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Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 12-Mar-2024 | Report No: PIDA0268



BASIC INFORMATION

A. Basic Project Data

Project Beneficiary(ies)	Region	Operation ID	Operation Name
Congo, Republic of	WESTERN AND CENTRAL AFRICA	P501343	Strengthening Electricity Services Project
Financing Instrument	Estimated Appraisal Date	Estimated Approval Date	Practice Area (Lead)
Investment Project Financing (IPF)	04-Mar-2024	29-May-2024	Energy & Extractives
Borrower(s)	Implementing Agency		
Congo, Republic of	Energie Electrique du Congo (E2C), Ministry of Energy and Hydraulics		

Proposed Development Objective(s)

To improve the quality of electricity service delivery, improve the performance of the distribution and retail segment, and provide new and improved access to electricity.

Components

- Component 1: Strengthening the reliability of the electricity transmission network
- Component 2: Improving the performance of the electricity distribution and retail segment
- Component 3: Technical Assistance and Project Implementation Support
- Component 4: Contingent Emergency Response Component (CERC)

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	100.00
Total Financing	100.00
of which IBRD/IDA	100.00
Financing Gap	0.00



DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	100.00
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Environmental And Social Risk Classification

Substantial

Decision

The review did authorize the team to appraise and negotiate

Other Decision (as needed)

B. Introduction and Context

Country Context

- 1. The Republic of the Congo (RoC) is a lower middle-income country (LMIC) exposed to fluctuating revenues from oil exports affecting the whole economy and income distribution.** Located in the Western coast of Central Africa, it has an urbanization rate of 70% (primarily concentrated in the cities of Brazzaville and Pointe-Noire) and a low national population density. The country is highly endowed with natural resources, including natural gas and oil. Following the oil price shock of 2014-16, Government revenues slumped, and the economy plunged into a recession which was further exacerbated during the COVID-19 pandemic. The Gross Domestic Product (GDP) per capita (constant local currency unit) declined sharply and was estimated in 2022 at 68% of its 2014 value.
- 2. Persistent inequalities and increase in poverty are sources of vulnerability for the RoC.** Natural resource revenues have not translated into higher growth and human capital development. The proportion of the population living below the international extreme poverty threshold of US\$2.15 a day increased from 35.4% in 2015 to an estimated 46.4% in 2023. The country suffers from poor governance, weak institutions, and exclusionary divides along regional, urban, rural, and population group lines. There is a stark inequality between urban and rural areas in terms of access to services and opportunities. Gender disparities are considered as key barriers towards enhancing women’s voice and socio-economic empowerment, with the country ranking 147 out of 170 in 2021 in terms of gender inequalities.
- 3. While the country’s debt situation is improving, the RoC still remains in debt distress placing an onus on reducing inefficient public subsidies.** Public debt as a share of GDP has declined in recent years, reaching an estimated 93% of GDP at end-2023 (compared to 103% in 2020), driven by improved debt management, fiscal



discipline, and higher oil revenues. While the debt is assessed as sustainable, ROC's debt is still classified as "in distress", reflecting the ongoing restructurings and audit of domestic arrears that periodically result in upward revisions of public debt as well as the recurrent accumulation of temporary external arrears due to shortcomings in debt management. Fuel subsidies stood at an estimated 3.2 % of GDP in 2022, which is higher than public expenditure in the health sector. As part of its dialogue with the International Monetary Fund (IMF), the RoC has increased fuel prices by 30 percent since January 2023 and is expected to increase another 35% over the next 2 years. It is estimated that 1% of GDP goes to subsidize natural gas used in the biggest electricity generation plant, the open cycle gas turbine *Centrale Électrique du Congo* (CEC).¹

