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Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 26-Feb-2024 | Report No: PIDA0315

BASIC INFORMATION

A. Basic Project Data

Project Beneficiary(ies)	Region	Operation ID	Operation Name
Mozambique, Mozambique	EASTERN AND SOUTHERN AFRICA	P179797	Green Energy Corridors Project
Financing Instrument	**Estimated Appraisal Date**	**Estimated Approval Date**	**Practice Area (Lead)**
Investment Project Financing (IPF)	19-Feb-2024	28-Mar-2024	Energy & Extractives
Borrower(s)	**Implementing Agency**		
Ministry of Economy and Finance	Ministry of Mineral Resources and Energy, Electricidade de Moçambique (EDM)		

Proposed Development Objective(s)

The Project Development Objective (PDO) is to strengthen the electricity network, increase regional power trade, and enable renewable electricity generation through private sector participation.

Components

Component 1: Strengthen transmission network and interconnection
Component 2: Enable renewable energy at scale
Component 3: Improve sector governance

PROJECT FINANCING DATA (US$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)?	Yes
Is this project Private Capital Enabling (PCE)?	Yes

SUMMARY

Total Operation Cost	**135.57**
Total Financing	**135.57**
of which IBRD/IDA	**100.00**
Financing Gap	**0.00**

DETAILS

World Bank Group Financing

International Development Association (IDA)	100.00
IDA Grant	100.00

Non-World Bank Group Financing

Counterpart Funding	2.32
Borrower/Recipient	2.32
Other Sources	33.25
African Development Bank	33.25

Environmental And Social Risk Classification

Substantial

Decision

The review did authorize the team to appraise and negotiate

Other Decision (as needed)

B. Introduction and Context

Country Context

1. **Mozambique is endowed with rich natural resources but faces substantial development challenges, including widespread poverty and inequality, limited job creation and slow structural transformation**. Three-quarters of the population live in poverty and Mozambique is one of the most unequal countries in Sub-Saharan Africa – partly reflecting low and uneven human and physical capital accumulation. Over half a million people enter the labor force each year, but less than 30,000 new formal jobs are created annually. The country is endowed with ample arable land, water, energy, mineral resources, and offshore natural gas. The private sector could become an engine of economic transformation and job creation, but it has been hampered by regulatory bottlenecks, a large infrastructure deficit, and the high cost of credit. Despite the geographic and resource advantages, Mozambique is also highly prone to natural disasters and climate risks such as cyclones, flooding, extreme heat, earthquakes, tsunami, and water scarcity.

2. **Mozambique's economic growth was briefly stalled due to the hidden debt crisis, natural disasters and the COVID-19 pandemic, but economic recovery has resumed**. Following the hidden debt crisis in 2016 during which undisclosed government-guaranteed debts amounting to US$2 billion led to a crisis of economic governance, real GDP

growth reached 3.3 percent for the period 2016-2019, barely above population growth. Natural disasters in 2019, including Cyclones Idai and Kenneth, and the COVID-19 pandemic further pushed real per capita GDP growth down to -1.2 percent for 2020. Economic growth has picked up momentum supported by strong services and liquified natural gas (LNG) production. After a modest recovery in 2021, growth gathered pace in 2022, reaching 4.2 percent, and accelerated to 5.0 percent in 2023.

3. **Economic growth and poverty reduction are jeopardized by a six-year armed insurgency in the gas-rich northern province of Cabo Delgado.** Although the conflict somewhat stabilized in 2021, in part due to the intervention of SADC and Rwandan forces to support the Mozambican military, there has been a spike in attacks since late 2023 – including into southern Cabo Delgado - that threatens to further set back development gains and trigger a new wave of displacement. The conflict has resulted in over 4,500 fatalities and has displaced around 550,000 people – down from a peak of 1.2 million. Over 600,000 people have since returned to their places of origin. The humanitarian situation remains critical, with around two million people in the three northern provinces of Niassa, Cabo Delgado, and Nampula in need of basic assistance.

