of comparable countries in Sub-Saharan Africa. Economic growth that was 0.8 percent in 2020 during the COVID 19 pandemic, remained weak at 2.8 percent in 2021 primarily driven by one-time increases in the agricultural sector. Economic growth is expected to decline to 2.1 percent in 2022⁴ due to chronic fiscal and external imbalances, compounded by severe weather events. However, with a population growth rate of around 3.0 percent in 2021, this level of economic growth represents a contraction in per capita output (Malawi Economic Monitor, December 2021). The budgeted fiscal deficit of an annualized 9.1 percent of GDP is the highest in years. The country also faces significant development challenges as it (i) is one of the poorest countries in the world, (ii) is land-locked, (iii) has suffered from chronic fiscal and debt vulnerability, (iv) is vulnerable to extreme weather events and climate change, and (v) has achieved limited educational progress (only 16 percent of children transition from primary to secondary school, and of those, only 8 percent move on to tertiary education). It also has a weak enabling environment for private sector-led job creation, and its asset base and total wealth (a combination of natural, produced, and human capital) suffer from weak management.

3. Malawi has been affected by the ongoing Russia-Ukraine war. Many African countries have been, and will continue to be adversely affected by the on-going war particularly in the areas of food security and fuel costs. The dependence on wheat imports from Russia and Ukraine are having a significant impact on food prices across the continent. In 2018 about 17 percent of Malawi's food imports, including a majority of the country's wheat came from Russia.⁵ The interruptions in both grain production, that are expected to be reduced in Ukraine by 16.7 percent in FY22-23,⁶ and sea transport through the Black Sea ports of Ukraine for the foreseeable future, along

¹ Malawi Economic Monitor, December 2021

² Malawi Economic Monitor, December 2021

³ UN Human Development Index tables

⁴ Malawi Economic Monitor, December 2021

⁵ MwAPATA Institute estimates

⁶ It is estimated that Wheat production Ukraine during FY23 will be about 16.7 percent less than FY22 outputs due to the war (USDA Factors Russia-Ukraine War in Latest WASDE Report. 3/9/2022.

<https://www.dtnpf.com/agriculture/web/ag/news/article/2022/03/09/usda-releases-march-crop-production>)



with the global rise in the price of oil due to the on-going war combined with sweeping sanctions and embargoes against Russian oil exports, are all factors that will have an adverse impact on food and fuel prices in Malawi.

4. Malawi is one of the most densely populated countries in Africa with population anticipated to double by 2038, thereby putting increasing strain on the natural resource base. The low share of produced capital at 10 percent of Malawi's total wealth reflects the country's infrastructure deficit that has limited competitiveness and constrains economic diversification. The share of produced capital is also significantly lower than other low-income countries that average 28 percent. Only 12 percent of the population has access to grid-based electricity. Rail and road corridors need to be upgraded to reduce Malawi's competitive disadvantage as a landlocked country. Being predominantly rural, Malawi has set a goal to support urbanization to create growth centers for development. Medium-term economic prospects will depend on economic diversification, a commercialized agricultural sector, and enhanced economic competitiveness.

5. Malawi's Vision 2063 builds intended actions around three key pillars: (i) agricultural productivity and commercialization, (ii) industrialization, and (iii) urbanization. Without adequate and affordable energy, mainly in the form of electricity, achievement of Vision 2063 through the identified three key pillars would not be possible. Development of climate adaptive and resilient electricity infrastructure is thus key and a critical factor in order for the Vision to be realized.

6. Malawi has one of the lowest electricity access rates in the world, at 18 percent (12 percent on-grid and 6 percent off-grid) with severe disparities between urban and rural areas. The inequity among the rich and poor is stark—the poorest 20 percent reports 1 percent electrification rate while the richest 20 percent reports 31 percent electrification rate⁷. There is almost no coverage in the bottom 40 percent of the population which has serious implications for human development and economic transformation outcomes. The progress on electricity access has been much slower compared to other countries in Sub-Saharan Africa. The Government of Malawi has taken important steps in recent years to open its generation sector to private sector participation, particularly in solar and hydropower generation. To date, there are signed power purchase agreements (PPAs) with independent power producers (IPPs) for solar generation amounting to 216 MW (compared to an installed generation capacity of 520 MW). The World Bank is supporting the Government of Malawi to develop the 350 MW Mpatamanga Hydropower plant as a public private partnership (PPP) with International Finance Corporation as a co-developer in the project.

7. Despite the above outlined initiatives and interventions to improve and grow Malawi's power sector, the sector has been and continues to be highly impacted by climate change. While Malawi has very low greenhouse gas (GHG) emissions, it is highly vulnerable to the impacts of climate change. Malawi accounts for only 0.04 percent of global emissions but is ranked 158 out of 188 countries in terms of its vulnerability to climate change impact⁸. According to climate projections, the increase in mean annual temperature in Malawi is projected to be between 1°C and 2°C by the 2050s and up to 5°C by 2100⁹. Climate and disaster risk screening indicates that Malawi has high risks of river floods, volcano, extreme heat, and wildfires, which will add further stress to Malawi's climate vulnerability¹⁰. According to the World Bank's Lifelines report, the cost of disruption to the power sector due to natural shocks in Malawi was about 3.58 percent of GDP in 2019¹¹. This has been especially severe on its existing

⁷ World Bank. 2016. "Who Uses Electricity in Sub-Saharan Africa – Findings from Household Surveys." In each country, people are divided into quintiles based on per capita expenditures, with quintile 1 being the poorest and quintile 5 being the richest.

⁸ Notre Dame Global Adaptation Initiative Country Index summarizes a country's vulnerability to climate change and other global challenges in combination with its readiness to improve resilience. <https://gain.nd.edu/our-work/country-index/rankings/>

⁹ World Bank Climate Knowledge Portal - Malawi

¹⁰ Think Hazard portal – Malawi

¹¹ "Julie. 2019. Lifelines: The Resilient Infrastructure Opportunity. Sustainable Infrastructure; Washington, DC: World Bank. © World Bank."



hydropower stations, the majority of which are located in a cascade on the Shire River, which sits in a watershed that is increasingly under pressure from environmental degradation. Both climate and human activity pressures had resulted in the performance of the hydropower plants being greatly reduced over the years (including reduced storage capacity of the reservoirs) and impacted by some major climate-related flood events that have on more than one occasion extensively damaged the hydropower plants, rendering them out of operation for considerable lengths of time and at a high direct and indirect cost to the economy (loss of revenue by the utilities and loss of production by the industry and other consumers due to reduced power production).

B. Situations of Urgent Need of Assistance or Capacity Constraints

8. On January 21, 2022, a tropical depression developed north-east of Madagascar, in the Indian Ocean. The Malawi Department of Climate Change and Metrological Services (DCCMS) issued the first warning on Saturday January 22, 2022, at 11:00 am. On January 23, 2022, the depression intensified overnight into a Tropical Storm named Ana. Tropical storm Ana was moving at a speed of 40km/hour and maximum wind speed of 100km/hour and made landfall on the Mozambique coast around midday, January 24, 2022, and later headed for southern Malawi. Heavy rains exceeding 150mm (up to 300 mm in some areas) in a day and very strong winds exceeding 80km/hour were prevalent in areas of southern Malawi, causing flash flooding that affected both people, property, and infrastructure.

9. On January 26, 2022, all districts affected by the floods caused by tropical storm Ana were declared disaster areas. The affected districts included Nsanje, Chikwawa (location of Kapichira dam), Phalombe, Zomba, Blantyre, Chiradzulu, Thyolo, Mulanje, Balaka, Machinga, Mangochi, Neno, Mwanza, Ntcheu, Dedza, Salima, Lilongwe, Mchinji and Dedza. Reports indicated that tropical storm Ana had affected more than 130 Traditional Authorities in 20 districts in Southern and Central Malawi.

10. On February 1, 2022, the Government of Malawi requested World Bank assistance for response, recovery and reconstruction from the impact of the storm. Specifically, the Government requested World Bank assistance to (i) undertake a disaster impact assessment using the Global Rapid Post Disaster Damage Estimation (GRADE) methodology; (ii) support disease surveillance and response in flood affected areas; and (iii) activate contingency emergency response components under on-going projects as appropriate.

11. The results of a GRADE analysis in February 2022 estimate the direct damages of tropical storm Ana in Malawi to be around 1.1 to 1.7 times greater than those caused by the flooding associated with higher-intensity Tropical Cyclone Idai in March 2019. While the intensity of the windspeed in Tropical Cyclone Idai was higher (as its cyclone classification would indicate) precipitation levels under tropical storm Ana were significant, resulting in severe flooding, with peak recordings of 300mm of rainfall in certain locations, compared to 250mm rainfall peaks recorded under Cyclone Idai. The GRADE assessment estimates (see Table 1) non-infrastructure economic damage to be US\$192 million, with infrastructural damages amounting to US\$136 million¹². The total damages are assessed to be US\$328 million (equivalent to 3.3 percent of Malawi's national GDP (2020)).

¹² The damage estimates for infrastructure were informed by damage reports to various sectors, particularly energy and roads. Damage to the energy sector have been particularly severe in tropical storm Ana when compared with historic events, and so have been calculated explicitly based on various reports. Damage to other infrastructure sectors have again been estimated via comparison of various metrics between tropical storm Ana, and those of previous events.



Table 1: GRADE Estimates of Capital Damage by Sector and Needs (in US\$ millions)

Estimates of damage by sector					Total Long-Term Reconstruction Needs (Build Back Better)
Residential Buildings	Non-Residential Buildings	Infrastructure	Agriculture	Total	
126	31	136	35	328	585 ¹³

12. As of early March 2022, tropical storm Ana had caused 46 fatalities and affected 995,072 people and over 221,000 households. Over 190,429 people (approximately 32,000 households) were displaced and were being sheltered in schools, churches, hospitals and other make-shift camp sites. The storm inflicted heavy damage to housing and critical public infrastructure – roads, bridges, rail network, electricity and water supply systems, classrooms and health centers. The storm damaged or destroyed at least 476 schools (affecting over 398,000 students), damaged 47 health centers, and flooded over 115,000 hectares of crops. The electricity sector was one of the worst hit sectors with damage to the 129.6 MW Kapichira Hydropower Plant rendering the plant out of commission. The transmission and distribution infrastructure in Southern Malawi was similarly affected with 14 transmission lines and several distribution lines requiring immediate restoration through emergency repairs.¹⁴

13. The energy sector was impacted particularly severely, contributing to high infrastructure damage. This was driven by damage to the Kapichira Hydroelectric Power Plant (responsible for one-third of the country's electricity generating capacity) that included extensive damage to the main dam and other reservoir structures that has left the Power Plant out of operation. Damage to the transmission and distribution networks was also considerable with downed towers and poles, either due to wind, debris flow and flooding impacts, followed by the vandalizing of 400 transformers in the aftermath of the storm. The loss of Kapichira initially resulted in about six hours of load shedding per day for the majority of customers. The loadshedding hours increased to about eight hours per day when the Aggreko diesel generators were offloaded from the power system during the fourth week of April 2022, after four years of operation. Load shedding is expected to remain fairly constant, especially during the cold months of May to July 2022, which also coincides with the tobacco processing period when the load is expected to increase considerably. Replacing generation from Kapichira with diesel would cost at least US\$ 228 million a year.¹⁵

14. The Government has taken multiple actions to respond to the crisis. The Government of Malawi declared a national disaster on January 26, 2022. It has also prepared a short-term response plan and has appealed for assistance from the international donor community, the United Nations, non-governmental organizations (NGOs), and the private sector. To mitigate the impact of the loss of Kapichira and also the offloading of Aggreko diesel generators, the Government is planning to accelerate the addition of renewable energy generation mainly from solar and also from the acquisition of additional diesel generators by EGENCO.

¹³ Calculated based on the GRADE assessment. Needs = Value of Damage + Cost of (Quality improvement + Technological modernization + Relocation, when needed + Disaster Risk Reduction features + changes in economic flows + multi-annual inflation). This does not include immediate humanitarian needs.

¹⁴ The Shire Valley Transformation Project (SVTP) canal intake, located immediately upstream of the Kapichira Dam, also suffered significant damage during the Tropical Storm. The damaged intake was under construction at the time of the storm event, which would have resulted in its higher vulnerability to flood impact, in comparison to completed and commissioned infrastructure. Reconstruction of this intake would directly interface with and benefit from some of the reconstruction works for the Kapichira Main Dam. The SVTP had unallocated funds that are proposed to be deployed towards construction of the cofferdam and initial protections works for Kapichira Dam. An amount of up to US\$15 million was available from the SVTP to fund part of the initial reconstruction works for Kapichira.

¹⁵ At a variable cost of about US\$ 34/kWh as provided in the economic analysis.



15. The impact of tropical storm Ana is a reminder of Malawi's chronic vulnerability to natural disasters and shocks, and the need to re-position crisis preparedness as a foundation for long-term poverty reduction.

Southern Malawi, including Nsanje and Chikwawa Districts, has been particularly vulnerable: over the past five years it has suffered multiple years of acute food insecurity due to flooding in 2016, 2019, and 2022 and dry spells in the 2019/20 and 2020/2021 production seasons. Past climatic shocks, such as Tropical Cyclone Idai (2019) and the recent tropical storm Ana (2022) also increased the depth of poverty in the two southern most districts of Chikwawa and Nsanje. During FY22, Malawi undertook a Crisis Preparedness Assessment Framework as a pilot exercise for IDA20 and is currently also undertaking a Country Climate and Development Report (CCDR). These exercises, together with a World Bank led effort to review integrated flood and water resource management in the Shire River Basin system, will provide a sound basis for IDA20 investments that build on earlier investments and robustness of infrastructure to improve resilience for climate change.

16. In response to the Government's request for support, funds from the IDA Crisis Response Window (CRW) in the amount US\$60 million are being mobilized to restore damaged electricity transmission and distribution infrastructure and damaged electricity generation infrastructure (the Eligibility Note for IDA CRW Support for Malawi Energy Sector Response to Tropical Storm Ana (IDA/SecM2022-0121) was circulated for information to the Executive Directors on April 22, 2022).

This is based on detailed needs assessments carried out in the field in conjunction with the Electricity Supply Corporation of Malawi Limited –(ESCOM) and Electricity Generation Company (Malawi) Limited – (EGENCO), the owners of the damaged assets. The initial request for financial support was formalized through letter by the Government of Malawi ¹⁶dated March 7, 2022. The CRW resources, would be deployed through a standalone operation prepared under emergency procedures. No other IDA financed energy projects are able to accommodate the request through additional financing or restructuring. Donors (including United States Agency for International Development, African Development Bank, and the European Union) are providing smaller scale energy sector support to ESCOM for energy sector master planning and grid upgrades. This will complement IDA's crisis response capabilities to mobilize the funding instruments to be responsive in the immediate term to this sector gap. The IDA CRW resources, as well as the GRADE assessment recently shared with the Government and donors will both be important in advancing the Government's dialogue on disaster relief with other financiers. In addition, the GRADE assessment will inform the structuring and orientation of longer-term donor-financed development programs responsive to the reconstruction gaps and post-tropical storm Ana needs. Thus, the gap in burden sharing between IDA and other donors in response to tropical storm Ana would be expected to be lowered through the leveraging effect of the CRW.

17. While preparing a response to urgent needs, this project aims to address key root causes that undermined the resilience of the damaged infrastructure.

Based on the preliminary assessments, carried out by EGENCO and the World Bank, it is understood that at the time of the storm only two out of the five gates of Kapichira's main spillway were open and partially functional, hence reducing its capacity to evacuate flood waters. This resulted in water rising in the reservoir above the dam's crest before the fuse plug was washed away, enabling the water level in the reservoir to decrease. The reasons for only two gates being operational are multiple. They include (i) the sediments that accumulated over time in the reservoirs constrained EGENCO's capacity to operate the reservoir at higher water levels, and (ii) stoplogs required for repairing the gates were not high enough to protect the gates at these levels. These resulted in a need for planning outages of the Kapichira generation plant to rehabilitate the gates. In the midst of the pandemic, as hospitals needed steady electricity supply, it is also understood that adequate times for a planned outage could not be identified and granted during prior dry seasons, i.e., periods when such repairs could be planned and executed. Thus, activities proposed under the project aim at strengthening both technical features (including upgraded spillways and improved sediment management) and also operation

¹⁶ Malawi Government Letter Reference Number FIN/DAD/RM/5/2/18.