Sectoral and Institutional Context

- 4. The Republic of Congo's electricity generation mix² is mainly composed of natural gas fired thermal plants (around two-thirds of annual electricity production) and to a lesser extent of hydropower.** Two thirds of the 750 megawatt (MW) installed come from the Independent Power Producer (IPP) CEC, a low-efficiency open cycle gas power plant located in Pointe Noire.³ The rest of energy generated comes from three hydropower plants which have a limited fraction of their installed capacity available mainly due to chronic poor maintenance and lack of investment: (i) Imboulou, about 200 km north-east of Brazzaville (120 MW installed and 85 MW available); (ii) Moukouloulou, mid-way between Pointe-Noire and Brazzaville (74 MW installed and 60 MW available); and (iii) Djoué, in Brazzaville (15 MW installed but no capacity available). In 2021, the country produced 2,979 GWh, of which 68% came from CEC, the rest coming from the hydropower plants. While the imports from the Democratic Republic of Congo (DRC) are negligible, the exports towards DRC in 2021 were 208 GWh. Most of the consumption is located in Brazzaville and Pointe-Noire, and to a lesser extent in the urban centers located in between these 2 cities. Out of the 2,905 GWh exiting the transmission network, 44% go to the Brazzaville-Pool distribution network, 36% to Pointe-Noire, 11% to other urban areas in between, 7% are exports to DRC, and the remaining less than 2% is consumed in the interconnected departments north of Brazzaville (Plateaux-Cuvette).
- 5. The 220 kV transmission network goes from Pointe-Noire to Brazzaville, and then heads north to Oyo.** The transmission network's backbone is the 440 km high voltage line going from Pointe Noire to Brazzaville. The fact that current operating condition of this line is unreliable and that most of the generation is in Pointe-Noire (500 MW of the CEC thermal plant) explains why the outages are considerably higher in Brazzaville than in Pointe-Noire.⁴ The medium voltage (MV) distribution network has a length of 1,319 km, and the low voltage (LV) distribution network of 8,585 km.

¹ Republic of Congo Economic Update, June 2023, Reforming Fossil Fuel Subsidies.

² Ministry of Energy, 2021 – 68.5% natural gas, 31.2% from hydro, and 0.3% imports

³ The government has 80% of shares in CEC, and the Italian company ENI the remaining 20%.

⁴ In 2021, the country experienced 54 blackouts and 41 partial blackouts, of which 38 took place in Brazzaville and 3 in Pointe Noire.



Figure 1: Illustration of the E2C network⁵



6. **The configuration of the national power system and the lack of own equipment to optimize reactive power flows requires to keep the power system interconnected with the DRC in order to import reactive power: this comes at a high cost in terms of poor stability and reliability.** The configuration of the 220 kV transmission line from Pointe-Noire to Brazzaville is radial, as most of the generation is located in one end while the largest consumption center is located on the other end (Brazzaville, around 250 MW). This limits the usage of the 350 MVA transmission capacity of this line, creates serious dynamic stability issues in the operation of the power system, and generates undesired flows of reactive power through it. This radially forces the RoC electricity network to connect at the level of Brazzaville with the transmission network of the DRC just to obtain reactive power compensation. This implies exposing the power system of the RoC to the instability and other operating issues severely affecting that of its neighboring country simply for reactive power compensation – 60% of the incidents reported by E2C in 2021 came from DRC.
7. **The power sector lacks good planning tools.** Despite the significant challenges to reach universal access and meet electricity demand, the planning exercises are of limited quality and not regularly updated. As of today, the Republic of Congo has no Least Cost Power Development Plan (LCPDP) and no National Electrification Strategy (NES).
8. **The Ministry of Energy and Hydraulics (MEH) defines the sector’s strategy and oversees the sector’s actors.** The utility *Energie Electrique du Congo* (E2C) owns and operates as a natural monopoly the transmission and distribution networks, as well as the hydropower plants. The gas power plants of CEC and Aksa Energy (50 MW gas to power plant) benefit from private sector participation. Two other relevant sector stakeholders are the electricity regulator ARSEL and the rural electrification agency ANER, both of which have limited capacity and mandates.

⁵ Inspired from <https://e2c.cg/nos-metiers/transport/>



9. **Less than one third of households in the Republic of Congo have access to electricity,⁶ with important differences between urban and rural areas.** Despite the abundant energy resources, only 29% of households have access to electricity (see table 1). This proportion is above 40% in urban areas (43.5% for the 2.1 million of Brazzaville and 38.2% for the 1.4 million of Pointe-Noire) and goes down to around 10% in rural areas – which is particularly challenging to address as the population density of the RoC is one of the lowest in Africa. The electricity connection fees for newly connected households are around FCFA 110,000 (\$ 180), which is a significant disincentive to become an E2C client. A significant part of the population relies on diesel self-generators given the unreliability of the electricity supply.

