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Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 07-Mar-2023 | Report No: PIDA34979

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BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Project Name	Parent Project ID (if any)
South Sudan	P178891	South Sudan Energy Sector Access and Institutional Strengthening Project	
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
EASTERN AND SOUTHERN AFRICA	13-Mar-2023	01-May-2023	Energy & Extractives
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	The Republic of South Sudan	Ministry of Energy and Dams	

Proposed Development Objective(s)

To increase access to electricity services and strengthen the institutional capacity of the electricity sector in South Sudan.

Components

Grid densification and extension in Juba
Minigrid pilot
Off-grid electrification of health facilities through standalone solar systems
Technical assistance and capacity building
Contingency Emergency Response Component

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	53.00
Total Financing	53.00
of which IBRD/IDA	50.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	50.00
IDA Grant	50.00
Non-World Bank Group Financing	
Trust Funds	3.00
Japan Policy and Human Resources Development Fund	3.00

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. **South Sudan, a landlocked country in East Africa with a population of approximately 11.4 million, has experienced significant levels of fragility, conflict, and violence (FCV).** The country remains caught in a web of conflicts and economic stagnation, exacerbated by multiple shocks including Covid-19 and climate-related hazards. The secession from Sudan came after decades of fighting, followed by a brief period of peace under the Comprehensive Peace Agreement (CPA, 2005–2011) and a final decision to declare independence in January 2011 following a referendum. South Sudan thereby became the youngest country in the world. However, South Sudan descended into a conflict soon after the independence, first in December 2013 and again in 2016 following the collapse of a potential peace deal in 2015. These two rounds of conflict devastated the hard-won gains of South Sudan and the country has remained fragile and beset by development challenges, including widespread poverty, weak institutions, untapped human capital, as well as poor basic service delivery.

2. **While South Sudan has achieved a fragile peace at the national level, violence remains elevated in several parts of the country, and long-term prospects for consolidated peace and stability remain fragile.** The signing of the Revitalized Agreement on the Resolution of the Conflict in the Republic of South Sudan (R-ARCSS) in September 2018 included provisions to reinforce a permanent ceasefire, create an enabling environment for humanitarian assistance delivery, institute critical reforms, and establish a new transitional government. Subsequently, the Transitional Government of National Unity was established in February 2020, which invited the opposition leader, Riek Machar, as the first Vice President, forming a new cabinet of ministers in March 2020. A transitional national assembly reconstituted in August 2021 and a unified command of the country's armed forces was announced in April 2022. The two-year extension of the R-ARCSS to February 2025 will allow the government and parties to meet key milestones in the peace agreement that have not been met. Despite this progress made toward sustained peace, some two-thirds of the total population is estimated to need humanitarian assistance through July 2023, with women and children most affected. The Transitional Government is scheduled to hold a national election in December 2024.

3. A series of economic and climate shocks has kept South Sudan trapped in the vicious circle of continued poverty, food insecurity, and economic contraction. While the economy of South Sudan showed signs of recovery after the peace accord in 2018, Covid-19, locust infestations, and flooding led to a contraction in real gross domestic product (GDP) by 5 percent in FY 2021 and 2.3 percent in FY 2022. The poverty rate is estimated to have increased to 80 percent in 2022, up from 77 percent in 2020. The food security situation has also worsened. In November 2022, 63 percent of the population (7.8 million) was projected to face either acute emergency or catastrophic food insecurity through July 2023. Increasing international prices of food and agricultural inputs against severe currency depreciation, coupled with a major flood in March 2022, are likely to amplify food insecurity.

