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Report No: PAD5594

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US\$88 MILLION

AND

A LOAN IN THE AMOUNT OF US\$30 MILLION
FROM THE GREEN CLIMATE FUND

AND

A GRANT IN THE AMOUNT OF US\$4 MILLION
FROM THE GREEN CLIMATE FUND

TO THE

REPUBLIC OF BOTSWANA

FOR A

RENEWABLE ENERGY SUPPORT AND ACCESS ACCELERATOR PROJECT

JUNE 18, 2024

Energy and Extractives Global Practice
Eastern and Southern Africa Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective {April 30, 2024})

Currency Unit = BWP

US\$1 = BWP 14.19

FISCAL YEAR

April 1 – March 31

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ABBREVIATIONS AND ACRONYMS

AfDB	African Development Bank
AM	Accountability Mechanism
BESS	Battery Energy Storage Systems
COD	Commercial Operation Date
E&S	Environmental and Social
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
Eskom	Electric Power Utility of the Republic of South Africa
ESMAP	Energy Sector Management Assistance Program
ESMF	Environmental and Social Management Framework
FM	Financial Management
GBV	Gender-Based Violence
GCF	Green Climate Fund
GDP	Gross Domestic Product
GoB	Government of Botswana
GHG	Greenhouse Gas
GW	Gigawatt
HR	Human Resource
HRDC	Human Resource Development Council
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Corporation
IFR	Interim Financial Report
IPP	Independent Power Producer
IPL	International Poverty Line
IRP	Integrated Resource Plan
kV	Kilovolt
LMP	Labor Management Plan
M&E	Monitoring and Evaluation
MDCC	Mini-Distribution Control Centers
MDMS	Meter Data Management System
MFD	Maximizing Finance for Development
MME	Ministry of Minerals and Energy
MoF	Ministry of Finance
MoU	Memorandum of Understanding
MW	Megawatt
NDC	Nationally Determined Contribution
NPV	Net Present Value
O&M	Operation and Maintenance
PASA	Programmatic Advisory Services and Analytics
PDO	Project Development Objective
PEDU	Projects Energy Development Unit
PF	World Bank Procurement Framework
PIU	Project Implementation Unit

PMI	Partnership for Market Implementation
POM	Project Operation Manual
PPA	Power Purchase Agreement
PPSD	Project Procurement Strategy for Development
PV	Photovoltaic
QMS	Quality Management System
RE	Renewable Energy
RETF	Recipient-Executed Trust Fund
SCADA	Supervisory Control and Data Acquisition
SCD	Systematic Country Diagnostic
SEA	Sexual Exploitation and Abuse
SEP	Stakeholders Engagement Plan
SH	Sexual Harassment
SHE	Safety, Health, and Environmental
SHER	Safety, Health, Environment, and Risk unit
SRMI	World Bank's Sustainable Renewables Risk Mitigation Initiative
SPC	Shadow Price of Carbon
STATCOM	Static Synchronous Compensator
STEP	Systematic Tracking of Exchanges in Procurement
STEM	Science, Technology, Engineering and Mathematics
T&D	Transmission and distribution
TA	Technical Assistance
TVET	Technical and Vocational Education and Training
UMIC	Upper Middle-Income Country
VRE	Variable Renewable Energy



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DATASHEET

BASIC INFORMATION

Project Beneficiary(ies) Botswana	Operation Name Renewable Energy Support and Access Accelerator Project		
Operation ID P181221	Financing Instrument Investment Project Financing (IPF)	Environmental and Social Risk Classification Substantial	

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 type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternative Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Expanded Implementation Support (HEIS)

Expected Approval Date 11-Jul-2024	Expected Closing Date 31-Dec-2029
Bank/IFC Collaboration No	

Proposed Development Objective(s)

To enable renewable energy grid integration in Botswana and improve electricity service in selected rural areas

Components



Component Name	Cost (US\$)
Component 1 - Grid upgrades to enable integration and management of variable renewable energy	98,000,000.00
Component 2 - Local transmission and distribution network upgrades to support rural electrification	17,500,000.00
Component 3 - Project Management and Technical Assistance to support deployment of variable renewable energy	6,280,000.00

Organizations

Borrower: Republic of Botswana
 Implementing Agency: Botswana Power Corporation

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	122.00
Total Financing	122.00
of which IBRD/IDA	88.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	88.00
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Non-World Bank Group Financing

Trust Funds	34.00
Green Climate Fund	34.00



Expected Disbursements (US\$, Millions)

WB Fiscal Year	2025	2026	2027	2028	2029
Annual	4.22	66.69	48.84	1.05	1.20
Cumulative	4.22	70.91	119.75	120.80	122.00

PRACTICE AREA(S)

Practice Area (Lead)

Energy & Extractives

Contributing Practice Areas

CLIMATE

Climate Change and Disaster Screening

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

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

Risk Category

Rating

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

POLICY COMPLIANCE



Policy

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

Yes No

Does the project require any waivers of Bank policies?

Yes No

ENVIRONMENTAL AND SOCIAL

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

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

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

LEGAL

Legal Covenants

Sections and Description

IBRD Loan Agreement Section I.A.1(a) of Schedule 2 of the IBRD Loan Agreement. The Borrower, shall no later than three (3) months after the Effective Date, establish and thereafter maintain throughout project implementation the Project Steering Committee with terms of reference satisfactory to the Bank, which shall be comprised of



representatives from relevant departments and ministries, including the Ministry of Minerals and Energy, and with adequate resources to carry out its responsibilities under the Project.

GCF Financing Agreement Section I.A.1(a) of Schedule 2 of the IBRD Loan Agreement is incorporated by reference in GCF Financing Agreement.

Conditions

Type	Citation	Description	Financing Source
Effectiveness	Section 5.01	The Additional Conditions of Effectiveness consist of the following: (a) The IBRD Loan Agreement has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Recipient to make withdrawals under it (other than the effectiveness of this Agreement) have been fulfilled. (b) the GCF Subsidiary Agreement has been executed and delivered on behalf of the Borrower and the Project Implementing Entity.	Trust Funds
Effectiveness	Section 5.01	The Additional Condition of Effectiveness consists of the following, namely, (a) The GCF Financing Agreement has been executed and delivered and all conditions precedent to its effectiveness or to the right of the Borrower to make withdrawals under it (other than the effectiveness of this Agreement) have been fulfilled; (b) the Subsidiary Agreement has been executed and delivered on behalf of the Borrower and	IBRD/IDA



		<p>the Project Implementing Entity; (c) the Project Implementation Unit (PIU) has been established with mandate, under terms of reference and resources satisfactory to the Bank, in accordance with Section I.A.2 of Schedule 2 of this Agreement, under terms of reference and with qualifications and experience acceptable to the Bank; and (d) the Project Operations Manual has been prepared and adopted, in form and substance satisfactory to the Bank, and in accordance with Section I.C of Schedule 2 of this Agreement.</p>	
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I. STRATEGIC CONTEXT

A. Country Context

- 1. Botswana is one of the world's fastest-growing economies, thanks to good management of its natural resources, robust investments, and political stability.** Botswana is a large, sparsely populated, land-locked country. Between its independence in 1966 and late 1990s, its average annual Gross Domestic Product (GDP) and GDP per capita growth were above 10 and 7 percent, respectively¹. Its significant mineral wealth, prudent macroeconomic policies and robust institutions helped Botswana become an Upper-middle-Income Country (UMIC) in 2004, with aspirations to be a high-income country by 2036.² Revenues from diamonds have provided investment in infrastructure and human capital. Access to water and electricity increased from 68 and 10 percent in the 1980s to 92 and 72 percent respectively by 2020.³ Similarly universal primary education enrollment was achieved in 1997, considerably earlier than many other African countries.⁴ It has resulted in significant improvements in household living standards including life expectancy, mortality rates, and nutrition. Botswana has maintained stability and repeatedly ranks among the top African performers across many governance indicators.
- 2. Despite the strong growth record, Botswana's traditional growth model has also shown its structural limitation.** The economy remains dependent on mineral resources and large public sector. Productivity is low and job creation is limited. Exports have not diversified across different sectors of the economy. Notably, mining represented 53 percent of GDP in 1989 and only 13.6 percent in 2019, but diamonds still dominate Botswana's exports. Among the structural challenges to the existing model is the inability to diversify beyond non-tradable sectors as demand for and investment in these continues to be encouraged and financed by public and mineral resources. In this context, sectoral diversification policies that the Government of Botswana (GoB) put in place have not succeeded in building competitive non-mining sectors, and the labor market has not been able to absorb much of the labor force, especially the youth.
- 3. Botswana remains among the top ten most unequal countries in the world (Gini coefficient of 0.53 in 2015⁵) and poverty remains high given its income level, which dampens its growth potential.** Compared to other UMIC countries, Botswana's poverty rates remain high. Despite significant declines in poverty also under the UMIC poverty line (US\$6.85 per person per day) since 2002/03, the poverty rate at this higher line increased from 60.4 percent to 63.5 between 2009/10 and 2015/16.⁶ Progress in reducing poverty has decelerated, as indicated in the poverty assessment (2024⁷), which highlights that projections up to 2022 using various methods indicate a further slowdown in poverty reduction, largely attributed to the weakened labor market. Poverty was estimated at 14.3 percent in 2022 under the US\$2.15 per day International Poverty Line (IPL), while under the higher line it still hovers at 61.8 percent, that is a slow reduction from 63.5 percent in 2015/16. A sustained reduction in poverty and inequality will require progress on economic diversification and a focus on private-sector job creation. Social interventions will need to better target the most vulnerable members of society.

¹ World Bank Open Data (2004), <https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG?locations=BW>.

² World Bank Country Overview: Botswana, <https://www.worldbank.org/en/country/botswana>.

³ Botswana - Systematic Country Diagnostic Update: At a Crossroads - Reigniting Efficient and Inclusive Growth (2023), <https://documents1.worldbank.org/curated/en/099112023112034378/pdf/BOSIB056106b900660a7d8068fe9cad99f2.pdf>.

⁴ Ibid.

⁵ Botswana Poverty and Equity Brief (April, 2024), <https://www.worldbank.org/en/topic/poverty/publication/poverty-and-equity-briefs>.

⁶ Ibid.

⁷ Ibid.



4. **Gender equality and women’s empowerment in Botswana have improved over the past 20 years but inequality remains a pressing concern.** Botswana has made significant strides towards equal treatment of women under the law. It is ranked 64 out of 146 in the 2023 Global Gender Gap Index and is among the countries that have closed at least 70 percent of its gender gaps.⁸ However, important gender gaps remain including low levels of women’s political representation in the National Assembly (only 11 percent of seats held by women), significant gender gap in labor force participation (56.5 percent women vs 63.3 percent men), and high rates of Gender-Based Violence (GBV) (37 percent of women). Girls start falling behind boys in Science, Technology, Engineering and Mathematics (STEM) subjects in secondary education and are underrepresented in STEM subjects at tertiary level resulting in fewer opportunities to enter dynamic sectors of the labor market such as energy.⁹ The share of young women (15-34) in Botswana who are not in education, employment, or training is significantly higher (43 percent) than among young men (36 percent). The 2021 Mastercard Index of Women Entrepreneurs (MIWE) has, for the third consecutive year, ranked Botswana (38.5 percent) as the country with the most women business owners globally.¹⁰ Barriers remain, for example, female-owned and led businesses in Botswana suffer from a lack of credibility with male interlocutors, clients, or investors that hinder their business development.
5. **While Botswana has low Greenhouse gas (GHG) emissions, it is highly vulnerable to the impacts of climate change.** Botswana has a semi-arid climate and has seen cyclic droughts caused by erratic rainfall. It is highly prone to river and urban floods, water scarcity, and wildfires.¹¹ It is in the top three countries in Sub-Saharan Africa that are expecting an average temperature increase from 2.9 to 3.8 degrees Celsius by 2100, which makes the country highly vulnerable.¹² Infrastructure assets, including electricity transmission and distribution networks, can be vulnerable to both chronic and acute climate hazards. Increased temperatures are likely to threaten cooling capacities of power generating stations with potential to impact both electricity generation and transmission. Botswana's per capita emissions are about 2.27 mtCO₂e relative to a global average of 4.47 tCO₂e per person¹³. The energy sector accounts for 87 percent of total GHG emissions (excluding land use, land use change, and forestry).

B. Sectoral and Institutional Context

6. **Botswana has vast untapped Renewable Energy (RE) resources and is at the beginning of adding RE to its energy mix.** Botswana has excellent solar and wind resources, presenting a promising source of clean and affordable electricity. Diversifying domestic electricity production by using RE sources has been set as a target in Botswana’s Vision 2036 and the National Energy Policy¹⁴ in 2021. The Vision 2036 sets an ambition to increase the RE share in its generation mix to 50 percent by 2036, from the current baseline of approximately 2 percent. This has led to the adoption of a revised Integrated Resource Plan (IRP) in 2022, which aims at fast-tracking contribution of RE from a target of 15 percent to a revised target of at least 30 percent and becoming a net exporter by year 2030. The Government of Botswana (GoB) targets approximately 1GW of solar and wind in operation in the country by 2030, supported by 140 MW of Battery Energy Storage Systems (BESS) to facilitate the integration of variable renewable

⁸ World Economic Forum (WEF) (2022). Global Gender Gap Index. https://www3.weforum.org/docs/WEF_GGGR_2022.pdf.