Table 1: Access to electricity in Brazzaville and Pointe-Noire

Area	# E2C customers	# Households	% HHs that are E2C clients	# HHs that are not E2C customers
Brazzaville	235,249	540,819	43.5	305,570
Pointe-Noire	148,501	388,321	38.2	239,820
National	428,657	1,479,197	29.0	1,050,540

Note: number of clients come from 2023 E2C data, and number of households from the 5th General Population Census (2023)

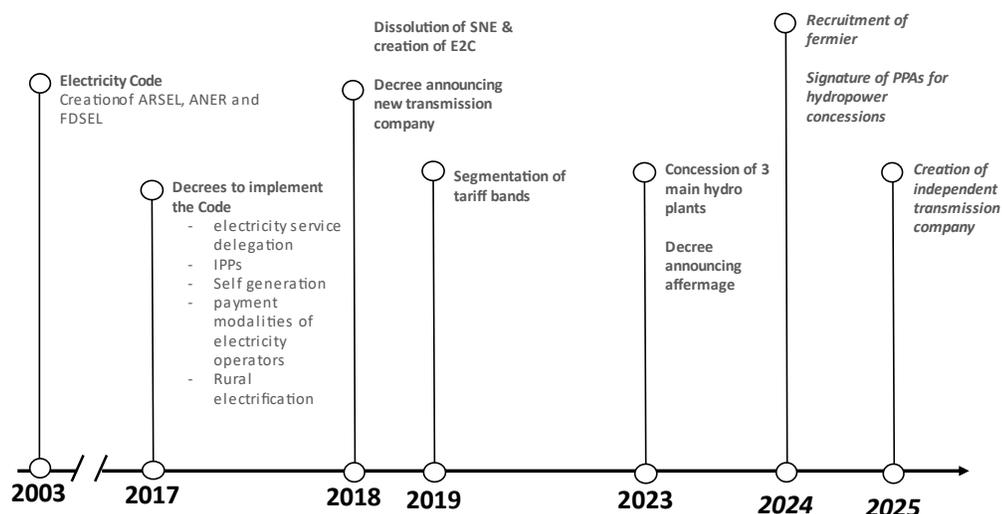
10. **The power sector is in financial distress and the operational and commercial performance of the utility E2C is poor.** Total network losses were at 45% in 2022 - twice the average of sub-Saharan Africa (22%). The transmission and distribution infrastructure is extremely fragile because of systematic underinvestment and lack of proper maintenance over long periods of time. The ratio of customers per employee of E2C is the third highest in Africa (117). More than 40% of E2C’s customers are billed on a flat rate basis or given electricity for free. In addition, the bill collection rate stands at a mere 73%. Electricity tariffs have remained unchanged since 1994, and they allow to recover only 56% of the cost-of-service delivery (US\$ 0.09/kWh versus US\$ 0.16/kWh). As a result, E2C is highly indebted. In addition, the tariff structure is highly regressive and there is no social tariff for poor or small consumers.

11. **The sector reform agenda was launched by the Government of Congo (GoC) two decades ago but has not always been deployed at a sustained pace (see figure 2).** The Electricity Code (law 14-2003) approved more than twenty years ago set the government’s vision to reinforce the quality and reliability of electricity services by introducing competition. Also in 2003 the National Agency for Rural Electrification ANER was created (law 15-2003), as well as the regulator ARSEL (law 16-2003) and the development fund FDSEL (law 17-2003). It was only fourteen years later that the reform accelerated, with the publication of the following decrees to implement the 2003 Electricity Code: decree 2017-247 on electricity service delegation; decree 2017-248 on independent power producers; decree 2017-249 on self-generation; decree 2017-250 on rural electrification; decree 2017-251 on the payment modalities of electricity operators; and decree 2017-252 on the principles of electricity tariffs. A year later, law 22-2018 dissolved the Société Nationale d’Electricité (SNE) and decree 2018-295 created the asset company E2C, which was requested to continue operating the power system only on a transitional basis – but is still operating under this transitional status today, more than five years later. In 2020, decree 2020-133 fixing the various segments of consumption for tariff considerations was issued.

⁶ Access in this document is defined as the sum of households not having access to electricity as well as those having access but not being regularized clients of E2C. These figures are notably inferior to the ones reported by the SDG 7 tracking report, which state that national access in Republic of Congo is 47.5%, while urban access stands at 67% and rural access at 12.4%.



