Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)

Appraisal Stage | Date Prepared/Updated: 12-Mar-2018 | Report No: PIDISDSA22994

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Project Name	Parent Project ID (if any)
Gambia, The	P163568	Gambia Electricity Restoration and Modernization Project	
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
AFRICA	19-Mar-2018	15-May-2018	Energy & Extractives
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	Ministry of Finance and Economic Affairs	National Water and Electricity Company NAWEC	

Proposed Development Objective(s)

The Project Development Objective is to improve the operational performance of the utility, and its capacity to dispatch variable renewable electricity.

Components

On-grid solar PV
Transmission and Distribution (T&D) restoration and modernization
Urgent institutional support for sector turnaround

The processing of this project is applying the policy requirements exceptions for situations of urgent need of assistance or capacity constraints that are outlined in OP 10.00, paragraph 12.
Yes

Financing (in USD Million)

Financing Source	Amount
Borrower	1.50
EC: European Commission	17.00
EC: European Investment Bank	62.00
IDA Grant	41.00
Total Project Cost	**121.50**

Environmental Assessment Category

B - Partial Assessment

Decision

The review did authorize the preparation to continue

Other Decision (as needed)

B. Introduction and Context

1. **The December 2016 presidential election marked a major political transition for The Gambia, ending 22 years of rule by ex-President Yahya Jammeh**. The inauguration of the new regime led by President Adama Barrow presents an opportunity for the people of The Gambia to consolidate democratic rule. This is the first democratic transfer of power since The Gambia achieved independence in 1965. It ends a period of diplomatic isolation and strained relations with The Gambia's sole neighbor, Senegal, and the reestablishment of strong diplomatic ties with regional and international trading partners is expected to accelerate economic growth. Furthermore, peaceful parliamentary elections on April 6, 2017 have led to an absolute majority for the new government, providing a strong mandate for reforms. The government prepared an Accelerated National Response Plan (ANRP) for the period of July-December 2017, and a National Development Plan (NDP) for 2018-2020 ahead of a donor roundtable.

2. **The new administration is confronting the legacy of unsustainable macro-fiscal policies, weak governance and inefficiencies in public sector management**. The new government inherited large fiscal and external imbalances, a massive public debt stock and costly domestic debt-service obligations, compounded by high contingent liabilities stemming primarily from the National Water and Electricity Company (NAWEC) and several loss-making State-Owned Enterprises (SOEs). The new government is also uncovering substantial looting of SOEs under the previous regime. Meanwhile, net international reserves have fallen to a precariously low level of less than one month of imports.

3. **The Gambia's Gross Domestic Product (GDP) growth rate fell from 4.3 percent in 2015 to 2.2 percent in 2016 because of the difficult political transition and exogenous shocks**. The economy was hit by exogenous shocks caused by erratic rainfalls and the spillover effects of the regional Ebola crisis (2013-16) e.g. in reduction of tourists. Given the economic importance of the rain-dependent agricultural sector, GDP growth is highly sensitive to climatic shocks. In 2016, an unusually short rainy season resulted in a sharp drop in agricultural production of at least 50 percent based on pre-harvest assessments. The weak agricultural season also boosted food-price inflation, driving the consumer price index (CPI) inflation rate from 6.8 percent in 2015 to 7.2 percent in 2016. Furthermore, a 3-month border blockade by Senegalese transporters, after The Gambia doubled fees for trucks in transit, negatively impacted economic activity. The political crisis in the last quarter of the year compounded these already difficult conditions, disrupting transit trade, manufacturing, and mining activities. In the tourism sector which accounts for about a fifth of GDP, political uncertainty slowed tourist arrivals by 20 percent below expectations at the end of the year, though the total number of tourist arrivals remained below its pre-Ebola levels. Businesses in general often report unreliable and expensive electricity as one of the major constraints on growth, especially hotels, who are forced to depend on expensive backup generators.

4. **Poverty has remained flat since 2010 and is associated with low endowment in human capital and**

assets. Due to the poor macroeconomic performance and lack of growth in per capita incomes, the proportion of the population living in poverty—measured using the national poverty line—remained unchanged between 2010 and 2015, at about 48 percent. In absolute terms, however, the number of poor grew from 0.79 million in 2010 to 0.93 million in 2015. Inequality has improved, with the Gini coefficient dropping from 0.56 in 2012 to 0.35 in 2015. Marked improvements have been achieved in terms of literacy, especially among the youth (15-24 years) whose literacy rates doubled from 31.8 percent in 2010 to 67.2 percent in 2015. However, the majority of Gambians, who derive their livelihoods from agriculture, remain highly vulnerable to climatic risks. The quality and availability of basic health services is a concern especially in poor and hard to reach rural areas, partly driven by a lack of electricity which limits the services that can be offered.

