

**PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE**

Report No.:AB7825

Project Name	Western Area Power Generation Project
Region	AFRICA
Sector	Energy (100%)
Project ID	P153805
Country	Republic of Sierra Leone
Implementing Agency	CEC Africa Sierra Leone Generation Limited
Environment Category	B – Partial Assessment
Date PID Updated	May 19, 2016
Estimated Date of Appraisal	May 23, 2016
Estimated Date of Board Approval	June 28, 2016

1. Country and Sector Background

Sierra Leone is one of the world's poorest countries. Despite a decade of peace and strong economic growth since 2002 when the civil war ended, living conditions in Sierra Leone continue to be a challenge. During the period of unrest (1991-2001), Sierra Leone's physical and human capital was severely damaged. Physical infrastructure, particularly electricity, water, and sanitation, suffered widespread destruction and lack of maintenance. The outbreak of Ebola combined with the closure of the two largest iron ore mines have placed extreme stress on the economy. In the near term the economy faces a sharp contraction in economic growth. This is the direct impact of the epidemic which has been exacerbated by the closure of the two largest iron ore mines combined with a decline in the world price of iron ore.

The pace of recovery will depend heavily on adequate financing, broadening of the economy, and effective implementation of the recovery plans. The most immediate priority is the enhancement of health care systems to prevent re-emergence of Ebola. Equally important, however, is the need to facilitate an effective and sustainable resumption of broad-based economic growth, which needs to be underpinned by the power sector. Effective use of the World Bank Group (WBG) instruments would play an important role in improving the performance of the sector to accelerate economic recovery and help broaden economic activities to support job creation.

The electricity access rate in Sierra Leone is among the lowest in the world at less than 15 percent. Sierra Leone's limited and dilapidated power infrastructure base in generation, transmission and distribution poses a major constraint to expanding electricity access in the country. Tariffs are high, electricity services are deplorable, and sector management is weak leading to inefficient operations. Public electricity services are limited to selected areas and sparse coverage and unreliable service exacerbate poverty conditions. The main distribution network extends to Freetown and the surrounding Western area (Freetown Capital Western area), covering over 40 percent of the residents. Isolated systems (Bo-Kenema, Lungi, Lunsar, Kono,

and Makeni) provide limited services in delimited areas in other parts of the country. In rural areas, where the bulk of the population resides, electricity access is practically non-existent.

The electricity sector is undergoing a fundamental change. The National Electricity Act, 2011 (the Electricity Act) repealed the National Power Authority Act, 1982, and unbundled the National Power Authority into (i) the Electricity Generation and Transmission Company (EGTC); and (ii) the Electricity Distribution and Supply Authority (EDSA). Implementation of the unbundling was delayed until January 2015 when EGTC and EDSA became operational. EGTC is in charge of generation and transmission at high voltage levels (161kV) whilst EDSA is responsible for sub-transmission and electricity distribution (33kV and below). Oversight of the sector falls under the Ministry of Energy (MoE). Tariff setting is governed by the Electricity and Water Regulatory Commission Act 2011 that also established the regulatory authority, the Electricity and Water Regulatory Commission (EWRC) with the mandate to determine and review tariffs. Development partners are in the process of providing capacity building for EWRC to undertake its tariff functions.

Electricity supply has been identified as a key factor for supporting a post-EVD recovery of economic activity and job creation. The Project has received the highest priority by the Government of Sierra Leone (GoSL) in its commitment to implement a robust post-Ebola economic recovery and is identified as a key deliverable in a recent 24-month recovery program to improve electricity supply. The proposed Project is a key component of the Government's strategy to improve the power supply in the Freetown Capital Western Area and is consistent with the Government's Agenda for Prosperity (2013–2018) and the National Ebola Recovery Strategy for Sierra Leone (2015-2017).

2. Objectives

The Project Development Objective is to increase the power generated by independent power producers (IPPs) and mobilize private capital.

3. Rationale for World Bank Group Involvement

The proposed Western Area Power Generation Project (the Project) will be supported by the WBG through an IDA Guarantee, IFC Investment Loan, and a Multilateral Investment Guarantee Agency (MIGA) Guarantee. It is proposed that IDA provide a payment guarantee of up to US\$40 million, to support certain payment security obligations of EDSA and the GoSL under the PPA. The proposed IDA Guarantee is designed to mitigate the low creditworthiness and lack of timely payment track-record risks of the newly established state-owned power off-taker, EDSA, as well as the risk of non-performance by GoSL of its joint and several contractual obligations, as the co-signer, under the PPA. IFC will extend up to US\$30 million A Loan, and also serves as the lead arranger to help mobilize up to US\$70 million of additional senior debt from other DFIs to the Project. MIGA would provide a guarantee of up to US\$60 million covering equity, the shareholder loan, and retained earnings against the risk of Transfer Restriction, Expropriation, War and Civil Disturbance, and Breach of Contract.