Figure 2: Reform timeline for the electricity sector of Congo



12. **The GoC plans to finalize the process of concessioning hydropower plants and of creating a transmission company in the near future.** The GoC signed concession agreements for the 3 main existing hydropower plants (Imboulou, Moukoulou, and Djoué) between May and July 2023. The negotiation of the power purchase agreements between E2C and the concessionaires is on-going, and a decree by the Council of Ministers approving these concessions will be needed before the transfer of the sites can take place. On the transmission side, the MEH plans to launch shortly a study to determine all details to create the transmission company in the near future, as this function is currently performed by E2C. This arrangement should only be transitional given that E2C is an asset company.
13. **The GoC has just decided to use public private partnership (PPP) model of *affermage* (or operations concession) for its distribution and retail segment, and the contract to the selected *fermier* (operations concessionaire) is expected to be signed late 2024.** Following the decision taken through the approval of decree 2023-1739 on October 12, 2023 by the Council of Ministers,⁷ a call for expressions of interest to hire a transaction advisor to prepare the affermage has been signed in February 2024. The call for proposals for the fermier itself would then be launched in March 2024, and a pre-award is expected to be granted by August 2024,⁸ with the expectation of having the fermier start its operations in RoC before the end of 2024.
14. **The GoC is considering implementing in the water and sanitation sector a reform agenda with significant similarities to that of the electricity sector and with substantial potential benefits for E2C's financial sustainability.** The national water utility *La Congolaise Des Eaux* (LCDE) is one of the largest electricity customers in RoC with high payment arrears to E2C and is facing challenges similar to that of E2C. Access to improved drinking water in urban areas increased from 45% in 2011 to 85% in 2021, but the service is intermittent and of poor quality. Frequent and protracted power outages impact LCDE quality of service and leave people without

⁷ The approval of this decree is a prior action of the cross-sectoral DPO (P180093) approved by the WB Board in December 2023. The Bank team suggested to the government late 2022 to choose an affermage rather than a full concession for the distribution segment given its poor state. The Minister led a delegation that visited Côte d'Ivoire in April 2023 to get a better understanding of the affermage experience in Côte d'Ivoire, which has been in place for three decades and is regarded as a success story in the continent.

⁸ The Bank has recommended to use a 2-stage selection process following successful international experiences: (1) a first phase of technical and financial qualifications evaluated in a pass or fail approach; (2) a second phase with a financial offer accompanied by a commitment to fulfil the requirements of the bidding documents.



water supply for protracted periods of time. As for electricity, the water tariff has not been increased in decades. LCDE’s water distribution networks and facilities are in an advanced state of disrepair due to old age and insufficient O&M. Poor billing and collection leave LCDE in a state of chronic financial deficit. In 2022, Non-Revenue Water (NRW) was estimated to exceed 50% and the collection rate as low as 60%, meaning that only 30% of the water produced generates revenue. As a result, the LCDE struggles to pay its electricity bills. LCDE seeks to improve its operational efficiency and increase its revenue, so it can cover its O&M costs and service its debts. These priorities need to take into consideration the pressure to expand water supply coverage and the need to develop sanitation, especially in urban areas. RoC one of the worst performers in Africa for sanitation, with only 21% of households having access to a basic sanitation service. And when basic sanitation exists, sludge management is problematic and represents a threat to human and environmental health. To improve its situation, the water and sanitation sector is preparing reforms like those currently being implemented in the electricity sector. It created LCDE in 2018 as an asset holding company and is considering private sector participation through a PPP to manage service delivery.

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

To improve the quality of electricity service delivery, improve the performance of the distribution and retail segment, and provide new and improved access to electricity.

Key Results

15. The PDO level indicators are as follows:

- i. Reduction in the duration of electricity service interruptions with System Average Interruption Duration Index (SAIDI)
- ii. Reduction in total losses across the electricity network (percentage)
- iii. People provided with new or improved, including affordable, access to electricity, with a sub-indicator on people and households with a new access (number, gender-disaggregated).