⁹ From the World Bank Botswana Gender Assessment. Sectoral segregation, childcare and domestic labor burdens and concentration in the informal sector all contribute to lower earnings resulting in a persistent wage gap whereby women earn an average 81 percent of what men earn.

¹⁰ Mastercard Index of Women Entrepreneurs (MIWE) (2022). <https://www.mastercard.com/news/media/phwevxc/the-mastercard-index-of-women-entrepreneurs.pdf>.

¹¹ Think Hazard, Botswana (2024). <https://thinkhazard.org/en/report/35-botswana>.

¹² Botswana: 2019 Article IV Consultation-Press Release 2019, IMF (2020). <https://www.imf.org/en/Publications/CR/Issues/2020/03/18/Botswana-2019-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-49276>.

¹³ World Bank open data (2020). <https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?locations=BW>.

¹⁴ National Energy Policy, BERA (2021).

<https://www.bera.co.bw/downloads/Nationalpercent20Energypercent20Policypercent20Finalpercent20Aprilpercent202021.pdf>.



energy (VRE) and their use for both domestic needs and export. The first pipeline of 335 MW solar IPPs is well advanced with projects at different stage of implementation with expected Commercial Operation Dates (COD) between 2025 and 2026.¹⁵ The project is designed to enable the grid integration of this first pipeline of solar energy.

6. **Scaling up RE energy is anchored in the government’s strategy through a 70-30 energy mix to achieve energy security by 2030.** Underlying the IRP is an urgent recognition by the Government to address the major power generation constraints Botswana faces—largely due to the underperformance of one large coal-fired power station. Currently, 97 percent of Botswana’s electricity is generated from coal.¹⁶ The total installed capacity in Botswana is 892 MW against peak demand of 627 MW in 2021. The majority of the power generation is concentrated in two coal-fired stations: the 132 MW Morupule A and the 600 MW Morupule B. Botswana also has diesel plants – 90 MW Orapa and 70 MW Matshelegabedi to support peaking power.¹⁷ However, continued operational challenges at Morupule B since its commissioning in 2012 have led to the plant operating below its capacity.¹⁸ The rolling 5-year average (2018-2022) of domestic generation only accounted for about 62 percent of total power supply.¹⁹ Because of the concentrated and unreliable power supply at Morupule B, Botswana has been importing electricity from the other utilities in the region at a premium price on account of the regional power generation deficit.²⁰ To address the generation challenge, the IRP envisions an energy mix of coal generated power meeting base load demand, while scaling up RE to 30 percent by 2030.
7. **In this context, coal generation is considered with a new coal-fired power plant (600MW in two phases) with a selected Independent Power Producer (IPP).** As Morupule A (132MW) is scheduled to be decommissioned around 2027 and underperformance of Morupule B (600MW) has continued despite various remediation measures being undertaken, the new 600MW coal expansion is planned to secure baseload (including adequate generation reserves) for domestic needs on a short-term horizon. The residual power is expected to be exported to the region. Given the finite domestic demand and uncertain export prospect for coal-based power, the new coal capacity could pose operational risks to the energy sector in terms of excess power, as well as financial risks partly depending on the contractual arrangements. It could also potentially limit the scope of further RE deployment as an opportunity for energy supply and economic growth if the export arrangements do not materialize. As both the domestic and regional mining industry as well as manufacturing are increasingly seeking green electricity supply to protect their export revenues from increasing carbon taxation, it could diminish Botswana’s competitiveness.
8. **The GoB has adopted a regulatory framework to support private sector RE generation.** Private generation is procured through IPP projects by the utility and the Projects Energy Development Unit (PEDU) within the Ministry of Minerals and Energy (MME) which acts as the ‘IPP Office’ for energy projects. Private generation is also allowed under small scale through the rooftop solar program and the self-generation scheme. The GoB is also considering authorizing the mining companies to procure power through IPPs directly up to a certain cap through a new market structure, to create flexibility from a single buyer model to enable them to green their energy supply. This opening is considered to protect their export revenues in the international context where products with high carbon content face increasing

¹⁵ The first large-scale 50 MW solar PV IPP in Selebi-Phikwe is under construction, with International Finance Corporation (IFC) financing (with second 50 MW in same location and another 100 MW solar PV in Jwaneng under PPA negotiation). The last 100 MW solar IPP is under development in Letlhakane.

¹⁶ Majority of domestic generation and imports is coal based in 2021. Diesel source contributed 2.5 percent to emergency generation.

¹⁷ BPC Annual Report (2022) <https://www.bpc.bw/about-us/Annual%20Reports/BPC%20Annual%20Report%202022%20-%20Website.pdf>.

¹⁸ The Bank supported the Morupule B plant through the financing of its transmission line (Morupule B Generation and Transmission P112516) and the provision of a guarantee which is still active (P116784).

¹⁹ Generation and Distribution, STATS BRIEF, Statistics Botswana.

²⁰ Accounts for 38 percent of total supply, Generation and Distribution, STATS BRIEF, Statistics Botswana.



taxation. The unbundling of the utility, Botswana Power Corporation (BPC) is also considered in the context of the opening up to the private generation and strengthening of transmission services.

9. **The GoB is also stepping up efforts in rehabilitation of transmission and distribution infrastructure, including villages along the borders which have been serviced from the South Africa grid such as in the Southern districts.** The BPC network extends over long distances which results in high transmission and distribution losses at a system average of 15.35 percent as of 2021.²¹ For villages along the borders which have traditionally been serviced from cross-border supply, the load shedding in South Africa has affected the level of service in these villages. The rural Borolong villages is one such area that has been severely affected. BPC estimated the duration without electricity in these villages at about two hours per day, mainly during morning and evening peak hours. Since 2019, BPC has initiated multiple programs to enhance the Transmission and Distribution (T&D) network performance in terms of reliability, security, quality of supply and ability to cope with the load growth. Despite the ongoing efforts, power delivery challenges remain with several load shedding incidents in 2024.
10. **While progress on access to electricity has been slow, the GoB has intensified efforts to accelerate the pace towards universal access and address affordability issue.** At about 70 percent²², Botswana's national electrification is low by global standards and relative to Botswana's per capita income. Between 2010 and 2021, access to electricity in rural areas made little progress lingering around 25 percent.²³ Most rural households do not have access to electricity, the majority of whom are low-income households. This situation has led to a stark disparity in energy access, hindering rural development, and worsening socioeconomic inequality. In 2010, the National Electricity Standard Connection Cost (NESC) was introduced to increase household connections to the grid and address affordability issue.²⁴ Despite the subsidies from the NESC program, low-income households still struggle to afford a grid connection. Apart from the grid connection cost, these households also struggle to afford wiring and electric device. More recently, the government announced a zero-cost connection policy that took effect in April 2024.²⁵
11. **A coherent and effective policy framework and supporting mechanism backed by high quality data is needed to achieve universal electricity access at the lowest cost.** One of the key challenges the country faces in electricity access is the lack of coherent electricity access plans with a synchronized and comprehensive approach and a clear government plan to the access goals. The World Bank is in dialogue with the Government to develop a geospatial least-cost electrification assessment to optimize expansion in Botswana through the year 2030, integrating technical, financing, and implementation planning. The work is expected to pave the way to a robust design and implementation of access programs and raise decision makers' awareness on the impact of digital transformation in enhancing access.
12. **A transformation of power system and an electricity utility with enhanced operating efficiency will be critical to address challenges in electricity access and decarbonization, and to improve grid resilience.** The GoB is giving more policy attention to scale up investments in smarter and more resilient grids. BPC has started to plan its digital transformation strategy, including much higher levels of digitalization at scale across all grid domains, from generation to transmission and distribution to end-use. Digital technologies designed for BPC system will be instrumental to unlock essential system services required to integrate high shares of VRE. They can also provide solutions to leverage data flows, connectivity, and management across the whole electricity system. To unlock these digital opportunities, adequate planning, investment, and policy action are needed.

²¹ BPC Annual Report (2022). <https://www.bpc.bw/about-bpc/annual-reports>.

²² SDG7 progress report (2023). <https://trackingsdg7.esmap.org/downloads>.

²³ World Bank Open Data (2021). <https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=BW>.

²⁴ National Electricity Standard Connection (NESC) (2015). <https://www.bpc.bw/national-electricity-standard-connection>.

²⁵ 2024 Budget Speech, Minister of Finance, Delivered to the National Assembly, 5th February 2024.



13. **Regional integration is essential to Botswana’s energy development as a priority for both energy security and exporting opportunities.** There are already significant exchanges of electricity in place supported by existing interconnectors with neighboring countries. These interconnections offer regional trade opportunities that could benefit neighboring countries. Moreover, Botswana is a key partner in the Mega Solar Initiative, a partnership between the Governments of Botswana and Namibia and development partners including the World Bank and IFC to support large scale additions of dispatchable solar capacity in Botswana and Namibia to support domestic and regional demand for electricity.²⁶ This is well aligned with the World Bank regional integration strategy for Sub-Saharan Africa and the broader Regional Engagement Strategy.
14. **The World Bank is taking a phased approach in its support to address the multifaceted sector issues highlighted above, starting with upgrading the grid for VRE integration and supporting rural electrification under the project.** The project contributes to address sectoral challenges, lay the foundation for VRE integration, and facilitate rural electrification through a suit of investments. Given the significant VRE commitments made under the IRP and Botswana’s goal to move from net importer to net exporter, strengthening the national grid and enabling the integration and management of VRE is a key priority for the country. The project is expected to enable BPC to integrate and manage the first set of RE pipeline projects under development and construction through timely critical investments in order to manage their variability and dispatchability. Moreover, the country’s first 50 MW utility-owned BESS to be financed under the project is expected to lay the foundation leading to a significant pipeline of BESS in the country to integrate VRE in the context of the lack of flexibility of the grid. In addition, the project will support the GoB to expedite its electrification program by improving reliability of electricity supply and strengthening the grid in the villages of Southern districts. The project will also finance technical assistance to empower the key stakeholders in managing RE projects and will support project management to facilitate implementation. Taking a phased approach, support to electrification under the project and technical assistance under discussion for least-cost geospatial electrification plan are expected to pave the way to an energy access operation, potentially under a future phase of the Accelerating Sustainable and Clean Energy Access Transformation Program (P180547). Technical assistance to support electrification is expected to be provided under the Namibia & Botswana: Energy Sector Programmatic Advisory Services and Analytics (PASA) under implementation (P180383).

C. Relevance to Higher Level Objectives

15. **The project forms a critical part of the World Bank’s strategic engagement in the country that will underpin the new World Bank Country Partnership Framework (CPF) for Botswana for the period of FY24–FY29 under preparation.** The 2023 Systemic Country Diagnostics (SCD) Update²⁷ identifies accelerating the pace to universal energy access and leveraging potential for RE generation as one of the key entry points to develop a competitive, export-oriented private sector. Similarly, the potential to attract private investment in RE is featured as a priority sector in the 2022 Country Private Sector Diagnostic. The Country Climate Development Report (CCDR) under preparation also has an important focus on the energy sector and RE development. Building on these diagnostics, the project will form a critical engagement area to support RE generation and energy access in the new World Bank CPF under preparation.
16. **The project is part of the World Bank package of support to the energy sector in Botswana.** The World Bank has been supporting GoB in the development of its RE sector. On the overall sector, the World Bank completed an RE

²⁶ Partners under the Mega Solar program include the African Development Bank (AfdB), the World Bank, the International Finance Corporation (IFC) and the African Union Development Agency-New Partnership for Africa’s Development developed under USAID’s Power Africa initiative.

²⁷ Botswana - Systematic Country Diagnostic Update: At a Crossroads - Reigniting Efficient and Inclusive Growth (English). Washington, D.C.: World Bank Group (Report No. 185918).



Roadmap in 2022 supported by the Sustainable Renewable Risk Mitigation Initiative (SRMI) under the Energy Sector Management Assistance Program (ESMAP). The Roadmap lays out options for Botswana on development of sustainable and bankable RE programs. In response to the government's request to support the operationalization of the IRP, the World Bank carried out a VRE integration study in 2022-2023 that identifies the critical grid investments needed to unlock private investments in RE. The World Bank is also providing technical assistance to support solar, wind and storage project development.²⁸ At the same time, after several years of engagements, IFC has invested in the first-ever utility-scale RE project in Botswana, a 50 MW (to be scaled up to 100 MW) solar PV project which recently broke ground in 2024. This IFC-financed solar project is among the first wave of RE projects in the government's IRP for which the RESA project will support its grid integration. The IFC and MIGA are continuing to support new RE private investment opportunities. Finally, the government's Expression of Interest for building a carbon market through the World Bank's Partnership for Market Implementation (PMI) trust fund was approved in 2023 and associated technical assistance activities are being defined.

