



# Project Information Document (PID)

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Concept Stage | Date Prepared/Updated: 22-Sep-2020 | Report No: PIDC30301

**BASIC INFORMATION****A. Basic Project Data**

Country Sudan	Project ID P175040	Parent Project ID (if any)	Project Name Sudan Energy Transition and Access Project (P175040)
Region AFRICA EAST	Estimated Appraisal Date Jan 11, 2021	Estimated Board Date Mar 31, 2021	Practice Area (Lead) Energy & Extractives
Financing Instrument Investment Project Financing	Borrower(s) The Republic of Sudan	Implementing Agency Sudan Electricity Holding Company	

**Proposed Development Objective(s)**

The development objective is to improve financial sustainability of the electricity sector, enhance access to reliable electricity services, and facilitate clean energy transition in Sudan.

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

<b>Total Project Cost</b>	10.00
<b>Total Financing</b>	8.50
<b>of which IBRD/IDA</b>	0.00
<b>Financing Gap</b>	1.50

**DETAILS****Non-World Bank Group Financing**

Counterpart Funding	0.50
Borrower/Recipient	0.50
Trust Funds	8.00
Energy Sector Management Assistance Program	3.00
GLOBAL INFRASTRUCTURE FACILITY	2.00
Japan Policy and Human Resources Development Fund	3.00



Environmental and Social Risk Classification

Moderate

Concept Review Decision

Track II-The review did authorize the preparation to continue

## B. Introduction and Context

### Country Context

1. **For long, Sudan has been isolated from the rest of the world.** Sudan was placed under economic sanctions by the United States in 1997, until they were partially lifted in October 2017. Sudan is still on the list of U.S. list of countries that sponsor terrorism. Since the succession of South Sudan in 2011, Sudan struggled to diversify its economy beyond petroleum dependency. The secession meant the loss of most of Sudan's oil reserves, on which Sudan's economy was depending on. The government has been unable to develop alternative source of economic growth, despite its efforts to develop gold mining to replace the lost oil revenue. Sudan's external debt was at US\$58 billion in 2018, the equivalent of 111 percent of GDP, with about 84 percent in the form of accumulated arrears. Sudan has been in nonaccrual status with the World Bank Group since 1994, and development aid to support economic productivity and human development outcomes has been scant.

2. **In 2019, Sudan went through a major political transition that presents a unique opportunity towards a development leap.** Sudan experienced thirty years of dictatorship that was finally overthrown in 2019 and a transitional Government consisting of civilian and military representatives was placed. The transitional government took bold measures to resolve internal conflict; implement broad-based and comprehensive economic reforms; and reengaged with the international community including the International Monetary Fund and the World Bank. This transition was largely welcomed by the international community, which formed "Friends of Sudan" to collectively support the new Government's development agenda. There is also an active conversation of de-listing Sudan from the U.S. list of terrorist sponsoring countries. Hence the new transitional government carries high hope and expectations from its citizens that has skipped previous generations.

3. **Continued economic deterioration and limited access to basic needs poses a major risk to the transition.** Sudan's economic performance continued to deteriorate in 2018 with GDP declining by 2.3 percent, inflation at 64.8 percent, and the Sudanese Pound devaluing rapidly. In 2020, the Bank has classified Sudan as a low-income country, a downward change from previous classification as a lower middle-income country. The latest domestic inflation has risen to 150 percent, and its currency, Sudanese Pound, lost more than half of its value in one year. Despite the GoS's efforts towards economic reforms, the lack of access to external finance and the need to mitigate the shocks from reforms constrained the policy options. Access to basic needs, including food, water, medicines and energy are also deteriorating due to increasing cost of goods and tight fiscal situation of the GoS. This was exacerbated by global pandemic of COVID-19, for which Sudan has counted one of the largest cases in East Africa. The continued economic deterioration of the country is starting to fuel popular discontent and poses a major risk for the transition government of Sudan.

4. **Energy is a key priority of the new Government in its journey towards global economic integration, access to development aid, and resilient COVID-19 recovery.** The GoS engaged with the International Monetary Fund (IMF) Staff Monitored Program (SMP) to underpin its economic reforms and pave the path for arrear clearance and debt relief through the Heavily Indebted Poor Country (HIPC) Initiative. One of the key economic reform agenda is on energy subsidies, as the heavy subsidy on the energy sector is one of the key driving force of Sudan's macroeconomic destabilization. The GoS government is estimated to have spent close to US\$3 billion in 2019 on energy subsidies, which accounted for 58 percent of the government spending. Fuel prices in Sudan are among the lowest in the world, leading to significant leakages in the form of fuel smuggling and black marketing. Fuel smuggling is particularly attractive given cross-border price differences can be as high as 15-fold. Even when energy is consumed by Sudanese people, direct subsidy hardly reaches the poor because they buy far less energy than



the rich. Given the GoS's severe fiscal constraints, it has been monetizing – or printing money - budget deficit, contributing to high inflation currently above 150 percent. As a part of GoS's measures to meet the macroeconomic framework agreed under the IMF SMP, GoS has revised its 2019 budget which reduced the fuel subsidy by 68 percent compared to the original budget. Continued effort to implement the reform and sustain the political momentum is essential going forward.