16. The intermediate results indicators level indicators are as follows:

Component 1	<ul style="list-style-type: none"> • Number of transmission substations rehabilitated and/or upgraded; • Kilometers of 220 kV transmission line between Pointe Noire – Brazzaville rehabilitated
Component 2	<ul style="list-style-type: none"> • Number of distribution substations rehabilitated, upgraded, and/or constructed; • Number of smart meters installed;
Component 3	<ul style="list-style-type: none"> • Signature of the contract with the fermier (PBC); • Handover of the concession of the distribution utility to the fermier (PBC); • Proportion of women in the management team of the fermier; • Adoption of a National Electrification Strategy (PBC); • Establishment of a social tariff (PBC); • Enactment of the LCPDP; • Percentage of grievances addressed within the project approved timeline ; • Percentage of beneficiaries who report satisfaction of project delivered services;



D. Project Description

- 17. The PASEL is structured as an Investment Project Financing (IPF) and includes 3 Performance-Based Conditions (PBCs).** The choice of this financing instrument will incentivize undertaking necessary institutional and policy reforms that will ensure the sustainability of the project's investments and lay the ground for substantial improvements of the sector's performance. All PBCs are intermediate results indicators of the project. The verification protocol for the achievement of these PBCs and expenditures are described in annex 2.
- 18. All of Component 2 (US\$ 45.8 million) will be contingent upon achievement of the 3 PBCs.** Every time that a PBC is achieved, a portion of funds from Component 2 will become unconditioned to fund the activities of this Component – the institutional and policy nature of the chosen PBCs implies that the cost of inputs to achieve them is null. The rest of PASEL will be triggered only by the documentation of eligible expenditures having been incurred. The PBCs have been designed after discussion with the GoC and other stakeholders, aligning the anticipated timeline of achievement of PBCs with the chronogram of disbursements forecasted for contracts included in Component 2.
- 19. The PBCs will support the deployment of the affermage and establish foundational elements to tackle the electricity access agenda.** PBC #1 focuses on the signature of the affermage contract and on the subsequent handing over from E2C to the fermier of assets and personnel. The arrival of the fermier should maximize the potential efficiency gains that some investments of Component 2 can bring (e.g., revenue protection program and management information systems), diminishing the losses and increasing the collection ratio. PBC #2 (approval of a National Electrification Strategy) and # 3 (establishment of a social tariff) will pave the ground for the urban densification part of Component 2 (see Sub-component 2.1 below), but also lay the ground for a necessary future scaling-up of urban and rural access investments. The NES will eliminate or reduce substantially the connection fee and define the modalities for rural extension (grid extension, mini-grids, or solar home systems). The establishment of a social tariff for the poorest households (those consuming less than 50 kWh a month) is essential given the acute regressivity of the country's electricity tariff structure.⁹
- 20. The project will finance electricity infrastructure in and within Brazzaville and Pointe-Noire.** It will also provide technical assistance and support institutional strengthening. The prioritization of investments is based on several criteria, including but not limited to packaging of works, investment readiness, implementation timeline, and impact on electricity consumers. Table 1 presents a synthetic view of the components of PASEL – and annex 3 provides more details of the activities under each Sub-component.

⁹ A tariff and cost recovery study financed by ESMAP (Bank executed) is currently being procured.



Table 1: Project budget allocation

Project (sub)components	Amount (US\$ million)
Component 1: Strengthening the electricity transmission system	42.5
1.1 Construction, rehabilitation and upgrade of new transmission substations	29.7
1.2 Rehabilitation of selected segments of the 220 kV line connecting Pointe-Noire to Brazzaville	8.8
1.3 Upgrade of the existing supervisory control and data acquisition (SCADA) system and other systems of the National Dispatch Center	4.0
Component 2: Improving the operational performance of the electricity distribution and retail (D&R) segment	45.8
2.1 Densification, rehabilitation and upgrade of the distribution and public lighting network	23.3
2.2 Improving commercial performance of E2C by diminishing non-technical losses in electricity supply	15.5
2.3 Incorporation of management information systems (MIS) to improve efficiency, transparency, and accountability of operations of E2C in key business areas	7.0
Component 3: Technical Assistance (TA) and Project Management	11.7
3.1 Technical assistance and institutional support to improve electricity sector performance	2.8
3.2 Technical assistance and institutional support to water and sanitation stakeholders	2.0
3.3 Project Management and Capacity Building	6.9

Component 1: Strengthening the electricity transmission system (US\$ 42.5 million)