4. Recent macro-fiscal reforms of the Government are bearing fruit but public financial management (PFM) needs to be further strengthened to ensure sufficient budgetary resources to deliver basic services. As a result of the Government refraining from monetizing the fiscal deficit and successfully unifying its official and parallel exchange rates in 2021, there have been notable improvements in forex availability, South Sudanese Pound (SSP) stabilization, and deceleration of inflation. Domestic inflation dropped from 25.2 percent in FY 2021 to negative 2.2 percent in FY 2022, which further dropped down to an average of negative 6.2 percent in the first half of FY 2023. However, opaque PFM and widespread corruption have led to the misappropriation of oil revenue and a lack of predictable fiscal transfers to subnational governments. Despite the significant size of oil revenue to the Government, with oil contributing 90% of total public revenue and almost all exports , the salaries of civil servants in South Sudan are extremely low and seldom get paid on time. This has led to a deterioration in the morale among civil servants as well as a brain drain to the private sector, notably the oil industry.

Sectoral and Institutional Context

5. **South Sudan has one of the lowest energy access rates in Sub-Saharan Africa and in the world.** While 46 percent of Sub-Saharan Africa's population now has access to electricity, the energy access rate in South Sudan is estimated to be only 5.3 percent based on recent World Bank-funded primary research. Of the 5.3 percent with access to electricity, only 1.8 percent are connected to the grid, while 3.5 percent use off-grid technologies as their primary energy source.

6. **Lack of electricity access makes the delivery of basic public services that are critical to addressing fragility, such as medical care, even more difficult.** Most health and educational facilities outside of Juba do not have electricity. Even the higher-tier service facilities, such as state hospitals with diesel generators, provide very limited electricity services due to the high cost of transporting fuels to rural areas. South Sudan's transport infrastructure is far from being reliable and numerous checkpoints along the major roads make fuel transport prohibitively expensive and time-consuming. Lack of electricity limits the capacity of public health facilities to operate basic medical equipment, store vaccines at adequate temperatures, and provide an advanced educational curriculum, and makes it difficult to retain health care workers and teachers.

7. **With growing energy demand far outstripping grid capacity, many households, institutions, and businesses in South Sudan have turned to off-grid solutions, predominantly diesel generators in urban areas and solar products in rural areas.** According to the government estimate, electricity demand (including unserved demand) in South Sudan is estimated to have increased to 800 MW in 2020, compared to an installed grid capacity of around 103 MW. Off-grid installed generation capacity in Juba has been estimated at a total of 28.93 MW, which is almost as high as the installed capacity available on the Juba grid. About 99% of this off-grid capacity is generated from diesel, causing toxic emissions and noise, and only 1% is generated from solar energy.[1/] Even for diesel generators, the high upfront capital costs, costly and limited spare parts, and high domestic fuel prices mean that only few households and commercial entities can afford them. Although the off-grid solar market is still nascent in South Sudan, with sales of only around 55,000 solar lighting products estimated in 2021, the continued growth of the market demonstrates the potential to increase energy access through cleaner off-grid solutions.

8. **Most of South Sudan's functioning electricity supply and distribution infrastructure is located in Juba, with very little working equipment in other cities and rural areas.** The country's total installed power capacity is approximately 103 MW, all from thermal sources, of which around 76.5 MW is operational but only around 34.5 MW is available to the general public, the remaining 42 MW serving the Paloch oil field as captive power. Other generation plants attached to isolated distribution networks in smaller cities and towns including South Sudan's state capitals such as Wau, Malakal, Rumbek, and Yambio, as well as other towns such as Yei, are nonoperational due to lack of adequate maintenance and destruction during the civil war. South Sudan does not have a transmission network, and even before the conflict, the power system consisted entirely of isolated distribution grids. There are currently two 20 MW utility-scale solar projects under construction around Juba, one an IPP (Ezra hybridization) and the other government-owned (Nesitu; includes 10 MW/35MWh BESS), expected to become operational in 2023 (see Table 1). Another 20 MW Juba solar IPP (GWG) is currently in planning, though with a more uncertain timeline. South Sudan imports a small amount of electricity from Sudan through a 32 MW/220 kV interconnector in Upper Nile State that distributes power to local customers through the Renk substation, but the supply from this line has been unreliable due to the power shortage in Sudan. The lack of a transmission system in South Sudan and the limited number of connections around Renk itself

[1] Lemi L, La Belle M. (2020). Co-supplying the National-Grid: An Assessment of Private Off-grid Electricity Generation in Juba-South Sudan. *American Journal of Electrical Power and Energy Systems* 9 (3) 47-59.

means that only a small portion of this line's capacity is ever used. South Sudan's geographic location presents a significant opportunity to harness regional power trade through the East Africa Power Pool (EAPP) in the future and South Sudan is currently carrying out a feasibility study for an interconnector with Uganda and has recently signed a memorandum of understanding with Ethiopia for power trade.