17. **The project will contribute to the World Bank's corporate objectives under the World Bank Climate Change Action Plan, Maximizing Finance for Development (MFD) and Private Capital Enabling.** The project will contribute to unlock private generation in RE by facilitating their integration and supporting their management by the utility BPC. The project is aligned with the standardized methodology that was developed by the World Bank under the SRMI to support countries identify and finance critical grid investments needed to enable private capital. The targeted public investments in grid capacity enhancement under this project will support IFC's existing and potential future investments in solar and wind energy projects.
18. **The project will also contribute to the narrowing of gender gaps in alignment with the World Bank Group Gender Strategy (FY24-30) and the Gender Assessment on Botswana.** Specifically, the project will include support to BPC to develop and adopt its first gender and women' employment policy, which aligns with the 2021 National Energy Policy mandate on increasing women's participation in the formulation and implementation of energy interventions to be more gender responsive.
19. **The Project is consistent with Botswana's Nationally Determined Contributions (NDCs).** The GoB committed to reducing GHG emissions by 15 percent by 2030. In the Updated NDCs submitted to the UNFCCC²⁹ the GoB emphasized its adoption of renewable energy (RE) as a key mitigation measure. According to Botswana's National Adaptation Plan³⁰, the GoB also plans to develop a set of interventions required to protect sectors from climate related risks. In addition, the CCDR is also focusing on the energy sector to play a key role in the low carbon pathways for Botswana.

²⁸ This is carried out through the ESMAP-SRMI funded grant of US\$3.5 million under the Botswana Renewable Energy Scale Up Support Project (P178822) to support RE assessment, site studies and environmental and social impact assessments (ESIAs), feasibility studies, as well as capacity building advisory services.

²⁹ Botswana Nationally Determined Contribution. <https://unfccc.int/sites/default/files/NDC/2022-06/BOTSWANA.pdf>.

³⁰ National Adaptation Plan Framework for Botswana (2020) <https://napglobalnetwork.org/wp-content/uploads/2020/06/napgn-en-2020-nap-framework-for-botswana.pdf>.



II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

20. To enable renewable energy grid integration in Botswana and improve electricity service in selected rural areas.

PDO Level Indicators

21. The progress towards achieving the PDO will be measured by the following indicators:

- (a) Volume of VRE enabled in the BPC transmission system (in GWh/year);³¹
- (b) Annual average duration of power interruption in selected areas (in hours/year).

B. Project Components

22. The project is structured around three components: (i) grid upgrades to enable integration and management of VRE, (ii) local transmission and distribution (T&D) network upgrades to support rural electrification, and (iii) project management and TA to support VRE deployment. The project is expected to enable the utility BPC to integrate and manage the first large-scale pipeline of RE projects through critical investments to manage their variability and dispatchability as well as to support the GoB with rolling out its rural electrification program by financing the grid expansion to the rural villages in the Southern districts. In addition, the project will also finance technical assistance to empower the key stakeholders in managing renewable energy projects and will support project management to facilitate implementation.

23. **Component 1: Grid upgrades to enable integration and management of VRE (GCF loan US\$30 million and IBRD loan US\$68 million).** The Sub-component 1.1 will support (i) the design, supply, installation, commissioning, and operation and maintenance (O&M) of utility-scale BESS for an estimated capacity/energy of approximately 50MW/200MWh and (ii) the owner's engineer, who will assist BPC in the supervision of the BESS procurement, construction and commissioning. BESS has been identified as a priority investment under the IRP and has been confirmed as a critical investment by the ESMAP-funded VRE integration study needed in 2026 when the last project of the first set of pipeline Photovoltaic (PV) projects will reach COD. A feasibility study is being carried out by a third-party consultant and the configuration of high energy BESS with a power-to-energy ratio (C-rate) of approximately 0.25 (50 MW/200 MWh) is recommended with two main use cases being identified: to provide operational reserves (and ancillary services) and to enable generation shifting. This first BESS in the country, to be owned and operated by the utility, will provide critical services to the grid, in particular contributing to cover primary and secondary reserve in a context where there is no market for ancillary services in Botswana. The BESS is planned to be located at Selebi Phikwe/Mmadinare and Jwaneng where the first large scale solar PV plants are envisaged (100MW PV in each of these sites) with targeted COD of respectively 2025 and 2026.

24. The Sub-component 1.2 consists of the installation of Static Synchronous Compensator (STATCOM) at selected substations (planned at Francistown 1, Legothwane, Segoditshane 1 and Ramotswa (132 kV networks)), with the aim

³¹ The value of this indicator will be converted from GWh to GW to show the 'GW of renewable energy capacity enabled' as per the World Bank Group New Scorecard methodology.



to increase their readiness for integration of VRE by ensuring steady voltage profile. The proposed STATCOMs are expected to enable the automatic control of the voltage within the permissible range in both normal and contingency operating conditions as informed by the aforementioned VRE integration study.

25. Sub-component 1.3 consists of digital upgrades of network control and customer services to enable monitoring of loads and improve operation efficiency, maintenance and planning, including upgrade of SCADA, mini-distribution control centers (MDCC) and Meter Data Management System (MDMS). The anticipated increased number of generation points and higher share of VRE will create more constraints on the system. Moreover, the current Central SCADA does not include the RE module. The VRE integration study recommended an upgrade of the SCADA system at National Control Center including adding the RE module with the forecasting function and integration with Automatic Generation Control to guarantee the whole system control, in order to strengthen central command of the power plants and to balance demand and generation enabling an efficient dispatch. This subcomponent will also finance the implementation of MDCC including the installation of needed upgrades on communication and remote control means at selected locations (targeting 11 locations³² to manage those distribution network areas). It will also support the procurement and implementation of an MDMS to monitor the smart meters, which is considered essential for demand monitoring to ensure grid stability as penetration of VRE generation increases. It will also enable demand side assessments and real time monitoring of loads for improvement of operation efficiency, maintenance and planning.

26. **Component 2. Local T&D network upgrades to support rural electrification (IBRD loan US\$ 17.5 million).** This component aims to increase reliability of power supply for existing and future customers in rural villages of Southern districts, by supplying them with reliable domestic power and reducing import of electricity from South Africa. As part of GoB's effort to enhance energy security and diversify its energy mix under Vision 2036, BPC is currently in the process of expanding the national grid to absorb cross-border supplied customers. The Southern region is among the three main regions in the country that receive cross-border power supply from the South Africa Utility, the Electric Power Utility of the Republic of South Africa (Eskom), and therefore are mostly affected by load-shedding from South Africa. The other two regions, Kgatleng District and Kgalagadi, are under different implementation stages. The network upgrade is nearly completed for Kgatleng and to be completed by 2027 for Kgalagadi (studies on-going). This component will strengthen the T&D network in the Southern rural area by extending the higher voltage grid infrastructure to the area, which will increase reliability and effectively enable future connections of both residential customers as well as small businesses and farmers in the region. This will be achieved through:

(i) Construction of a 160 km 66 kV Transmission line from Lobatse to Mabule with two new 66/33 kV substations along the route. One at the end node in Mabule, and one in Phitshane-Molopo. In addition, the Lobatse substation will be upgraded with two new transformers to enable the step-down from 132 to 66 kV and transfer of higher voltage electricity to the area. This will enable the nine cross-border villages³³ that are currently suffering from daily load-shedding to be transferred from Eskom to the domestic BPC network; and

(ii) Construction of a 46 km long 33 kV line from the proposed substation in Phitshane-Molopo to Hebron in the North-East, which will complement the on-going expansion of the 33 kV infrastructure under BPC current business plan. This will not only enable an additional twelve villages³⁴ to be transferred to the 66/33kV substation in Phitshane-Molopo, but also close the 33 kV circuit from Lobatse. Together with the Lobatse to Mabule 66 kV line, it will significantly increase the redundancy of the network, consequently increasing reliability in that entire region. In addition, a 2.6 km long 11 kV distribution line will also be constructed North-East of Phitshane-Molopo to connect the cross-border villages of Marojane and Mokatako, to close another circuit. It is expected that the completion of the 66/33 kV

³² Kanye, Maun, Molepolole, Francistown, Palapye, Serowe, Selibi Phikwe, Bobonong, Lobatse, Jwaneng and Letlhakane.

³³ Dikhukhung, Leporong, Mokatako, Phitshane-Molopo, Mabule, Mmakgori, Sekhutlane, Tshidilamolomo, Sedibeng.

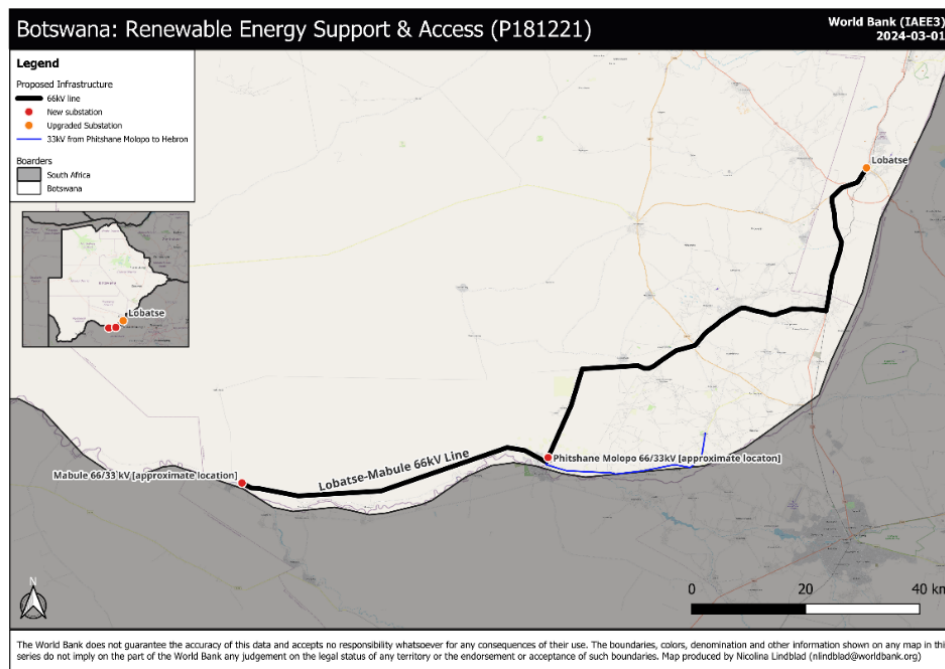
³⁴ Hebron, Molete, Marojane, Logagane, Ditlharapa, Pihitshwane, Makokwe, Papatlo, Borobadilepe.



substations in Phitshane-Molopo and Mabule will also enable an additional five villages³⁵ and two major farming areas (Musi and Banyana) to be upgraded to the higher voltage network, stimulating demand for productive use. The preliminary routing of the project area, as well as BPCs current complementary 33 kV infrastructure, is shown in Figure 1.

27. Component 2 contributes to improving reliability of power supply to existing and new customers, including future productive enterprises in the region. Together with digital upgrades in MDMS under Component 1, the investment in the selected rural areas of Southern district is also expected to increase BPC's capacity in leveraging digital tools to meet its access objectives by enabling BPC to locate and fix faults more effectively and provide quicker restoration times, lowering the cost and disruption caused by outages.

Figure 1. Map of Southern district rural electrification



28. **Component 3: Project Management and TA to support VRE deployment (US\$6.28 million of which IBRD loan US\$2.28 million and GCF grant US\$4 million).** Future investments in the energy sector are expected to be focused on RE and to be driven by the private sector. Component 3 is therefore expected to play a key role in enabling private sector investments and in supporting the utility in this business model transition. It will do so by supporting BPC to manage deployment of VRE (in complementarity with the aforementioned RETF Grant) and enhance the gender equality and socio-economic benefits of their RE projects through a systematic approach to incorporate socio-economic aspects in the design and implementation of BPC projects. In addition, the on-going PASA Energy Sector Transition in Botswana and Namibia (P180383) project will provide support to the utility on its evolving business model in the context of a broader sector dialogue regarding the adjustments needed in the power market to open up the sector to private generation and regional export.

³⁵ Musi, Tswagare, Mokgomane, Tswanyaneng, Sekokwane.



29. On gender equality, BPC will be supported in (i) adoption of BPC gender and employment policy with targets, (ii) stronger focus on the school-to work transition, recruitment strategies (including for the BPC training school which offers vocational training) and understudy skills transfers for women, (iii) further training, especially in RE, and job-rotation opportunities for women in technical and engineering positions, (iv) women’s leadership training and sponsorship opportunities to increase advancement, and (v) focus on supporting workplace wellness, safety and respectful workplace conduct and anti-discrimination training and programs. On socioeconomics aspects, TA will be allocated to assess energy transition impacts on jobs and upskilling opportunities (e.g., reskilling of engineers and staff focused on coal as well as skills development strategy) and support BPC on critical skills and understudy programs/succession planning, leveraging existing or future partnerships with universities and Technical and Vocational Education and Training (TVET) as the case may be. Exchange opportunities with South Africa on the jobs and skills strategy behind the energy transition will be explored.
30. Component 3 will finance the following activities:
- (a) **Sub-component 3.1 – Project management (US\$2.28 million):** to support the project implementation unit (PIU) including financing dedicated team for the project; and
 - (b) **Sub-component 3.2 – VRE deployment (US\$3.5 million):** to support VRE deployment from various perspectives, including (i) technical studies on the management of VRE; (ii) review of the business model of the utility in the context of the opening up of private generation and regional trade opportunities, (iii) annual capacity building to empower the utility staff (including training on the management of VRE); and (iv) systematic framework to incorporate socio-economic aspects in the design and implementation of the utility projects (including a mapping of the jobs on the RE projects and the reskilling of coal workers as well as skills development strategy). Training, capacity building, including south-south knowledge exchange, as well as consulting activities (technical, environmental and social (E&S), and fiduciary) required for project implementation as the case may be will also be included to empower BPC technical staff and management. In addition, the above-mentioned gender equality activities will also be supported under Sub-component 3.2.