#### Sectoral and Institutional Context

5. **Sudan's energy sector is overseen by the Ministry of Energy and Mining (MoEM).** Following the political transition, the MoEM was created through a government restructuring by combining the Ministry of Petroleum, the Ministry of Mining and Electricity Department of the Minister of Water, Irrigation and Electricity. Electricity sector is administratively unbundled into five sector companies; Sudan Electricity Holding Company (SEHC), Sudan Thermal Power Generation Company (STPG), Sudan Hydro and Renewable Energy Company (SHREC), Sudan Electricity Transmission Company (SETC) and Sudan Electricity Distribution Company (SEDC). Electricity Regulatory Authority (ERA) is an integral part of the MoEM. Although these sector companies function as electric utilities, they are integrated as a part of MoEM and do not have financial autonomy. Therefore their operations largely depend on budgetary appropriation.

#### *Sudan's energy sector faces multi-dimensional and interlinked challenges*

6. **The electricity sector has not receive adequate investment, resulting in serious energy shortfalls and load shedding.** The installed electricity generation capacity in June 2019 stood at 3,608MW, comprising of hydro (55 percent) and thermal (45 percent), which is costly and vulnerable to the impact of climate-related hydrological changes and fluctuations in international oil prices. However the available capacity was only 2,799MW, compared to a peak demand of 3,800MW and leaving a shortfall of 1,000MW. The shortfall has caused power rationing which is severe during the summer months with customers receiving electricity for only 8 hours in a day. GoS estimates that at least 1,500MW additional capacity is needed in the immediate to medium term to meet current and meet increasing demand and to provide a reserve margin to cater for plant outages. The load shedding is expected to ease in May 2021 when about 850 MW of thermal capacity under construction is planned to be commissioned, but the construction of the two gas turbine plants has been delayed due to payment defaults to contractors.

7. **Huge energy subsidies arise from severe cost-price gap.** Electricity tariff in Sudan is one of the lowest – if not the lowest - in the world at UScents 0.6/kWh. Even in Sub-Saharan Africa where tariff is often underpriced, Sudan's tariff level is exceptionally low. The tariff structure is characterized by a very generous lifeline tariff, or the most subsidizes rate, extending to the consumption of 200kWh/month and covering almost half of the residential users. Thanks to almost universal use of pre-paid meters, bill collection rate stands at 98 percent and electricity theft is minimal. Hence the shortage of sector revenue is attributable to low level of tariff, which will need to increase at least five folds to recover the operational cost, with a caveat that continued depreciation of the currency may raise the required level of the cost recovery further. In 2019, the sector was recovering less than 20 percent of the operational costs. The sector financial projection suggests that the revenue gap will continue to grow without concrete actions due to the likely depreciation of the Sudanese currency which will make imported fuel more costly. The sector's revenue gap is filled by several forms of subsidy; explicit fuel and electricity subsidies from the Ministry of Finance and Economic Planning (MoFEP), as well implicit exchange rate subsidy from the Central Bank of Sudan. Therefore the tariff reform underpins the sector's pursuit of financial recovery and service delivery, as well ensuring the fiscal sustainability of the GoS.

8. **Sudan ranks among the highest in household energy consumption in the world.** Due to the low price of electricity, combined with the hot climate and inefficiency of appliance, Sudan's level of electricity consumption is very high compared to its regional peers. In 2018, the average household consumption of electricity in Sudan was 308 kWh per month, more than five times higher than SSA average which is around 50kWh/month. Sudan's hot climate that creates significant demand for space cooling, as well as the dated and inefficient electrical appliances due to the history of economic sanction, contribute to the high level of demand. The residential sector constitutes 60 percent of the electricity consumption in Sudan and therefore is the largest user segment. Low price provides almost no incentive for households to conserve energy and behavior of wasteful usage of power is observed. The sector diagnostics review identified demand-side energy efficiency measures as one of the most cost-effective interventions to reduce the sector cost.