9. **In Juba, the private sector has played an important role in restoring and improving electricity services amid conflicts and declining public capacity.** The Juba Electricity Distribution Company (JEDCO) was established in May 2018 as a joint venture between the South Sudan Electricity Corporation (SSEC) – South Sudan's public utility – which holds 48 percent of shares, and Ezra Group – a private South Sudanese construction company founded by Eritrean immigrants – which holds 52 percent. Ezra also owns and operates Juba's only functioning power plant – a 33 MW generation facility supplying power to JEDCO following the signature of an Implementation Agreement (IA) and a build-own-operate-transfer (BOOT) 17-year power purchase agreement (PPA) with the Government in 2017. The agreement calls for a total of 100 MW of diesel plants to be built and operated in four phases, though most of this capacity, originally expected by 2023, is facing indefinite delays. SSEC's difficulties in Juba grid operation and revenue collection at the time of the signature of the IPP led to the formation of JEDCO as a risk mitigation measure for Ezra, which also holds a majority of seats on JEDCO's Board, though Ministry of Energy and Dams (MoED) provides the Board's chairman. The formation of JEDCO resulted in a significant improvement in the performance of the Juba grid. System losses are reported to be below 10 percent and supply reliability over 95 percent, making Juba grid one of the top performing systems in the region despite its limited geographical coverage. JEDCO currently serves around 33,000 customers, of which 66 percent are households, 32 percent are commercial entities, and two percent are government institutions. These 33,000 customers served by JEDCOs translate to a 32 percent grid access rate among Juba residents.

10. **The cost of electricity from the Juba grid, however, is exceptionally high and has limited demand growth from JEDCO's customers.** Customers in Juba pay an average tariff of US¢40 per kWh, among the highest in Sub-Saharan Africa. Even the lifeline segment of the tariff for residential customers consuming under 100 kWh per month is priced at US¢31.6 per kWh. This is exceptionally expensive compared to regional peers (lifeline tariffs were US¢4.5 per kWh in Ethiopia and US¢6-20 per kWh in Uganda in 2020). Juba's dollar-denominated tariffs have become even less affordable to end-consumers in recent years due to the sustained depreciation of the South Sudanese Pound, as a result of which tariff has more than doubled in SSP terms over the last two years and peak demand in the Juba grid dropped from 30 MW to a low of around 20 MW in May 2022 (though having slightly recovered to around 25 MW since then). The high electricity tariff is also incentivizing grid defection by JEDCO customers in favor of diesel generators and in some cases, solar rooftop systems. With such high tariffs restricting demand, there is also a risk of near-term oversupply as the existing 30 MW Ezra thermal plant will be supplemented by an additional 40 MW of solar from 2023 onwards. An ongoing JEDCO study is identifying opportunities to reduce the cost of service as a result of the Ezra hybridization and Nesitu solar plants currently under construction.

11. **South Sudan's weak power sector policy framework has led to conflicting institutional mandates and inadequate, ad-hoc sector development.** MoED is the apex policy-making institution of the government and also serves as regulator, though few regulations are formally in place. SSEC, a de jure autonomous public institution, is the main national power utility mandated with expanding and operating generation and distribution assets and operated the majority of South Sudan's electricity generation and distribution assets prior to the conflict. However, SSEC's role in the sector has become increasingly uncertain following the decommissioning and destruction of many of its assets as well the de facto privatization of the Juba power system after the formation of JEDCO. SSEC now has limited financial autonomy as it is required to transfer most of its revenues to the Ministry of Finance and Planning (MoFP), an arrangement that predates the formation of JEDCO. The lack of financial autonomy, as well as a severe lack of capacity, has made it difficult for SSEC to maintain its remaining assets and adequately remunerate its staff. As a consequence,

SSEC has lost many of its staff to the private sector, including to JEDCO and the oil industries.