C. Project Beneficiaries

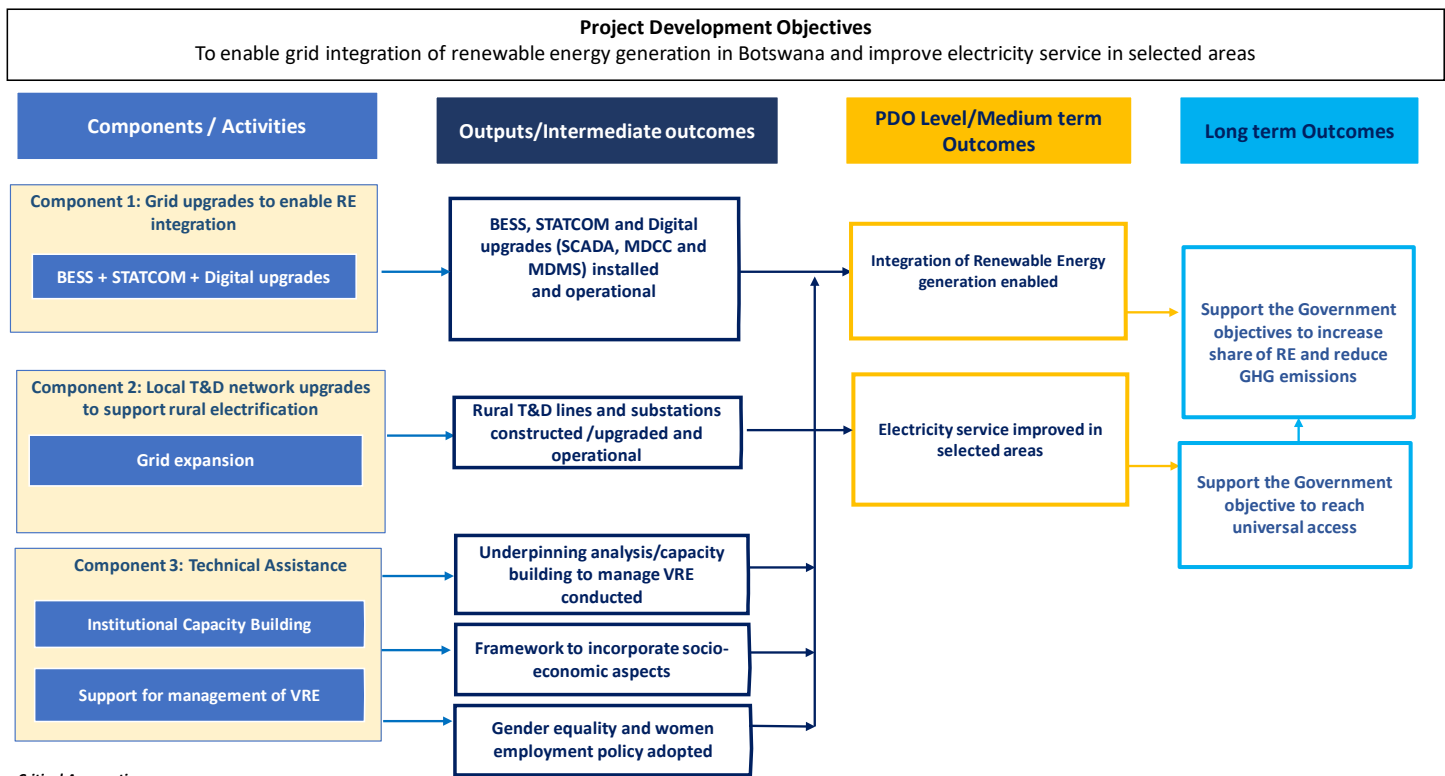
31. **The main beneficiary of the project is the national utility BPC.** As implementing agency of the project, BPC will benefit significantly from the capacity building and technical assistance they will receive, which will improve their capacity to manage VRE projects. BPC will benefit from lower generation costs, as new and cheaper RE generation enabled by the project will replace imports, and as the utility might be able to export some of the curtailed energy generated from the new RE sources. The project will also empower BPC staff as well as indirectly the people of Botswana through the development of a systematic socio-economic framework to support job creation, skills development and female employment while rolling out RE projects.
32. **Additional beneficiaries of the project are the existing and prospective electricity consumers of BPC in Southern rural area, including commercial and residential customers.** The strengthening and extension of the electricity network in the project will enable BPC to provide people with new or improved electricity services and improve the quality of supply in Southern rural area. Farms and industries in North-East will also benefit from improvement of service quality and reduction of voltage fluctuations on the grid through future connection to Lobatse-Mabule 66kV transmission line.



D. Results Chain

33. In terms of the longer-terms benefits, the project is expected to: (ii) support the GoB objectives to increase the share of RE and reduce GHG emissions, and to (ii) support the GoB efforts to reach universal access. The TA component of the project is expected to benefit the utility’s pipeline of RE projects from various perspectives. Ensuring BPC is adequately equipped to manage VRE will be critical as the utility is expected to roll out an ambitious RE program where the private sector is expected to play a prominent role. The TA will also support the definition of a systematic framework to maximize the socio-economic benefits triggered by RE deployment. The project will also indirectly increase energy security and improve electricity service for end-users. In addition, the enabling of VRE will contribute to lower the cost of electricity to help drive further economic growth and poverty reduction.

Figure 2. Theory of change



Critical Assumptions:

A. First wave of 335MW solar PV is operational by end of 2026

B. Task force of key stakeholders in place to elaborate a socio-economic action plan to maximize the benefits triggered by RE deployment

E. Rationale for Bank Involvement and Role of Partners

34. The World Bank has had an ongoing sector engagement with GoB since 2019 including a comprehensive TA strategy built around unlocking sustainable and bankable RE. This places the World Bank in a unique position to design and implement an effective program that helps to further develop the energy sector. The TA activities supported by the World Bank helped raise awareness of decision makers in the country on the competitiveness of VRE, pre-requisites for their integration as well as associated investment opportunities. This consequently enabled the country to fast track their RE targets in the IRP. In addition, the GoB requested in 2020 to benefit from the GCF facility (SRMI Facility 1) seeking concessional funding to (i) reduce the cost of grid investments needed to unlock significant private



investments in RE; and (ii) improve the risk profile of VRE projects to be developed through TA to pre-develop these projects mitigating development risks and a liquidity guarantee to reduce the offtake risk. The project has been developed in this context, blending GCF funding (concessional loan and grant) with an IBRD loan to address the request from GoB. This is critical in the context where Botswana is planning a pipeline of private sector investments in RE and requires targeted grid investments to support this effort at the lowest cost possible.

35. **The value added of the World Bank's support comes from its extensive experience in supporting similar investment projects in other parts of the world.** The World Bank has significant experience in supporting countries harness their renewables in a sustainable and cost-efficient manner, financing critical grid investments needed to enable private RE generation at scale while crowding in concessional financing to lower their costs. These investment projects were key enablers of RE integration. For example, the Eskom Just Energy Transition project (P177398) in South Africa under which the World Bank financed the first large scale BESS program of the utility to support VRE integration. The World Bank will also make available to the GoB its experience and expertise under the SRMI program which supports governments to: (i) identify the critical public grid investments needed to unlock private investments in RE, (ii) optimize the risk allocation to attract the private sector in optimized conditions, and (iii) maximize the associated socio-economic benefits triggered by RE deployment through the development of a systematic framework in this respect. The package of financing proposed under the project, complementing the aforementioned RETF Grant, is expected to (i) reduce the cost of the grid investments needed by blending IBRD financing with concessional funding while (ii) reducing the development risk of the VRE/BESS projects to be developed (by facilitating VRE integration and management).
36. **Role of partners.** The main development partner supporting the project is the GCF (with a concessional loan and a grant). It provides complementary financing for the realization of the project. An active donor community with multilateral and bilateral financiers is also present in Botswana. The development partners in energy meet periodically to coordinate their various activities. The World Bank engagement under the project will help establish modalities that can be supported by other development partners to further accelerate transition to a more diversified generation mix and electrification, along with greater private sector participation. The major development partners active in the Botswanan energy sector include the African Development Bank, Power Africa, the United States Agency for International Development (USAID), the European Union, United Nations agencies as well as other bilateral partners. The IFC supported the TA provided to GoB on developing a RE roadmap laying out options to develop sustainable and bankable RE projects and is expected to collaborate with the World Bank on support to private sector RE generation under Component 3.

F. Lessons Learned and Reflected in the project Design

37. **The project has benefitted from lessons learned from past World Bank projects** in Botswana such as the Botswana Integrated Transport Project (P102368), Morupule B Generation and Transmission (P112516) and the ongoing Botswana Emergency Water Security and Efficiency Project (P160911) as well as from the preparation of the Botswana Renewable Energy Scale Up Support Project (P178822).
38. **Ensure simplicity and flexibility in result-oriented design of project activities.** It is important to ensure that the design of activities is simple with flexibility in implementation and in approach to monitoring and evaluation (M&E). Meanwhile, the design of project activities should reflect synergies with development partners when the opportunity arises. This is one of the key lessons learned globally in energy sector projects. Lack of quality of entry of project design which impacted effective implementation and led to frequent restructuring is a key lesson from the recent and past projects with the GoB. The importance of an adequately designed Results Framework with realistic indicators to



ensure monitoring and measuring of outcomes and impact is also a key lesson learned from previous engagements in the country.

39. **Strong PIUs are a critical success factor for proper implementation.** Experience has shown that a strong PIU with adequate capacity in technical, procurement, financial management, E&S standards, and results monitoring is necessary for ensuring smooth and timely implementation of projects. The project will build and strengthen BPC capacity through a suite of technical assistance activities designed under Component 3. In addition, the project will prepare a systematic framework under Component 3 to include socio-economic aspects in RE projects, which will enable these aspects to be effectively mainstreamed in future RE program roll out - a key lesson learned from SRMI projects and publications. Furthermore, building capacity of PIUs in environment and social (E&S) standards, procurement planning and oversight is required during the initial stages of preparation and implementation as learned from previous and ongoing projects with GoB.
40. **Inclusion of citizen engagement and gender activities enhance project sustainability.** The project incorporates best practices from other energy operations into its design. It ensures that the stakeholder engagement plan (SEP), Grievance Redress Mechanism procedures described in SEP, as well as reflected in the Environmental and Social Management Framework (ESMF) will allow for feedback loops between implementing entities, beneficiaries, affected people, workers, and governments, both during project preparation and implementation to ensure that citizen voices are taken into account, including disadvantaged and vulnerable people.
41. **South-South exchanges are needed to disseminate lessons learned, best practices and relevant data for projects anchored in the region.** The project preparation and implementation will ensure technical exchanges with the South African utility (Eskom) and the Namibian utility (NamPower) on BESS design and implementation. Eskom has procured the first large scale BESS program of the region (P177398) financed by the World Bank and NamPower has procured its first BESS (financed by KfW) and is currently developing its second BESS financed by the World Bank under the Transmission Expansion and Energy Storage project (P177328).

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

42. To facilitate the implementation of the project, the recipient will make the proceeds of the GCF and IBRD financing available to BPC under a subsidiary grant agreement between the recipient and BPC. BPC will be the implementing agency for the project including GCF co-financed activities. BPC is the nationally designated utility for electricity generation, T&D, as well as purchase of electricity from IPPs in Botswana. Current licenses include the permission to generate, transmit, supply and trade electricity, including import and export of electricity. BPC is responsible for conducting feasibility studies, technical design, and procurement for transmission networks strengthening, as well as expanding electricity access. BPC is implementing similar electrification expansion activities under its rural electrification program. TA and capacity building under Component 3 is expected to be implemented by BPC.
43. BPC has limited experience in implementing World Bank-funded projects as previous knowledge from Morupule B Generation and Transmission (P112516) loan which closed in August 2014 has diminished over time. There are several aspects of project management in which BPC needs support, including project management, fiduciary and E&S aspects. Component 3 will be used to hire consultancy services to support the utility as the case may be on procurement, contract management, E&S, and other relevant aspects, with the aim to strengthen its capacity in



undertaking/managing procurement contracts and E&S standards. Specifically, the following consultants are expected to support BPC during project implementation: (i) technical consultant to carry out the feasibility study of the BESS (study on-going), (ii) consultant to carry out the environmental and social impact assessment (ESIA) of BESS, (iii) consultant to carry out the ESIA of the transmission lines and associated substations, (iii) consultant to capacitate BPC on the procurement of BESS, (iv) consultant to support the procurement of STATCOM, and (v) consultant to support the procurement of digital upgrades. An owner's engineer will also support BPC to supervise BESS construction and first years of operation in line with market practice.