4. **The government's capacity to finance development is heavily constrained.** With 70 percent of tax revenues in 2021-2022 absorbed by the wage bill and debt-service costs, the country can only allocate limited resources to public investment and social spending. Mozambique is at high risk of debt distress, with the country lacking access to the international capital markets, and external concessional financing remaining limited. Although total public debt declined in recent years, domestic debt has continued to rise. Elevated domestic debt reflects spending to address the security and humanitarian situation in Cabo Delgado, short-term financing needs of underperforming SOEs, and debt service.

5. **Mozambique is expected to become a global gas player since large natural gas reserves were discovered in the early 2010s.** The country is estimated to have 100 trillion cubic feet (tcf) of gas—the third-largest gas reserves in Sub-Saharan Africa after Nigeria and Senegal. In November 2022, Mozambique passed a major milestone when it began exporting liquified natural gas (LNG) from the Coral South Floating LNG facility. In addition, two larger-scale onshore LNG projects could be developed, the TotalEnergies-operated Mozambique LNG, and the ExxonMobil-operated Rovuma LNG (15.2 million metric tonnes per annum, mmtpa). To put this capacity in context, the global LNG trade was about 380 mmtpa in 2021, with Mozambique's existing and proposed capacity of 32 mmtpa roughly accounting for 8 percent of the global market. Large-scale LNG production in the second half of the decade is expected to boost growth and fiscal revenue for Mozambique. However, the armed insurgency has also impacted gas development – in April 2021, TotalEnergies declared force majeure and suspended operations on its Cabo Delgado province LNG project, withdrawing all personnel from the site due to attacks by insurgents. After a slowdown in insurgent activity, Total Energies plans to resume operations in mid-2024, yet security concerns remain.

6. **Medium-term growth prospects are positive, with the economy projected to grow at an average of 5.0 percent over the medium-term, driven by growth in the extractives sector**. LNG production is expected to rise as the offshore LNG project reaches full capacity from 2023. Increased commodity prices—notably coal and aluminum—will continue to support export growth, and FDI inflows (mainly linked to LNG) will sustain investments. These trends will be reinforced by the expected resumption of the larger LNG projects. However, risks are tilted to the downside in the medium term. Delays in the larger LNG projects could undermine growth prospects. Other risks stem from rising wage bill, climatic shocks, waning commitment to reforms in the run-up to elections, and uncertainty around the security situation in the north.

Sectoral and Institutional Context

7. **Mozambique is fast expanding electricity access, but additional investments are required along the electricity supply chain to achieve universal access by 2030 and support economic growth.** In 2018, the Government of Mozambique (GoM) launched the landmark *Programa Nacional de Energia para Todos* (National Electricity Program for All) aiming to provide electricity to all Mozambicans by 2030. This high-level commitment supported a rapid increase in electricity access from 26 percent in 2018 to 41 percent in 2022, comparable to the sub-Saharan African average of 42 percent. Yet access is particularly low in the high population regions in the north and center of the country. The rate of electrification has increased substantially in recent years, with over 382,000 connections made in 2023, 9 percent higher the annual target of 350,000. But at 350,000 connections per year, Mozambique will only reach about 65 percent grid electricity access by 2030.

8. **Mozambique lacks an integrated transmission network, limiting supply of domestic hydropower to distant demand centers and raising reliability challenges.** Mozambique's power system developed as three separate subsystems: northern, central, and southern. The connection between the central and northern subsystems is currently through an at-capacity 220kV line between Chimuara and Nampula, and the southern subsystem is not connected with the other two at all. The center-north connection is expected to be strengthened by a new 400kV line from Chimuara to Palma via Alto Molocue and Namialo, with the section between Chimuara and Alto Molocue already under construction. Separately, under phase-1 of the Mozambique transmission backbone project (STE project), a 400kV transmission line is under construction between Vilanculos and Maputo (about 500km) in the south, supported by the World Bank's Temane Regional Electricity Project (TREP; P160427). Phase 2 of the STE project, currently without committed financing, is planned to extend the backbone northwards, from Vilanculos to Matambo via Inchope (about 720km), integrating the central and southern subsystems. Due to the existing network gaps, electricity produced at the country's main generation plant, HCB (in the north), cannot reach the southern areas through the domestic network – it must be transmitted via South Africa – and can only partially meet the demand in northern areas due to network constraints.