12. **Many of South Sudan's key energy sector policy, planning, and legal documents are outdated, contain significant gaps, or have yet to be written.** While sector policy and strategy documents developed soon after independence – including the South Sudan Electricity Corporation Act 2011 and the National Electricity Policy 2013 – had attempted to set out the roles and responsibilities of sector institutions, the loss of grid infrastructure as a result of conflict and increased role played by the private sector have diminished their relevance. A National Electricity Bill was drafted in 2015 and passed by the cabinet but contains several gaps that threaten to limit is effectiveness as a governing document and has been returned by the Ministry of Justice for revisions that are still ongoing. At this point, South Sudan does not have any formalized sector master plans and lacks the institutional capacity to conduct even high-level planning analyses. The World Bank's last engagement with the South Sudanese power sector, the 2014 "Energy Sector Technical Assistance Project (ESTAP; P145581)", had attempted to address many of these institutional gaps but the outbreak of the civil war led to cancellation of the project.

13. **Lack of planning, governance, and project implementation capacity keep South Sudan's electricity sector trapped in the vicious circle of underinvestment and sluggish growth.** Sector planning is largely done on an ad-hoc basis and in response to private developer solicitation, which has made the sector vulnerable to short-termism and stakeholder capture. Both MoED and SSEC lack the technical capacity to effectively implement projects and ensure these are well integrated into existing systems. For instance, the government-owned Nesitu solar plant, currently under construction around Juba, will reportedly only be able to evacuate around 5 MW of its nameplate 20 MW capacity because of inadequate reactive compensation. This reactive compensation would either need to be added as part of the Nesitu project or provided by the Ezra thermal plant at the point of interconnection, but there is no provision for this either in the contract with the Nesitu EPC or in the PPA with Ezra. It is also unclear, in the absence of appropriate regulation, how Ezra's ownership of the largest generation plant and a controlling share in the Juba distribution company will affect dispatch of power from new MoED and IPP solar plants. The lack of clear planning and regulation and the resulting slow growth of the sector has inhibited further investment, both from the private sector and development partners. Other than Ezra, the only major external investment in the power sector to date is the US$38 million Juba Power Distribution System Rehabilitation and Expansion Project by the African Development Bank (AfDB) in 2017, which rehabilitated and upgraded Juba grid infrastructure, laying the foundation for JEDCO joint venture.

14. **Establishing effective models and regulatory frameworks for public-private partnership (PPP) will be key to restoring and enhancing access to electricity services.** Given the extremely weak PFM in the country and the continued need for humanitarian support, the electricity sector's access to finance is likely to be limited in the near term. This will severely constrain the sector's capacity to maintain existing assets and remunerate its personnel, let alone make major capital investments. Faced with weak institutional and financial capacity, it will be critical for the government to leverage the private sector for both financing and technical expertise. Without a national grid or transmission network and highly limited public funding and capacity, rapidly scaling up electricity access will be dependent on IPPs and private-sector operated isolated grids. A World Bank-funded high-level geospatial analysis estimated that even with high demand growth and significant reductions in the cost of grid power, around half of new connections required to reach 50% access by 2030 would need to come from off-grid or mini-grid solutions.

15. **Despite these many challenges, there is now a unique opportunity for the Bank and other development partners to help GoSS formulate a long-term sector vision and embark on a path of sustainable sector development.** South Sudan is richly endowed with renewable energy resources (in particular solar and hydropower), is bordered by several countries that have significant green power export potential as well as thriving off-grid solar markets, is experiencing increasing interest from private sector energy investors and has already been able to set up functioning

PPPs in power distribution in Juba and in the oil sector, and – by virtue of its institutional and infrastructural landscape being so nascent – has the opportunity to draw on experience from other FCV power sectors to lay an early foundation for success. Taking advantage of these opportunities, however, will require balancing immediate investment needs in access and physical infrastructure with developing the requisite planning, legal, regulatory, and institutional capacity to create a durable enabling environment for sustainable sector growth.