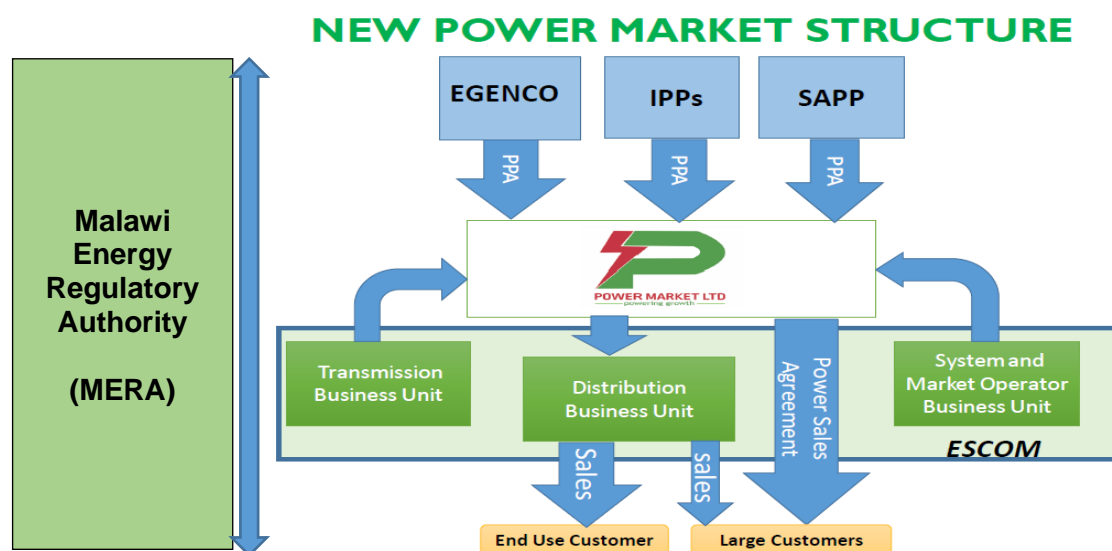
and management capacity and procedures of the Kapichira hydropower scheme.

C. Sectoral and Institutional Context

18. Malawi's power sector is guided and structured by the National Energy Policy (2018) and the Electricity (Amendment) Act of 2016. The Ministry of Energy (MOE) is tasked with overall policy oversight. The Malawi Energy Regulatory Authority (MERA) was established in 2007 as an independent electricity regulator whose mandate is set out in the Energy Regulation Act (2004, with subsequent amendments). The role of MERA includes, among others: (a) reviewing tariff applications from ESCOM and recommending tariff changes to the Government of Malawi (GoM); (b) granting licenses for generation and distribution operators; and (c) arbitrating commercial disputes that arise under the 2004 energy legislation. Under the amended Electricity Act of 2016, ESCOM was unbundled in January 2017 into two entities, ESCOM and EGENCO. ESCOM assumed the new function of single buyer and procures power from EGENCO and from IPPs and in future, potentially, from the Southern African Power Pool (SAPP). The Government decided to further unbundle the Malawi power market by carving out the Single Buyer function from ESCOM to form a new company called Power Market Limited. The new Company, which was registered in 2019, is not yet fully operational.

19. Malawi has abundant, largely untapped solar and hydro resources. The country's current installed generation capacity is 528 MW, of which 75 percent is from hydropower resources and the remainder is from solar and diesel power, the latter in the form of emergency generation. All major power stations are located in the southern region along the Shire River. One small hydro station, the 4.5 MW Wovwe plant, operates in the north of the country. The hydro potential of the Shire River alone is estimated at about 1,300 MW, and another 1,000 MW of potential exists on other rivers. In addition, Malawi has great untapped solar potential with an average of 3,000 hours of sunshine per year. Finally, the country is also strategically located for interconnection with the SAPP

Figure 1. Structure of the Malawi Power Sector



20. Notable results have been achieved with regards to infrastructure expansion and electricity service delivery but challenges remain. Electricity connections have grown steadily over the years but have not kept pace with the



population growth rate of about 3 percent, making the on-grid electrification rate remain relatively constant between 11-12 percent. In the previous fiscal year (ending June 30, 2021), ESCOM connected 46,462 customers. This left a backlog of about 20,092 customers to be connected¹⁷. This backlog was expected to be cleared under the IDA financed Malawi Electricity Access Project (P164331) with an estimated 60,000 customers being connected per year over the next five years. However, implementation has remained slow and the higher connection rates have yet to be achieved.

21. Significant progress has been made in developing a robust transmission network. ESCOM's transmission system presently comprises some 1,340 km of 132 kV lines and 1,100 km of 66 kV lines and associated substations. Total system losses have seen an improvement from 21 percent in 2012–13 to 18 percent in 2020–21.¹⁸ The bill collection rate in Malawi is 94 percent.¹⁹ This has resulted from the steady installation of Automated Metering Infrastructure for industrial customers that represent about 50 percent of ESCOM's annual base (121 of 750 meters installed as of May 2022), and the migration from postpaid meters to prepaid meters for domestic consumers. Despite this progress, the sector is beset with a multitude of challenges.

22. Power supply is constrained at times and vulnerable to hydrologic variability. While Malawi's current installed generation capacity is 520 MW, demand is estimated at around 720 MW leading to a supply deficit due to the low availability of hydropower especially during the dry season. In addition, the hydropower sources are exposed to hydrologic variability. In 2016, severe droughts led to reduced water levels in Lake Malawi and consequently, reduced flow rates in the Shire River. This shortage resulted in prolonged load shedding of up to 12–16 hours a day during several months of the year, but the situation has abated somewhat with the introduction of new solar IPPs, and diesel generation. About 108 MW of emergency diesel generation capacity was installed in 2018-19 to immediately assist with the supply deficit although at a high cost of about US\$0.42/kWh.²⁰

23. Degradation of watersheds contributing to decreased power production performance. Deforestation, degraded land, and riverbank degradation within the upper catchments form the most serious threats to the environment and natural resource base in the Shire River Basin, resulting in the increased incidence of erosion, run-off, sedimentation, and flash floods. High loads of sediment are deposited in riverbeds, reservoirs, and floodplain wetlands, affecting irrigation canals, fisheries, and hydropower generation. Water resources are increasingly degraded through silt loads reducing storage capacity, and sedimentation, eutrophication, biological contamination, and effluents negatively impacting water quality, contribute to reduced access to water resources for livelihoods, as well as reduce storage for hydropower generation, and block intake channels requiring extensive and costly maintenance. Maintenance to remove built-up debris and sediment, as well as damage to machinery from scouring due to high sediment loads, requires down time of the hydropower plants, which in turn negatively impacts the generation capacity and causes power outages and loss of revenue. These problems are a direct result of catchment degradation, unsustainable land use and management practices, and increased use of chemical fertilizers without complementary soil and water conservation measures. An integrated approach will be needed to address these broader watershed issues for the sustainability of and building robustness of infrastructure to build back better, and to improve resilience to climate change. Improved ecosystem services in the catchment will have a direct benefit on the users downstream, including hydropower generation and water supply.

¹⁷ ESCOM Backlog Report – August 2021

¹⁸ ESCOM. 2018. "5-Year Integrated Strategic Plan (2017–2022)."

¹⁹ <http://rise.worldbank.org/country/malawi>. According to ESCOM this collection rate represents ESCOM's paying customers only. If non-paying customers e.g. hospitals, water boards, are taken into consideration, the collection rate drops to about 70 percent in 2021.

²⁰ 78MW of leased diesel based generation was retired in April 2022 and offset to some extent by solar IPPs and proposed 30 MW of diesel generation owned and operated by EGENCO.



24. The weak financial position of the utility hampers the ability to undertake aggressive access expansion and ensure reliable service delivery. The average electricity tariff is insufficient to meet ESCOM's cash flow requirements. Due to its financial situation, the utility has no borrowing capacity, and the Government has been assuming debt for meeting ESCOM's capital expenditure (CAPEX) needs. As a result of its financial position, ESCOM (a) has not been able to perform regular operation and maintenance (O&M), which led to poor customer service including service interruptions and increased restoration time; and (b) has focused on only connecting high-value customers able to afford the connection charge. Minor improvements in the tariff regime have been made over time. ESCOM submitted an application to MERA to request a 60 percent increase in tariffs for the four-year period of 2018 to 2021 against which 31.8 percent was approved and implemented. The average tariff for 2021/22 is MWK 134.25 (about US\$0.13).

25. The GoM is addressing these challenges through a comprehensive power sector reform program:

- **First, through investment in generation and transmission projects.** The GoM is aggressively expanding its generation and transmission capacity in the near-to-medium term to ensure power supply adequacy and by matching demand growth and grid expansion plans through three major initiatives: (a) immediate additional power from 108 MW of emergency diesel generation and 120 MW of solar photovoltaic (PV) from IPPs²¹ (b) interconnecting to the SAPP through the Mozambique-Malawi Regional Interconnector transmission line, which will initially allow for an additional 50 MW of imported capacity from 2024 onward; and (c) increased domestic generation through IPPs by embarking on reforms that attract more private investment in generation. The World Bank, under the completed Energy Sector Support Project (ESSP) (P099626), supported the preparation of an Integrated Resource Plan, that is, a least-cost generation and transmission expansion plan that offers a list of priority energy projects through 2037.²² The World Bank is supporting the Government with the design and financing of the Mpatamanga Hydropower Project (P165704) and the Mozambique-Malawi Regional Interconnector Project (P164354). Other donors, especially the Millennium Challenge Corporation (MCC), are also active in the sector (the MCC compact closed in September 2018). The US\$350.7 million U.S.-funded MCC compact invested in transmission and distribution system strengthening and expansion through investments in the transmission backbone project, transmission and distribution substations, and related technical assistance (TA) support.
- **Second, by improving the financial and operational performance of the utility.** The MCC financed the implementation of ESCOM's financial turnaround aimed at restoring the utility's financial health and rebuilding the organization into a financially sustainable and well-managed utility. Consultants through MCC funding conducted a financial modeling exercise that resulted in a set of recommendations on improving the financial health of the utility, including a sustainable debt management plan for ESCOM, plan for reducing ESCOM's high operating costs, a tariff adjustment methodology that will align tariffs more with costs, and new accounting policies to adhere more closely to international financial standards. These interventions have already yielded results, that is, improvement in ESCOM's tax management, improved monitoring of capital expenditure and budget utilization, and improved corporate performance. The MCC

²¹ The solar IPP program entailed a solar auction, which was the first instance of this approach being used in Malawi's power sector. In addition to the 120 MW of solicited solar IPP generation, another 90 MW of unsolicited solar PV generation is also under review.

²² The World Bank has further financed, under the ESSP, the preparation of feasibility studies, environmental and social impact assessments (ESIAs), and tender documents for two large hydropower projects; and the western transmission backbone, along with solar resource mapping (Energy Sector Management Assistance Program [ESMAP] grant); and assessment of geothermal potential, wind resource mapping, and bagasse-fired generation. In addition, the World Bank prepared, through financing from the Government of Norway, the feasibility study and ESIA for the Mozambique-Malawi Regional Interconnector Project (P164354).



also supported ESCOM to introduce stronger operational practices to improve maintenance planning and execution, which will reduce the high system losses. In addition, ESCOM has moved most of its customers from postpaid to prepaid meters. ESCOM is also implementing a revenue protection program (RPP), to include 750 of its industrial customers, representing 50 percent of ESCOM's revenues to advanced metering infrastructure, which will reduce nontechnical losses.

More recently the Government has approved a Financial Turnaround Strategy (FTS) that aims to return ESCOM to financial viability in the next three years. The FTS has been approved by the Government, and by ESCOM's Board of Directors. The World Bank is mobilizing financial advisors funded by ESMAP and Public-Private Infrastructure Advisory Facility (PPIAF) to support ESCOM in meeting the milestones for financial recovery under the FTS.

- **Third, by enhancing transparency and effectiveness of the regulatory framework.** To allow for the implementation and management of the new structure of the electricity sector that introduced the single buyer, the system and market operator, and IPPs in generation, MERA has adopted a new grid code and market rules for Malawi's electricity market. The Government has adopted a National Energy Policy (2018) and a Renewable Energy Strategy (2017-2030), which will improve transparency of Malawi's regulatory framework, increase predictability, and generate investor confidence. Through ESMAP support, the World Bank supported the Government in preparing a National Electrification Strategy that reviewed the institutional, technical, and financial parameters for efficient electricity access scale up. The World Bank also carried out a regulatory gap analysis as well as a review of policies and regulatory instruments, including the National Energy Policy, the Renewable Energy Strategy, and the IPP Framework, which resulted in recommendations for supporting the reform process.

26. The GoM aims to rapidly scale up electricity access to reach about 80 percent of the population by 2035, and it is developing a National Electrification Program (NEP). In 2018, the GoM updated the National Energy Policy of 2003 to define the national energy development agenda in relation to the Malawi Vision 2063, Malawi Growth and Development Strategy III, and the Sustainable Development Goals (SDGs). The overall goal of the National Energy Policy 2018 is to establish a guiding framework including policy and strategic direction for achieving increased access to affordable, reliable, sustainable, efficient, and modern energy for every person in the country.

D. Relevance to Higher Level Objectives

27. This proposed project is fully aligned with the Malawi Country Partnership Framework (CPF) FY21-25 discussed by the Board of Executive Directors in May 2021 (Report No. 154505-MW). The project will contribute to Focus Area 2, specifically objective 2.2: Increasing resilience in urban and rural hotspots. Under the CPF the World Bank Group (WBG) will support Malawi in strengthening its early warning and disaster preparedness systems to mitigate the impact of worsening climate shocks. The project will improve resilience to mitigate against the impact of such future climate-related events and design sound technical and institutional capacities. It will also address objective 2.3 that emphasizes improving ease of doing business through better economic infrastructure; and its objective of boosting access to electricity, including from renewable sources.

28. The proposed project contributes to achieving the strategic priority goals in the electricity sector,²³ set out in the Southern African Development Community Regional Infrastructure Strategic Development Master Plan,²⁴ including (a) adequate generation and transmission capacity; (b) improved energy access; and (c) harmonized

²³ http://www.africa-platform.org/sites/default/files/resources/eac_vision_2050_february_2016.pdf.

²⁴ http://www.sadc.int/files/5413/5293/3528/Regional_Infrastructure_Development_Master_Plan_Energy_Sector_Plan.pdf.



cross-border policy and regulatory frameworks.

29. Energy is also one of five main pillars of Vision 2063 . The **First Implementation Plan (MIP-1)** is the country's first 10-year implementation plan and the new medium term development strategy under Vision 2063, aimed at helping Malawi to graduate into a middle income economy and achieve most of the Sustainable Development Goals by the year 2030. The proposed project is aligned with SDG 7, Sustainable Energy for All (SE4ALL), and the World Bank's Energy Sector Directions Paper (ESDP- 2014). SDG 7, SE4ALL, and the ESDP all aim to 'ensure access to affordable, reliable, sustainable, and modern energy for all'.

30. The proposed project will also be aligned with the WBG Gender Strategy (2016-2023) whose pillars include closing gender gaps in (i) human endowment, (ii) removing constraints to more and better jobs, (iii) removing barriers to women's ownership of and control over assets; and (iv) enhancing women's voice and agency and engaging men and boys.

31. Climate Change Action Plan: The objectives of this project will also contribute to the *World Bank Climate Action Plan FY2021-2025* and to the *Africa Climate Business Plan 2020-2026*, particularly to their priorities related to climate shocks and risk governance and to the four pillars of WBG "COVID-19 Crisis Response Approach Paper (June 2020): Saving Lives, Scaling-up Impact and Getting Back on Track", particularly to "Saving lives", "Protecting Poor and Vulnerable People" and "Strengthening Policies, Institutions and Investments for Rebuilding Better".

II. PROJECT DESCRIPTION

32. The proposed project aims to rehabilitate and restore electricity infrastructure damaged by tropical storm Ana. The flood caused by tropical storm Ana impaired Kapichira Hydropower Plant, the downstream-most hydropower plant on the Shire River cascade, which suffered extensive damage to its dam and fuse plug resulting in the draining of the reservoir and rendering the hydropower station out of operation. The 129.6 MW Kapichira hydropower project represents one- third of EGENCO's installed generation capacity and almost 23 percent of Malawi's installed total capacity. Damage was also incurred at the intake and part of the canal for the Shire Valley Transformation Project (SVTP) financed by IDA (P158805), and located at the right embankment of the Kapichira reservoir, just before the fuse plug. The storm also damaged transmission and distribution lines in the Lower Shire Valley that resulted in several days of power outages, until emergency repairs were completed to temporarily restore electricity to affected areas.

33. The project has received high priority by the Government. In the absence of funding from donors whose efforts have largely aimed at providing humanitarian relief, the proposed IDA CRW funding is the only financing source available to the Government to restore electricity to the people within a reasonable timeframe. The project also enables the cost-of-service provision to return to reasonable levels by displacing expensive diesel-based generation that is currently being used to partly meet growing electricity demand.



A. Project Development Objective

PDO Statement

34. To rehabilitate and increase resilience of the Kapichira hydropower dam and spillways, and transmission and distribution infrastructure damaged by Tropical Storm Ana.

PDO Level Indicators

35. The indicators that will be used to measure achievement of the PDO are:

- (a) Kapichira dam and spillways rehabilitated and upgraded with increased resilience
- (b) Wheeling capacity restored

B. Project Components

36. The project has the two main components, the first being related to generation, and the second to transmission and distribution.

Component 1: Kapichira Dam Rehabilitation and Strengthening (US\$44.7 million IDA equivalent)

37. This component will finance the return to resilient operation of the 129.6 MW Kapichira hydropower plant through the rehabilitation and upgrade of the Kapichira dam and spillways. The following phased approach is proposed to be implemented for the protection, rehabilitation, and strengthening of Kapichira dam (Phase 2 of which will be financed under the proposed project):

38. **Immediate actions mobilized by EGENCO** include urgently restoring main spillway capacity while also kick-starting actions on the critical path for Kapichira dam rehabilitation such as collecting topographic data, assessing the quality of sand available in the reservoir for construction and commencing sediment management studies. These immediate actions are being currently implemented and funded by EGENCO.