44. BPC will establish a PIU to lead the implementation of the project, with all departments relevant to the project mobilized and coordinated by senior staff who have adequate experience with reporting arrangements that ensure that senior management of BPC have visibility over the project. The senior staff will also coordinate all project activities and will be the main counterpart of the World Bank during project implementation. The PIU will be resourced with adequate staff having skills in engineering, procurement, project management, accounting, legal, gender and E&S risks management. There will be program managers from the concerned departments, each for the BESS, STATCOM, SCADA, MDCC, MDMS and grid expansion (lines and substations) activities. Other key staff will include experts in legal affairs, logistics, M&E, risk management, budget, procurement, finance, gender, E&S, as well as engineers and technical specialists to evaluate technical proposals, and monitor implementation of all contracts and studies. The PIU will also be responsible for overall coordination and oversight, including providing direct support as needed on processing of payments applications, ensuring adequate annual budgetary allocations, consolidating progress reports and submitting to the World Bank.
45. The exact implementation procedures for all fiduciary and E&S aspects of the project, as well as the composition and operational procedures of the committees, are described in the draft Project Operational Manual (POM) prepared by BPC which will be submitted for approval to the World Bank before effectiveness. Any revisions to the POM during implementation will need to be approved by the World Bank.
46. The PIU will also report back to MoF on the progress of the project as well as to the MME as part of their regular reporting to officials in MME, ensuring that both ministries are kept informed as the project moves forward.

B. Results Monitoring and Evaluation Arrangements

47. Project progress will be monitored based on completed procurement, disbursements and physical progress of works, and against the PDO and intermediate outcome indicators. The Results Framework and M&E Plan outline the key performance indicators, data collection methods, data collection timeline, and responsible agencies. While interim data will be reported quarterly by the PIU, the PIU will produce an annual report in line with the framework requirements set out in the POM. The PIU will set up the necessary information systems to track implementation progress on project activities and key results indicators for that purpose.
48. The reports will provide updates on M&E procedures, implementation, budgets, and compliance with procurement, disbursement, financial management as well as Environmental and Social Framework (ESF). The PIU will also submit to the World Bank quarterly Interim Unaudited Financial Report and annual audited financial statements and such other information as the World Bank may reasonably require. Approximately halfway through project implementation (about 3 years from effectiveness), the PIU will carry out a thorough review of project implementation and report their findings and conclusions as part of the World Bank's midterm review.



49. In addition, a designated M&E specialist will be assigned who will be responsible for all aspects related to the M&E of the project. The provision will be included in the POM. Specifically, M&E will entail (a) monitoring physical progress; (b) carrying out M&E of delivered outcomes; (c) reviewing and supervising the environmental and social risks identified and any mitigation measures; and (d) providing guidance to the implementation team in early identification and resolution of any issues identified. The PIU will develop an annual work plan and will be responsible to share semiannual progress reports in addition to participating in a midterm review of the project and preparing an Implementation Completion and Results Report once the project is completed.
50. The owner's engineer will play a key role in monitoring the progress and quality of BESS construction. The World Bank will also call on global experts and consultants to carry out technical reviews at critical milestones of the project.

C. Sustainability

51. The project design and the commitment of key players, such as GoB and BPC, enhance the likelihood of project sustainability. The Government's long-term commitment to reforming the energy sector and increasing renewable energy share in the country's energy mix (both for domestic needs and export) is supported through the project. The project will also provide technical assistance, which will address any required training and staffing needs for the dedicated PIU in BPC. This is critical from a sustainability standpoint to ensure that the VRE developed in Botswana will be effectively integrated in the grid and managed properly. It will also inform the pipeline of future BESS identified by the country in their IRP and confirmed by the VRE integration, ensuring the replicability. The project will also provide guidance on how to maximize the socio-economic benefits triggered by RE deployment from various perspectives. The perspectives considered include job creation, skill development, women empowerment and/or local development supporting actions increasing the resilience and/or enhancing the livelihood of the local communities in the vicinity of the RE projects planned. The World Bank is planning to continue to support the efforts of the GoB through the on-going PASA Energy Sector Transition in Botswana and Namibia (P180383) targeting (a) acceleration of electricity access, (b) further tariff adjustment reform proposals, (c) socio-economic development in RE sector, (d) sector restructuring and institutional reforms, and (f) carbon market strategy. This is aligned with the on-going technical assistance on carbon pricing and carbon market requested by the GoB and financed under World Bank's PMI trust fund.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

Technical

52. **The grid upgrade activities to be supported under Component 1** have been informed by the aforementioned VRE integration study. The study identified the grid investments needed to operationalize the IRP (2022) in particular to address the variability of the solar and wind projects planned in the context where the grid is not very flexible. The following investments have been identified as needed by 2026: BESS, STATCOM and digital upgrades in particular upgrade of SCADA. The VRE integration study did a first sizing and costing of these components. The draft feasibility study for BESS is informing the design of the latter while the aforementioned consultants to be procured by BPC will support the design and procurement of the other subcomponents.
53. **The distribution and transmission investments to be supported under Component 2 have been identified in a coordinated manner jointly by BPC and MME.** The distribution investments in rural villages of Southern district were prioritized based on present condition of the distribution network and the projected demand growth, while reflecting



regional equity. The villages selected are affected by a series of loadshedding events due to their connection to Eskom grid. The proposed investments will provide much-needed connection to national grid and help improve the reliability of electricity supply significantly. The investment scope has been defined based on the priorities under National Development Plan 12. BPC is implementing similar works under their mainstream business. Similar technical standards and criteria will be used for design studies and preparation of bidding documents. It will require close involvement of client staff in the design studies and execution of works to minimize interruption and ensure compatibility of equipment.

54. **The technical design of the project is compliant with relevant international standards.** The BESS planning and design follows international standards. BESS technologies are analyzed and recommended in the feasibility study, and safety measures for the transportation, operation and recycling of the BESS are considered. To ensure proper life cycle management of BESS, the contract with suppliers will include provisions on safety infrastructure during operation and used battery management and disposal in accordance with international standards. The project will also benefit from neighboring utilities' experience in implementing their BESS projects through the South-South exchanges mentioned above.
55. **The project is aligned with the goals of the Paris Agreement on both mitigation and adaptation.** On the adaptation side, the project plans to increase climate resilience of this infrastructure. Resilience measures will be considered in the engineering design as part of bidding documents for electrification works. The design of the transmission line is expected to consider a wind event in the 1:500-year recurrence interval, as prescribed in the relevant International Electrotechnical Commission. This results in infrastructure that can withstand winds of significant impacts, which would ensure the worst possible wind events are provided for. In terms of floods, structure locations are indicated to avoid areas of flooding. Wildfires are typically not a high-risk event in Botswana since the low vegetation density results in a minimal impact on the transmission line due to a wildfire. On the mitigation, project Components 1 and 2, are both from the list of Universally aligned list of activities. Under Component 1, the project will increase the RE integration into the energy mix of the country. By 2036, the GoB aims to increase the contribution of RE source to 50 percent of the entire country's total energy supply. The project will also contribute to reduce GHG emissions. In accordance with the World Bank's Guidelines, GHG emissions accounting was carried out as an integral part of the economic and financial analysis. In total, 4.17 million tons of CO₂ emissions are estimated to be directly avoided over the project lifetime. The World Bank's latest available shadow price of carbon was also used in the analysis, with low and high price scenarios, to account for the social cost of carbon emissions when calculating the economic rate of return and the net present value. The climate change and disaster screening has been conducted and the associated risk is rated low. Resilient infrastructure development in Botswana includes consideration of existing natural hazards³⁶ and ongoing climate change. Relevant risks for the project include wildfire, flooding, droughts, and extreme heat, which is expected to increase due to climate change. The project will directly increase the resilience of the power system, making it more efficient and improving the reliability of supply. Given the risks identified in the screening, specific considerations will be given to resilience measures that could help mitigate the impacts of wildfire, flooding, earthquakes, and extreme heat.

Economic and Financial Analysis

56. **The project has good economic and financial returns.** The Economic rate of return (ERR) at constant 2023 prices is 23 percent, net present value (NPV) US\$93 million. With GHG emission reductions valued at the World Bank's low valuation of the Shadow Price of Carbon (SPC), the Economic Rate of Return increases to 30 percent (NPV US\$218

³⁶ ThinkHazard database, Botswana. The World Bank (2021). <https://www.thinkhazard.org>.



million), and to 35 percent (NPV US\$344 million) at the high SPC valuation, at a six percent discount rate. The substantial increase in benefits when GHG emission reductions are included is a consequence of the effectiveness of the BESS to use otherwise curtailed energy from wind and PV for charging, with the battery discharge largely displacing BPC's coal and diesel emissions.

57. The project returns are also robust to the main uncertainties (Capital Expenditure overruns, overestimation of BESS benefits): none of the switching values suggest any particular risks. Returns have also been assessed in a quantitative risk assessment that shows very low probabilities of not meeting the hurdle rate, particularly when GHG emission benefits are included. The BESS significantly reduces the extent of PV and wind curtailments.
58. The financial returns are high, with positive incremental cash flows almost throughout the 20-year life, with a baseline estimate of US\$127 million as a Financial Net Present Value (including the debt service obligations to be taken over by the MoF). The exception is that under conservative assumptions, in year ten of operation a US\$38 million (at nominal prices) expenditure would be required to replace the battery packs – however this could be easily smoothed by a reserve account funded in years 5 to 9.
59. The sensitivity analysis and quantitative risk assessment of financial shows similar robustness to uncertainty as the economic returns. Although the SCADA and STATCOM components will enhance the ability to export a significant fraction of the remaining VRE curtailments, even under zero exports the financial (and economic) returns are assured.

B. Fiduciary

(i) Financial Management

60. **Overall, the Financial Management (FM) arrangements to be applied in administering the project and residual risks were assessed as adequate and moderate, respectively.** The FM assessment was conducted on BPC (project implementing entity) and the MoF (borrower) to evaluate whether the project meets the World Bank's minimum FM requirements. BPC has a limited experience with World Bank funded projects.
61. **The project will apply BPC financial management arrangements while the MoF will be responsible for disbursements.** BPC will prepare a POM that will specify the applicable arrangements relating to planning and budgeting, accounting, financial reporting, internal controls, disbursements processes from the World Bank, and auditing (internal and external). BPC will prepare project quarterly unaudited interim financial reports (IFRs) and submit the reports (through the MoF) to the World Bank within 45 days after the quarter. The project-specific annual financial statements will be audited by BPC's appointed external auditor and a copy of the audited statements together with the management letter will require to be submitted to the World Bank (through MoF) no later than six months after the end of BPC financial year end (March 31). The detailed disbursement arrangements will be provided in the Disbursement and Financial Information Letters.
62. **To further strengthen FM arrangements and mitigate the identified risks, BPC agreed to implement some targeted actions.** Specifically, (i) recruit/designate a project Accountant to support the project, (ii) incorporate specific codes in the BPC Chart of Accounts to facilitate recording and tracking project transactions, (iii) the World Bank will conduct regular FM and client connection training for the designated project Accountants and signatories, and (iv) prepare and include Project disbursement-related internal controls in the project POM.



(ii) Procurement

63. **Procurement arrangement:** All procurement under the project will be conducted through the procedures as specified in the World Bank's Procurement Regulations for Investment Project Financing, September 2023. The project will also be subject to the Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants' dated July 1, 2016. The procurement planning, execution and contract management processes will be tracked through the Systematic Tracking of Exchange in Procurement (STEP) System. BPC will apply to the Public Procurement Regulatory Authority for a waiver to follow the World Bank's Procurement Regulations under the project.
64. **The BPC processes and procedures** for engaging consultants and contractors, which are guided by the Botswana Public Procurement Act of 2021, are generally consistent with the World Bank's Procurement Framework (PF) with a few enhancements that can be mitigated through inclusion of certain provisions in the national bidding documents; (a) the national regulations and documents should not preclude the World Bank from its rights to review and audit procurement documentation and activities under the financing; (b) implementation of an effective complaints review mechanism; (c) maintenance of records of the procurement process and (d) the request for bids/request for proposals document will 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. With the incorporation of the above provisions, the BPC Procurement Procedures will be acceptable to be used under those procurements using open national approach to the market not subject to the World Bank's Prior Review as agreed with the World Bank in the approved Procurement Plan. Rated Criteria will be used for all large international competitive procurements.
65. **Capacity Assessment:** There are competent professionals in BPC, however, the following key issues were identified: (a) the current procurement unit staff have a big workload of BPC own institutional procurement which may result in challenges with workload management as they take on the procurements under the project, (b) the team has no recent experience with World Bank procurement procedures, including the use of STEP, and (c) an internal audit report has identified some issues related to internal controls, segregation of duties and approval of purchase orders, and management of procurement cycle times. BPC will recruit a dedicated technical procurement specialist into the PIU to support the project on procurement and contract management. Roles and responsibilities will need to be clearly defined in the POM including turnaround times for various actors in the procurement process.
66. **Complexity of Procurements:** The procurement of transmission lines and substations (under Component 2) are similar to what the team has handled before whereas BESS and other subcomponents of Component 1 are new, however the principles and approach are similar. They have showed a good track record of preparing and implementing projects under their own funding. The project will mitigate risks related to procurement by strengthening capacity through training, knowledge sharing, and awareness raising. The World Bank is providing training on procurement, contract management and STEP and will continue to provide close support during implementation. Procurement risk is assessed as **Moderate**.
67. **Project Procurement Strategy for Development (PPSD):** The BPC has developed a PPSD to inform (i) determination of optimal procurement approaches and (ii) the development of Procurement Plan for the first 18 months of project implementation. The PPSD and the Procurement Plan may be updated during project implementation to reflect any substantial changes in procurement approaches and methods to meet the actual project needs.