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

To increase access to electricity services and strengthen the institutional capacity of the electricity sector in South Sudan.

Key Results

16. Progress toward achieving the PDOs will be measured by the following project outcome indicators:

- People provided with new or improved electricity service;
- People served by institutions with new or improved electricity service;
- 10-year integrated power sector master plan adopted
- National Electricity Sector Policy updated, adopted, and published
- At least one revised/new sector law developed, adopted, and published by the Cabinet
- Grid code developed, adopted, and published
- MoED staff have completed at least one update of the integrated electricity sector master plan
- SSEC HR and business plan adopted
- SSEC has published externally audited financial statements for the previous financial year

D. Project Description

17. The project consists of four components. The first three components are investment components that aim to increase access to electricity services through isolated grids and off-grid interventions. The fourth component is intended to strengthen the sector's institutional capacity as well as the overall project implementation capacity, which is foundational to achieving the PDO. Many of the activities under component 4, in particular the staffing of the PIU, will be prioritized using the resources provided by the Project Preparation Advance (PPA).

18. Given the vast investment and development needs of the sector against the finite resources available to the project and the recency of Bank reengagement, the project has had to be highly selective in its proposed interventions. As such, project components were designed using the following principal criteria: (i) the project builds on what is already working in the sector to minimize implementation risk and achieve the most immediate development impact, drawing wherever possible on existing infrastructure and institutional capacity; (ii) the project aims to be as resilient as possible to the risks inherent in FCV operations, diversifying components both geographically and institutionally; (iii) the project aims to strengthen the foundational elements of the sector that will maximize opportunities for sustainable future development and financing, both from the private sector and other development partners. This includes a significant allocation for technical assistance and capacity building on issues that are not just immediately relevant to successful implementation of this project but will create institutional capacity for the rigorous and transparent sector planning and governance required to set clear policy goals and attract the necessary investment to achieve them.

Component 1. Grid densification and extension in Juba (US$20 million equivalent)

19. **This component will finance additional grid connections to residential and SME customers as well as grid expansion works to enable new commercial and industrial connections in Juba and its vicinity.** This will include (i) up to 20,000 new service drops for residential and SME customers under the existing network, including areas in which 24 new transformers were installed under the AfDB project but were not electrified; and (ii) expanding the MV and LV networks to the north, west and southeastern parts of Juba for an additional 20,000 residential and SME connections. Commercial and industrial customers will also be able to connect to the expanded MV and LV networks, though their connections will not be financially supported by this project. These additional residential and SME connections are expected to more than double the number of connections in and around Juba. Component 1 will cover new connections in the following target areas identified by JEDCO, which could also include communities in the periphery of Juba.

Component 2. Mini-grid pilot (US$13 million equivalent)

20. **This component will support the solar + battery hybridization and rehabilitation of the existing isolated grid in the town of Yei**. Based on high level geospatial analysis and survey activities in Yei, necessary additional generation capacity has been provisionally dimensioned at 3 MW of solar and 5 MWh of battery storage, in addition to the existing 1.2 MW of diesel capacity as backup. Generation under this investment will be completely solar based renewable. This intervention aims to electrify about 10,000 households including refugees and 400 commercial and institutional customers. Further geospatial analysis will be conducted to determine locations with low flood risk for the solar installation and batteries. Furthermore, the distribution network will be designed with seven-meter clearance, concrete poles, and pole-mounted transformers.