39. **Phase 1: Energy restoration** to be implemented through raising water levels back to operational levels and by developing a temporary cofferdam upstream of the damaged infrastructure (the fuse plug and damaged section of the embankment dam) in order to restore impoundment of the reservoir. This would prevent further damage while protecting works for Phase 2 and SVTP irrigation intake. In order to safeguard the safety of the dam during this phase, reinforcement of the upstream face of the dam and treatment of existing scars downstream will be also implemented. This phase will be implemented under the ongoing SVTP, benefiting from existing financial and human resources (including existing PIU, owner's engineer and contractors). This phase will also initiate sediment removal from the reservoir using resources under this project. The objective is to have this phase completed by the end of the dry season 2022 (around end – November).

40. **Phase 2: Build-back better:** Based on a revised design that would address key technical and operational features that contributed to the failure, this component will (i) rehabilitate damaged infrastructure (mainly the dam), (ii) upgrade Kapichira scheme to enhance the resilience of the hydropower scheme (especially the main and emergency spillways), and (iii) support companion actions on operation and maintenance (O&M) and sediment management. It will be structured around mobilization of an international consultancy firm who, as Owner's Engineer (OE) for EGENCO, will (i) further review damage and previous design of the Kapichira scheme. On this

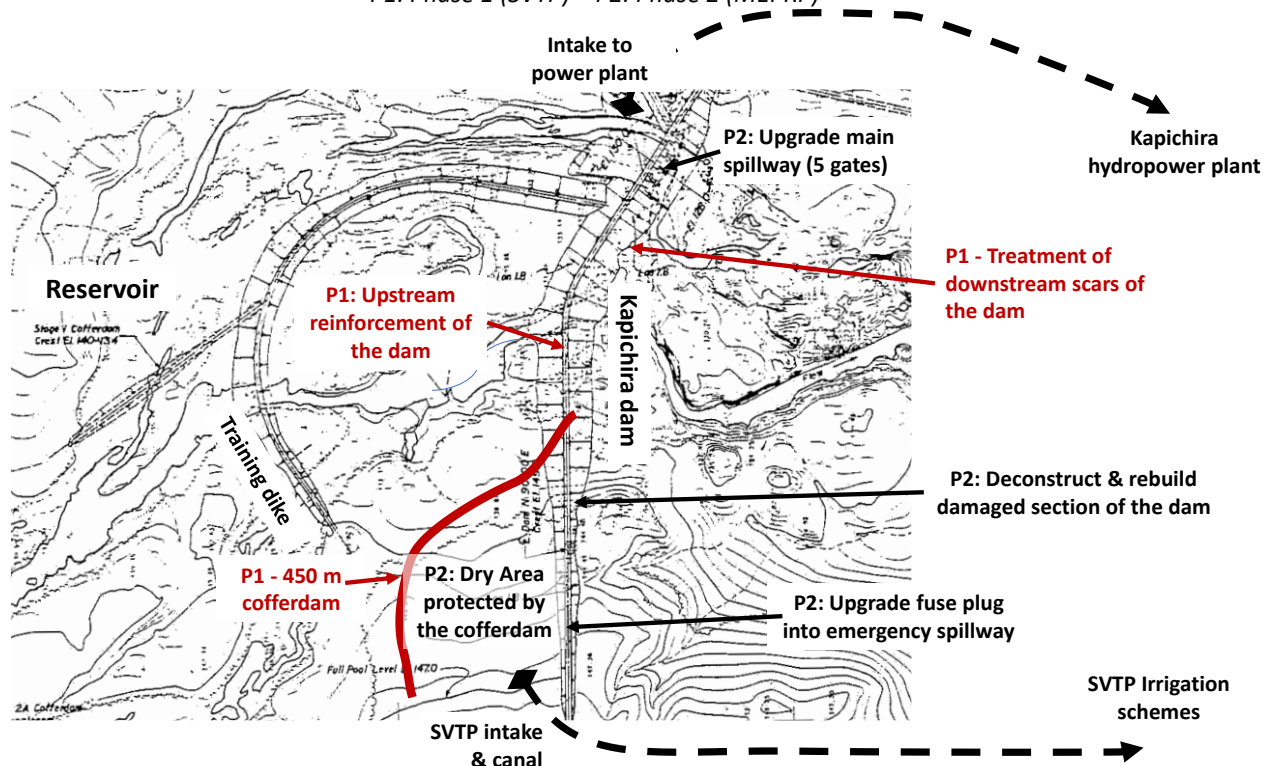


basis and while integrating the new needs for SVTP irrigation intake, the OE will model hydraulic and sediment flows under different build back better scenarios and recommend detailed scope of rehabilitation and upgrade for key infrastructure such as the dam, fuse plug, and main spillway. For the latter, the OE will be required to propose an upgrade to ease operation and maintenance of the gates since they were identified as part of the root causes of the damage. The project will (i) take stock of existing studies and modeling to support the design of a basin-wide sediment management strategy for the operation of the cascade of hydropower plants on the Shire River (existing and proposed reservoirs) and irrigation scheme and (ii) together with the OE, develop a specific-costed implementation plan for Kapichira reservoir.

41. On the basis of these comprehensive assessments and studies, a contractor will be procured to implement the proposed build-back-better program, and EGENCO (and other key stakeholders) will be trained to supervise the implementation of the complex rehabilitation works including the sediment management implementation plan. This phase will also integrate the upgrading of dam safety equipment and it will aim to restore good dam safety monitoring and practice. For the latter, in order to prevent such events from happening again, it is proposed under this component of the project to review O&M practices in place at Kapichira and corporate levels, in order to design and implement an adequate O&M strategy that, technically and institutionally, secures (i) maintenance of dam safety equipment (including the spillway gates) and (ii) regular sediment removal. Such an exercise will be inspired by the latest handbook published by the World Bank on O&M strategies for hydropower. The following figure illustrates the location of different infrastructure and main activities planned under the two phases:

Figure 2: Kapichira dam – Infrastructure & Rehabilitation Phases

P1: Phase 1 (SVTP) – P2: Phase 2 (MEPRP)





Component 2: Transmission and Distribution Network Restoration (US\$15.3 million IDA equivalent)

42. This component will finance the reconstruction of ESCOM's infrastructure damaged by tropical storm Ana including both transmission (132kV & 66kV) and distribution (33kV, 11kV and 400V lines) networks where a number of power line components have been affected. These include steel towers, wooden poles and structures, transformers, conductors and insulators among others. The damage caused by the tropical storm has been in various degrees including complete line sections, isolated structures and damage to specific equipment and materials in a manner that permanent rehabilitation works will have to comprise of complete line construction works, replacement of structures, and replacement of specific equipment and materials. As part of this reconstruction, natural and climate risks will be included in the engineering design. Examples of such resilience measures include, among others: provision of appropriate anchorage support, deep foundation and size of footings to adapt against extreme wind and flooding, elevated control room and critical equipment to reduce flood hazard potential, use of steel, concrete or composite towers, creation of vegetation buffers and regular vegetation management.

Project Cost and Financing

43. The total cost of the project of US\$60 million is allocated between EGENCO for Kapichira rehabilitation in the amount of US\$44.7 million, and ESCOM for transmission and distribution network restoration in the amount of US\$15.3 million. The IDA CRW funds will be a combination of 40 percent (US\$24 million) grant and 60 percent (US\$36 million) credit. IDA funds will be on-granted and on-lent by the Ministry of Finance and Economic Affairs to the two utilities at the same terms and conditions as those offered by IDA.

Table 2: Estimated Project Cost and Financing

	Utility	Actions	Amount (US\$ millions)
1.	EGENCO	Phase 2: Dam rehabilitation	44.7
2.	ESCOM	Transmission & distribution network repairs	15.3
		Total	60.0

44. The following is the proposed allocation of funding to EGENCO and ESCOM under IDA CRW financing.

Table 3: IDA funding allocation (US\$ millions)

	IDA Grant	IDA Credit	Total
ESCOM	6.1	9.2	15.3
EGENCO	17.9	26.8	44.7
Total	24.0	36.0	60.0

45. It is expected that the utilities shall seek retroactive financing to cover the costs of emergency rehabilitation works and services undertaken for temporary restoration of electricity to affected areas. The amount of retroactive financing is as follows:

**Table 4: Retroactive Financing (Payments made prior to signing of the Financing Agreement but after January 26, 2022)**

	Utility	Actions	Amount US\$ million
1.	EGENCO	Kapichira immediate actions	4.0
2.	ESCOM	Transmission & distribution network repairs	3.0

C. Project Beneficiaries

46. The beneficiaries of the restoration of power generation at Kapichira and the repair/rehabilitation of damaged transmission and distribution infrastructure will include the following:

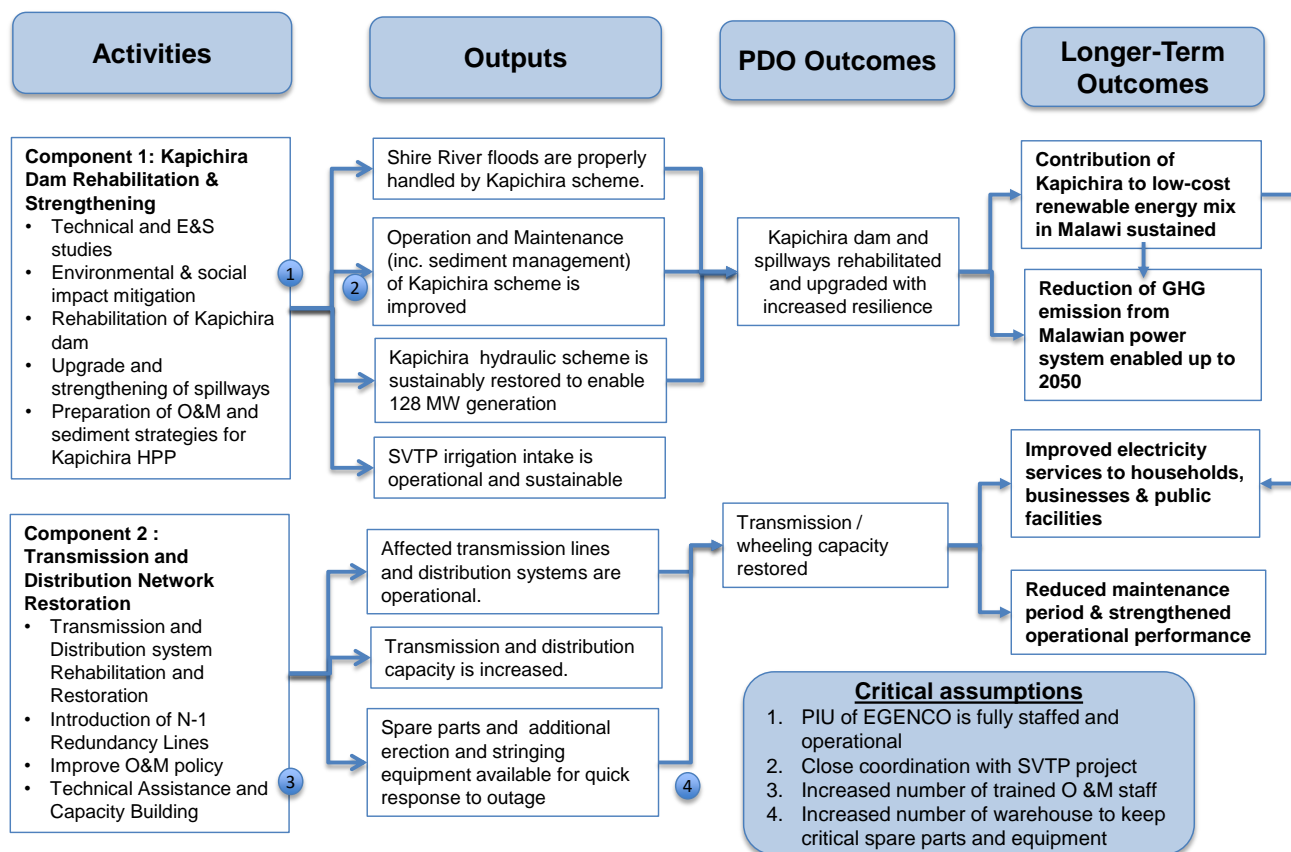
- **Households and businesses without access to electricity due to damage caused by tropical storm Ana.** Access to electricity contributes to an improvement in the quality of life by enabling newly connected consumers to undertake productive and income-generating activities (less time spent on fetching traditional sources of energy and clean water) and enhanced access to information/communication (through phone, radio, television, and so on). Empirical evidence also points to health benefits owing to the reduction of indoor air pollution due to reduced fumes from burning biofuels and kerosene consumption. Given the recurring load shedding caused by reduced generation capacity, and the damaged transmission and distribution network, households and commercial entities are unable to have access to low-cost, reliable electricity supply thereby causing a decline in quality of life, and commercial activities.
- **Health Facilities, Schools, and Water Pumping Stations.** Improvements in the quality of public service delivery are expected through both existing connections and increased electricity connections, especially of public facilities such as schools; clinics; hospitals (for example, for cold chain, vaccine and medicine refrigeration, lighting, sterilization); operation of equipment for medical procedures; and water pumping stations (for example, for safe drinking water).
- **Enterprises.** Improved access to electricity supply will contribute to increased productivity and income of enterprises (particularly for micro/small/medium enterprises) and will assist them in reducing their dependency on expensive diesel generation that has a substantially higher per unit cost. In addition, increased access to electricity can boost productivity and reduce sales and equipment losses.
- **Electricity sector institutions.** The sector institutions, especially EGENCO and ESCOM, are expected to benefit from increase in revenue and also the strengthening of planning and implementation capacity, which could translate into improved institutional performance as well as cost-effectiveness, efficiency, transparency, and accountability of the sector.



D. Results Chain

47. Activities planned under components 1 and 2 of the Project contribute towards mitigating damages from Tropical Storm Ana, as well as towards improving the resilience and efficiency of the infrastructure and services that will be rehabilitated. By doing so, these will highly benefit the electricity sector in Malawi. Under component 1, the upgrade and rehabilitation of Kapichira dam and associated spillways will enable EGENCO to better operate the scheme while improving its resilience to future floods. These activities will enable hydraulic and safety conditions required for the sustainable operation of Kapichira hydropower plant, hence securing (i) energy generation and ancillary services to the electricity system and, (ii) contribute towards low-cost and renewable energy in Malawi. Upgraded hydraulic infrastructure at Kapichira will also improve and secure sustainability of water supply to the SVTP irrigation project. Activities under component 2, similarly, will target rehabilitating and upgrading priority distribution and transmission assets affected by the storm. By doing so, wheeling capacity of these lines will be restored, hence improving electricity service delivery to customers. Mobilizing of spare parts, together with capacity building of ESCOM staff in O&M, will also increase sustainability and resilience of these assets and associated services. The causal link between the Project's activities, outputs, PDO outcomes and longer-term outcomes are further illustrated in the following figure:

Figure 3. Theory of Change for the Project





E. Rationale for World Bank Involvement and Role of Partners

48. The proposed operation provides emergency funding support to the GoM to restore electricity infrastructure damaged by tropical storm Ana. It enables the immediate allocation of financial resources from IDA's CRW using condensed procedures to kick start critical reconstruction and rehabilitation activities that would otherwise be delayed pending the identification and approval of resources from alternate sources. Such delays would have a huge negative impact on livelihood restoration, standards of living, and economic activity that are dependent on the availability of reliable electricity service. Indeed, based on information received from the Government, IDA CRW resources represent the only funding source for the rehabilitation of Kapichira and the transmission and distribution network under a build back better approach. Funding from donor agencies has to date largely been directed toward providing humanitarian relief in the aftermath of the storm.

49. World Bank financing would add comparative value given the World Bank's position to draw upon global experience and expertise in areas directly related to the investments. Achievements from the successful implementation of World Bank-supported operations in emergency restoration of energy infrastructure also provide a strong background upon which to prepare the proposed operation. Particularly, the World Bank's involvement can (a) ensure that project designs reflect principles of sustainability, and ability to withstand climate events; (b) support best-practice analytics related to emergency rehabilitation and restoration of damaged infrastructure; (c) advise on effective competitive procurement processes that provide added benefit during project implementation; and (d) draw on global experiences in hydropower plant, and transmission and distribution network operations to provide efficient power delivery outcomes.

50. World Bank intervention is needed across the entire reconstruction spectrum: In addition to the damage to the Kapichira hydropower plant and dam, the transmission network has suffered damage in all regions with the Southern Region being the worst hit. A total of 14 transmission lines in 21 districts have been affected. Distribution infrastructure was also damaged including many distribution lines having failed due to multiple faults and are in urgent need of repair. The unavailability of equipment and tools have further affected the restoration process. Equipment needed for installation and stringing is in critical shortage. Further, damaged roads have prevented access to some areas e.g., in Kapichira road sections are washed away such that ferrying materials to the work site is a problem. Some areas are inaccessible such that line stringing has stalled. World Bank funding is needed urgently to mobilize technical and financial resources to enable timely restoration of power to affected areas.