68. **Record keeping:** All records pertaining to award of contracts, including bid notification, register pertaining to collection of bidding documents or issuance of request for proposal documents, receipt of bids or proposals, bid/proposal opening minutes, bid/proposals evaluation reports and all correspondence pertaining to bid/proposal evaluation, communication sent to/with the World Bank in the process, bid securities, and approval of invitation/evaluation of bids/proposal by the BPC will be uploaded in the STEP.

C. Legal Operational Policies

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

D. Environmental and Social

69. The overall environmental and social risk rating is Substantial. Environmental risk rating is Moderate and Social risk rating is Substantial. Potentially adverse environmental and social risks and impacts are primarily associated with the physical civil works supported under Components 1 and 2. The key risks and impacts are related to: (i) potential small to medium scale land acquisition and land easement arrangements; (ii) impacts related to construction activities, including community and occupational health and safety; (iii) temporary labor influx needed for construction activities, and associated GBV/ Sexual Exploitation (SE) and Abuse / Sexual Harassment (SH) risks; (iv) the need for robust stakeholder engagement, outreach to stakeholders and beneficiaries (including any vulnerable and/or disadvantaged groups); (v) loss of vegetation; (vi) soil and water pollution due to disposal and management of general and hazardous waste during the construction and batteries; and (vii) nuisance related to air and noise emissions. The environment risks and impacts are largely considered to be moderate to low in magnitude, reversible, site-specific and can be easily mitigated. The alignment route of the transmission lines and associated substations are not yet known. The feasibility study for the BESS, is currently underway and will provide information on potential locations for the installation of the BESS once completed. Since the locations of the interventions will only be known upon project approval, an ESMF including a Labor Management Plan (LMP) has been prepared. SEA/SH risks are deemed as moderate and will be monitored throughout project implementation. LMP contains necessary mitigation measures and will require all workers to sign and adhere to a code of conduct. The ESMF was disclosed in-country on May 21, 2024 and on the World Bank external website on May 22, 2024, respectively. Stakeholder Engagement Plan and Environmental and Social Commitment Plan (ESCP) were disclosed in-country on May 3, 2024 and May 15, 2024, respectively³⁷. Risks related to easement and small-scale land acquisition impacts will be addressed through preparation of site-specific Resettlement Action Plans to be prepared and implemented prior to commencement of civil works. This provision has been reflected in ESCP, including the requirement that all Project Affected People must receive their compensation prior to works, in line with requirements of ESS5. The necessary E&S assessments for the interventions will be prepared based on the outcome of the screening and in accordance with the relevant E&S Standards during implementation and prior to commencement with construction works. The Borrower has a legal and regulatory framework in place for managing environmental and social risks and impacts, however, lack historical performance with implementation of ESF projects and has limited internal capacity to manage environmental and

³⁷ ESCP and SEP were disclosed on the World Bank website on May 16, 2024.



social risks. To mitigate the risks, the project will establish a PIU in BPC and MME with dedicated E&S specialists. Funds allocated under Component 3 will support capacity building of PIU staff.

70. **Citizen engagement:** In the SEP prepared by BPC, the main project stakeholders are identified, along with summaries of BPC's community engagement to date, as well as steps undertaken to reach out and consult with individuals to be impacted by Components 1 and 2 activities. The SEP describes the project's GRM that will build upon BPC's existing and established GRM to address concerns and complaints of stakeholders aimed at: (i) providing all stakeholders (internal and external) with the opportunity to raise any individual or group grievances; and (ii) ensuring a consistent and fair approach in addressing any stakeholder dissatisfaction/grievance that has been raised regarding the project. The SEP proposes community engagement activities that will be built into the design of the project to cover different types of stakeholders. As part of SEP measures, all future citizen engagement activities and the feedback collected, will be recorded, and tracked through Project reporting. Citizen engagement will be monitored with the indicator on the yearly consultation meeting with identified affected stakeholders. The SEP has been disclosed both in-country and at the World Bank external website before appraisal as described above. In early May 2024, all prior to appraisal, in-depth consultations took place in multiple areas where project activities are likely to take place, including Metlojane (Kgosi Lefenya), Phitshane Molopo (Kgosi Odirile Sekwenyane), Mabule (Kgosi Poifo), Sedibeng (Kgosi. Brown Seisa), Mokgomane (Kgosi Tirontle Kgopo), Goodhope (Kgosi Ikgopoleng), Pitsane (Kgosi Oagile Kepadisa).
71. **Socioeconomic impact and Gender:** A socioeconomic assessment, including focusing on gender, was conducted and contributed to inform the design of Component 3. Over the past decade, large-scale deployment of RE technologies has soared. This deployment has unveiled the massive potential of RE to generate socioeconomic benefits. As a result, RE and socio-economic outcomes are leaping to the forefront of government discussions and strategic decision-making. This is particularly true in developing economies such as Botswana, where governments see the growth of the RE sector as an opportunity to develop new skills and create new jobs for their people. In addition, Botswana is well positioned to leverage socioeconomic benefits given a long track record of prioritizing socioeconomic issues since independence in 1966 across various sectors, especially mining.
72. Gender gaps in education remain a reality in the country, affecting women's participation in STEM fields. For instance, female students only account for 21 percent of all students in engineering and technology subjects at the University of Botswana. Gender gaps in the energy sector remains high, based on the recent data collected from BPC, women constitute about 24 percent of the BPC workforce (total of 2,221 employees as of March 2024, of which 539 are women and 1682 are men) and 21 percent of the executive and senior management team. In terms of women in technical positions, men outnumber women 1 to 5, with 16 percent of all technical staff being women (total of employees in technical positions is 1,535, of which 240 are women). To maximize socioeconomic and gender benefits, the project will support the following activities:
73. **Gender Equality and Women's Employment:** BPC will be supported in developing its first institutional gender equality and women's employment policy which will focus on driving progress towards closing gender gaps in employment and leadership through targeted Human Resource (HR) options and indicators. As an employer, BPC has committed to equal access and opportunity to current and prospective female employees to foster gender diversity. Due to the nature of its business, one of the scarce skills within the corporation is engineering, which remains a male-dominated profession in Botswana. Discussions with HR and female engineers at BPC have identified barriers in terms of attracting and retaining female talent and skills (e.g, mining sector is actively recruiting female talent from BPC) and opportunities to enhance women's career progression in terms of skills transfer, on-the-job learning through job rotation, study tours and enhancing workplace respect.



74. **Skills and Employment:** BPC already has some experience in embedding economic development of Botswana's citizens and focus on delivering on the Citizen Economic Empowerment Policy and Economic Diversification Drive³⁸ commitments in key tenders. So far, provisions to bidders have included a focus on comprehensive training and skills transfer program for Botswana Citizens and a percentage annual revenue comprehensive plan for investment in social responsibility projects. The project will build on BPC's experiences to assess energy transition impacts on jobs and upskilling opportunities (e.g., reskilling of engineers and staff focused on coal as well as skills development strategy) and support BPC on critical skills and understudy programs/succession planning, leverage existing or future partnerships with Universities and TVETs as the case may be. Exchange opportunities with South Africa on the jobs and skills strategy behind the energy transition will be explored. Partnership with the Human Resource Development Council (HRDC) of Botswana and energy sector institutions will also be explored on the management and planning of workplace learning. The Human Resource Development Fund could be leveraged to enhance focus on apprenticeship, learnership, traineeship and internship in the energy sector guided by the consolidated list of HRDC priority occupations and skills for 2023/2024 for energy.

V. GRIEVANCE REDRESS SERVICES

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

VI. KEY RISKS

76. **The overall risk rating of the project is Substantial.** The overall project risk is rated Substantial and key risks that might impact the achievement of the PDO relate to the following: (i) Sector Strategies and Policies; (ii) Technical Design of the project; (iii) Institutional capacity for implementation and sustainability; and (iv) E&S standards. Despite BPC and MME having a past energy project with the World Bank (Morupule B Generation and Transmission Project - P112516 and Partial Credit Guarantee - P116784), there has been a long hiatus on re-engagement and hence limited capacity on the World Bank policies and procedures remain. The low capacity of counterparts poses a risk in project preparation and implementation. The implementation of actions supported under the project, as well as TA and advisory services provided during preparation, are designed to help address some of these risks in the short and medium term.

77. **Sectoral Strategies and Policies risk is Substantial.** Leveraging excellent renewable energy resources to address energy security and support economic growth provides an important opportunity to Botswana. Botswana's RE ambition is anchored in its plan to address the major generation constraints the country faces through a 70-30 mix of

³⁸ <https://uploads.mwp.mprod.getusinfo.com/uploads/sites/152/2024/01/EDD-Preferential-Terms.pdf>.



coal-fired power meeting base load demand while ramping up RE. In this context, Botswana is at the beginning stage of adopting RE generation and there is inadequate capacity with regard to the level of skills and number of personnel in key functional areas regarding RE development. To mitigate the above-mentioned risks, alignment in the country's energy policies is critical to avert potential adverse impacts on the second pipeline of 400 MW RE planned by 2030 under IRP, in case of excess power and if the export arrangements do not materialize. The World Bank will continue to engage with the GoB on energy policy dialogue. The energy policy needs to take into account the demands for green electricity supply from local and regional mining industries and manufacturers to protect their export revenues facing increased carbon taxation. It is also important that, through support of the project, the reliability and sustainability of RE in providing a secure energy future can be demonstrated. This demonstration will be critical to drive the evolving direction of Botswana's energy sector, leading to its eventual transition.

78. Technical design of the project is Substantial. The project will support grid investments including innovative technologies such as BESS. The equipment and the technologies involved in the construction and operation of T&D lines are well known and proven, including in Botswana. While BPC has extensive experience in implementing rural electrification projects, there has been no experience in deploying BESS in Botswana to date. Additional risks lie in the fact that the BESS are expected to be connected to the substations to be built by solar PV IPPs and an ambitious timeline of BESS to enable grid integration of the first 335 MW PV capacity by end of 2026. A lack of synchronization of BESS deployment and PV deployment may affect the dispatch of the PV plants, which could potentially trigger financial risks depending on the contractual arrangements. It is also acknowledged that O&M of BESS may pose some challenges for BPC as they have no experience in operating BESS. The design, including technical parameters and estimated project costs for the BESS, is being established in a feasibility study under preparation by consultants supported by a grid impact study (on-going in parallel), in order to fast track the preparation of the procurement of the BESS. Several capacity building sessions are organized in parallel to capacitate BPC staff on the procurement of BESS. In parallel, BPC has appointed the same project manager under generation department responsible for the deployment of the first phase of the PV projects and the deployment of BESS. Such implementation arrangement is expected to optimize information flow and enable synchronization of BESS timeline with that of the last 100 MW (COD planned at this stage for end of 2026 that is in development with TA support from the Botswana Renewable Energy Scale Up Support project (P178822)). During the preparation of tendering, different O&M arrangements will be explored such as the inclusion of O&M support and capacity building in the EPC contract for the first years of BESS operation, in order to ensure that BESS functions as intended and that the utility is equipped with sufficient O&M capacity over the long run. The project will also fund the hiring of owner's engineer to provide proper expert assistance during preparation, installation, and operation of BESS. In addition, the team will facilitate a series of knowledge exchange sessions to gather lessons learnt and experience from South Africa Eskom BESS project.

79. Institutional capacity for implementation and sustainability risk is Substantial. The work related to the grid strengthening and rural electrification expansion will be undertaken by BPC. BPC has extensive experience in implementing large capital transmission investments – being the system owner and operator of 132 kV to 400 kV overhead power lines covering a distance of more than 5,600 km. BPC does not have a recent experience in implementing World Bank financed projects. Several mitigation measures are considered to mitigate implementation risk. In addition to capacitating BPC staff from a technical perspective on BESS (subcomponent 1.1) as detailed above, BPC has also hired consultants to support the procurement of activities under subcomponents 1.2, 1.3 and component 2. A project management team will be hosted under the PIU to provide dedicated implementation support (funded through the project), ensuring in particular compliance with the agreed timelines and World Bank reporting requirements. These measures are documented in the draft Project Operational Manual prepared by BPC. Knowledge exchange sessions will also be organized with peer-to-peer workshops to benefit from the lessons learned from other World Bank-funded projects in Botswana (i.e., Emergency Water Security and Efficiency Project - P160911/Integrated



Transport Project - P102368), as well as from the Eskom BESS project (South Africa Eskom Just Energy Transition Project - P177398). POM and adequate staffing will be included as effectiveness conditions to ensure readiness of the PIU.