21. The current situation of the high-voltage (220 and 110 kV) transmission infrastructure in the country is extremely fragile, because of underinvestment extended over long periods, whose negative impacts are exacerbated by insufficient financial resources to carry out systematic maintenance activities to keep serviceability of assets. This has resulted in current reliability in delivery of transmission services far from meeting standards widely adopted in international experience relevant to Congo, negatively affecting quality of electricity supply to all consumers connected to the national grid. Some core very expensive assets of the existing transmission infrastructure are running under operating conditions that expose them to risk of damage. Urgent corrective actions are needed to address the current unsustainable situation. This component will support some of those actions, grouped under three sub-components. All investments under Component 1 will allow the transmission to main consumption centers of future generation from the pipeline of hydropower projects that the government intends to implement in the coming future.¹⁰

Sub-component 1.1: Construction, rehabilitation and upgrade of transmission substations (US\$ 29.7 million)

22. Supply and installation of static compensators in 3 transmission substations along the Pointe-Noire to Brazzaville transmission line. In order to avoid the national network having to connect with the DRC network at the level of Brazzaville just to obtain the reactive power needed to manage the radial configuration of the

¹⁰ Ministry of Energy presentation during Sector Stakeholder Workshop, October 2022 – mentioning 1.4 GW of future greenfield hydropower projects.



network, the installation of static voltage compensators (SVCs) at 220 kV substations located in the line circuit is required. This sub-component of PASEL will finance the supply and installation of 3 SVCs. This will lead to a much more climate- resilient, stable and reliable operation of the power system of the country.

23. **Rehabilitation and upgrade of 220 kV Ngoyo (Pointe-Noire) and Mbouono (Brazzaville) substations. The Mbouono and Ngoyo substations** were commissioned in 1983. The installed equipment has reached the end of its lifetime, showing downgraded performance and unavailability of spare parts for the maintenance. This intervention will finance the rehabilitation, reinforcement and upgrade of the two substations. This activity will also incorporate climate resilience in its design (see annex 6 for more details).¹¹
24. **Rehabilitation and upgrade of other substations.** This sub-component will include the replacement and rehabilitation of power transformers, circuit breakers and replacement cells for outgoing MV distribution feeders, network disconnection and automatic load shedding protection equipment, and control and auxiliary equipment of transmission substations.
25. **Incorporation of equipment to improve performance and efficiency in operation and maintenance (O&M) of the transmission system.** This includes the acquisition of spare parts, tools, and operating equipment, as well as of rolling means and machinery for the operation of the transmission network.

Sub-component 1.2: Rehabilitation of selected segments of the 220 kV line connecting Pointe-Noire to Brazzaville (US\$ 8.8 million)

26. **This extra high-voltage line has been in operation for four decades and requires urgent rehabilitation.** It connects the South-West of the country to the capital Brazzaville, via Dolisie, Madingou, and Kinkala. It was designed and built between 1982 and 1987, with an end-to-end transmission capacity of 350 MVA. It is the backbone of the transmission system of the country, connecting the five existing generation plants and the interconnection line with DRC to the 220 kV and 110 kV transmission substations where power starts its flow to reach all electricity consumers connected to the national grid. After 40 years of operation, the line currently shows deterioration in some of its components, which significantly affects its serviceability. This situation must be urgently addressed, considering the critical importance of the line for the reliable operation of the power system of the country. Activities to be conducted include the replacement of insulators (between Ngoyo and Mboundi substations), the replacement of conductors and addition of towers (between Dolisie and Loudima), and the replacement of angle piece of towers (between Kinkala and Brazzaville).

Sub-component 1.3: Upgrade of the existing supervisory control and data acquisition (SCADA) system and other systems of the National Dispatch Center (US\$ 4 million)

27. **The National Dispatch Center (NDC) of the power system has been built in phases following the installation of generation plants and is not fully integrated.** Serious interoperability issues have prevented integration of the various plants to the NDC. This is a severe constraint to the control of the operation of the power system. This sub-component will finance detailed design and implementation of a project to upgrade the SCADA and other components of the control system of the NDC. The project comprises three main components: (i) refurbishment and upgrade of the SCADA automation system of the NDC to overcome its current deficiencies and limitations; (ii) upgrade of the substation automation systems of the northern transmission substations to optimize their operations and control; (iii) integration of the automation systems of the transmission substations in the southern region to integrate them to the NDC. This will enable adequate management of existing and new generation and transmission facilities.