51. **Role of development partners:** Following the completion of the US\$350.7 million Malawi compact by the MCC in September 2018, no specific donor commitment has been secured for on-grid, and off-grid electrification other than the US\$150 million IDA credit and grant under the Malawi Electricity Access Project (P163991). In the off-grid space, the largest support other than IDA so far was provided by the United Kingdom's Foreign, Commonwealth & Development Office with a US\$2 million contribution to the African Enterprise Challenge Fund (AECF) for concessional loans and grants to solar companies and financial institutions in Malawi. For emergency operations in the energy sector, e.g., following cyclone Idai, the Government has largely relied on its own budgetary resources to fund reconstruction works. According to the Government, in addition to ongoing projects to fund rooftop solar, and clean cookstoves initiatives, donor resources are mainly being directed toward humanitarian work following tropical storm Ana.



F. Lessons Learned and Reflected in the Project Design

52. The design of this Project benefited particularly from lessons learned from a similar project in Iraq (*Dokan and Derbandikhan Emergency Hydropower Project* - P099059). After review of its Implementation Completion Report (ICR), the Independent Evaluation Group of the World Bank recommended that in such emergency situation, (i) project design should be kept simple and manageable; and (ii) appropriate capacity should be ensured in the implementing agency and physical proximity to the project site where possible, is valuable. In this project, the components are indeed kept simple (two components matching with implementing agencies EGENCO and ESCOM). Being based in Blantyre, the proximity of EGENCO to the Kapichira site will also be an asset for the project, and EGENCO's PIU will be based on site. The ICR also recommended the preparation of bidding documents as early as possible during the project preparation phase to prevent delays during implementation in countries. For this project, the World Bank is supporting EGENCO by providing inputs to terms of reference for the Owner's Engineer in order to kick-off and accelerate their procurement. The ICR also strongly recommended to choose a PDO indicator that would not be susceptible to impacts from extrinsic influences outside the project's boundary. This has been applied to this operation by selecting indicators attached to the core activities and works planned under the project.

53. Advance preparation of key technical studies, safeguards assessments, and major procurement packages can significantly speed up implementation. The advance preparation and timely disclosure of the Environmental and Social safeguards instruments in prior projects were critical in identifying areas in need of further attention or reassuring all stakeholders of the limited scope of the project's environmental and social impact. Advanced readiness of major bidding packages for the project would also help to trigger early progress of procurement activities under the project. The World Bank has adopted this approach for the proposed project. Significant and rapid preparation work is planned to define the technical and commercial aspects of the project by approval.

54. Capacity of Project Implementation Units to deliver complex projects. The absence of timely recruitment of design and supervision engineers, and key safeguards specialists within utility and Ministry of Energy PIUs has significantly delayed project delivery in ongoing energy projects. Inadequate budget allocation for PIU activities has also impacted project delivery with requests to supplement PIU budgets from project resources. The utilities have expedited the formation of fully constituted PIUs for this project and have mobilized key PIU team members during project preparation. The utilities have also assured the World Bank of their intention to dedicate staff to work in the project's PIUs, and to complete timely recruitment of consultants to ensure adequate capacity especially for environmental and social safeguards, and procurement matters. The terms of reference for the Owner's Engineer for EGENCO are well advanced with the objective to fast track their recruitment not later than four months after the project's effectiveness. The utilities are also assessing their budgetary requirements to ensure the adequacy of resources to deliver project activities. Consultancy firms will in particular be requested to provide on-the-job, and formal training to the PIUs in project management and supervision of complex hydropower, and transmission and distribution rehabilitation projects. A Hands-on Expanded Implementation Support is also being proposed to support the PIUs including for preparing and issuing tender documents.

55. Delays in procurement. Procurement in ongoing World Bank supported projects has typically been slow given the time taken for obtaining clearances during the stipulated approvals processes. Discussions on streamlining approvals processes for emergency operations were discussed during procurement workshops conducted at the two utilities, and during appraisal, and solutions were proposed by the Government of Malawi. These proposed processes will also be reflected in the Project Procurement Strategy for Development, and formalized in discussion with the Ministry of Energy, the Public Procurement and Disposal of Assets Authority, and the Ministry of Finance



and Economic Affairs.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

56. There will be two implementing agencies for the project, i.e., EGENCO for Component 1, and ESCOM for Component 2. The PIUs will be created for the Project, one each within EGENCO and ESCOM's Planning & Development Divisions, that are responsible for implementation of major projects.

- **Project Steering Committee (PSC)** comprising of principal secretaries and CEOs from the Ministry of Energy, Ministry of Finance and Economic Affairs, Ministry of Natural Resources and Climate Change, EGENCO, ESCOM, and potentially a director from the Department of Irrigation for coordination with the SVTP project, will provide oversight and high-level coordination. The PSC will provide quarterly and annual progress reports. The report will describe the status of physical progress, safeguards implementation and issues, and financial reports. The PSC will include a project coordinator responsible for consolidating information from both utilities for reporting through the above progress reports. The PSC will meet at least every two months during the first two years of project implementation and quarterly thereafter, with the PIUs and receive a status update from the heads of the PIUs, based on which it will recommend actions to address bottlenecks, and the way forward toward timely delivery.
- **EGENCO and ESCOM PIUs.** For the two utilities, the PIUs will include a project manager, project engineer, social specialist, environmental specialist, procurement specialist familiar with World Bank procurement guidelines, financial management (FM) specialist, and safeguards and technical specialists. The PIUs will procure EPC contractors or, in the case of ESCOM, use a combination of contractors and in-house technicians and linesmen for network restoration. An Owner's Engineer will also be hired by EGENCO for Phase 2 implementation (Build Back Better phase), while the required scope of work for the OE for Phase 1 (cofferdam) will be added as an addendum to the existing OE for the SVTP project. ESCOM will extend the scope of work of the design and supervision engineer under the Malawi Electricity Access Project (P164331) to include transmission and distribution line restoration works under the proposed project. The EGENCO and ESCOM project managers with input from the FM specialists will be responsible for financial reporting of the EGENCO and ESCOM parts respectively.

57. **Project implementation manuals:** The project's implementation will be guided by project implementation manuals (PIMs) at EGENCO and ESCOM PIUs. The PIMs will set out detailed institutional, administrative, financial, technical and operational guidelines and procedures for the implementation of the Project, including detailed safeguards requirements, financial management, procurement arrangements as well as monitoring and evaluation. The PIMs need to be prepared, adopted by the Borrower and sent to the World Bank for no-objection prior to any disbursements.

58. The IDA contribution to the project will be in the form of an IDA CRW credit and grant to the Republic of Malawi. ESCOM has experience in implementing World Bank financing while EGENCO will be a recipient of IDA funds for the first time and will need support in preparing the PIU's institutional structure to meet IDA's fiduciary and legal requirements.

59. For Component 1, close coordination between EGENCO and SVTP will be key to the success of the two phases of Kapichira rehabilitation. The general agreed implementation arrangements between EGENCO and SVTP are that:



(i) during Phase 1, SVTP will finance and lead the design and construction of the cofferdam and in doing so, consult with EGENCO on key design and construction parameters until the cofferdam is built and energy is restored; while (ii) during Phase 2 involving Kapichira rehabilitation funded by IDA CRW, EGENCO will take the lead on design and construction. EGENCO will coordinate closely with SVTP, especially on the key point of interface between the SVTP intake for the irrigation canal, and the Kapichira emergency spillway. For enhancing such collaboration, the EGENCO and SVTP PIUs and their consultants including the owner's engineers²⁵ will meet at least once a week. The targeted goal for Phase 1 energy restoration is proposed to be the end of the 2022 dry season i.e.; around end November 2022. This ambitious timeline will require early mobilization of the PIUs and their consultants, and contractors along with proactive engagement by all parties, including management and high-level representatives from SVTP, EGENCO, the Ministry of Energy, and the Department of Irrigation unit overseeing SVTP.

B. Results Monitoring and Evaluation Arrangements

60. The monitoring and evaluation (M&E) of activities will be performed by EGENCO and ESCOM. EGENCO will be supported by an Owner's Engineer while ESCOM will monitor project delivery with the support of its regional offices and from the design and supervision engineer under the IDA-financed Malawi Electricity Access Project (P164331) whose scope of work will be amended to include the same. The EGENCO Owner's Engineer shall include as part of its team, a project director who will be responsible for providing to the PIU, the required quarterly implementation progress status reports and data for the preparation of the Quarterly Progress Reports by the PIU. Activities to be monitored by the Owner's Engineer include the timely and efficient re-construction and commissioning of the Kapichira dam and spillways, quality control, as well as the effective implementation by the contractors and consultants of the Environmental and Social Commitment Plans (ESCPs) and the Stakeholder Engagement Plans (SEPs) of the project.

61. Each PIU will be responsible for monitoring the project's progress. Each PIU shall also be responsible for the PIM, which will guide the M&E activities. Project-specific data will be collected by the PIUs from the Owner's Engineer (for Kapichira), the design and supervision engineer (for ESCOM), and contractors. Each PIU will prepare a quarterly progress report. The same will be used by the Project Coordination Consultant in the Steering Committee to prepare a consolidated quarterly progress report for submission to the World Bank. Section VII presents the project's results framework that defines specific outcomes and results to be monitored under this project. In addition, the World Bank will carry out more frequent implementation support missions, and request financial monitoring reports (FMRs), quarterly reports of EGENCO and ESCOM, independent annual financial audits of the project and financial statements of EGENCO and ESCOM as per the agreed format that will be used to monitor progress of project activities, as well as implementation of the ESCP and SEPs.

C. Sustainability

62. Sustainability of Component 1 depends on the following factors: (i) availability of water in the Shire River and capacity within the reservoir to allow for optimum power generation; (ii) adequate management of sediment in the reservoir and the river basin; (iii) adequate operation and maintenance of Kapichira scheme and its appurtenant structures (including those related to dam safety); and (iv) financial health of EGENCO. Sustainability of the dam will be addressed in both phases 1 & 2. During Phase 1, the upstream face of the dam and the cofferdam will be reinforced and main scars on the downstream face will be treated in order to manage different hydraulic conditions. Otherwise Phase 2 is by definition designed to increase resilience and sustainability of the dam. A temporary

²⁵ Discussions have been held to potentially extend the scope of the existing SVTP Owner's Engineer for Phase 2 but their capacity has been assessed to be not strong enough for rehabilitating large dams and spillways nor for conducting hydraulic and sediment modelling required for Phase 2. Hence the proposal is to recruit another OE with wider and more holistic skills.



emergency preparedness plan will also be prepared across the two phases so that EGENCO can be prepared for managing other floods during construction and until the perennial emergency preparedness plan is put in place.

63. Based on the events that occurred and preliminary assessment of local capacity, further training of local staff in dam safety is also required to ensure that data from dam monitoring instruments are properly collected, processed and reported. Dam safety awareness raising among managers will be conducted to ensure that dam safety reports are properly used, and that maintenance required for dam safety equipment can be implemented in a timely manner (including allocation of planned outages as deemed required).

64. Sustainability of Component 2 depends on: (i) the availability of sufficient generation capacity; (ii) the financial health of ESCOM; (iii) the ability of ESCOM to connect more customers to the rehabilitated and built-back better network; and (iv) affordability of connections by consumers.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

Technical Analysis

Kapichira Rehabilitation

65. As the downstream-most hydropower plant on the Shire River cascade, the Kapichira hydropower plant suffered extensive damage including to the dam (around 200 m of the embankment dam affected), and the fuse plug was washed away during the storm. It resulted in the draining of the reservoir and rendering the hydropower station out of operation. Damage was also incurred to the SVTP intake, the first section of the irrigation canal, and the syphon located at the right embankment of the reservoir. Preliminary root cause analysis shows that only two out of the five main spillway gates were operational during the storm that reduced the capacity of the spillway to evacuate flood water, resulting in the raising of, and abnormally high-water levels in the reservoir. This was further aggravated by the two operational gates not being opened fully due to changes to the partial replacement of lifting wire cables with chains to limit corrosion. Deeper root causes for the failure of the main spillways are various but preliminary assessments show that they include: (i) accumulation of sediments in Kapichira reservoir that triggered a requirement to operate the reservoir at higher levels, (ii) initial design of spillway stoplogs at low levels requiring outage of the hydropower plant (especially with accumulation of sediments), (iii) delayed authorization for planned outage for repairing the gates, (iv) change in lifting cables, and (v) lack of crane on site to operate stoplogs. This emergency operation aims at restoring sustainable energy generation as soon as possible by tackling these root causes but also by building back better and strengthening the resilience of the Kapichira scheme.

66. Preliminary damage and dam safety assessments have been undertaken by an independent dam engineer, which enabled the preparation of an estimate of the scope of work, and of preliminary quantities and cost of the proposed activities. A full review of damage and dam safety assessment will be further implemented by the owner's engineer under recruitment, on the basis of which the detailed design of works, equipment and activities will be further prepared. Cost estimates for different activities are reflected in the procurement plan and will be updated as the studies progress.

67. The dam specialist has also issued a cofferdam concept note with three proposed cofferdam types (i) an



embankment dam with a clayey core, (ii) an embankment dam with internal sheet piles (as done previously by SVTP), and (iii) a Cemented Material Dam (ref. recent Bulletin issued by ICOLD) that enables the use of sediments in the reservoir. The SVTP Owner's Engineer will be requested to make its own recommendation in order to meet the goal of restoring energy as soon as possible.

Transmission and Distribution Network Restoration

68. ESCOM's infrastructure affected by Tropical Storm Ana include both transmission (132kV & 66kV) and distribution (33kV, 11kV and 400V lines) networks where a number of power line components have been affected. These include steel towers, wooden poles and structures, transformers, conductors and insulators among others. The damage caused by the tropical storm has been in various degrees including complete line sections, isolated structures and damage to specific equipment and materials in a manner that permanent rehabilitation works shall comprise of complete line construction works, replacement of structures, and replacement of specific equipment and materials.

69. Delays in power restoration have been due to poor road conditions, some being washed away or damaged during tropical storm Ana and thereafter; the unavailability of spare materials such as wooden poles, insulators, cross arms, steel towers, transformers, and conductors, and vandalism of transformers, conductors and cables during the blackout period. Additional issues include inadequate and unavailable materials including erection and stringing equipment, and necessary Occupational Health and Safety, and Personal Protection Equipment and safety procedures, water safety equipment where river crossings and stringing are necessary, including lack of safety protocols especially for working in and around swift flowing water, which has already resulted in fatalities. Further, ESCOM does not have sufficient spare parts to use for recovery of the transmission and distribution systems, for example ESCOM borrowed 16-meter wooden poles from a sugar manufacturer to replace broken 132 kV steel lattice towers.

70. The design changes below will improve existing design specifications to be more resilient to high winds and rain and improve stability in water-logged conditions:

- Reinforcement of existing poles/lines including pole replacement (such as replacement of wooden poles with steel mono pole in critical parts of the line - using special design of steel lattice towers for river crossings)
- Reinforcement/ new design of foundations considering swampy conditions
- New type of conductor, lighter, for river crossings (avoid lower sag)
- New Insulators/Hardware
- New Stays/Anchors

71. For operations and maintenance improvement:

- Increase the number of warehouses in damaged areas that can stock crucial materials and equipment
- Improved spare parts policy
- Keep available construction, stringing, and erection equipment and tools
- Ensure availability of PPE (Personal Protective Equipment), develop OHS SOP and monitor compliance with safety requirements at all times and working in different conditions.

72. The preliminary estimate for repairs to the transmission and distribution network are MWK 12.3 billion (about US\$ 15.3 million) of which transmission network rehabilitation will cost MWK 6.4 billion (US\$ 8 million) and distribution network restoration will cost MWK 5.9 billion (US\$ 7.3 million).



Economic and Financial Analysis

73. The loss of Kapichira energy following the catastrophic storm Ana on January 24, 2022, resulted in the loss of one third of Malawi's generation capacity. In 2021, Kapichira generation was 670 GWh, 32 percent of total generation. If this energy has to be replaced by expensive thermal generation, EGENCO and ESCOM would face very serious financial problems; place at risk the recent progress in power sector reform; and threaten efforts to increase electricity access (currently just 12 percent have access to grid-electricity).

74. The emergency rehabilitation of the Kapichira hydro project, and the upgradation of the temporary T&D system restorations to a more resilient configuration, are the only ways to mitigate the serious potential impact of the loss of low-cost renewable hydropower energy on the affordability of electricity in all segments of the Malawian economy, and would threaten the recovery of the macro-economy following the global pandemic. There exists no other reasonable alternative to the proposed project, as confirmed by the extremely high economic and financial returns. Failure to rehabilitate Kapichira would be detrimental to the timely achievement of Malawi's current development goals. The importance of "building back better" is underscored by the likelihood of an increased frequency of damaging storms already experienced by EGENCO's hydropower projects.

75. Table 5 shows the economic analysis. The calculations are to 20 years. The NPV is US\$ 838 million, the ERR>100 percent. These are very high economic returns, even in the absence of any estimate of the resilience benefits of the T&D system upgrades. However, such high returns are not unexpected or unusual for hydropower rehabilitation projects financed by the World Bank. The economic returns are unusually robust; there are no plausible circumstances in which the returns fall below the hurdle rate. Moreover, some of the more plausible risks to the Malawi power sector, namely a delay in the completion of the Mozambique interconnection, or further delays in the completion of the Mpatamanga hydro project, increase the economic returns (because diesels or imports would be required for that much longer).