The combined WBG instruments will leverage financing for the development of the proposed Project comprising a 57 MW thermal power plant, which will significantly reduce the supply-demand deficit in the Freetown Capital Western Area. Successful commissioning of the Project will improve the availability and reliability of electricity services in the Freetown Capital

Western Area. The WBG involvement in this Project would also serve as an important signal for investment opportunities at a time when the country is in a fragile recovery from Ebola.

HFO based generation was confirmed as the least cost option for urgent needed baseload generation in an Integrated Resource Planning for the Sierra Leone energy sector and ascribed that lower emission options including solar, hydropower and cross-border energy trade be medium to long term targets. The Project is the most advanced power project currently under development in the country and is an example of a “low cost, moderate to high emissions” project (scenario 2) in the Energy Directions Paper’s Framework for assessing climate impacts. The Project is expected to generate a modest net greenhouse gas (GHG) emissions of 10,011 tonnes of CO₂ per year. Overall, Sierra Leone accounts for less than 0.3 percent of global GHG emissions.

4. Description

The Project comprises the development, financing, construction and operation by the Copperbelt Energy Corporation Africa Sierra Leone Generation Limited (CECA SL) of a green-field thermal power plant running on Heavy Fuel Oil (HFO) on a build-own-operate-transfer basis. CECA SL is the Project Company established in Sierra Leone by private sponsors comprising CEC Africa Investments Ltd (50.1 percent equity) and Tempus Constant Qualitas Power Ltd (TCQ) (49.9 percent equity).

The Project Company is responsible for the implementation and operations of the Project under a 20-year Power Purchase Agreement (PPA) with the GoSL and the Electricity Distribution and Supply Authority (EDSA). EDSA will be the off-taker for all electricity sales from the Project. While the PPA provides provisions for the possibility of expanding the capacity of the Project up to 128 MW at a later stage, the proposed WBG support is limited to the initial phase of 57 MW.

The power plant will be located at the Kissy Industrial site to the east of Freetown and serve consumers in the Freetown Capital Western Area. The land at the Kissy Industrial site, which is owned by the GoSL, is leased to the Project Company under a plant site lease agreement signed in March 2015 with a tenor of 26 years. The Project comprises:

- (a) The installation of six reciprocating Wärstilä engines (type Wärstilä W20V32) using HFO, each rated at 9.5 MW nominal output;
- (b) HFO storage tanks and water treatment facilities at the Kissy site;
- (c) A new 33 kV indoor substation at the Kissy site;
- (d) A 8 km reinforcement of the 33 kV transmission from Blackhall road to the Wellington substation to enhance evacuation capacity from the generation facility;
- (e) Installation of additional 33/11kV transformers at the Blackhall road, Ropotee, and Wellington substations; and
- (f) Construction of an approximately 1.3 km fuel pipeline from a new jetty for the landing of the HFO to the Kissy site. The jetty is operated as a joint venture between GoSL and Addax.

Construction of the Project will be undertaken under a turn-key Engineering, Procurement, and Construction (EPC) contract and the commercial operation date is expected 18 months after the start of construction. Wärtsilä, the main equipment supplier with a proven track-record, has been awarded the EPC contract and negotiating a 15-year operation and maintenance (O&M) contract for the Project. Fuel costs are a pass-through under the PPA, and the GoSL has selected BB Energy as the fuel supplier. The Fuel Supply Agreement (FSA) will be entered into by the Project Company and BB Energy. The initial FSA term is expected to be seven years. Thereafter, the Project Company, with agreement from GoSL, can elect to extend the FSA or undertake a new tendering process. Fuel for the Project will be transported by a 1.3 km pipeline from the landing jetty to the project site, which will be constructed under the Project. The land lease and right-of-way agreements between the GoSL and the Project Company are being negotiated.

5. Financing

Financing Plan (US\$ million)	
Source	Total
Total Capital Cost	133.9
Financing requirements	133.9
<i>Total Equity</i>	<i>33.5</i>
<i>Of which shareholder loans</i>	<i>30.5</i>
<i>Debt (DFI's)</i>	<i>100.4</i>
Total:	133.9

6. Implementation

The Project is being developed by CECA SL, the Project Company, established by the private sponsors. The CECA SL will have overall responsibility for the development, design, financing, construction and operation of the power plant and will sell its entire power capacity and output to EDSA. The Project Company will enter into an EPC contract and an O&M contract with Wärtsilä, and a FSA with BB Energy. The selection on the fuel supplier has been concurred by the GoSL/EDSA. The Project Company will be responsible for managing logistics for fuel arrangement, and taking fuel supply risk. The EDSA, as off-taker, and the GoSL, as co-signer of the PPA, are joint and severally liable for off-taker performance.

7. Sustainability

Long-term, efficient operation of the power plant under the 20-year PPA is ensured by the private Project sponsors. With an international credible O&M contractor, the risks to maintenance are considered minimal. Fuel supply is expected to be covered for an initial FSA period of seven years. Thereafter, the Project Company, with agreement from GoSL, can elect to extend the FSA, or undertake a new tendering process.