9. **Mozambique has multiple transmission facility owners and dispersed system operation functions**. The transmission facility owners include HCB, EDM, MOTRACO, and in the future, SNTE. Frequency regulation in the northern and central subsystems is carried out by HCB and in the southern subsystem by ESKOM. The physical and operational fragmentation of the transmission system poses significant constraints to an efficient scale-up of the country's power transmission capabilities and limits the country's ability to meet its own demand, enable electrification, connect new renewable generation, increase exports of electricity to the SAPP, and facilitate integration of neighboring Tanzania and Malawi into the SAPP regional network.

10. **Systematic planning and adequate enabling environment can help Mozambique attract private capital for transmission investments as the network expands.** To fully leverage the benefits of competitive private sector participation in transmission, Mozambique needs to address crucial sector issues. These include developing adequate policies, regulations, and legal framework (deriving from the electricity law of 2022) to expand public-private partnership (PPP) in power transmission adopting competitive procurement procedures, addressing system operation constraints, implementing tariff methodology with adequate estimation and recovery of transmission network costs, preparing contractual arrangements to ringfence remuneration of private transmission operators, strengthening financial sustainability of EDM as an off-taker, etc.[1] Such reforms could enable significant private sector participation in power transmission. Yet due to low affordability levels, concessional financing of transmission investments will remain crucial to soften the tariff impact of commercial capital deployed towards transmission lines serving domestic consumers.

[1] World Bank Group. 2017. Linking Up: Public-Private Partnerships in Power Transmission in Africa. © World Bank, Washington, DC. http://hdl.handle.net/10986/26842 License: CC BY 3.0 IGO.

11. **Large-scale competitive procurement of renewable power in Mozambique has been limited due to a lack of unified policy and regulatory framework and transmission network constraints.** The competitive procurement of renewable power developers has so far been informed by the relevant sections of the Electricity Law (1997 and 2022), the PPP Law (2011), and the Decree on PPP Regulation (2013). Yet there is a lack of unified regulatory guidelines for large-scale competitive procurement of RE, deriving from these existing laws, which still opens the door for non-competitive procurement as exceptions. RE projects are also limited due to transmission constraints and low capacity of aggregator substations in the renewable resource rich areas of the country. Inadequate network capacity and expected impact of recently procured solar power plants on grid stability has increased the realized cost of these projects and is limiting Mozambique's ability develop larger scale plants. These constraints are limiting RE development to small capacity RE plants, preventing Mozambique from realizing economies of scale and achieving cost-reductions observed globally.

12. **The proposed multi-phased approach will enable sustained efforts needed towards the medium-term objective of developing Mozambique as a regional energy hub and achieving universal electricity access, while continuing sector reform and modernization**. The MPA will provide the Government of Mozambique with a long-term commitment from the World Bank towards tying together the different pieces of its domestic and regional energy sector strategy. The commitment is particularly crucial to support the evolution of Mozambique's transmission system for its fundamental role in supporting access expansion in Mozambique, and in regional integration and decarbonization in the SAPP. The MPA will help mobilize adequate financing at various stages of the evolution of the Mozambican power system, and scale-up deployment of its RE resources towards regional decarbonization. Structuring the MPA phases simultaneously will enable seamless deployment of financing across the different stages of this transition.