Table 5: Economic Analysis

		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031		
		NPV	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	
[1]	Costs												
[2]	CAPEX	60 [\$USm]											
[3]	Disbursement	[]	0.5	0.5									
[4]	CAPEX	[\$USm]	-55	-30.0	-30.0	0.0							
[5]	OPEX	0.02 [\$USm]	-14	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	
[6]	Total costs	[\$USm]	-69	-31.2	-31.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	-1.2	
[7]	Benefits												
[8]	Kapichira energy	[\$USm]	907	0.0	148.9	300.3	71.7	90.5	89.6	75.0	79.2	43.8	44.2
[9]	T&D	[\$USm]	0										
[10]	total benefits	[\$USm]	907	0.0	148.9	300.3	71.7	90.5	89.6	75.0	79.2	43.8	44.2
[11]	Net economic flows	[\$USm]	838	-31.2	117.7	299.1	70.5	89.3	88.4	73.8	78.0	42.6	43.0
[12]		[ERR]	not computable,ERR>100%										
[13]	Avoided GHG emission cost	[\$USm]	87	13.9	19.5	20.1	10.0	12.6	12.5	10.5	11.1	-0.1	-0.1
[14]	Economic flows incl;GHG	[\$USm]	925	-17.3	137.2	319.2	80.5	101.9	100.9	84.3	89.1	42.5	42.9
[15]		[ERR]	not computable,ERR>100%										

Financial Analysis

76. **Financial impact of project investments.** The analysis of the financial impact of the project is closely aligned with



the economic analysis. On a consolidated basis, the two utilities ESCOM and EGENCO are currently bearing the additional financial cost of meeting electricity demand with emergency diesel generation to replace Kapichira generation and will also bear the cost of repairs. The projected financial internal rate of return (FIRR) from the project investments is therefore identical to the economic internal rate of return (EIRR)(excluding the valuation of avoided GHG emission) and is extremely high even under pessimistic assumptions. The repairs will therefore have an immediate and dramatic impact on the operating cash flow of the utilities. The financing modalities of the repairs for the utilities (on-lending terms of IDA loan) are not yet determined but are expected to be aligned with IDA terms, including a portion that is IDA grant. It is expected that the utilities will not be required to assume significant debt service for a few years.

77. Financial impact of tropical storm Ana on the sector's finances. The flood and unavailability of Kapichira will have a significant negative financial impact on the Malawi electricity sector in FY22 (ending on June 30, 2022) and FY23, including both ESCOM and EGENCO. The financial impact borne by ESCOM is primarily due to increased generation costs. It is assumed that normal levels of generation at Kapichira would resume only at the end of November 2022 and until then electricity sales would be reduced by about 9 percent compared to the pre-storm forecasts (consistent with the load-shedding observed over the last few months). Under these assumptions, instead of breaking even, ESCOM EBITDA margin is expected to turn significantly negative in FY22 and FY23 (-13 percent and -6 percent respectively). The total financial impact of the flood for ESCOM could be around US\$120 million which is equivalent to about 40 percent of annual electricity sales or one and half times the Medium Long Term financial debt of the utility at the end of FY21. Only about 15 percent of this total cost (the portion corresponding to repair expenditures) has an identified long-term financing (IDA loan and/or Grant). While the priority for the sector is to implement the repairs rapidly, ESCOM will not be able to fully absorb the costs of this emergency without additional financial support and debt restructuring.

78. Contrary to ESCOM, EGENCO was in a satisfactory financial position before the emergency due to a predictable generation tariff ensuring cost recovery. However, the unavailability of its main generation asset will have a major impact on EGENCO. Assuming that generation is interrupted for 10 months, the total impact will be close to US\$110 million, about US\$62 million of which are expected to be operating losses and the rest, repair investments. Under normal circumstances EGENCO will have no difficulty in making debt service payments on a US\$44.7 million IDA loan from EGENCO's operating cashflow (about US\$20 million per year in 2019 and 2020).

79. Outlook: Tropical storm Ana has imposed significant financial costs on the Malawi electricity sector utilities, with most of this cost corresponding to the loss of hydroelectric generation. The financial recovery plan for the sector will need to be adjusted to help the utilities manage the crisis without damaging their ability to function and remain sufficiently creditworthy in particular vis-à-vis their suppliers and financiers. In the case of EGENCO, the company could be able to absorb most of the impact of the crisis if it can secure medium to long term financing for the operating losses. This is likely not the case for ESCOM which was already in a precarious financial position before the emergency. A two-stage approach would be possible: first securing short term funding to allow the utilities to meet their short-term financial obligations, while working on securing longer term financing for the operating deficits.

B. Fiduciary

(i) Financial Management

80. Apart from delays in submission of audited financial statements and having one qualified audit report, the (ESSP (closed October 2018) FM performance delivered by ESCOM was satisfactory. The summary assessment of EGENCO and ESCOM is as follows: the planning and budgeting arrangements are satisfactory, following participatory activity-based approach that assigns responsibility to individuals responsible for components, subcomponents, and



activities. Accounting software for accounting and reporting is in place. EGENCO uses SYSPRO accounting software which is configurable to include projects accounting and reporting requirements. Internal control requirements are detailed in the accounting manual which will be updated to include agreed policies and procedures in the implementation of the project and will be part of the PIM. EGENCO and ESCOM have internal audit departments which also audit projects. The project management would need to ensure that the Annual Workplan and Budget (AWPB) of the departments include at least half yearly internal auditing of the project. For the funds flow, EGENCO and ESCOM will open an exclusive Dollar account with the Reserve Bank of Malawi (RBM) or a commercial bank acceptable to IDA. During the implementation of the ESSP, funds flow was satisfactory including timely and accurate bank reconciliations. The recommended disbursement method is report-based using IFRs. Financial reporting arrangements are in place and a quarterly interim financial report template, for reporting on uses of funds will be agreed by effectiveness. ESCOM are familiar with the World Bank's reporting requirements while EGENCO will be provided with guidance on the same. The entities produce monthly and quarterly management accounts for their overall operations. The reporting templates are embedded in the accounting software. The external audit requirements will be agreed and reflected in the external audit terms of reference that will be used to procure the services of external auditors. The conclusion of the assessment is that after the implementation of the proposed mitigation measures, the arrangements will meet the World Bank's minimum requirements for FM. The residual risk is moderate.

(ii) Procurement

81. **Procurement for the Project will be carried out in accordance with the World Bank's Procurement Regulations for IPF Borrowers for Goods, Works, Non-Consulting and Consulting Services**, dated November 2020 (Procurement Regulations), 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 as of July 1, 2016, and other provisions stipulated in the Financing Agreement. The Project will use the Systematic Tracking of Exchanges in Procurement (STEP) to plan, record, and track procurement transactions.

82. **The major planned procurements include for Component 1 related to Kapichira:** (i) immediate maintenance of main spillway gates; (ii) desilting of river left bank channel and protecting the upstream face of the embankment dam; (iii) Owner's Engineer for Phase 2 (OE2 - Consultancy Services) for complementary assessments, detailed design of the rehabilitation and upgrade of the dam and spillways, support to contractor's procurement, supervision of works, and preparation of dam safety and Kapichira sediment management plans; (iv) contractor for rehabilitation and upgrade of the dam and spillways (including upgrade of main spillway gates with higher stoplogs and renewed lifting system, reconstruction of 200 meters damaged section of the dam, replacement of fuse plug with emergency spillway, dam safety equipment and reconstruction of the redesigned training dike (depending on results of hydraulic and sediment models); (v) consultancy services for preparing ESIA and required environmental and social safeguards instruments; and (vi) dam safety Panel of Experts; and (vii) procurement of motor vehicles for PIU. **For Component 2 related to T&D:** (i) design, supply, installation and commissioning of transmission and distribution lines; (ii) supply and delivery of transformers and emergency restoration towers in various areas affected by the cyclone ; (iii) supply and delivery of drones, and a Conductor Puller and Tensioner; (iv) construction of two warehouses; (v) engineering consultancy services for the design, support during procurement process, construction supervision and management of defect liability period for distribution and transmission lines works; and (vi) hiring of procurement and safeguards specialists. Given the emergency nature of the requirements, finalization of the streamlined project procurement strategies for development (PPSD) has been deferred to implementation. Initial procurement plans for the first eighteen months have been agreed with the Project Implementing Agencies and will be updated during implementation.



83. The proposed procurement approach prioritizes fast track emergency procurement for the required emergency goods, works and services. Key measures to fast-track procurement include: (i) use of simple and fast procurement and selection methods fit for purpose in an emergency situation; (ii) increased thresholds for Requests for Quotations (RFQ) to US\$1 million for goods and services and US\$5 million for works; (iii) direct contracting of firms as appropriate; (iv) Limited Competition with identified suppliers and contractors; (v) use of procurement agents; and (vi) force account, as needed. Bid Securing Declaration may be used instead of the bid security. Advance payment may be increased to 40 percent, while secured with the advance payment guarantee. The time for submission of bids/proposals can be shortened to 7 - 15 days in competitive national and international procedures, and to three days for the Request for Quotations, however if bidders request an extension, it should be granted. The retroactive financing may be applied to the contracts procured in advance for the purpose of this Project objective using procurement procedures consistent with Sections I, II and III of the World Bank's Procurement Regulations and consistent with the Financing Agreement of this Project. If requested by the Recipient, the World Bank will provide procurement hands-on expanded implementation support to help expedite preparation of bidding documents. The Recipient will conduct all emergency procurements under this Project as post review.

84. Procurement implementation arrangements. Procurement planning, procurement processing, contract management and the related decision-making authority under the proposed Project will be carried out by ESCOM and EGENCO through their PIUs. The ESCOM and EGENCO Internal Procurement and Disposal Committees (IPDCs) will follow a streamlined process flow for emergency procurement and fast track review and clearance support of high value procurement packages.

85. Procurement capacity assessment. The capacity of ESCOM and EGENCO was reviewed during project preparation and concluded that even though requiring some improvements, procurement capacity was found to be acceptable for managing procurement activities for the project. The newly created PIU at EGENCO is not familiar with implementing projects financed by the World Bank, therefore, apart from hiring a qualified procurement specialist, EGENCO will benefit from close collaboration with ESCOM who are implementing two ongoing projects (Malawi Electricity Assess Project P163991, and Mozambique-Malawi Regional Interconnector Project P164354). Both PIUs are well equipped with office space and all the means to perform the work satisfactorily. Action plans to improve the capacity of the PIUs were put in place and these will be continuously monitored, during project implementation, to ensure that the units are performing at an acceptable level.

Table 6. Procurement Risk and Mitigation Measures

Risks	Mitigation Measures
Slow procurement processing and potential delays, due to limited capacity to conduct emergency procurement, workload, and many approval stages by different government departments	ESCOM and EGENCO will each hire a Procurement Specialist with qualifications and experience satisfactory to the World Bank to enhance their capacity ESCOM and EGENCO will put in place mechanisms for regular follow up and monitoring of procurement processes. ESCOM and EGENCO will use emergency procedures including use of increased thresholds for RFQ and further to ensure expeditious clearance at IPDC stage as soon as submissions are made.
Lack of adherence to procedures due to inadequate understanding of the World Bank Procurement Regulations for IPF Borrowers.	The World Bank will provide constant support to staff to ensure adherence to the Procurement Regulations.



Risks	Mitigation Measures
	Staff involved in project implementation will receive training on the World Bank Procurement Regulations for IPF Borrowers.
Limited capacity of the market and supply chain to meet the demand, due to the global nature of COVID-19 pandemic	<p>The Project will use simplified procurement processes in accordance with emergency operations norms, including early engagement with suppliers, contractors and service providers for direct contracting is proposed.</p> <p>Measures for supplier preferencing like direct payments by World Bank, advance payments, etc. will be applied on a needs basis.</p>
Impact of emergency on supply chains and lead times.	Advance procurement is expected to mitigate this.
Inadequate use of STEP thereby resulting in many activities flagged as delayed or pending implementation	<p>ESCOM and EGENCO will ensure that STEP is adequately used, timely uploading the required documentation once the stages of the processes are completed</p> <p>ESCOM and EGENCO staff involved in project implementation will receive training on STEP</p>
Delays and/or unsuccessful completion of contracts due to inadequate contract management capacity	<p>ESCOM and EGENCO will develop simple contract monitoring sheets for each signed contract to enhance monitoring and tracking of milestones.</p> <p>Key staff who will be involved in project implementation will receive training on contract management to enhance their capacity</p>
Managing fraud and corruption and noncompliance.	<p><i>Ex ante</i> due diligence of firms being selected will be attempted using databases available in country and externally.</p> <p>Post review of contracts will be scheduled immediately on award of contracts for all contracts that would have been usually prior reviewed.</p>
Challenges of bids submission due to COVID-19 movement restrictions imposed by many countries worldwide.	PIU will closely monitor country restrictions, and promptly propose more efficient procurement approaches and methods based on flexible procurement arrangements available for procurement under emergency situations.
Loss and/or unauthorized access to procurement records due to poor record management	ESCOM and EGENCO will maintain all procurement records and will put in place dedicated staff to manage the records.



86. **Various industries are feeling the impact of COVID-19, especially the construction industry that will impact the procurement process and implementation of the contracts.** To deal with potential procurement delays because of the spreading of COVID-19, the World Bank will support ESCOM and EGENCO in applying any procedural flexibilities in bid submission modality and bid submission dates and by advising the Recipient on the contractual provisions, which could be invoked by contractors/suppliers/consultants in relation to the COVID-19 pandemic.

87. **The** procurement risk is Substantial in view of the articulated risk mitigation measures.

88. The World Bank's oversight of procurement will be done through increased implementation support, and increased procurement post review based on a 20 percent sample while the World Bank's prior review will not apply.

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

89. The activities undertaken through World Bank funding, including activities under retroactive financing, will need to comply with the World Bank's Environmental and Social Safeguards Framework (ESF), which also includes dam safety. The following documents were prepared and disclosed in line with condensed procedures: ESRS, ESCP, SEP, Borrower E&S documents, and Appraisal stage PID.

90. An ESCP and Stakeholder Engagement Plan (SEP) were disclosed on the World Bank's external website on May 18, 2022, and in-country on May 24, 2022. The ESCP sets out the Borrower/Recipient's commitments to complying with the ESF and the specific Environmental and Social Standards (ESSs), including a set of Environmental and Social instruments to be developed during implementation to meet these requirements, including project-specific Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plans (ESMPs). An Environmental and Social Risk Classification was prepared by the World Bank, in conjunction with the PIUs.

91. The EGENCO and ESCOM Project Implementation Units (PIUs) will include Environmental specialists, Social Specialists, Gender Specialists, and Occupational Health and Safety specialists with experience in dredging or mine safety (in particular open cast mining operations) for EGENCO and in the case of ESCOM in High Structure Access and Powerlines with terms of reference, qualifications and experience acceptable to the World Bank. For Component 1, an Environmental Specialist consultant with experience in the World Bank's ESF requirements and large dams should be appointed to prepare the ESF Instruments included in the ESCP in conjunction with the EGENCO PIU. Terms of Reference for proposed candidates accepted by the World Bank will be drafted and reviewed by the World Bank prior to appointment.

92. For the immediate sediment removal works, an Emergency Sediment Management Plan will be required, including impacts and mitigation of the sediment removal and storage, and occupational health and safety for working in the mobile sediment with clear Standard Operating Procedures for the methodologies. However, for new



sites for sediment storage a more comprehensive impact assessment will be required. For Phase 1 and Phase 2 works, based on screening of proposed activities, a comprehensive Environment and Social Impact Assessment will be required, with ESMPs and Environmental, Social, Occupational Health and Safety plans (ESOHS) and clear Standard Operating Procedures (SOPS) for the subprojects. All contractors' appointments will need to, using the main ESMPs, develop their contractors' ESMP and ESOHS for their areas of works. Implementation and compliance of all instruments will be monitored and reported on regularly by the PIU Safeguards staff. Regarding dam safety, a Disaster Risk Assessment will be conducted as part of the ESIA along with the needed dam safety plan following ESF requirements. In addition, safety measures for the cofferdam will be developed under the SVTP project and reviewed by an independent panel to ensure consistency with Good International Industry Practice (GIIP). EGENCO will ensure collaborative due diligence during construction and operation of the cofferdam and regular management meetings will be established between EGENCO and the SVTP project.

93. A topographic survey and sediment sampling including chemical analysis will need to be undertaken, a technical memo describing proposed features for such surveys and for sediment sampling and analysis has been provided to EGENCO for review and implementation. A sediment specialist will be appointed to support and guide the Government of Malawi, and EGENCO to identify relevant studies and modeling to be undertaken under a Sediment Assessment for Kapichira scheme and Kapichira O&M Plan. Additionally, a basin-wide sediment management plan will be required to be developed under Mpatamanga Phase I and the sediment assessment for Kapichira scheme will be updated accordingly. The funding and launch of the proposed strategy will be finalized in discussion with ongoing World Bank-supported projects in the Shire River basin.