5. **The new administration is committed to strengthening fiscal and debt sustainability, reforming its public sector, and boosting inclusive growth, with the support of its development partners**. It has started implementing critical structural reforms with financial and technical support by the World Bank, the International Monetary Fund (IMF), and other development partners. Following the transition, The Gambia's development partners responded swiftly to respond to the country's urgent financing needs. In June 2017, the World Bank approved a $56 million Emergency Development Policy Operation (DPO, P163285) which aimed to support strengthening the Government of The Gambia's fiscal position while restoring the provision of essential public services. This was the first in a series of DPOs. The European Union (EU) also approved a Budget Support Programme of €25 million, and the IMF disbursed US$16.1 million under its Rapid Credit Facility (RCF). These disbursements will provide fiscal space to the authorities to strengthen the country's budgetary and fiscal position. They will also help address underlying debt vulnerabilities, including high debt service costs and contingent liabilities from SOEs.

6. **The financial losses incurred by The Gambia's SOEs and NAWEC represent a fiscal burden.** Moreover, the inability of many SOEs to adequately deliver essential services slows economic development and inhibits social inclusion. Analyses by the Government of The Gambia (GoTG) and the World Bank have revealed weaknesses in the financial and operational performance of The Gambia's thirteen (13) commercial SOEs, which suffer from poor internal governance, inadequate external oversight, and a dysfunctional financial relationship with the broader public sector. The new administration has uncovered evidence that the previous regime illegally diverted SOE funds from their intended purposes, undermining SOE finances and weakening public revenue collection. Sovereign guarantees are essential to attract Independent Power Producers (IPPs), and commercial capital in general, in the energy sector in Sub-Saharan Africa, as the perception of risk of investment is deemed significant. Lessons learned in other regions indicate that requirement for sovereign guarantees will gradually be eliminated when the sector demonstrates sustained financial equilibrium.

7. **Contingent liabilities generated by SOE-related external borrowing and government guarantees to SOEs have increased significantly in recent years**. NAWEC is the most highly indebted SOE, with a stock of over $220 million debt taken out by or on behalf of NAWEC, some with local banks at a very high debt service cost. At end-2016, external borrowing on behalf of SOEs, driven by the disbursement of existing loans, reached 5.7 billion Gambian Dalasi (GMD), or 13.5 percent of GDP. NAWEC accounted for 51 percent of the SOE sector's total outstanding external debt.

8. **The Gambia's inadequate energy supply is a binding constraint on inclusive growth and**

competitiveness, and reform of the energy sector is a key priority for the authorities. NAWEC suffers from serious technical, organizational, and financial deficiencies. A combination of on- and off-budget support to NAWEC represents a substantial fiscal drain on public resources. In 2015 and 2016, government fuel purchases on behalf of NAWEC cost US$20 million per year. The government is also currently servicing about one-third of NAWEC's debt contracted. Nevertheless, NAWEC is defaulting on its debt-service obligations, including a bond consolidating its liabilities to commercial banks (the "NAWEC bond"), which has weakened the banking sector, and led the government to include in the revised 2017 budget the payment of these debt service arrears at end 2016. According to "Africa's Infrastructure: A Time for Transformation" published by the World Bank in 2010, sub-Saharan Africa's economies could be growing by up to two percentage points a year faster, on average, than they do now if they had continuous energy supplies.

9. **Following the change in government, there are high expectations among the population for improved energy services, which has led to demonstrations during the summer of 2017 in response to increasing power cuts.** The new government inherited a grid with limited installed capacity, which suffered from years of underinvestment in maintenance. The installed capacity of the grid is 99 Mega Watts (MW) (of which 88MW is in Great Banjul Area (GBA)), which relies on heavy fuel oil (HFO). However, available capacity in the GBA deteriorated to 27 MW in October 2017, against a demand of 70MW (not counting suppressed demand), leading to widespread blackouts, when some parts of the GBA reported 2 to 3 hours of power per day throughout the summer. NAWEC is not financially viable, driven to a large extent by significant debt service costs which account for approximately 25 percent of revenues[1]. This means NAWEC is not able to perform basic maintenance activities let alone make the investments required to upgrade and expand the electricity system. As a result, the electricity infrastructure is aging and breaks down frequently, further exacerbating the sector's financial issues. Within the power sector, there is an urgent need to significantly reduce power cuts and meet the expectation of the population that a change in government will lead to improved service delivery in the short term.