¹¹ This activity was part of a French Development Agency (AFD) financed project but was dropped in early 2023 as there was no time left to implement it due to substantial delays – some preparation documents are ready and have been shared by AFD with the Bank.



Component 2: Improving the operational performance of the electricity distribution and retail (D&R) segment (US\$ 45.8 million)

28. The current condition of the existing electricity distribution network operated by E2C is poor. This results in a bad quality of electricity supply to consumers countrywide and high technical losses. Besides, the commercial performance of E2C is poor, with non-technical losses (amounts of energy consumed but not sold) exceeding 25 percent of the amounts of energy purchased. One of the factors contributing to this situation is that more than 120,000 regular customers of the utility are not metered, and therefore billed based on estimates that may be significantly different from real consumption. This component will support the improvement of the operational performance of the distribution and retail segment by financing some actions with high-impact and cost-effectiveness.

Sub-component 2.1: Densification, rehabilitation and upgrade of the distribution and public lighting network (US\$ 23.3 million)

29. This sub-component will increase the number of service connections and support improvement of the quality of electricity supply and the reduction of technical losses of distribution networks through: (i) minor extensions of LV networks in Brazzaville and Pointe-Noire to connect around 25,000 closely located households and regularize electricity supply and commercial relationship between E2C and consumers in areas where networks were informally installed by consumers; (ii) rehabilitation of 64 existing MV/LV distribution substations; (iii) installation of 25 new MV/LV substations; and (iv) reduction of electricity generation and public lighting consumption by replacing around 10,000 public lighting luminaries in Brazzaville and Pointe Noire with high-efficiency LEDs. This activity will create economic and climate benefits, as power generation system in Congo is based on low-efficiency units of CEC thermal plant.

Sub-component 2.2: Improving commercial performance of E2C by sustainably reducing non-technical losses in electricity supply (US\$ 15.5 million)

30. This sub-component will support actions with high cost-effectiveness to achieve a significant sustainable reduction on non-technical losses incurred by E2C in electricity supply to its customers, including: (i) implementation of a Revenue Protection Program (RPP) to systematically monitor through Advanced Metering Infrastructure (AMI) the consumption of the 26,000 largest customers (all supplied in HV and MV and LV users with monthly consumption above 1,000 kWh), representing around 60 percent of sales and revenues; (ii) supply and installation of smart meters to 120,000 currently unmetered customers (both private and public), preceded by field inventory of their location.

Sub-component 2.3: Incorporation of management information systems (MIS) to improve efficiency, transparency, and accountability of operations of E2C in key business areas (US\$ 7 million)

31. The set of MIS to be incorporated by the utility will include: (i) an Outages Management System (OMS) to optimize management of outages and other incidents in electricity supply to customers and minimize duration of interruptions and other perturbations; (ii) a Geographical Information System (GIS); (iii) a Commercial Management System (CMS) to enable efficient and accountable execution of all commercial processes and activities; (iv) an Enterprise Resource Management (ERP) system to support management of corporate resources (accounting, finance, human resources, procurement, logistics, corporate planning, information technology).



Component 3: Technical Assistance (TA) and Project Management (US\$ 11.7 million)

Sub-component 3.1: Technical assistance and institutional support to improve electricity sector performance (US\$ 2.8 million)

- 32. This sub-component will support the successful implementation of the ongoing sector's reform.** This will be done through the following two activities: (i) support in implementation of an affermage model for management and operations of the electricity distribution and retail segment (which will facilitate achieving PBC #1); and (ii) preparing a roadmap for the creation of a performing state-owned operating transmission and system operation (TSO) company. These activities will be implemented through the project preparation advance (PPA).
- 33. This sub-component will also strengthen the power sector planning capacity of the GoC.** This will be done through the following three activities: (i) preparation of a NES to achieve universal access to electricity service (which will facilitate achieving PBC #2); (ii) update of the Distribution Code to incorporate least cost technologies for network design and construction allowing to comply with applicable quality standards; and (iii) update of the least cost generation and transmission expansion plan. Activities (i) and (ii) will be implemented through the PPA in order to help prepare the implementation of Sub-component 2.1.
- 34. This sub-component will include studies to support the preparation and implementation of goods and works contracts under Components 1 and 2.** Specifically: (i) technical design study to prepare priority contracts of component 1; (ii) study to improve power system operations to prepare for the supply and installation of static compensators under component 1.1; and (iii) inventory for 128,000 consumption points to prepare for the implementation of Component 2.2. These activities will be implemented through the PPA.