94. Where rehabilitation and replacement of the Distribution and Transmission Line networks will follow the same previous alignments, a detailed ESMP will be required prior to relevant Contractor's bidding processes. This ESMP will include the Environmental, Social, and Occupational Health and Safety (ESOHS) impacts and mitigation activities including waste and traffic management. Detailed Standard Operating Procedures for the methodologies will also need to be developed. However, for new sites and routes of distribution and transmission lines a more comprehensive environmental and social impact assessment including avifaunal study will be required. All contractor's appointment will need to, using the main ESMP, develop their contractors-ESMP and ESOHS for their area of works. Implementation and compliance of all instruments will be monitored and reported on regularly by the PIU Safeguards staff.

95. EGENCO and ESCOM have established separate PIUs to coordinate the preparation of the restoration of the Kapichira Hydropower generation component and coordinate safeguards activities for the Transmission and Distribution Network component of the Emergency Energy Project, respectively. Each PIU will recruit an Environmental Specialist, a Social Specialist, a Gender Specialist and a Health and Safety Specialist to coordinate the preparation of safeguards instruments. Each project component prepared mandatory safeguards instruments which include the ESCP, and SEP. The latter instrument will outline the component's Grievance Mechanism which should be established in the early stages of project implementation to provide a platform for lodging project related concerns and grievances. Given the lead time it might take to hire permanent safeguards specialists in the EGENCO and ESCOM PIUs, the utilities will appoint competent counterpart safeguards team members in the PIUs either through recruitment or secondment to initiate safeguards preparation activities for the proposed project. These counterpart safeguards team members shall remain in place until the recruitment of permanent safeguards staff into the EGENCO and ESCOM PIUs based on terms of reference satisfactory to IDA. The project will also appoint an independent consultant to assist the PIUs to prepare ESIA/ESMPs, LMP and RPF prior to relevant contractor's bidding processes. The project will also prepare a Gender Based Violence (GBV) Action Plan.

96. **Gender:** Natural disasters affect women and men, boys, and girls differently due to gender inequalities rooted in



socioeconomic conditions, cultural beliefs and traditional practices, which usually place women and girls at a disadvantage. Post-disaster recovery usually poses challenges on women and girls but can also provide women with economic empowerment opportunities especially to those impacted. Evidence shows that post disaster construction can stimulate economic activities; in particular, energy infrastructure projects have the capacity to create direct and indirect employment in construction sites. Given the impact of tropical storm Ana on livelihoods in Malawi, this project has potential to provide economic empowerment activities for women in projects areas and close gender income inequalities. According to the Malawi Integrated Household Survey 2020 (IHS5), areas impacted by tropical storm Ana have at least 33 percent women-headed households residing in rural areas; most of the women-heads are either widowed or separated/divorced. Such households have limited income generation capacity and lack coping mechanisms when exposed to natural disaster risks, further placing them at the risk of GBV.

97. The emergency project has the potential to stimulate labor markets in areas affected by the storm, by providing direct and indirect employment to women in project areas. EGENCO's Social and Gender Inclusion Policy (March 2018) has set a target that 20 percent of staff should be women, with emphasis placed on hiring women engineers and technicians. Currently, 18 percent of the staff at EGENCO are women and less than 5 percent of the women staff are engineers. ESCOM's Social and Gender Inclusion (SGI) Policy (September 2017) requires that contractors working with ESCOM hire 20 percent women in energy infrastructure construction sites and commit a portion of the allocated budget towards social and gender inclusion operations. As such, the contractors who are identified for the project will be required not only to meet the hiring quota of 20 percent women but will also be required to offer on-the-job training to women employees and empower women with skills they can use on construction sites and beyond. Further, contractors will be required to assign meaningful work to women employees. In coordination with ESCOM's GBV awareness programs, the project will also include awareness of income earning opportunities available in construction areas, in particular hospitality services to constructions workers. Through the project, ESCOM SGI team will work with contractors to provide start-up capital for women empowerment activities around construction sites, in particular food service provision. In areas where construction is localized, such as Kapichira Power Station rehabilitation (under EGENCO), ESCOM SGI team has the capability to organize local women into groups to work with contractors to establish kiosks around construction sites where local women can provide catering services to construction workers. Increase in income for rural women will not only reduce GBV risks but also improve livelihoods in areas that have been adversely impacted by tropical storm Ana. In addition, the project will ensure that the EGENCO Social and Inclusion Policy is adhered to when hiring employees for the operation and maintenance (O&M) phase of the Kapichira Hydropower Plant and Dam and once the Hydropower Station is fully back in operation.

98. In order to ensure the impact of the project on closing gender gaps, the M&E will include the following intermediate indicators: under component 1, Kapichira dam rehabilitation and strengthening (i) Percentage of women employed by contractors at construction sites and; (ii) Budget allocated by contractors to Social and Gender Inclusion Operations. Under component 2, transmission and distribution network restoration (i) Percentage of women employed by contractors at construction sites, (ii) Budget allocated by contractors to Social and Gender Inclusion Operations (based on ESCOM SGI policy) and; (iii) Percentage of women employed by contractors at construction sites.

99. Stakeholder Engagement: The project will have in place a consultation, engagement and communication strategy, which is included in the SEP. The SEP has been developed to provide a detailed roadmap on the consultation and engagement of relevant stakeholders including affected persons and interested parties during project implementation. The SEP will undertake stakeholder identification to identify the nature of the anticipated stakeholders as well as their information requirements, timing, and methods of engagement throughout the project lifecycle. The two utilities, EGENCO and ESCOM are expected to have separate citizen engagement strategies, partly due to the differing project activities and project sites. EGENCO has one project site at Kapichira and will therefore



largely engage with stakeholders impacted within this project area, while ESCOM has multiple project sites and will therefore need a more extensive consultative approach in order to engage the various communities and that will be impacted. Both utilities have developed separate stakeholders engagement strategies and communication plans and were all outlined in the project SEP. The project has a Grievance Redress Mechanism (GRM) which will be implemented in relation to project affected persons, project workers and the general public. GRM will see the formation of various GRM committees to resolve all grievances from the communities. GRM committee members will be trained to be able to address grievances. Community leaders will be key in grievance resolution due to their knowledge of the people and the history of their respective areas. As part of the citizen engagement process, the project level GRM provides a framework for complaints tracking, response, and resolution within the stipulated response times, thus closing the feedback loop. The M&E will include the following intermediate indicator related to stakeholder engagement: (i) Percentage of grievances resolved.

V. GRIEVANCE REDRESS SERVICES

100. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. 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 corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

VI. KEY RISKS

101. The overall risk rating of the proposed operation is "Substantial". Key project level risks and their proposed mitigation measures are listed below.

102. **Political and Governance (Substantial risk):** Over past decades, the country's development progress has been negatively affected by challenges in governance, which has been an obstacle to policy reforms and development of the country and has led to suspension of donor budget support in the past. The new Government elected in June 2020 is committed to prudent macro-economic policies and launched reforms to restore public financial management controls and to address the challenges in public service provision. While political and governance risk appears to be declining through these reforms, in view of the political uncertainty typical of the period after presidential elections (June 2020) and subsequently, its public acceptance, the risk remains Substantial. **Mitigation measures:** To mitigate these risks and to ensure ownership by all key stakeholders, the project is developed through broad-based consultations with all key stakeholders and key development partners and within the framework of Malawi's Vision 2063, which places energy as a key pillar to achieving the aspirations of the Vision and in line with SDG7.

103. **Macroeconomic (Substantial risk):** The macroeconomic situation has significantly deteriorated in recent years with the December 2021 Debt Sustainability Analysis indicating that Malawi's external and public debt are both at high risk of debt distress. The Country Policy and Institutional Assessment (CPIA) rating on economic management declined in 2021. Without the planned mitigation measures, these risks could be rated "high." **Mitigation measures:** The rating "substantial" takes into account planned mitigation measures, notably fiscal consolidation, debt restructuring, and Integrated Financial Management Information System (IFMIS) rollout supported by the IMF



Extended Credit Facility (ECF) and the World Bank financed Development Policy Operation (DPO).

104. Technical design of project (Substantial): The main technical risks of the project are linked to the risks for design and implementation of rehabilitation works. For design, some of the key challenges will be to (i) properly model hydraulic and sediment dynamics in Kapichira reservoir, taking into account the new multipurpose dimension of the scheme, (ii) delineate the limit between the assets to be rehabilitated, upgraded or kept as they are, and (iii) assess the impact of climate change on future floods (especially storms). For the construction phase, one of the challenges will be to maintain electricity generation during rehabilitation (especially during upgrade of the spillway gates) and to ensure quality supervision of construction studies and works. **Mitigation measures:** For the design and supervision of rehabilitation, the specifications of the Owner's Engineers will detail ad-hoc expertise and skills required for each component. For design of Component 1, seasoned experience in hydraulic and sediment modelling will particularly be required and the OE will be requested to implement their own dam safety assessment for confirming the definition of the works and equipment to be rehabilitated and upgraded. The design will also benefit from the high-level expertise and thorough review of the dam safety panel of experts²⁶. For floods, resilience of Kapichira scheme to more extreme events than those forecasted with climate change will be tested and marginal spillway capacity might be considered at the new emergency spillway as a result of such sensitivity analyses. Finally, construction studies and method statements for civil works of Component 1 will be carefully reviewed and scrutinized by the Owner's Engineer.

105. Institutional capacity for implementation and sustainability (Substantial risk): While ESCOM is experienced in implementing large capital investments in transmission and distribution system expansion and upgrade financed by the World Bank and other development partners, the capacity of the utility is over stretched and ESCOM is in need of dedicated and experienced staff to support this proposed project. EGENCO, does not have experience in the planning and implementation of World Bank funded projects, hence considerable support would be required for EGENCO to enable the project team to successfully manage activities under the proposed project. There are significant OHS Risks associated with the various project activities and both institutions will require additional OHS specialist capacity to develop, implement and oversee OHS procedures and ensure use of PPE equipment. **Mitigation measures:** The technical assistance provided under both Components (1 and 2) to the two utilities under the project will address capacity challenges through provision of training and staffing for dedicated PIUs in EGENCO and ESCOM.

106. Fiduciary (Substantial risk overall): Financial Management (Moderate risk): Under immediate previous World Bank funded projects (e.g., ESSP), ESCOM's financial audit for the fiscal year ended June 30, 2016, had received a qualified opinion due to limited evidence provided for validating some of the items in the financial statements. In addition, the auditors had also raised a number of control and accountability issues including unreconciled cash amounts, bank balances recognized as expenditure, and an unexplained difference in consultancy fees paid. Improving on such previous shortfall in FM issues was crucial for advancing preparation of the new operation. **Mitigation measures:** ESCOM addressed the shortcomings raised in the audited opinion of the previous World Bank funded project and resolved the same. ESCOM is also in the process of implementing a Financial Turnaround Plan supported by the World Bank, that is aimed at returning ESCOM to financial viability. For EGENCO, since it is the first time for the utility to implement a World Bank funded project, the financial health of the utility would be assessed as part of this operation to ensure the sustainability of the investment. **Procurement Management.** Procurement risk is Substantial in view of the articulated risk mitigation measures. The risks are associated with: (i) Slow procurement processing and potential delays, due to limited capacity of the PIUs to conduct emergency procurement, workload, and many approval stages by different government departments that may delay the timely achievement of the PDO; (ii) Lack of adherence to procedures due to inadequate understanding of the World Bank Procurement Regulations for IPF Borrowers; (iii) Impact of emergency on supply chains and lead times; (iv) Inadequate use of STEP thereby resulting in many activities flagged as delayed or pending implementation; (v) Limited contract management capability

²⁶ The dam safety panel will include a dam specialist, a geotechnical specialist, and hydrologist and a hydromechanical specialist.



including management of environmental and social risks particularly in Works contracts, which may result in implementation delays and cost overruns and; (iv) Inadequate record management systems. **Mitigation measures:** To mitigate these risks the following measures are proposed to be undertaken: i) Provide close World Bank support and supervision; (ii) Ensure adequate technical and procurement staff to support preparation of technical specifications and procurement documents; (iii) Both EGENCO and ESCOM will hire a qualified and experienced procurement specialist each to support the operations of the PIUs; (iv) Advance procurement is recommended to mitigate the impact of emergency on supply chains and lead times; (v) Provide procurement and contract management training for both PIUs during project implementation; (vi) ESCOM and EGENCO staff involved in project implementation will receive training on STEP, procurement and contract management; and (iv) include a chapter on procurement in the project implementation manual (PIM), elaborating clear rules, step-by-step procedures and a matrix of responsibilities for each of the actors included in the implementation of the Project, and timeline requirements for procurement activities, actions, and decisions.

107. Environmental and social safeguards (High risk): Environmental and Social risk for this project has been rated high because the capacity of EGENCO and ESCOM with regard to environmental and social management and its knowledge of the ESF requirements of World Bank financed projects was noted to have been limited on previous World Bank funded project, even though since then improvements have been made on staffing under the current project to ensure adequate attention to safeguards issues. For EGENCO, the utility currently has only one environmental officer who was responsible for all environmental issues in the utility and who has also been put forward as a team member of the PIU. Environmental and social capacity at EGENCO would thus have to be built up under the project through both project specific recruitment of staff and consultants. There is also significant risk to biodiversity if mitigation measures are not implemented appropriately, including at Majete Wildlife Reserve, fish biota within the river, and the Ramsar Elephant Marsh wetland downstream of the project site. **Mitigation measures:** With regard to this proposed project, ESCOM will fill in the current capacity gaps through recruitment and/or assignment of 3 additional (social and environment and OHS) personnel. EGENCO will have to hire three additional environmental and social personnel as well, similar to ESCOM. Both utilities would also require some short-term consultants to assist them to prepare the required environmental and social instruments for the project, especially at EGENCO, where safeguards capacity is very limited.

108. Other - Financial viability (Substantial risk): With all the investments for both components going towards the rebuilding of damaged infrastructure, it will be crucial to ensure that the investments are not posing additional constraints on the stressed financial situation of ESCOM and EGENCO. **Mitigation measures:** The implementation of the Financial Turnaround Strategy at ESCOM would be critical to ensure that the investment made under this project is sustainable. For EGENCO, the determination of its financial health and strategies to maintain the utility on a financially sustainable path would be important.

109. Other - Climate disaster risk screening (Substantial risk): The project has been screened for risks related to climate change and disaster risk management. Disaster and climate change risks to the project outcome are Substantial. Malawi is extremely vulnerable to disaster and extreme weather-related hazards, as evidenced by the extensive damage suffered from the impact of tropical storm Ana, which has led to the need for this operation. As a result of climate change, droughts and floods are all likely to become more frequent or more intense in the country. Recurrent drought and floods pose the greatest threat to the country's environment and its local population. Hydropower is the main source of energy in Malawi, which makes the energy sector vulnerable to hydrological variability. Power infrastructure rebuilt under the project will thus be vulnerable to hazards that are likely to become either more frequent or more intense due to climate change, and droughts and increased evaporation from reservoirs may reduce hydropower availability and hurt EGENCO's and ESCOM's financial performance. **Mitigation measures:**



The project is addressing climate disaster risks by supporting investments in resilient infrastructure options. In addition, the project will help to improve climate risk planning and general institutional capacity in Malawi's power sector, which will allow sector institutions to assess and react to risks in a more effective way. Finally, the GoM is actively expanding and diversifying the energy mix through the exploitation of other energy resources, including solar, and potentially wind, geothermal, and bagasse. The use of solar off-grid technologies replacing kerosene and in some cases diesel generators will also lead to minor GHG reductions.



VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Malawi

Emergency Power Restoration Project

Project Development Objectives(s)

To rehabilitate and increase resilience of the Kapichira hydropower dam and spillways, and transmission and distribution infrastructure damaged by Tropical Storm Ana.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	End Target
Kapichira dam and spillways rehabilitated and upgraded with increased resilience			
Kapichira dam and spillways rehabilitated and upgraded with increased resilience (Yes/No)		No	Yes
Wheeling capacity restored			
Wheeling capacity restored (Megawatt)		0.00	90.00

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	Intermediate Targets	End Target
			1	
Kapichira Dam Rehabilitation and Strengthening				



Indicator Name	PBC	Baseline	Intermediate Targets	End Target
			1	
Number of main spillway gates upgraded (Number)		0.00	2.00	5.00
Length of Kapichira dam rehabilitated (Meter(m))		0.00		200.00
Dam safety procedures updated and staff trained (Yes/No)		No		Yes
Budget allocated by contractors to Social and Gender Inclusion Operations (Percentage)		0.00		1.00
Percentage of women employed by contractors at the construction sites (Percentage)		0.00		20.00
Percentage of grievances resolved (Percentage)		0.00		95.00
Transmission and Distribution Network Restoration				
Number of transmission lines restored under the project (Number)		0.00	1.00	2.00
Number of distribution lines restored (Number)		0.00	2.00	6.00
Budget allocated by contractors to Social and Gender Inclusion Operations (based on ESCOM SGI policy) (Percentage)		0.00		1.00
Percentage of women employed by contractors at construction sites (Percentage)		0.00		20.00
Percentage of grievances resolved (Number)		0.00		95.00



Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Kapichira dam and spillways rehabilitated and upgraded with increased resilience	The 200 m damaged section of Kapichira dam is rehabilitated and reinforced, 5 main spillway gates have upgraded lifting system and fuse plug has been replaced with perennial & higher capacity emergency spillway.	Annually	Owner's engineer progress reports,	Dashboard of Phase 2 Owner's engineer progress reports	EGENCO
Wheeling capacity restored	Rehabilitation of damaged 132 kV and 66 kV Transmission and 33 kV distribution lines and upgrade a 33/11 kV substation.	Annually	Owner's engineer report and ESCOM	Owner's engineer	ESCOM

Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Number of main spillway gates upgraded	Number of main spillway gates upgraded	Every six months	EGENCO	Owner's engineer reports	EGENCO PIU
Length of Kapichira dam rehabilitated	Length of Kapichira dam rehabilitated	Every six months	EGENCO	Owner's engineer reports	EGENCO PIU



Dam safety procedures updated and staff trained	Dam safety procedures updated and staff trained	On an ongoing basis.	EGENCO PIU	Quarterly progress report	EGENCO PIU
Budget allocated by contractors to Social and Gender Inclusion Operations	Budget allocated by contractors to Social and Gender Inclusion Operations	Semi-annually	EGENCO PIU Quarterly progress reports.	EGENCO PIU based on data from projects unit supervising rehabilitation works.	EGENCO PIU
Percentage of women employed by contractors at the construction sites	Percentage of women employed by contractors at the construction sites	Semi-annually	EGENCO PIU based on data submitted by projects unit supervising rehabilitation works.	EGENCO PIU	EGENCO
Percentage of grievances resolved	Number of grievances reported and resolved	Semi-annually	EGENCO	EGENCO PIU	EGENCO
Number of transmission lines restored under the project	Number of transmission lines restored under the project	Annually	Design and supervision engineer's report and ESCOM	Design and supervision engineer.	ESCOM
Number of distribution lines restored	Number of distribution lines restored	Annually	Design and supervision engineer's report and ESCOM.	Design and supervision engineer's report	ESCOM



Budget allocated by contractors to Social and Gender Inclusion Operations (based on ESCOM SGI policy)	Budget allocated by contractors to Social and Gender Inclusion Operations (based on ESCOM SGI policy)	Semi-annually			
Percentage of women employed by contractors at construction sites	Percentage of women employed by contractors at construction sites	Semi-annually	ESCOM PIU Quarterly Progress Report	ESCOM PIU Quarterly Progress Reports based on information from regional offices supervising contractor performance.	ESCOM PIU
Percentage of grievances resolved	Number of grievances reported and resolved	Semi-annually	ESCOM	ESCOM PIU and branch offices	ESCOM

ANNEX 1: Implementation Arrangements and Support Plan

Strategy and Approach for Implementation Support

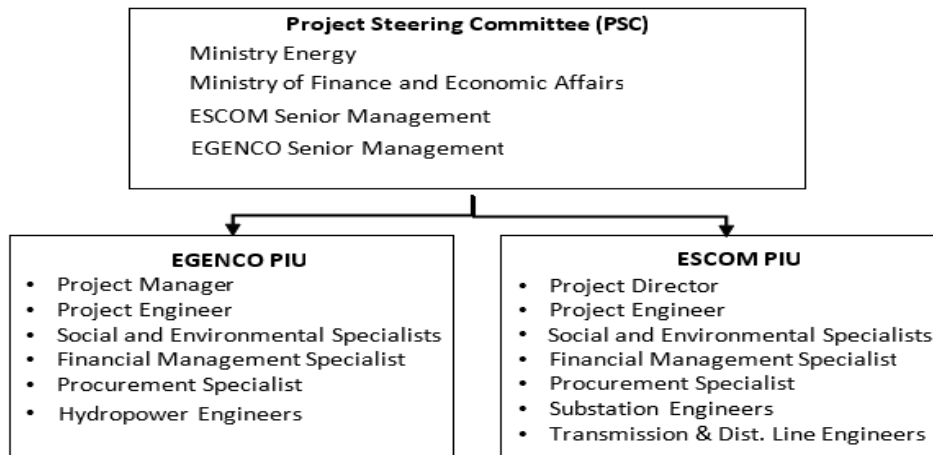
1. The strategy for implementation support has been developed based on the nature of the project and its risk profile. Implementation Support has been designed to guarantee efficient and flexible support to the client and facilitate implementation of the risk mitigation measures. The objective is to ensure that the implementing agencies implement the project successfully to achieve the PDO. It also ensures that the World Bank's resources and staff are sufficient to supervise and support project implementation. The World Bank team members will be based at headquarters, in the region, and in the Malawi Country Office to ensure timely and continued coordination with the Borrower, perform close project implementation support and provide advice on implementation issues as they arise.

Implementation Support Plan

2. Technical implementation support will focus on ensuring timely establishment of the PIUs at EGENCO and ESCOM and the preparation of the project implementation manual outlining the implementation and operational modalities of the project. Terms of reference for staff required for the PIU positions at EGENCO and ESCOM are being prepared by the client and shall be reviewed by the World Bank to ensure that tasks are appropriately defined, and the required qualifications and experience are adequate to perform the key functions required for project implementation. Among priority tasks under implementation is the selection of the owner's engineers (one for each component) since they will be critical to support PIUs in designing and specifying the required scope of works and equipment. During supervision, World Bank team's support will focus on monitoring the construction process, contracts management, disbursements, and effectiveness of capacity building and technical assistance activities. The World Bank team will include staff and consultants, complemented with specialized expertise as required.

3. The two PIUs will report to a Project Steering Committee comprising senior staff from, the Ministry of Energy; Ministry of Finance; EGENCO and ESCOM. The PSC will provide oversight, and high-level coordination and meet to address any issues that need to be resolved including facilitating any authorizations or approvals required for project implementation and evaluating the overall progress of the project. The committee will meet at least every month during the first two years of the project, and at least once a quarter subsequently until project completion. The PSC will provide quarterly and annual progress reports. The report will describe the status of physical progress, safeguards implementation and issues, and financial reports. The PSC will include a project coordinator responsible for consolidating information from both utilities for reporting through the above progress reports.

Figure 1: Technical Implementation Unit Structure



4. The World Bank Procurement Specialists will regularly participate in implementation support missions to assist in monitoring procurement procedures and plans. The World Bank team will include World Bank staff engineers, complemented with specialized expertise, depending on the nature and scope of each component, to review project technical designs, specifications and proposals. Field visits will be carried out to the construction sites to monitor progress including environmental and social safeguard implementation. During the regular implementation support missions, the procurement plans will be updated at least once each year (or more often as required to reflect the actual project implementation needs) and post-procurement reviews will be carried out at a minimum once annually.

5. The World Bank undertook a procurement capacity and risk assessment of EGENCO and ESCOM during preparation of the project to check their readiness and capacity to undertake procurement under the project. The procurement risk rating using PRAMS is substantial as staff at EGENCO are not familiar with the IPF Regulations which the proposed project will be using including use of STEP, there are no adequate procurement staff within the PIEs to implement the number of activities in the proposed project and contract management was not properly handled in the past at ESCOM leading to excessive delays in completion of contracts, whilst at EGENCO such procurement expertise is non-existent, since EGENCO has not implemented World Bank funded projects before.

Procurement

6. Procurement for the Project will be carried out in accordance with the World Bank's Procurement Regulations for IPF Borrowers for Goods, Works, Non-Consulting and Consulting Services, dated November 2020 (Procurement Regulations), 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 as of July 1, 2016, and other provisions stipulated in the Grant Agreement. The Project will use the Systematic Tracking of Exchanges in Procurement (STEP) to plan, record, and track procurement transactions.

7. Procurement Implementation Arrangements. Procurement planning, procurement processing, contract management and the related decision-making authority under the proposed Project will be carried out by ESCOM and EGENCO through their PIUs. The ESCOM and EGENCO Internal Procurement and Disposal Committees (IPDCs) will follow a streamlined process flow for emergency procurement and fast track review and clearance support of high value

procurement packages.

8. Procurement capacity assessment. The capacity of ESCOM and EGENCO was reviewed during project preparation and concluded that even though it requires some improvements, procurement capacity was found to be acceptable for managing procurement activities for the project. The newly created PIU at EGENCO is not familiar with implementing projects financed by the World Bank, therefore, apart from hiring a qualified procurement specialist, EGENCO will benefit from close collaboration with ESCOM who are implementing two ongoing projects (Malawi Electricity Assess Project P163991, and Mozambique-Malawi Regional Interconnector Project P164354). Both PIUs are well equipped with office space and all the means to perform the work satisfactorily. Action plans to improve the capacity of the PIUs were put in place and these will be continuously monitored during project implementation to ensure that the units are performing at an acceptable level.

9. Overall Procurement Risk. The assessment rated the procurement risk as Substantial in view of the articulated risk mitigation measures. The assessment identified several risks that could adversely impact project implementation if not mitigated.

10. National procurement procedures. National open competitive procurement procedures may be used as set forth in the Public Procurement and Disposal of Public Assets Act, 2017 of the Republic of Malawi while approaching the national market. National open competitive procurement will observe the requirements stipulated in the Procurement Regulations for IPF Borrowers on national procurement procedures. Other national procurement arrangements (other than national open competitive procurement), which may be applied by the borrower (such as limited competitive bidding, request for quotations, and direct selection), shall be consistent with the World Bank's Core Procurement Principles and ensure that the World Bank's Anti-Corruption Guidelines and Sanctions Framework and contractual remedies set out in its Legal Agreement apply. However, the request for bids/request for proposals document shall require that bidders/proposers submitting bids/proposals present a signed acceptance at the time of bidding, to be incorporated in any resulting contracts, confirming application of, and compliance with, the World Bank's Anti-Corruption Guidelines, including without limitation the World Bank's right to sanction and the World Bank's inspection and audit rights, and that the Procurement Documents include provisions, as agreed with the World Bank, intended to adequately mitigate against environmental, social (including sexual exploitation and abuse and GBV), health and safety risks and impacts.

11. Procurement templates. The World Bank's Standard Procurement Documents (SPDs) shall be used for procurement of goods, works, and non-consulting services under International Competitive Procurement. National bidding documents may be used under National Procurement Procedures subject to the exceptions stipulated in the textual part of the Procurement Plan. Similarly, selection of consultant firms shall use the World Bank's SPDs, in line with procedures described in the Procurement Regulations.

12. Fiduciary oversight by the World Bank. Given that the project will finance a combination of goods, services, and works for emergency response as per OP 8.00, EGENCO and ESCOM will conduct all emergency procurements under this Project as post review and there will be no Standstill Period. In addition, World Bank procurement specialist will regularly participate in implementation support missions to assist in monitoring procurement procedures and plans.

13. Frequency of procurement supervision. The capacity assessment of the implementing agencies recommends one supervision mission every 12 months to visit the field to carry out post review of procurement actions.

14. Procurement Strategy for Development (PPSD). Given the emergency nature of the requirements, finalization of the streamlined project procurement strategies for development (PPSD) has been deferred to implementation.

15. Procurement Plan: Initial procurement plans for the first eighteen months have been agreed with the Project

Implementing Agencies and will be updated during implementation.

16. Procurement Approaches for the required goods, works and services under the proposed AF: Based on the project requirements, technical solutions and supply base, procurement strategy for the proposed Project is as follows:

- **The major planned procurements include for Component 1 related to Kapichira:** (i) immediate maintenance of main spillway gates; (ii) desilting of river left bank channel and protecting the upstream face of the embankment dam; (iii) Owner's Engineer for Phase 2 (OE2 - Consultancy Services) for complementary assessments, detailed design of the rehabilitation and upgrade of the dam and spillways, support to contractor's procurement, supervision of works, and preparation of dam safety and Kapichira sediment management plans; (iv) contractor for rehabilitation and upgrade of the dam and spillways (including upgrade of main spillway gates with higher stoplogs and renewed lifting system, reconstruction of 200 meters damaged section of the dam, replacement of fuse plug with emergency spillway, dam safety equipment and reconstruction of the redesigned training dike (depending on results of hydraulic and sediment models); (v) consultancy services for preparing ESIA and safeguards Instruments; and (vi) dam safety Panel of Experts; and (vii) procurement of motor vehicles for PIU. **For Component 2 related to transmission and distribution:** (i) design, supply, installation and commissioning of transmission and distribution lines; (ii) supply and delivery of transformers and emergency restoration towers in various areas affected by the cyclone; (iii) supply and delivery of drones, and a Conductor Puller and Tensioner; (iv) construction of two warehouses; (v) engineering consultancy services for the design, support during procurement process, construction supervision and management of defect liability period for distribution and transmission lines works; and (vi) hiring of procurement and safeguards specialists. Given the emergency nature of the requirements, finalization of the streamlined project procurement strategies for development (PPSD) has been deferred to implementation. Initial procurement plans for the first eighteen months have been agreed with the Project Implementing Agencies and will be updated during implementation.
- **The proposed procurement approach prioritizes fast track emergency procurement for the required emergency goods, works and services.** Key measures to fast-track procurement include: (i) use of simple and fast procurement and selection methods fit for purpose in an emergency situation; (ii) increased thresholds for Requests for Quotations (RFQ) to US\$1 million for goods and services and US\$5 million for works; (iii) direct contracting of firms as appropriate; (iv) Limited Competition with identified suppliers and contractors; (v) use of procurement agents; and (vi) force account, as needed. Bid Securing Declaration may be used instead of the bid security. Advance payment may be increased to 40 percent, while secured with the advance payment guarantee. The time for submission of bids/proposals can be shortened to 7 - 15 days in competitive national and international procedures, and to three days for the Request for Quotations, however if bidders request an extension, it should be granted. The retroactive financing may be applied to the contracts procured in advance for the purpose of this Project objective using procurement procedures consistent with Sections I, II and III of the World Bank's Procurement Regulations and consistent with the Financing Agreement of this Project. If requested by the Recipient, the World Bank will provide procurement hands-on expanded implementation support (HEIS) to help expedite preparation of bidding documents. The Recipient will conduct all emergency procurements under this Project as post review.
- **Filing and record-keeping.** The Procurement Manual (part of the POM) will set out the detailed processes for maintaining and providing readily available access to project procurement records, in compliance with the Financial Agreement. The Borrowers will assign one person responsible for maintaining the records. The logbook of the contracts with a unique numbering system shall be maintained.

- **Commitment control system:** The signed contracts shall be reflected in the commitment control system of the Borrower's accounting system or books of accounts as commitments whose payments should be updated with reference made to the payment voucher. This approach will ensure a complete record system whereby the contracts and related payments can be corroborated.
- **Monitoring by STEP.** STEP will be used to prepare, clear, and update procurement plans and conduct all procurement transactions for the project. The mandatory use of STEP by the World Bank will enable consolidation of procurement/contract data for monitoring and tracking of all procurement transactions. Using STEP, comprehensive information of all prior and post review contracts for goods, works, technical services, and consultants' services awarded under the whole project will be available automatically and systematically on a real-time basis whenever required, including, but not limited to: (a) the reference number as indicated in the Procurement Plan and a brief description of the contract; (b) the estimated cost; (c) the procurement method; (d) timelines of the bidding process, (e) the number of participated bidders; (f) names of rejected bidders and reasons for rejection; (g) the date of contract award; (h) the name of the awarded supplier, contractor, or consultant; (i) the final contract value; and (j) the contractual implementation period.
- **Publication of Procurement Information.** The project will follow the World Bank's policies on publication of procurement information that are outlined in the World Bank's Procurement Regulations.
- **Training, Workshops, Study Tours, and Conferences.** Training activities would comprise workshops and training, based on individual needs, as well as group requirements, on-the-job training, and hiring consultants for developing training materials and conducting training. All training and workshop activities (other than consulting services) would be carried out based on approved Annual Work Plans/Training Plans that would identify the general framework of training activities for the year, including (i) the type of training or workshop; (ii) the personnel to be trained; (iii) the institutions which would conduct the training and reason for selection of this particular institution; (iv) the justification for the training, focusing on how it would lead to effective performance and implementation of the project; (v) the duration of the proposed training; and (vi) the cost estimate of the training. Report by the trainee(s), including completion certificate/diploma upon completion of training, shall be provided to the Project Coordinator, and will be kept as parts of the records, and will be shared with the World Bank if required.
- **Training Plan.** A detailed plan of the training/workshop describing the nature of the training/workshop, number of trainees/participants, duration, staff months, timing and estimated cost will be submitted to IDA for review and approval before initiating the process. The selection methods will derive from the activity requirement, schedule, and circumstance. After the training, the beneficiaries will be requested to submit a brief report indicating what skill has been acquired and how these skills will contribute to enhance their performance and to attain the project objective.
- **Operational Costs.** Operational costs financed by the Project would be incremental expenses, including office supplies, operation and maintenance of vehicles, maintenance of equipment, communication, rental expenses, utilities, consumables, transport, and accommodation, per diem, supervision, and salaries of locally contracted support staff. These items will be procured using the borrower's national procurement and administrative procedures acceptable to the World Bank, including selection of project implementation support personnel.
- **Procurement Manual.** Implementing Agencies will prepare a PIM which will include a section on

procurement to elaborate procurement arrangements, roles and responsibilities, methods and requirements for carrying out procurement under the proposed Project.