10. **The proposed Gambia Electricity Restoration and Modernization Project (GERMP) is designed to support the implementation of immediate priority investments to restore the delivery of electricity services in targeted municipal and regional areas and complement fiscal stabilization efforts.** The operation will improve the operational performance of the utility through improving the electricity supply and supporting the turnaround of NAWEC, and its capacity to dispatch variable renewable electricity. In this way, the project partly addresses the aspirations of the population for better public services following the change in government.

11. **This Project will be processed under Paragraph 12 of OP10.00, which allows Condensed Procedures to be applied in cases where there are capacity constraints because of fragility or specific vulnerabilities (including for small states).** The Gambia experiences capacity constraints because of country-level fragility, country-level governance constraints and specific vulnerabilities of the power sector. The Gambia's Country Policy and Institutional Assessment (CPIA) rating of 2.9 classifies it as fragile (as it is below the 3.2 threshold), and as noted in the recent Fragility Risk and Resilience Assessment for The Gambia, there is some evidence that fragility indicators are worsening. This is a critical challenge for the new government which came into power in January 2017, ending a 22-year rule of the former President

[1] For the debt being serviced; if the total accrued debt were being serviced, the debt service costs would be substantially higher

which was marked by miss-management and a worsening of fragility indicators.

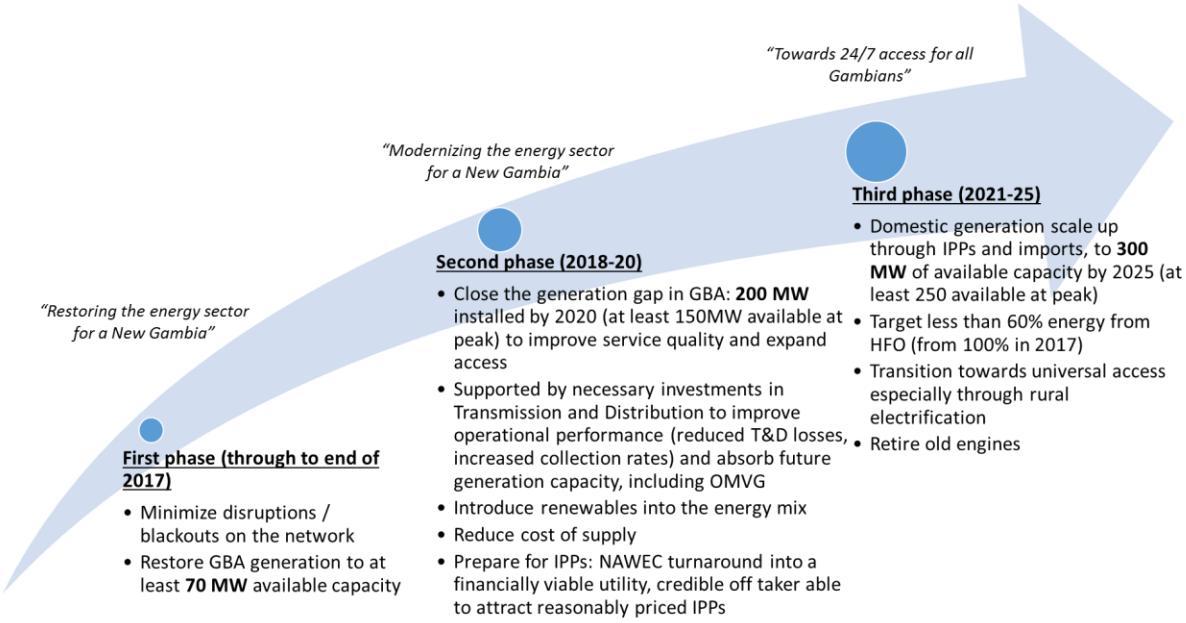
Sectoral and Institutional Context

12. **The key stakeholders of the Gambian electricity sector are NAWEC, the Ministry of Petroleum and Energy (MoPE), the Ministry of Finance and Economic Affairs (MoFEA), and the Public Utilities Regulatory Authority (PURA).** Electricity and water services in The Gambia are provided by NAWEC, a vertically integrated electricity public utility that handles generation, transmission, and distribution of electricity, and the distribution of water. The MoPE is responsible for the implementation of Government policy in relation to electricity supply and distribution and renewable energy. PURA was established in 2001 and conducts tariff reviews and recommends tariff adjustments to the MoFEA, which evaluates the financial implications and provides advice to the President for final decision.