9. **Electricity is not reaching most of the poor in Sudan.** Sudan's access to electricity stands at approximately 60 percent, suggesting a significant access deficit in the country. Approximately 2.2 million households are connected either by national grid or isolated systems, while about 4.5 million households remain without access to electricity. In line with the geographical locations of distribution grids, the highest electrification rates (60 percent and above) are in Khartoum, Jazeera, River Nile, and Northern States. The largest electricity access deficit is observed in the Darfur and Kordofan regions, where the national grid has not reached despite the significant population residing there. In addition, Sudan's population is expected to grow significantly, which poses challenges for electrification. Since the Sudanese population is growing at a pace of 2.4 percent a year, it is expected to increase to 56 million from its current level of 40 million by 2031. This change represents an additional 1 million people each year, and achieving universal access will require that the electrification grows at a rate faster than population growth.

10. **Sudan is facing major power crisis in recent months.** Access to electricity through grid has deteriorated due to the ongoing power crisis. Sudan has long suffered from major load-shedding in summer seasons, in which generation capacity is insufficient to meet the electricity demand. In addition, since mid-2020, electricity service in Sudan severely deteriorated with regular power shedding of approximately 10 hours a day due to the lack of foreign currency to import fuels for thermal generation and low level of hydro reservoirs. The power shedding, combined with the severe shortage of fuels in the market, is severely affecting Sudan's economy and is adding to the dissatisfaction of the public to the electricity sector and the GoS overall.

*This RETF project is the next step in the Bank engagement that began in 2017*

11. **The Bank has built a strong client engagement and analytical foundation in Sudan's energy sector.** The Bank has been engaged in Sudan's energy sector since 2017 through the electricity sector diagnostics work (Diagnostic Review of Sudan Electricity Sector, P153717), which started as a greenfield engagement. Based on the findings of the diagnostics, the Bank has launched a comprehensive technical assistance program (Sudan Energy Sector Recovery Technical Assistance, P171810), which is supporting the design of the fuel subsidy reform and designing policy measures for electricity sector recovery, including electricity access, energy efficiency and renewable energy scale-up.

12. **The RETF will supplement the ongoing TA program by piloting investment projects.** It will support the mitigation of the ongoing power crisis, while placing building blocks for the country's universal electrification and transition to clean and low-cost energy. These interventions are expected to enhance the level of public trust in the energy sector and create enabling environment for sustainable electricity tariff reform, thereby contributing to reduce the sector's subsidy dependency and contributing to the macroeconomic stabilization of Sudan. Depending on the results of these pilot investments, they could be considered for scale-up once Sudan becomes a fully IDA eligible member following the settlement of arrears.

### **Relationship to CPF**

13. The Country Engagement Note (CEN) for Sudan FY20-FY21 is currently under preparation. The latest draft is conceptualized around (a) Stabilization and Gaining Access to IFI Financing, and (b) Contributing to a more equitable social contract. Energy is considered as one of the key elements for both pillars; fiscally sustainable energy sector is a pre-requisite for macro-fiscal stabilization of Sudan, and energy is one of the basic services that the GoS need to strengthen. It also aligns with the broader WBG Climate Change Action Plan.

### **C. Proposed Development Objective(s)**

The development objective is to improve financial sustainability of the electricity sector, enhance access to reliable electricity services, and facilitate clean energy transition in Sudan.

### **Key Results (From PCN)**

14. The followings are the key preliminary PDO indicators, which will also be gender disaggregated:
- a. Number of people provided with new/improved access to electricity
  - b. Number of renewable energy IPP projects launched for procurement



- c. Displaced cost of fuels for power generation
- d. Greenhouse gas emission reductions

**D. Concept Description**

15. The project is designed to include four components. Component 1 will support short-terms measures to mitigate the ongoing power shortage through the use of decentralized solar PV generation and energy efficiency appliances. Component 2 will address electricity access deficits for households and public facilities through the use of solar PV systems. Component 3 will support the development of grid-scale solar and wind projects, including a transaction support. It will contribute to reduce the sector dependency on costly thermal generation and address supply deficit. Component 4 will support overall project management as well as the sector’s reforms and capacity building.

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

Summary of Screening of Environmental and Social Risks and Impacts

**Environmental and Social Risk Classification (ESRC) - Moderate**

**Environmental Risk Rating - Moderate**

16. The environmental risk rating will be reviewed and confirmed during project preparation, however, at this stage the direct environmental risks of the project are expected to be predictable, reversible, site-specific which are not that much likely to be significant. Moreover, considering the nature, scale, and type of the proposed project activities, as well as the anticipated target area of the project implementation, which is throughout the Country, the proposed project’s environmental risk rating, is currently preferred to be Moderate, which will further be confirmed during appraisal stage. This rating is mainly due to the anticipated environmental risks and impacts associated with project activities, particularly under components one, two and three which are installation of solar systems on existing lands and facilities such as government building rooftops and spaces in substation complex; solar-based mini-grids; standalone solar home systems as well as institutional solar systems for public institutions such as education, health and other public facilities; efficient lightning through technology replacement including replacing of inefficient incandescent/compact fluorescent lamps by LED lamps; Conducting various studies, including feasibility and environmental and social studies and other related studies, as needed, Site comparison and prioritization, and Transaction advisor (TA), that supports in particular solar and wind, to bid them out to the private sector development as an Independent Power Producer (IPP) project, which might lead for the implementation of the first prioritized 1 or 2 IPPs, etc.