Component 3. Off-grid electrification of health facilities through standalone solar systems (US$10 million equivalent - US$7 million and US$3 million PHRD)

21. **This component will finance the delivery of solar and battery-based off-grid solutions for selected health institutions in rural areas, with a focus on Payam-level hospitals (population of 25,000 and over) and Health Care Centers (PHCCs).** This component is aligned with the Priority Area B (Rural Access to Energy Supply), of the TICAD V grants provided by the Japan PHRD fund, which are directed to increase the delivery of off-grid electricity and other energy services in rural areas of fragile and conflict-affected states (FCS) in African Countries. The component will cover approximately 50 health facilities in states in the Greater Upper Nile Region in which the Bank's health GP is already active (Upper Nile, Jonglei and Unity states, Ruweng Administrative Area, and Greater Pibor Administrative Area), as well as other states identified as a result of further assessment in coordination with the Ministry of Health, based on the structural integrity of the buildings, level of service provided (availability of CEmONC - Comprehensive Emergency Obstetric and Newborn Care services, etc.), population coverage, pre-existing use of electricity and presence of internal wiring.

Component 4. Technical assistance and capacity building (US$10 million)

22. **This component will provide technical assistance to MoED, SSEC, and other relevant institutions as necessary** to build the necessary legal, regulatory, and institutional foundation for sustainable sector growth. The component will also provide funding to support project implementation and strengthen day-to-day institutional capacity and operations.

Component 5: Contingent Emergency Response Component (US$0 million)

23. The objective of this component is to support the GoSS's response to an eligible emergency. The component will be governed by paragraph 12 of the World Bank Policy on Investment Project Financing (Rapid Response to Crises and Emergencies). If an eligible emergency is being declared, the GoM may request the World Bank to reallocate project funds to support the response effort. The component would be capitalized by drawing on unused (or uncommitted funds) under Components 1 to 4. The component could also be utilized for processing additional financing should funding for this become available due to an eligible emergency.

Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Areas OP 7.60	No

Summary of Assessment of Environmental and Social Risks and Impacts

24. There are various potential environment, health and safety risks that can result at the during construction and operation of the off-grid and mini-grid products and materials as well as associated civil works. These include:

i. Generation of hazardous and non-hazardous wastes including e-wastes (from Component 1 and 2 activities). A solar power system involves the use of rechargeable batteries including lithium-ion, nickel metal hydride, nickel cadmium and lead acid batteries. These batteries, especially nickel cadmium and lead acid batteries can have potential for environmental and health impacts if not properly transported, stored, and disassembled/recycled. They can cause serious environmental impacts because of the chemicals and heavy metals. Another emerging environmental issue associated with solar PV energy systems is exhausted solar panels. Leachate generated on landfills of PV solar panels could cause water/ground pollution. There are also potential environmental risks that can result from the use of back up diesel generators. Gensets (diesel generators) can contribute to air pollution during operation and may account for water/ground pollution from fuel spill overs during transportation and storage. Other pollutants include packaging materials of PV panels, battery banks, etc. Localized air quality pollution could result from operating machinery (i.e., fumes) and dust generation from earthworks. Wooden poles for distribution are treated with chemicals during manufacturing that can lead to leaching and the formation of surface residues at the right-of-way.

ii. Small scale soil erosion, sedimentation, and landscape disturbance (from Component 1 and 2 activities). This may result from civil works of mini grids which among others include the construction of a powerhouse for the storage of the battery banks, genset, battery inverters and combiner boxes as well as during erection of distribution network poles.

iii. Potential risks to flora and fauna. Wooden poles may be used for distribution line construction purpose which can lead to cutting of considerable number of trees. Vegetation clearance under and around mini grids in order not to obscure the incoming solar radiation, clearance of Right of Way (ROW), fuel and oil leakages (during transportation and storage) can affect wildlife and ecosystems. Accidental fire which could be caused by Vegetation/trees falling on distribution network cables, in case of large mini-grid systems with high current and voltage levels due to high magnetic fields),

improperly stored/handled, fuel and overheating of battery banks etc. may have adverse impacts on flora and fauna.

iv. Potential use of energy by health care facilities, schools, public buildings, and enterprises/farmers. Construction and operation activities of the project may lead to use of energy resource for different construction and operation related activities.