13. **The 2014 National Energy Policy and the Electricity Act provide the legal context for the development of the Gambian electricity sector**. The Electricity Act was enacted to promote cost-effective generation, transmission, and distribution of electricity, set standards for electricity services, determine appropriate tariffs, and enable a transition to a private investor controlled and operated electricity sector. The decision on when this transition should take place is at the discretion of Cabinet. The role of the private sector in the electricity sector has so far been limited, with the first IPP failing soon after its inception. The sovereign guarantees have not been called. In 2006, NAWEC entered into a power purchase agreement (PPA) with the Global Electrical Group Ltd. for the 26 megawatt (MW) heavy fuel oil (HFO) Brikama power plant. In 2013, the PPA was terminated and assets were transferred to NAWEC due to structural issues with the financial and fuel supply arrangements.

14. **The Energy Sector Roadmap, approved by Cabinet in October 2017, casts a vision to modernize the energy sector for a New Gambia, and move towards 24/7 access for all Gambians**. It identifies almost $600 million of short and medium-term investments (over 9 years) needed to modernize the energy system. A Least Cost Power Development Plan (LCPDP) is at the heart of the roadmap, in addition to a review of required investments in Transmission and Distribution (T&D), as well as institutional changes required to attract reasonably priced IPPs to the sector. The roadmap objectives are presented in three phases, outlined in Figure 1. The priority is to restore generation in the GBA as quickly as possible. The second phase (2018-20) includes closing the generation gap and investments in T&D. The third phase aims to scale generation to 300MW of available capacity by 2025 including capacity through the interconnection with the West African Power Pool (WAPP) regional grid, and transition towards universal access.

Figure 1. Energy Sector Roadmap objectives



15. **The first phase of the roadmap implementation is underway with generation capacity in the GBA expected to double from 44 MW in November 2017 to 87 MW by March 2018, Medium Voltage (MV) interconnection with Senegal in border towns, and a communication campaign with customers.** NAWEC has signed a PPA to import up to 10MW from the national electricity utility in Senegal, Société Nationale d'Éléctricité du Sénégal (SENELEC). New cross-border medium voltage lines are enabling the first power imports from Senegal. One line has already been constructed enabling some border towns such as Farafenni now getting 24/7 power for the first time. Other lines are under construction with support from the Gambia Electricity Support Project (GESP, P152659). These imports will benefit isolated centers in the Northern Bank region of The Gambia, which are not yet connected to the grid in the GBA. The World Bank is also supporting other measures in the GBA through the Project Preparation Fund (PPF) for the GERMP, including the replacement of all street lights with LED bulbs to reduce demand in the GBA, and an emergency communications plan to communicate with customers on the power outages and plans to address the crisis. NAWEC has already started to engage customers through social media for the first time with very high level of engagement, and has plans to scale up communication activities further.

16. **In the short-term, an emergency plan has been developed for 2017.** The main features of the plan in the GBA are fast-tracking of capacity expansion through rehab and new engines. This should help to phase out black outs in the GBA. In the provinces, cross border lines with Senegal were fast tracked to purchase up to 10MW of power from SENELEC.

17. **Two major disruptions will help the GoTG scale up generation capacity over the medium to long term and introduce renewable energy**. Beyond the major political transition, there are two disruptions in the energy sector underway which could have a major positive impact Gambia's energy sector over the medium to long term:

- **Imports from the WAPP**: regional power trade represents a significant opportunity for The Gambia to import low-cost and renewable power from its neighbors in the West Africa Power Pool. With financing from the World Bank and other donors, the OMVG interconnection is expected to be commissioned as soon as 2020 which will immediately give The Gambia the ability to import hydroelectricity from Guinea. Initially, 14 MW is expected to come from the Guinea Kaleta Hydropower Plant (commissioned in 2015), and an additional 45 MW is expected from the Guinea Souapiti Hydropower Plant as soon as 2022. Other countries such as Cote d'Ivoire and Nigeria are already entering into long term export contracts where interconnectors exist, and Ghana may also be willing to sell electricity given its oversupply. Imports into the Gambia will initially be based on long term power purchases contracts, but the World Bank is also supporting the establishment of a power market in the WAPP, similar to day-ahead markets that have been established in other power pools. A key factor for imports will be the import price, and the ability of countries in the region to build regional capacity. At global oil prices in summer 2017, the cut off for imports to be financially competitive with HFO is approximately $0.14-0.15/kWh. The GoTG has expressed a preference for imported electricity if it is the lowest cost, so long as it has the capacity to generate at up to 50 percent of energy needs domestically due to national energy security concerns.