Financial Management Assessment

17. The implementing entities will be EGENCO and ESCOM. The financial management of the Emergency Power Restoration Project will be managed by both EGENCO and ESCOM. A financial management assessment EGENCO and ESCOM were undertaken to determine if the entities will ensure that (a) the funds will be used for the purposes intended in an efficient and economical manner and the entity is capable of correctly and completely recording all transactions and balances related to the project; (b) the project's financial reports will be prepared in an accurate, reliable and timely manner; and (c) the assets acquired under the project will be safely guarded; and (d) the project will be subjected to auditing arrangements acceptable to the World Bank. The assessment complied with the World Bank Directive: Financial Management in Bank- Financed Operations and other Operational Matters (Catalogue number OPCS5.05-DIR.147) issued and effective from September 7, 2021.

Summary

18. The FM arrangements for the proposed project have been assessed as Satisfactory and residual risk is Moderate. ESCOM is familiar with World Bank funded operations, while EGENCO is receiving World Bank financing for the first time. The summary assessment of EGENCO and ESCOM is as follows: The planning and budgeting arrangements are satisfactory, following participatory activity-based approach that assigns reasonability to individuals responsible for components, subcomponents and activities. Accounting software for accounting and reporting is in place. EGENCO and ESCOM use SYSPRO accounting software which is configurable to include projects accounting and reporting requirements. Internal control requirements are detailed in the accounting manual which will be updated to include agreed policies and procedures in the implementation of the project and will be part of the PIM. Both institutions have internal audit departments which also audit projects. The project's management is designed to ensure that the AWPB of the audit departments include at least half yearly internal auditing of the project. For the funds flow, the entities will open exclusive Dollar accounts with the RBM or a commercial bank acceptable to IDA. During the implementation of the Energy Sector Support Project (P099626 – closed October 2018); and current projects (Malawi Electricity Access - P164331, and Mozambique-Malawi Regional Interconnector – P164354), funds flow was satisfactory including timely and accurate bank reconciliations. Financial reporting arrangements are in place and a quarterly interim financial report template, for reporting on uses of funds, has been agreed. ESCOM is familiar with the World Bank's reporting requirements while EGENCO has been given guidance during project preparation on reporting using World Bank approved templates. The entities produce monthly and quarterly managements accounts for their overall operations. The reporting templates are embedded in the SYSPRO accounting software. The IFR templates will also be embedded in the accounting software. The external audit requirements will be agreed and reflected in the external audit terms of reference that will be used to procure the services of external auditor. The conclusion of the assessment is that after the implementation of the proposed mitigation measures, the arrangements will meet the World Bank's minimum requirement for FM. The residual risk is moderate. The details of the assessment are below:

19. **Budget arrangement:** The project shall prepare annual work plan and budget (AWPB) and submit to World Bank for approval. The agreed work program to be financed will be included in the AWPB based on the project components. Also, the project will apply the government budget calendar which is also applicable to SOEs. The entities are expected to link project cost elements to the general ledger codes in SYSPRO. The AWPB performance will be monitored by comparing the budget versus actual costs through the quarterly interim unaudited financial reports (IFRs). The project shall include in the IFRs, explanations and mitigating measures for any significant variance between the budget and actual. The AWPB shall be reviewed by World Bank implementation support missions and by the auditors during audits and identify the risks and recommend appropriate mitigating measures for the project to implement.

20. Accounting arrangement: The Public Finance Act of 2022 and the Financial Regulations thereof and other circulars issued by MoF from time-to-time guide Government financial management procedures. The accounting policies and procedures for ESCOM and EGENCO are in compliance with the PFM and related regulations. The project shall use ESCOM and EGENCO systems for accounting and reporting. The assets acquired through the project funds shall be recorded in the accounting system including in the fixed assets register. The project shall prepare a financial procedure manual satisfactory to the World Bank. Adequate staffing arrangements are in place at both institutions. The institutions should share with the World Bank, names and qualifications of the individuals that will be assigned to the project FM.

21. Internal controls: An adequate internal control system is in place. The internal controls allow for the segregation of duties for the initiation, approval and authorization of project expenditures. The internal controls system is adequate and can safeguard the project assets. The entities will prepare and document the internal control system in the project implementation manual (PIM) and Financial Procedure Manual (FPM) in line with the public finance regulations of the GoM, and in a manner that is acceptable to the World Bank. The internal audit departments of EGENCO and ESCOM shall be responsible for the internal audit activities of project. The internal auditors shall develop a risk based internal audit annual work program and submit the work program to project management for approval. The work program will be shared with the World Bank. The internal audit will be carried out on a quarterly basis and biannual internal audit reports will be submitted to the World Bank 45 days after the end of each semester. Also, the internal auditors shall submit the internal audit reports to the Audit Committee of the institutions.

22. Financial reporting: Adequate financial reporting arrangements are in place for both institutions. For their normal operations, monthly and quarterly financial management reports are prepared and discussed by management including the Board of Directors. The project shall submit to the World Bank interim unaudited financial reports (IFRs) on a quarterly basis 45 days after the end of each calendar quarter. The IFR reporting template will be embedded in the accounting software to facilitate automatic generation of the report. The components of the IFRs shall include the following:

- Statement of Sources and Uses of Funds by category
- Statement of Uses of Funds by Project Activity/Component.
- Designated Account (DA) Activity Statement;
- Bank Statements for both the Designated and Project Account;
- Summary Statement of DA Expenditures for Contracts subject to Prior Review; and
- Summary Statement of DA Expenditures not subject to Prior Review.

23. External Audit: The project will be required to prepare annual audited financial statements. The annual financial statements shall be prepared in accordance with the International Public-Sector Accounting Standard (IPSAS) - Cash Basis of Accounting as issued by International Public Sector Accounting Standards Board (IPSASB). The cash basis of accounting shall comprise at minimum the statement of cash receipts and payments recognizing all cash receipts, payments made, and cash balances by the project.

- (a) A **Statement of Sources and Uses of Funds/Cash Receipts and Payments**, which recognizes all cash receipts, cash payments and cash balances controlled by the project; and separately identifies payments by third parties by the project.
- (b) The **Accounting Policies Adopted and Explanatory Notes**. The explanatory notes should be presented in a systematic manner with items on the Statement of Cash Receipts and Payments being cross referenced to any related information in the notes. Examples of this information include a summary of

fixed assets by category of assets, and a summary of IFR Withdrawal Schedule, listing individual withdrawal applications; and

- (c) A **Management Assertion** that World Bank funds have been expended in accordance with the intended purposes as specified in the relevant World Bank legal agreement.

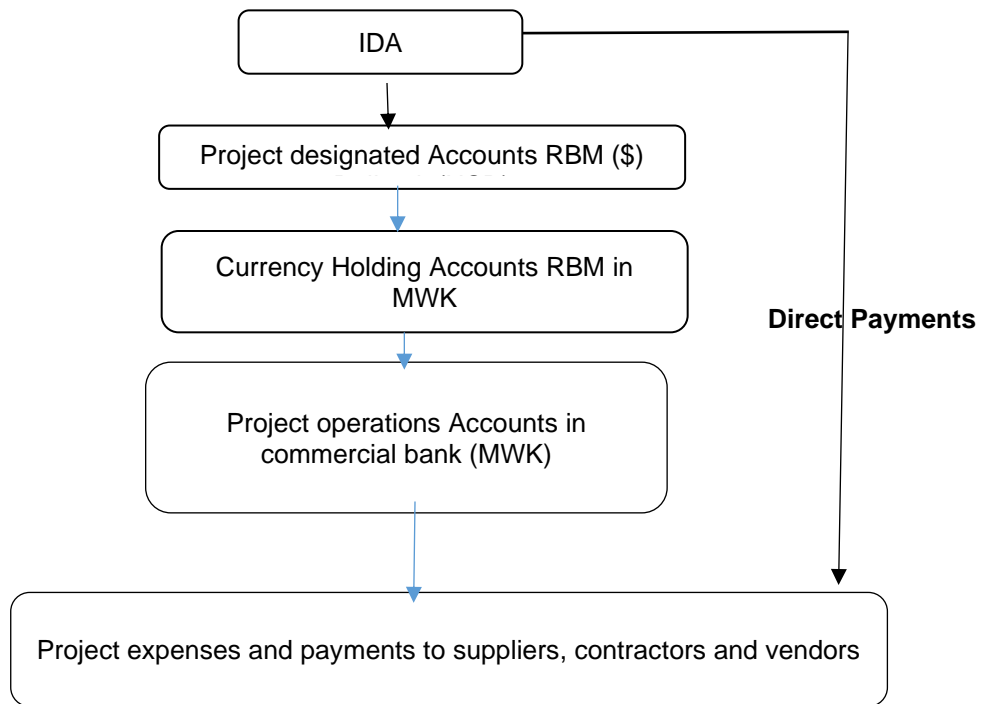
24. The Auditor General (AG) of Malawi is the external auditor for the World Bank funded project in Malawi. The project shall be audited by the AG. Article 184(1) of the Constitution of the Republic of Malawi 2003 and Public Audit Act 2003 (Amended 2018) mandate the Auditor General (AG) the exclusive powers to audit all public funds. However, the AG may subcontract a private audit firm to carry out the external audit. The AG shall express an audit opinion on the project financial statements in accordance with International Standards of Supreme Audit Institutions (ISSAIs) guidelines. Also, the audit will be done based on terms of reference (ToR) acceptable to IDA. The AG will issue a management letter outlining the audit findings and recommendations. The audited financial statements and the management letter shall be submitted to IDA 6 months after the end of each financial year (i.e. September 30). The audited financial statements as submitted to IDA shall be made public on the World Bank's website in accordance with the ***'World Bank Policy on Access to Information.'***

Disbursement and Funds Flow Arrangement

25. **Funds Flow:** The project will have two designated accounts: one to be managed by EGENCO and the other by ESCOM. The project designated bank accounts (DA) shall be opened at the Reserve Bank of Malawi (RBM) in USD into which the proceeds of the loan will flow from the International Development Association (IDA) to the project. The DA will have corresponding Kwacha accounts also opened at the RBM. The funds will flow from the DA to the Kwacha holding account using the ruling exchange rate on the day of transfer. The project will also open operations bank accounts in Malawi Kwacha (MWK) at a commercial bank in Malawi, acceptable to IDA. The operations accounts shall be applied for the payment of the day-to-day transactions of the project and the commercial bank will claim amounts paid against the holding account at the RBM. The operations bank accounts will not hold positive balances as no funds will be transferred to the account other than claims of cheques processed by the commercial bank. A detailed procedure for receiving and release of funds from the bank accounts for project activities shall be included in the Financial Procedure Manual and the POM.

26. **Disbursement Methods.** Disbursement methods shall include advance, reimbursement, direct payment and special commitments. For the advance method, the project will apply the interim unaudited financial reports (IFRs) based method of disbursement and access the loans from IDA to the DA in RBM. The project shall submit six-month cash forecasts against which IDA shall disburse the funds to the project. The initial cash forecast will be prepared based on an agreed AWPB approved by IDA. Subsequent withdrawals from the proceeds of the loan shall be based on a six-month cash forecast net of closing cash and balances for the previous quarter. The six-month cash forecast must be in line with the agreed AWPB. A reimbursement method shall be used to reimburse the government for any eligible expenditure they may pre-finance using GoM's own resources. Direct payment and special commitment methods disbursement may also be used by the project. The project may submit direct payment withdrawal application and request IDA to make payments directly to third parties for eligible goods and services delivered to the project by third parties. The project shall maintain adequate records of all support documents for all financial transactions and payments. The detailed disbursement arrangements are included in Disbursements and Financial Information Letter (DFIL).

Figure 2: Funds Flow Diagram



Conclusion

27. The assessment results reveal that the FM arrangements for the project satisfy the minimum FM requirements of the World Bank Directive: Financial Management in Bank- Financed Operations and other Operational Matters (Catalogue number OPCS5.05-DIR.147) Issued September 7, 2021, and effective from September 7, 2021. Based on the identified risks and the mitigating measures above, the FM risk is assessed as ***'Moderate'*** for the project.

Supervision Plan

28. FM supervision missions will be conducted in line with the assessed risk of the project. The objective of the FM supervision is to review the continued adequacy of FM arrangements and provide recommendations for improvements and the mitigation measures for identified risks.



Table 1: FM Risk Assessment Matrix

Risk	Mitigation measures	Risk rating
Country level (i) Lack of accountability to, and compliance with existing PFM laws, regulations and procedures; (ii) weak accounting system, IFMIS control environment, and low quality financial statements; (iii) weak audit committees and follow up on audit recommendations at the implementing agencies; (iii) weak legislative scrutiny of external audit reports; and (iv) untimely bank reconciliations.	(i) The GoM is in the process of tabling a new civil service rule to include enforcement and noncompliance with PFM laws, regulations and procedures by civil/public servants; (ii) the new PFM Act has been enacted and it strengthens accountability of public funds ; (iii) GoM continues to take disciplinary and legal actions against those not complying with policies and procedures and the new government has renewed the fight against corruption in public service; and (iv) PFM reforms are ongoing and further improvements in accountability of public funds is expected (v) the proposed project will be implemented by SOEs (ESCOM and EGENCO) that are accountable.	S
Entity Level The implementing entities not being familiar with managing World Bank funded projects.	ESCOM is currently implementing two projects: Malawi Electricity Access and Mozambique Malawi Regional Interconnector project. EGENCO is receiving hands on implementation support to improve internal systems to deliver a World Bank project.	M
Project Level The project has two implementing agencies, many components and stakeholders involving multiple activities. Large and complex procurement activities are expected to present potential complex contract management issues.	The agreed upon project activities shall be well articulated in the PAD and the Project implementation manual and captured in AWPB. The AWPB shall guide the day-to-day implementation of the project activities. The project shall be filled with skilled and professionally competent staff including in the areas of FM and procurement for the effective implementation of the project.	M
Budgeting. Lack of detailed annual work	The project shall prepare AWPB based	M



Risk	Mitigation measures	Risk rating
planning and budgeting which may limit effective monitoring of the AWPB.	on the agreed upon work program as defined in the PAD and PIM. The project shall submit quarterly IFRs and the comparison of the budget versus actual AWPB shall be included in the IFRs. The World Bank shall monitor the implementation of the AWPB through quarterly IFRs and FM supervisions and recommend mitigation measures for addressing any significant variances between the budget and actual.	
Accounting. Weak accounting systems that may potentially not be able to adequately record and report on transactions. Inexperienced, low skilled, and lack of professional competent staff to adequately manage the accounting activities of the project.	The project shall use the existing accounting for processing, recording and reporting of project transactions. A customized accounting manual in which policies, procedures and controls are detailed shall be included in the PIM. Suitable, professionally qualified and experienced accountants shall be deployed to the project under ToRs acceptable to the World Bank. The World Bank shall provide capacity building and training on FM for World Bank assisted projects. Most ESCOM staff are already familiar with FM for World Bank funded projects.	M
Financial Reporting. Delays and the submission of poor quality IFRs in content and quality to the World Bank, due to experienced/unqualified staff or lack of good accounting systems.	The IFR template shall be agreed between the project implementation entities and the World Bank, and the reporting template shall be incorporated in the accounting software. The World Bank will review the IFRs for accuracy and require timeliness of submission.	M
Internal Control. Weak control environment due to lack of: (i) enforcement of internal controls; (ii) weak management oversight; (iii) weak audit committee and lack of effective	ESCOM and EGENCO shall be responsible for the enforcement of all internal controls arrangements as outlined in the PFM law and regulations, financing agreement, PAD and PIM.	S



Risk	Mitigation measures	Risk rating
audit activities; and (iv) anti-corruption guidelines for the project.	<p>The internal audit function of the two entities shall be responsible for the internal audit activities of the project and they shall submit biannual internal audit reports to the World Bank 45 days after the end of each calendar semester.</p> <p>The World Bank shall review the implementation of internal controls for the project through implementation supervision missions and technical reviews. The ToR for the external auditors will include a requirement for them to review the internal control arrangements.</p>	
Funds Flow. Delays in submitting withdrawal applications in client connection and in the accessing of the credit and grant for their intended purpose.	The staff of the implementing entities are familiar with disbursement arrangements for World Bank funded operations Also, the IFRs' method-based disbursement shall be used and it allows for the project to disburse based on 6-month cash forecasts.	L
Auditing. Inappropriate audit opinion due to limited scope and coverage. Lack of follow-up on implementation of the audit's findings.	<p>The Auditor General of Malawi shall audit the project on the basis of ToR acceptable to the World Bank. The ToR shall include the audit's scope, coverage and timing and it will include a requirement for audited financial statements, accompanied by a management letter.</p> <p>The entities shall prepare a remediation action plan which shall outline the responsibility and timeline for the implementation of the audit recommendations by the project. The World Bank will monitor the implementation of the RP during supervision missions. The AG will also</p>	M



Risk	Mitigation measures	Risk rating
	review the remediation action plan during the audit exercise for the ensuing fiscal year.	
Overall FM Risk Rating	The overall FM risk is considered as Moderate	M

H-High

S-Substantial

M-Moderate

L-Low