v. Potential risks to workers and community health and safety. Construction and operation activities may expose project workers to various accidents. Occupational accidents can occur in all stages of the life cycle of off-grid solar materials from manufacturing, installation, and maintenance to decommissioning and recycling. The transportation of materials and machinery may lead to increase in traffic congestion and road accidents. uncontrolled growth of tall trees or vegetation within the transmission RoW may aggravate and cause an increased risk of electrocution, due to contact of branches and trees with live distribution lines which creates, ignition of forest and brush fires that ultimately danger to workers who are on duty, accidental fire may be caused by trees falling on distribution network cables, improperly stored/handled fuel and overheating of battery banks. Diesel generators, vehicles, and construction machineries activities can cause an increase in the noise levels which can affect project workers and the communities residing near the project sites. The risk of adverse consequences posed by the nature and use of the structural elements; risks associated with safety of services which may result in electric shock from electrical cabinets or cables; potential traffic and road safety risks to workers, affected communities, and road users throughout the project life cycle may present danger and could be critical for community health and safety, particularly for women and children and other vulnerable groups. Technical assistance activities may also have potential downstream risks if not implemented following the requirements of the ESF. At this stage, considering the above potential environmental risks as well as major contextual risks including the limited capacity of Ministry of Energy and Dams, the environmental risk of the project is rated as substantial.

The risk classification of the project is substantial, considering the broader contextual risk such as political instability (induced by potential civil unrest), contextual GBV/SEA risk, accessibility of sub projects for monitoring and support, proper utilization, and implementation of Project's environmental and social risk management tools.

The project is not complex or large in scale, does not involve activities that have a high potential for harming people. Social impacts associated with project activities will generally emanate from the construction of grid system, hybrid and solar PV battery storage mini grid for households and enterprises that are assigned to Component 1 of the Project. These include small scale land acquisition and/or livelihood disruption, risks linked to non-compensation for affected crops and trees, influx of labor into targeted areas (though not significant), lack of adequate consultation with affected persons and access to functioning grievance redress mechanisms, as well as social exclusion of women, youth, and other members of underserved and vulnerable groups, including refugees and host communities (potential targets of the Project) . Apart from the project related risk there is a broader contextual risk on security and Sexual exploitation and harassment risks in South Sudan. Hence, the social risk of the project is rated as substantial.

E. Implementation

Institutional and Implementation Arrangements

25. **The MoED will be the implementing agency for all project components.** Inside MoED, a Project Implementation Unit (PIU) will be established to undertake day-to- day coordination and monitoring of implementation of all project components and cross-cutting activities. In addition to MoED staff, the PIU will include secondees from

the relevant agencies including SECC, JEDCO, and MoH, who will be assigned to support the project implementation. For Component 3, MoED will sign a standard agreement with UNICEF, which was selected based on their unique experience and current work on electrifying health facilities in South Sudan, and the capacity they have in order to carry out additional work within the framework of Component 3.

26. **The MoED will establish a project steering committee (PSC) to provide strategic guidance and overall oversight of project implementation and ensure effective coordination among all stakeholders.** The PSC will be chaired by the MoED Minister and include management representatives from MoFP and SSEC as the core members. The PSC will also include observer organizations as needed. PSC will review project progress at least once a quarter and provide guidance.

Results Monitoring and Evaluation Arrangements

27. **The MoED will submit quarterly reports to monitor and evaluate the project progress toward the PDO and the intermediate indicators as well as the implementation of safeguard instruments and gender action plan**. The project monitoring and evaluation (M&E) system incorporates the PDO and intermediate indicators that will be used to track both project implementation progress and attainment of the intended objectives at completion. The M&E framework also includes the collection of several sex-disaggregated results indicators to monitor and assess the progress in implementing gender-related activities, including the narrowing of identified gender disparities, and project benefits for women and men. Monitoring results will be a key responsibility of the PIU in coordination with its contractors and other relevant entities. During the project implementation, a mid-term review will be carried out to provide the opportunity to thoroughly assess the overall project performance in achieving the development objectives and ensure that lessons learned thus far are considered in implementation over the remaining period. Adjustments, including funding reallocation and implementation arrangement changes, and/or a broader restructuring will be made if and where necessary. At the end of the project, the PIU will also undertake an end-of-term review and write a final Implementation and Completion Results Report.

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