17. Distribution of solar system will have potential environmental and social risks and impacts that are expected to be manageable and most of them may stem from ground disturbance, vegetation clearance, installation of solar equipment, and storage and final disposal of used and damaged batteries containing hazardous waste, disposal/recycling of solar panels and solar appliances, storage and disposal of replaced incandescent/compact fluorescent lamps and damaged LED lamps, air and noise quality, visual/aesthetic intrusion, heat/light reflection, resources depletion, and hazard toxicity, within and around the core activities area. In addition to storage and disposal issues, incandescent/compact fluorescent lamps (CFL) and damaged LED lamps, have higher resource depletion and toxicity potentials, particularly CFL and LED, due primarily to their high aluminum, copper, gold, lead, silver, and zinc content. Although, the LED lamps contribute to enhancing energy efficiency, conservation, an appropriate management strategies and sustainability policies are crucial that consider the proper storage, waste, and use management of these type of lamps to minimize their content of hazardous and rare metals in lighting products without compromising their performance and useful lifespan.



18. Such hazardous wastes if they are released to the environment, due to less efficient management in place during the project implementation period, they can harm plants, animals, fish, and people, polluting the environment for many years. Projects and organizations, including STEP that promote PV systems, especially in rural and remote areas, must plan safe hazardous waste disposal. Replaced used batteries and inverters will need proper waste management system, such as batteries must not be opened or drained, and the lead must be prevented from entering the environment, and its disposal should follow national and international best practice methods. The project shall develop a strategy and/or plan for hazardous waste management to ensure that such hazardous materials including used and damaged batteries, Lamps, solar appliances disposed off appropriately at the designated disposal site authorized by the institution in charge of hazardous waste management. If not possible, the project should develop a mechanism to replace batteries, appliances, and lamps or return to the manufacturer.

19. The actual implementation sites of these sub-projects are not yet known. In this regard, the potential impacts described at this stage will be an indicative to serve as a guideline for a thorough assessment of environmental and social issues during project preparation and to develop a broader relevant safeguards instrument(s), such an Environmental and Social Management Framework (ESMF), Resettlement Policy Framework (RPF), as applicable. All the subproject activities under STEP will pass through environmental and social screening, and based on the output of the screening process, the project will develop and implement site-specific environmental and social safeguards instruments, such as Environmental and Social Impact Assessment/ Environmental and Social Management Plan (ESIA/ESMP), Abbreviated/Resettlement Action Plan (A/RAP), and other related management strategies implementation plan, like Occupational Health and Safety Management Plan (OHSP), Waste Management Plan (WMP) with more focusing on Hazardous waste, etc.

20. The implementing entities require capacity building to manage adequately potential risks and impacts in a manner consistent with the ESSs and satisfactory to the Bank. Therefore, the specific capacity building areas along with the budget and staff required for ESSs and related aspects of implementation will be assessed during the project preparation. Detail environmental and social assessment proportionate to the potential risks and impacts will be carried out during the project preparation. The project has proactively included planning of the hazardous waste management planning as part of the Technical Assistance under Component 3. Such planning may include not only strategic planning but also piloting of sound hazardous waste management programs if applicable disposal and recycling facilities (to be determined during project preparation).

#### **Social Risk Rating – Moderate**

21. The project will have an overall positive impact on the country's population, as it is expected to: (a) provide with new/improved access to electricity; (b) mitigate the ongoing power shortage; and (c) will address supply deficit. The potential negative social impacts of the project are not likely to be significant, due to the nature of the project, which is not complex or large in scale, does not involve activities that have a high potential for harming people. Further, the project is not expected to result significant land acquisition and resettlement and most project activities will be implemented in the government compound.

22. The main social risks of the project are related to (a) social exclusion of beneficiaries in remote and conflict-driven areas; (b) security concerns of workers; (c) insufficient community engagement; (d) weak implementation capacity with limited prior experience; (e) Gender based violence and Sexual exploitation and (f) small-scale land acquisition. The social risk classification of the project is therefore moderate.

23. To reduce/mitigate environment and social risks and impacts the client will establish the following E & S risk management documents: (a) an Environmental and Social Management Framework (ESMF) which also provides GBV risks and mitigation measures, (b) a Resettlement Policy Framework (RPF), (c) a Labor Management Procedures, and (d) a Stakeholder Engagement plan. These instruments will be prepared and disclosed before project appraisal. Respective post-approval requirements will be included in the Environmental and Social Commitment Plan.



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## APPROVAL

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### Approved By

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