80. **Environmental and social risk is rated Substantial.** The key potentially adverse social and environmental risks and impacts, is primarily associated with the physical civil works supported under Components 1 and 2, including potential small to medium scale land acquisition and land easement arrangements (to be assessed further and confirmed during implementation); (ii) community and occupational health and safety; (iii) temporary labor influx needed for construction activities, including associated GBV/SEA/SH³⁹ risks and (iv) the need for robust stakeholder engagement, outreach to stakeholder and beneficiaries⁴⁰. While BPC has extensive experience with implementation of large infrastructure projects, it lacks experience with implementation of projects that align with the World Bank ESF requirements. The ESIA will be developed providing a clear motivation for the current selection of route alignment, as well as include a section on capacity gaps and strengthening measures to be implemented by BPC, in alignment with the ESCP.

³⁹ Gender-Based Violence, Sexual Exploitation and Abuse, Sexual Harassment.

⁴⁰ Including any vulnerable and/or disadvantaged groups.



VII. RESULTS FRAMEWORK AND MONITORING

PDO Indicators by PDO Outcomes

Baseline	Closing Period
Integration of renewable energy generation enabled	
Volume of VRE enabled in BPC transmission system (GWh/year) (Gigawatt-hour (GWh))	
Apr/2024	Dec/2029
0.00	100
Electricity service improved in selected areas	
Annual average duration of power interruption in selected areas (hours/year) (Hours)	
Apr/2024	Dec/2029
438	44

Intermediate Indicators by Components

Baseline	Closing Period
Component 1 - Grid upgrades to enable integration and management of variable renewable energy	
Increased BESS capacity (MW) (Megawatt)	
Apr/2024	Dec/2029
0	50
GHG emissions avoided (tons CO2eq) (Tones/year)	
Apr/2024	Dec/2029
0	208,000
Component 2 - Local transmission and distribution network upgrades to support rural electrification	
66 kV line from Lobatse to Mabule (km) (Kilometers)	
Apr/2024	Dec/2029
0	160
Substations constructed/upgraded under the project (Number)	
Apr/2024	Dec/2029



0	3
33kV line from Phitshane Molopo to Hebron (Kilometers)	
Apr/2024	Dec/2029
0	46
11kV line from Mokatako to Marojane (Kilometers)	
Apr/2024	Dec/2029
0	2.6
New and improved access to electricity enabled (number of people) (Number)	
Apr/2024	Dec/2029
0	15,000
Component 3 - Project Management and Technical Assistance to support deployment of variable renewable energy	
Annual capacity building plan (Yes/No)	
Apr/2024	Dec/2029
no	yes
Studies to support integration and/or management of VRE projects (Number)	
Apr/2024	Dec/2029
0	2 studies
Increase in women in work force in technical positions at BPC (Percentage)	
Apr/2024	Dec/2029
0	4
Increase in women in BPC executive and senior management (Percentage)	
Apr/2024	Dec/2029
0	4
Development of school to work and upskilling program focusing on priority skill needs and employment opportunities with BPC related to energy transition (Yes/No)	
Apr/2024	Dec/2029
No	Yes
Number of annual public consultation events with citizens and disclosure of key takeaways with stakeholders (Number)	
Apr/2024	Dec/2029
0	3
First gender and women employment policy adopted (Yes/No)	
May/2024	Dec/2029
No	Yes
Grievances registered and responded to within agreed specified time (Yes/No)	
Jul/2024	Dec/2029



No

Yes



Monitoring & Evaluation Plan: PDO Indicators by PDO Outcomes

Integration of renewable energy generation enabled	
Volume of VRE enabled in BPC transmission system (GWh/year) (Gigawatt-hour (GWh⁴¹))	
Description	This indicator represents annual net volume of clean energy enabled into BPC grid, compared to a counterfactual scenario without BESS.
Frequency	Annually
Data source	BPC (target based on Plexos runs in feasibility study and closing value to be estimated with technical simulations)
Methodology for Data Collection	Report from BPC
Responsibility for Data Collection	BPC
Electricity service improved in selected areas	
Annual average duration of power interruption in selected areas (hours/year) (Hours)	
Description	This indicator presents the annual average interruption duration per customer in grid network of rural area in Southern district.
Frequency	Annually
Data source	BPC
Methodology for Data Collection	Report from BPC
Responsibility for Data Collection	BPC

Monitoring & Evaluation Plan: Intermediate Results Indicators by Components

Grid upgrades to integrate and manage variable renewable energy	
Increased BESS capacity (MW) (Megawatt)	
Description	This indicator presents the BESS capacity added to the grid.
Frequency	Annually
Data source	BPC (target based on feasibility study and closing value to be estimated with works completion certificate)
Methodology for Data Collection	Report from BPC
Responsibility for Data Collection	BPC
GHG emissions avoided (tons CO2eq) (Tones/year)	
Description	This indicator presents the amount of GHG emissions avoided associated to BESS, compared to a counterfactual in which it does not exist. In the counterfactual, the BESS generation would be replaced by either diesel or gas emissions, either locally emitted or from imports.
Frequency	Annually
Data source	BPC (target based on economic and financial analysis, and closing value to be estimated by looking at the hourly dispatch records)
Methodology for Data Collection	BPC reports based on national control center records
Responsibility for Data Collection	BPC
Support to rural electrification in the rural area of southern district	

⁴¹ The value of this indicator will be converted from GWh to GW to show the 'GW of renewable energy capacity enabled' as per the World Bank Group New Scorecard methodology.



66 kV transmission line from Lobatse to Mabule (km) (Kilometers)	
Description	This indicator presents the length of the transmission line (in km) constructed under the project and operational
Frequency	Annually
Data source	BPC (based on progress reports and works completion certificate)
Methodology for Data Collection	Report from BPC
Responsibility for Data Collection	BPC
Substations constructed/upgraded under the project (Number)	
Description	This indicator presents the number of substations constructed at Mabule and Phitshane Molopo and the one upgraded at Lobatse.
Frequency	Annually
Data source	BPC (based on constructor progress reports and works completion certificate)
Methodology for Data Collection	BPC
Responsibility for Data Collection	BPC
33kV transmission line from Phitshane Molopo to Hebron (Kilometers)	
Description	This indicator presents the length of the 33kV transmission line (km) constructed under the project and operational
Frequency	Annually
Data source	BPC (based on constructor progress reports and works completion certificate)
Methodology for Data Collection	Report from BPC
Responsibility for Data Collection	BPC
11kV distribution line from Mokatako to Marojane (Kilometers)	
Description	This indicator presents the length of the 11kV distribution line (km) constructed under the project and operational
Frequency	Annually
Data source	BPC (based on constructor progress reports and works completion certificate)
Methodology for Data Collection	Report from BPC
Responsibility for Data Collection	BPC
New and improved access to electricity enabled (number of people) (Number)	
Description	This indicator presents beneficiaries that can benefit from grid expansion in southern rural area.
Frequency	Semi- annually
Data source	BPC
Methodology for Data Collection	Report from BPC
Responsibility for Data Collection	BPC
Technical Assistance to support deployment of variable renewable energy	
Annual capacity building plan (Yes/No)	
Description	The indicator presents the Annual Capacity Building Plan to empower BPC staff across a variety of priority subject matter areas in relation to management of variable renewable energy and associated cross-cutting topics.
Frequency	Semi-annually
Data source	BPC
Methodology for Data Collection	BPC's reports
Responsibility for Data	BPC



Collection	
Studies to support integration and/or management of VRE projects (Number)	
Description	This indicator presents the number of studies to support BPC integrate and/or manage variable renewable energy projects
Frequency	Semi-annually
Data source	BPC
Methodology for Data Collection	BPC
Responsibility for Data Collection	BPC
Increase in women in workforce in technical positions at BPC (Percentage)	
Description	This indicator presents the percentage ⁴² increase in women working at BPC in technical positions
Frequency	Semi-annually
Data source	BPC
Methodology for Data Collection	BPC's reports
Responsibility for Data Collection	BPC
Increase in women in BPC executive and senior management (Percentage)	
Description	This indicator presents the percentage increase in women working at BPC under executive and senior management capacity
Frequency	Semi-annually
Data source	BPC
Methodology for Data Collection	BPC's reports
Responsibility for Data Collection	BPC
Development of school to work and upskilling program focusing on priority skill needs and employment opportunities with BPC related to energy transition (Yes/No)	
Description	This indicator relates to the development by BPC of a strategy to engage educational and training institutions to support the transition from school to work and provide upskilling opportunities for BPC employees in the context of the energy transition.
Frequency	Annually
Data source	BPC
Methodology for Data Collection	BPC's reports
Responsibility for Data Collection	BPC
Number of annual public consultation events with citizens and disclosure of key takeaways with stakeholders (Number)	
Description	The indicator relates to the number of consultation meetings with the affected owners to be identified in the ESIA report expected to take place at least once a year during project implementation to address their concerns
Frequency	Annually
Data source	BPC
Methodology for Data Collection	BPC's reports
Responsibility for Data	BPC

⁴² The value of this indicator will be converted from percentage to number of beneficiaries to show “number of people benefitting from greater gender equality, of which (%) from actions that expand and enable economic opportunities’ as per the World Bank Group New Scorecard methodology.



Collection	
Gender and women employment policy adopted (Yes/No)	
Description	The indicator represents the adoption by BPC of their first gender and women employment policy.
Frequency	Semi-annually
Data source	BPC
Methodology for Data Collection	BPC's report
Responsibility for Data Collection	BPC
Grievances registered and responded to within agreed specified time (Yes/No)	
Description	The indicator represents the responsiveness to the grievances raised by any project stakeholders.
Frequency	Semi-annually
Data source	BPC
Methodology for Data Collection	BPC's report
Responsibility for Data Collection	BPC



ANNEX 1: Implementation Arrangements and Support Plan

Project Institutional and Implementation Arrangements

- 1. Project Steering Committee (PSC) will provide programmatic and strategic guidance, direction, and policy oversight to the project.** The Chief Executive Officer (CEO) of BPC chairs the PSC. The PSC is composed of the CEOs and Directors in selected key ministries (including MME) and departments. It is a national body comprising of members from different organizations that aim to achieve a plurality of views, thematically. The essential role of the PSC will be to provide guidance, advice, and oversight, to ensure delivery of the project outputs and achievement of outcomes. The Committee will meet quarterly and submit reports to the World Bank.
- 2. A specific implementation strategy will be developed for each of the project's component.** Components 1, 2, 3 will be implemented by BPC. BPC will establish a project implementation unit (PIU) dedicated for the project's implementation, with existing BPC organizational structure and functions relevant to the project mobilized and coordinated by the General Manager, Asset Management and Projects, head of the PIU. As part of the senior management of BPC, this will ensure that senior management has visibility over the project. The General Manager will also coordinate all project activities and will be the focal point of the World Bank during project implementation. A Project Execution Team (PET) will be hosted under PIU and serve as foundation for the project implementation, ensuring quality, cost control and compliance of the project. It will be assisting the General Manager in managing the project. PET will report directly to the General Manager and BPC project management office (PMO) manager. It will be adequately staffed with the following nine full-time functions dedicated to RESA project management: (1) Project Execution Manager; (2) Senior Project Engineers (x2); (3) Procurement Specialist (technical buyer); (4) Financial Specialist (project accountant); (5) Document Controller; (6) Environmental Specialist; (7) Social Protection Specialist; and (8) Health and Safety Specialist. All nine functions will be recruited as staff positions under BPC. Three out of nine (Project execution manager, and two senior project engineers) would be recruited onto the project prior to effectiveness, anticipated in February 2025. All staff members will continue on the project until the closing date of the project in December 2029.
- 3.** The lead for Component 1 covering the BESS, STATCOM, SCADA, MDCC and MDMS projects will be BPC's Solar Projects Manager. The lead for Component 2 covering the network upgrade and support to electrification of Southern rural area and Component 3 of TA will be the BPC Concept and Design Manager. Both components' leads report directly to the General Manager.
- 4.** There will be Project Managers from the concerned departments, each for the BESS, STATCOM, SCADA, MDCC, MDMS and grid expansion (lines and substations) activities. The project Managers, each responsible for overseeing the planning, execution, and monitoring of their respective sub-projects. They will work closely with PET and respective component leads to ensure compliance with project objectives, timelines, and quality standards. Other key BPC staff to support the project will include experts in legal affairs, logistics, M&E, risk management, budget, procurement, finance, environment, Human Resources, as well as engineers and technical specialists to evaluate technical proposals, and monitor implementation of all contracts and studies. These specialists provide invaluable insights, guidance, and support to ensure the successful integration of specialized systems and technologies into the project. The PIU is designed to foster collaboration, accountability, and efficiency across all project phases and stakeholders.
- 5.** The PIU will also be responsible for overall coordination and oversight, including providing direct support on matters that need support such as processing of payments applications and ensuring adequate annual budgetary allocations and consolidating progress reports and submitting to the World Bank.