The IDA Guarantee is designed to mitigate that the Project will operate in a complex environment with external risks. The financial sustainability of the Project is exposed to a high risk country and a newly established off-taker, EDSA, with limited capacity and no track record

of successful contract performance. EDSA's weak capacity is expected to be mitigated by the engagement of a management contractor who will build capacity for the operations and commercial functions of the distribution utility. The sustainability of Project will depend on a combination of measures to improve sector performance and the fiscal space available to provide liquidity support to the sector. The measures to improve sector performance includes investments aimed at reducing technical and commercial losses, tariff increases once reliable power has been restored, and improvements in the management of EDSA.

Access to reliable power supply from the network will reduce the cost of expensive and inefficient diesel generation. This will be achieved through the replacement of self-generation, which will reduce cost of power for consumers.

8. Lessons Learned from Past Operations in the Country/Sector

Lessons learned from the ongoing IDA operations in Sierra Leone have been incorporated into Project design. This particularly concerns ensuring that all involved parties fully appreciate the requirements and the impact of the proposed operation in advance of project approval. IDA has financed transaction advisors for the GoSL and EDSA to ensure that there is adequate representation in the preparation and negotiations of the Project, and assisted the GoSL in the preparation of the sector financial forecasts, and the design of the sector-wide Collection Account to allow the GoSL and EDSA time to address projected sector cash shortfalls.

Generation facilities require robust operations and maintenance capacity. The current capacity for operations and maintenance of power plants in Sierra Leone is weak resulting in high losses, operational inefficiencies, and high cost operations. The Project will be managed and operated by an experienced O&M contractor, Wärtsilä. The Project's PPA ensures that there is sufficient discipline for the Project Company to deliver the stipulated capacity and output.

Lessons learned from the World Bank Group's experience with IPP projects, in particular those in challenging IDA countries, have been incorporated into project design. IPPs require a robust utility with an established track-record – or risk mitigation for off-taker risks. The proposed IDA guarantee operation and payment security LC will help mitigate risks associated with EDSA being a new off-taker without a history of successful operations. The proposed IDA payment guarantee structure has a proven track record of mobilizing private investments and as an efficient, first loss, mitigant of the payment risks associated with state-owned off-takers and governments which have yet to establish a track record of contractual performance towards private sector projects.

9. Performance Standards that Might Apply

Performance Standards (please explain why)	Yes	No	TBD
PS 1: Assessment and Management of Environmental and Social Risks and Impacts	X		
<p>The Project is subject to the World Bank Group Performance Standards and is rated Environmental Assessment Category B. This categorization has been assigned because (i) the project is located in a brownfield industrial/commercial area where there are few environmentally important and vulnerable receptors; (ii) identified potential environmental and social risks and impacts are site-specific and either readily managed through design or addressed through mitigation measures; and (iii) most of the infrastructure needed for the construction and operation of the project is already in place.</p> <p>The main potential environmental impacts are impacts on air quality and noise, risk of hydrocarbon pollution from the hydrocarbon transport and storage facilities and incineration of hazardous wastes.</p> <p>The ESHIA, ESMP and the Abbreviated Resettlement Plan (ARAP) were disclosed in-country on November 17, 2015 and on the Bank's Infoshop on January 29, 2016. The ESMP will be reviewed and updated with detailed mitigation developed as part of the detailed design phase, prior to commencement of construction..</p>			
PS 2: Labor and Working Conditions	X		
<p>The labor and working conditions as outlined in PS 2 have been elaborated in the ESHIA and ESAP.</p>			
PS 3: Resource Efficiency and Pollution Prevention	X		
<p>Pollution prevention and response to accidents involving pollutant releases have been covered in the ESHIA and ESAP. WBG EHS Guidelines and good international industry practices will serve as references.</p>			
PS 4: Community Health, Safety, and Security	X		
<p>Emergency Response Plans is covered under ESHIA</p>			
PS 5: Land Acquisition and Involuntary Resettlement	X		
<p>A Resettlement Action Plan (RAP) needs to be prepared and implemented in compliance with PS 5. The project has prepared and disclosed an Abbreviated Resettlement Action Plan (ARAP) to manage the economic displacement of the 10 artisanal farmers</p>			
PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources		X	
<p>There are no sensitive biodiversity areas located in the project area. PS 6 is not triggered.</p>			
PS 7: Indigenous Peoples		X	
<p>No groups that meet the definition in PS7 have been identified in the project area.</p>			
PS 8: Cultural Heritage		X	
<p>No cultural heritage issues have been identified. A "Chance Find Procedure" needs to be included in all contractor contracts.</p>			
OP 7.50: Projects on International Waterways		X	
<p>OP 7.50 is not triggered since the Project is not located near any International Waterways.</p>			

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