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

The Project Development Objective (PDO) is to strengthen the electricity network, increase regional power trade and enable renewable electricity generation through private sector participation.

Key Results

PDO Level Indicators

i. Additional transmission hosting capacity enabled in EDM's transmission grid (Megawatt)
ii. Additional electricity trade capacity enabled between Mozambique and Malawi (Megawatt)
iii. Action Plan for implementation of Independent System Operator (ISO) adopted. (Yes/No)

D. Project Description

13. **Phase-1 of the MPA will finance key transmission segments in Mozambique required for meeting domestic demand and enhancing SAPP regional integration, initiate core TA towards enabling RE at scale, and advance structural and operational reforms in the power sector.** Specifically, this phase will finance the Songo – Cataxa – Matambo transmission corridor, which will advance domestic network integration, enable increased evacuation of RE, and enable regional integration with Malawi and Zambia. Phase-1 of the MPA will also initiate development of large RE projects in Mozambique by providing TA towards strengthening the RE competitive procurement framework, deriving from the standardized SRMI approach. This phase will also continue supporting sector operational and financial improvements, including those constituting the ongoing FSP, and initiate efforts towards strengthening the sector institutional framework. The latter will be achieved by providing TA towards enhancing sector governance, optimizing sector structure,

and strengthening system operation in its roles of domestic and regional supply. TA will also be provided to support development of selected transmission lines as PPP under future phases of the MPA.

14. **Component 1 – Strengthen transmission infrastructure *(proposed financing amount US$80 million)*.** This component will finance construction of a new 400kV transmission line between Songo and Matambo, via Cataxa, and upgrades at the existing Songo and Matambo substations. The line has been selected from a long list of priority transmission lines included in EDM's transmission investment plan which aims to maximize renewable energy share in EDM's energy mix and strengthen transmission infrastructure for domestic and regional supply. The investment plan is guided by analytical assessments, including the Mozambique Power System Development Masterplan (2018-2043; expected to be updated by June 2024), the grid capacity assessment for renewable energy (Fichtner, 2022), demand assessments, and other studies. The Songo – Cataxa – Matambo line was shortlisted by applying the criteria that this segment would: (i) relieve the overloaded 220kV transmission lines between Songo and Matambo; (ii) support the facilitation of regional power trade with Zambia and Malawi; and (iii) evacuate locally generated renewable energy into the mix. This segment is ready for implementation, hence is being prioritized for Phase-1 of the MPA, with other priority transmission segments which are at early stages of readiness being proposed for subsequent phases.

15. **Component 2 – Enable renewable energy at scale *(proposed financing amount US$10 million)*** Phase-1 of the MPA will support MIREME and EDM implement activities, in coordination with ARENE, that set the stage for expansion of renewable energy capacity in Mozambique in the subsequent phases, reflecting lessons learned from ongoing RE programs. The proposed activities and their respective implementing agencies include:

a. **Activities implemented by MIREME (in coordination with ARENE, as needed; US$5 million)**: development of a renewable energy strategy for Mozambique, aligned with the energy transition strategy and other sector plans and strategies**;** preparation of adequate guidelines and/or regulations for competitive selection of investors and contractors for RE projects; support to ARENE to close regulatory gaps, including on end-consumer tariffs; capacity building to develop full scale in-house transaction advisory services at ARENE; identification of key risks to private investments in large-scale RE and specific risk mitigation measures; preparation of transactions (e.g., resource assessments, identification of pipeline of projects); any required transaction advisory support (legal, technical, financial/commercial) on identified large-scale RE projects; and any other sector TA activities as identified during implementation.

b. **Activities implemented by EDM (US$ 5 million)**: capacity building to develop required transaction advisory services at EDM; preparation of transactions (e.g., pre-feasibility and feasibility studies, ESIA etc.); transaction advisory support (legal, technical, financial/commercial); identification of network connection requirements and associated strengthening of the transmission system and other infrastructure requirements (e.g., substation upgrades; installation of equipment to manage variability; access roads and other related infrastructure); and any other sector TA activities as identified during implementation.