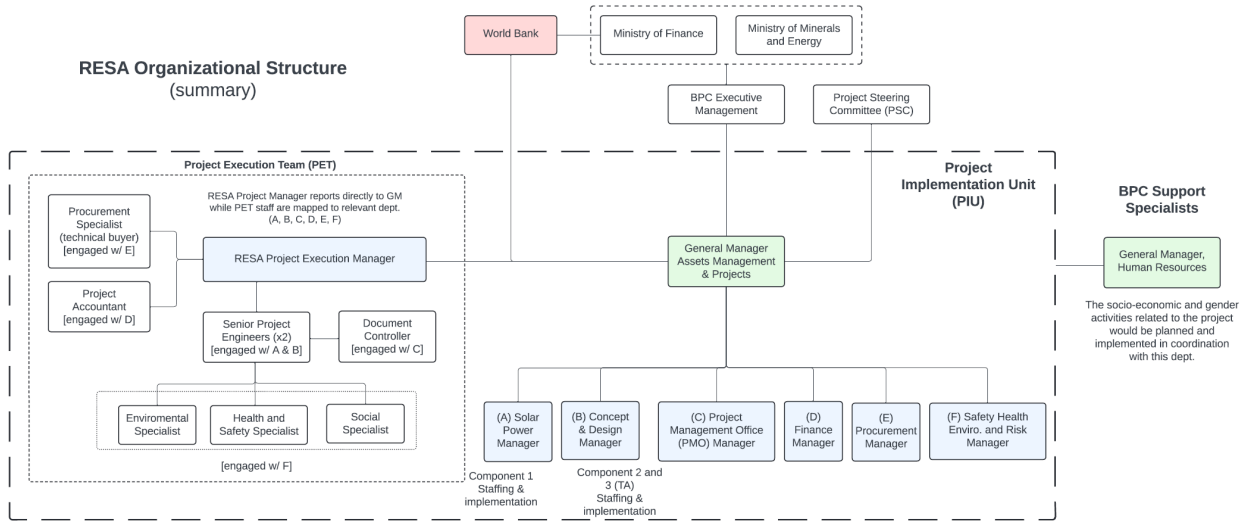
6. Reporting, quality and system controls will be performed by Project Managers on each component. Project Managers will report regularly on the timeline and progress of the project to respective component leads and their individual divisions on bi-weekly basis. The component leads will report to the project execution manager at PET, who will then report on a monthly basis to the project focal point of General Managers for Projects Department, Generations Department and Asset Management and Care Department.
7. In addition, the divisions report all projects to the MME through the Strategy Manager and Financial Manager on monthly basis.
8. The other three BPC units supporting the project are the internal audit team, PMO and the Safety, Health, Environment, and Risk unit (SHER) Department. The internal audit team audit the processes for the project will check for gaps in the risk and control matrix and make recommendations for corrections and follow-up on the implementation of the recommendations. The SHER Department will ensure that the specification adequately address the SHER requirements for the corporation. The PMO will assist the PIU on project implementation in all project management areas by developing procedures, systems and templates. In addition, the PMO will support the project Managers to manage the Consultants and monitor, track and measure their performance.
9. **Safety, Health, and Environmental (SHE).** The following reviews will be conducted as part of the project execution in order to ensure that Safety & Health requirements have been taken into account in the design of the project:
- HAZOP Reviews as per the Stage 1 and Stage 2 Design development;
 - Constructability Reviews;
 - Design reviews.

As part of BPC commitment to SHER, HAZOP reviews will be conducted during the engineering phase of the project. SHE is a Key Performance Indicator for BPC to comply with. A detailed Project Safety Plan / Specification will be adhered to as a minimum on all sites.

10. **Quality Management.** The PMO Project Quality Manager is the appointed management representative with the responsibility for administration of the project Quality Management System (QMS) and has the responsibility and authority to ensure implementation of the project QMS requirements.
11. An overall Project Quality Plan will be developed to monitor the effectiveness of the project QMS. The project Quality Plan will be issued to the project Manager for review and approval. Project QMS audits will be conducted by the project Quality Manager during the life of the project.
12. **Records Management.** All filing, electronic and hard copies will be done in PMO Project Office located in BPC premises. An electronic project directory will be opened on the BPC server. All documentation created on the project will be saved in this directory. A hard copy of all correspondence and documentation created on the project will be filed as per the electronic directory structure. All the original signed drawings, created on the project, will be archived by the PMO, and retained for a period of 5 years.



Figure 1.1. Project Implementation Unit Organization Chart



Financial Management

13. **The FM arrangements to be applied in administering the project and residual risks were assessed as adequate and moderate, respectively.** The detailed FM assessment was conducted on BPC and the MoF, the project implementing agency and the borrower, to evaluate whether the project meets the World Bank’s minimum FM requirements. The POM prepared by BPC will specify the applicable arrangements relating to planning and budgeting, accounting, financial reporting, internal controls, disbursements processes from the World Bank, and auditing (internal and external). The agreed FM arrangements to be applied by the project are:

14. **Staffing:** The BPC Chief Financial Officer will have overall financial management responsibility for the project supported by Finance Manager Projects. A Project Accountant will be recruited/designated to manage the project’s daily FM responsibilities. S/he will be supported by other accountants in the Finance Department. A Finance Officer at the MoF will be responsible for withdrawal requests from the World Bank (disbursements).

15. **Planning and budgeting:** BPC will plan, budget and monitor the project activities using BPC planning and budgeting processes documented in the Finance Policy and Procedures manual.

16. **Internal controls:** The project will apply internal controls in the BPC Finance Policy and Procedures. Fixed assets will be recorded in the Fixed asset register maintained in the SAP systems. BPC will include applicable internal controls in the POM. The internal cost report will be summarized to report on original budget, approved changes, current budget and forecast final costs. The project will utilize PMO Cost Reporting System (Primavera P6, with excel source and BPC’s SAP ERP system) as the cost control system on the project. The project cost system will be set-up at project initiation and keep track of original budget, current budget, current forecast, commitments, and expenditures. Budget and forecast will be input to the cost system by the project controls team from estimates and deviations. On a monthly basis the project controls team will analyze the data (including commitments and expenditures) in a single report and inform project management and the client of the cumulative impact of any deviations to the project scope. The project controls team, with assistance from engineering, procurement, and other project team members, will provide cash flow projections on a monthly basis. The cash flow projections will include projections of both committed and expended costs for the project.



17. **Internal audit:** BPC Internal Audit Department will review the project transactions at least once a year. BPC will be required to submit a copy of the report to the World Bank.
18. **Accounting system:** The project will apply BPC SAP accounting system to record the project transactions and generate the required reports. BPC will incorporate specific codes in the chart of accounts to facilitate recording, tracking, and reporting project transactions. The PMO will be responsible for the processing of claims and invoices and via the BPC Project Team Financial Controller process the payments via the BPC Finance and Accounting department for payment. A project specific invoicing, certification, invoice certification and payment procedure will be developed and issued to all parties. This procedure will address all the aspects relating to the project and BPC procedures. It will address in detail the process of invoicing approval and the levels of authority.
19. **Financial reporting:** BPC will prepare (a) quarterly unaudited financial statements for the project and submit them to the World Bank (through MoF) 45 days after the quarter, and (b) project specific annual financial statements in compliance with International Financial Reporting Standards and subject the statements to external audit.
20. **External audit:** BPC will subject the prepared project specific annual financial statements to audit by BPC appointed external auditors. BPC (through the MoF) will submit the audited financial statement and management letter to the World Bank within six months after BPC financial year end. BPC will publicly disclose the audited financial statement.
21. **Disbursement:** MoF will be responsible of processing withdrawal of funds from World Bank. MoF will use any of the allowed four disbursement methods (i) advance, (ii) reimbursement, (iii) direct payment, and (iv) special commitments. The MoF will open a designated account to receive funds from the World Bank and will apply normal government procedures to remit funds to BPC to pay for eligible project transactions. The MoF will use the World Bank client connection to process withdrawal requests and submit required reports.
22. **Governance and accountability.** BPC will be required to comply with World Bank Guidelines on Preventing and Combating Fraud and Corruption, and its anti-corruption policies to prevent possibility of fraud and corrupt practices including bribes, mis-procurement, and misuse of funds.
23. **Supervision:** The World Bank will regularly review the adequacy of the above agreed project financial management during the project implementation: review interim and annual report, review internal and external auditors' management letters, and detailed reviews during supervision missions etc. BPC and MoF will implement the following actions to mitigate the overall financial management risks and strengthen FM arrangements before project effectiveness: (a) designate a project accountant, (b) open a project designated account, and (c) incorporate specific codes in the BPC Chart of accounts to facilitate recording and tracking project transactions. WB will conduct regular FM and client connection training for the relevant BPC and MoF teams.

Procurement Capacity and Risk Assessment

24. **Procurement Risk Assessment and Mitigation:** There are competent professionals in BPC, however, the following key issues were identified: (a) the current procurement unit staff have a big workload of BPC own institutional procurement which may result in challenges with workload management as they take on the procurements under the project, (b) the team has no recent experience with World Bank procurement procedures, including the use of STEP, and (c) internal audit report has identified some issues related to internal controls, segregation of duties and approval of purchase orders, and management of procurement cycle times. Roles and responsibilities will need to be clearly defined



in the POM including turnaround times for various actors in the procurement process. The procurement risk rating is Moderate.

25. Risks and Mitigation Measures: The BPC procurement processes and procedures, which are guided by the Botswana Public Procurement Act of 2021, for engaging consultants and contractors works are generally consistent with the World Bank's PF with a few enhancements that can be mitigated through inclusion of certain provisions in the national bidding documents; (a) the national regulations and documents should not preclude the World Bank from its rights to review and audit procurement documentation and activities under the financing; (b) implementation of an effective complaints review mechanism; (c) maintenance of records of the procurement process and (d) the request for bids/request for proposals document will 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. With the incorporation of the above provisions, the BPC Procurement Procedures will be acceptable to be used under those procurements using open national approach to the market not subject to the World Bank's Prior Review as agreed with the World Bank in the approved Procurement Plan. Rated Criteria will be used for all large international competitive procurements. BPC will apply to the Public Procurement Regulatory Authority for a waiver to follow the World Bank's Procurement Regulations under this project.

Procurement Arrangements

26. All procurement under the project would be conducted through the procedures as specified in the World Bank's Procurement Regulations for Investment Project Financing Borrowers, September 2023. The project will also be subject to the Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants' dated July 1, 2016. The procurement planning, execution and contract management processes will be tracked through the STEP System.

27. The provision of Purchasing and Logistical Services for the project will be provided by BPC's Supply Chain Department to meet the specific requirements of the project. BPC will recruit a dedicated technical procurement specialist into the PIU to support the project on procurement and contract management. The PIU will manage and monitor all processes and will vet and approve documents for procurement. All clarifications and tender documents will be managed by the PIU.

Monitoring and Evaluation

28. **The implementation team will include M&E staff/consultants.** The World Bank will monitor the overall performance. Data and statistics on actual project outputs and outcomes will be gathered, analyzed, and included in the progress reports to be submitted to the World Bank. Components 1 and 2 will be monitored via ex-ante analysis and government reports.

Implementation Support Plan and Resource Requirements

29. **Implementation support will begin as early as possible to prepare the GoB and the implementing agency ahead of the first disbursement.** World Bank technical aspects in procurement, FM, and E&S will ensure timely support to the client. Formal supervision and field visits will be carried out at least twice times a year. Table 1.1 details the Implementation Support Plan and World Bank resourcing requirements.



30. **The World Bank will carry out timely technical, procurement and E&S review of prior-review activities.** Periodic post-review of the activities will also be carried out to ensure consistency with provisions of officially approved documents as well as to ensure compliance with the World Bank’s requirements, for example with E&S . Additional training to the relevant PIU staff on technical, procurement, financial management and E&S aspects will be provided by the World Bank team as required by the PIU. Consultations between the PIU staff and the technical aspects team and the E&S team will also take place if required by the PIU.

Table 1.1 - Implementation Support Plan for the World Bank supervision

Time	Focus	Skills needed	Resource estimate
First 12 months	<ul style="list-style-type: none"> - Build capacity for project management - Build capacity for procurement, FM, and eE&S 	<ul style="list-style-type: none"> - Project management - Energy expert - Procurement - Financial management - EE&S Standards - Gender expert 	US\$400,000, including US\$60,000 of travel
12-60 months			US\$1,300,000 including US\$60,000 of travel per year

Table 1.2 - Summary of World Bank Skills Mix Requirements

Skills needed	Number of staff weeks/year	Number of trips in total
TTL	12	8
Co-TTL	12	8
Operations Advisor	4	8
Energy Expert	5	8
Financial Management	5	8
Procurement	5	8
Environmental Specialist	5	8
Social Specialist	5	8
Gender expert	5	8