Sub-component 3.2: Technical assistance and institutional support to water and sanitation stakeholders (US\$ 2 million)

- 35. This sub-component will provide technical assistance and institutional support to MEH and LCDE to undertake diagnostic analysis of the performance of the water and sanitation sector and to define a reform roadmap.** Activities to be supported will include: (i) carrying out a comprehensive diagnostic of LCDE's operational performance, and preparing an action plan to improve LCDE performance (in particular to reduce NRW and improve commercial performance, billing and collection, energy efficiency, but also asset management for preventative maintenance); (ii) preparing the delegation of service delivery to the private sector to improve service delivery performance and expand access to water and sanitation, building on the energy sector reform; (iii) Assess LCDE's commercial performance and recommend improvement measures; (iv) inventory of production, storage and distribution assets and improvement of the management, preventative maintenance and performance monitoring tools; and (v) supporting the development of a Geographic Information Systems (GIS) to network management and definition of pressure zoning areas to develop NRW reduction plans, quantify the potential for energy efficiency improvement with a particular focus on the Pointe Noire area linked to the planned water production plant construction at Gambouissi Lake. These activities will be carried out in close collaboration between MEH and LCDE to build their capacity in the process.

Sub-component 3.3: Project Management and Capacity Building (US\$ 6.9 million)

- 36. Project management and capacity building.** This sub-component will support the project management unit located in the MEH, as well as an owners engineer for transmission (Component 1) and another one for distribution (Component 2). In addition, it will also provide capacity building to the electricity power stakeholders.

Component 4: Contingent Emergency Response Component (CERC) (US\$0 million)

- 37. This component will provide an immediate response to an eligible crisis or emergency, as needed, by financing the implementation of emergency electricity infrastructure rehabilitation and reconstruction.** Resources will be allocated to this component as needed during implementation. A CERC Operations Manual will be prepared



by the Government and will provide detailed guidelines and instructions on how to trigger the CERC and use funds (including activation criteria, eligible expenditures, and specific implementation arrangements as well as required staffing for the Coordinating Authority).

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

Summary of Screening of Environmental and Social Risks and Impacts

The main social risks are potential small-scale economic and physical displacement due to civil works along with the risk of exclusion and discrimination against vulnerable and marginalized groups, labor risks due to labor influx, difficulty in conducting significant and inclusive stakeholder consultations in certain project areas, potential gender-based violence (GBV) risks and/or sexual exploitation and abuse (SEA), social conflicts. The main environmental risks include generation of solid, electrical, hazardous and construction waste during rehabilitation works and replacement of old transformers; Biodiversity impacts especially along the TL; Occupational health and safety risks of workers; air, dust and noise pollution and community health and safety risks due to heavy traffic and material movements.

E. Implementation

Institutional and Implementation Arrangements

38. The project will be implemented by a Project Implementation Unit (PIU) under the tutelage of the MEH, with support an owner’s engineer within the E2C asset manager to streamline procurement. While all the contracts of Components 1 and 2 will be signed, implemented, and owned by the E2C asset company, several activities of Component 3 will be undertaken by the MEH - e.g. the Least Cost Development Plan or transaction advisory support. While these will be small in size, they will be of critical importance for the sustainability of the sector and therefore justifies the housing of the PIU under the MEH.¹² Implementation capacity is weak in both the MEH and E2C, and past project experience highlights that procurement can be an important bottleneck. As such, to ensure E2C’s engagement the project will finance owner’s engineer to mitigate this risk. A USD 2.5 million Project Preparation Facility (PPF) was requested to support project implementation readiness, including the recruitment

¹² Given that the same Ministry covers energy and hydraulics, the PIU will also provide support to Sub-component 3.2 on water and sanitation. The MEH confirmed in Letter N.0426/MEH CAB of the 27th of November 2023 that offices have been made available for the PIU within the Ministry building.



of key PIU personnel as soon as the PPF is available early 2024 to undertake key preparation activities. The project will be overseen by a Steering Committee chaired by the MPSIR and coordinated by MEH.¹³

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APPROVAL

¹³ As set out in Letter N.106-23/MPSIR/CAB of the 12th of September 2023.



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