16. **Component 3 – Improve Sector Governance *(proposed financing amount US$10 million)*:** To achieve sector reform objectives, and to provide enhanced support to implementing agencies, this component will include technical assistance and implementation support as follows:

a. **Activities implemented by MIREME (in coordination with ARENE, as needed; US$2 million):** (i) action plan for establishment of independent system operator; (ii) TA towards establishing institutional, legal and regulatory framework of the power sector in line with Electricity Law; (iii) development of regulations, guidelines, processes, and technical assessments towards attracting private investment for development of transmission lines as PPP,

including selected lines under future phases of the MPA; (iv) addressing gender gaps in the sector; (v) TA towards project activities and any relevant sector studies identified during implementation.

b. **Activities implemented by EDM (US$8 million):** (i) TA to support improvement in operational and financial performance of EDM through continued implementation of the FSP and other actions.; (ii) support of EDM's ongoing Young Professionals Program (YPP); and (iii) activities to include increasing the number of female technicians and leaders in energy related fields; (iv) TA, capacity building and implementation support towards project activities, including establishment of a Project Implementation Unit within EDM, and any relevant sector studies identified during implementation.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Area OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

17. **The Project is likely to generate a wide range of significant adverse risks and impacts on human populations and the environment through its physical investments, such risks must be assessed and managed in line with ESS1**. Component 1 is anticipated to induce the following risks and impacts; possible risks of exclusion of marginalized groups in project design and benefits and lack of meaningful consultations during project design and implementation, involuntary resettlement due to land acquisition needs, labor conditions and occupational health and safety, community health and safety such as GBV/SEA/SH, spread of communicable diseases, accidents with increase in heavy vehicles and construction works, environmental pollution (solid & hazardous waste, noise and dust emissions), soil erosion, biodiversity loss and clearing of habitats, and cultural heritage such as graves and spirit houses and potential chance during excavations. The type 1 TA activities under component 2 may have significant downstream environmental and social impacts. Component 2 and 3 also include TA type 2 (preparation of regulations) and type 3 (capacity building) activities which may have more diffuse and induced impacts, often playing out over a longer term. The ToRs for any TA activities under the project, produced by the Borrower for public sector activities, will refer to relevant ESSs and incorporate relevant assessments to ensure that activities and outputs are consistent with ESF and IFC PS, where relevant, requirements and will be reviewed and approved by the World Bank.

E. Implementation

Institutional and Implementation Arrangements

18. **The project will be implemented by EDM and MIREME**. A Project Implementation Unit (PIU) will be established at EDM to implement Component 1, Component 2b and Component 3b. EDM has substantial experience in implementing large investment programs across generation, transmission, regional trade and distribution. With regards to transmission infrastructure, World Bank supported projects including implementation of the Temane Transmission project (through

the Sociedade Nacional de Transporte de Energia [SNTE] – a wholly owned subsidiary of EDM) as well as the Mozambique-Malawi Interconnector Project have further increased EDM's experience and capacity to implement investment projects of this magnitude. EDM has also implemented TA through multiple World Bank financed energy projects. MIREME will implement TA, capacity building and implementation support activities via Component 2a and Component 3a. MIREME also has ample experience implementing TA under World Bank financed energy sector projects.

19. **To improve coordination, a steering committee chaired by MIREME and comprising members from relevant agencies including the Ministry of Economy and Finance, will be established.** The steering committee will: (a) provide overall guidance on all issues related to the project; (b) facilitate coordination among implementing agencies, relevant sectors, and agencies; and (c) ensure project alignment with the recipient's other programs and provide strategic direction, ensuring adequate coordination between the Project Implementation Units (PIUs) and the line ministries and other agencies implementing portions of the project without carrying fiduciary responsibilities.

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APPROVAL

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