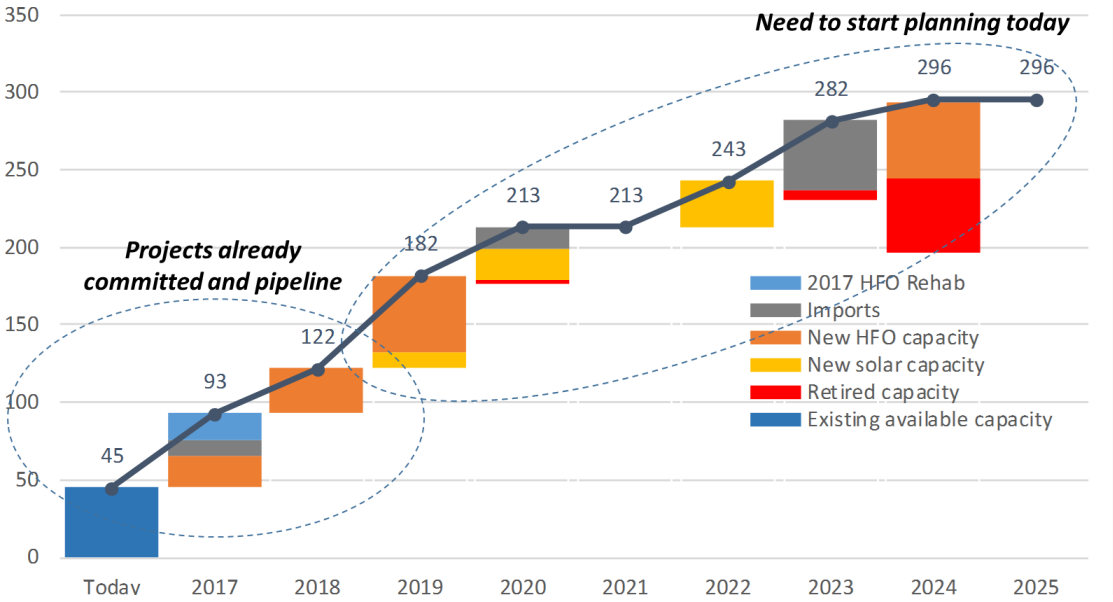
- **Solar Photo-Voltaic (PV)**: global solar prices declined by approximately 50 percent between 2011 and 2016, and continue to fall dramatically. The cost of battery storage is also falling, which could be important for The Gambia to help with grid-integration in the short-term. The average annual solar Direct Normal Irradiation is approximately 1,525 kWh per square meter, which is comparable to areas such as southern France, where there is 6,500 Mega Watt Peak (MWp) installed solar PV capacity (as of 2015). This means that on balance, compared to other renewable energy sources in The Gambia such as wind, solar is the least cost form of renewable energy and is therefore the focus of domestic renewable energy in the roadmap. The provisional target is to reach 60MW of solar by 2025. Additional studies are needed to determine the optimal amount of storage given land and network absorption constraints. The integration of solar PV into the grid will be eased through its combination with battery storage, although despite the downward trend, battery storage costs remain prohibitively high for solar to be considered for baseload energy.

18. **In addition, the modernization of existing conventional generation assets is critical**. All the existing generation assets are aged second-hand HFO/diesel engines that have been installed for an extended life. Moreover, the scarcity of resources of the utility has not allowed for proper maintenance of the existing assets. Combined, these issued mean that the generation efficiency is very low, with high specific consumption and very frequent breakdowns. The installation of new generation assets to provide baseload to the system, with high efficiency and reliability are a priority to secure the future of the power sector in the country.

19. **The LCPDP identified a path to scale-up generation capacity to 300MW by 2025 taking these factors into account**. The primary sources of new generation are HFO and imports for baseload, and solar for providing lowest cost electricity during the day. The next plant for baseload generation in the least cost option is an HFO plant, but the GoTG is considering substituting that with a solar with storage/ hybrid

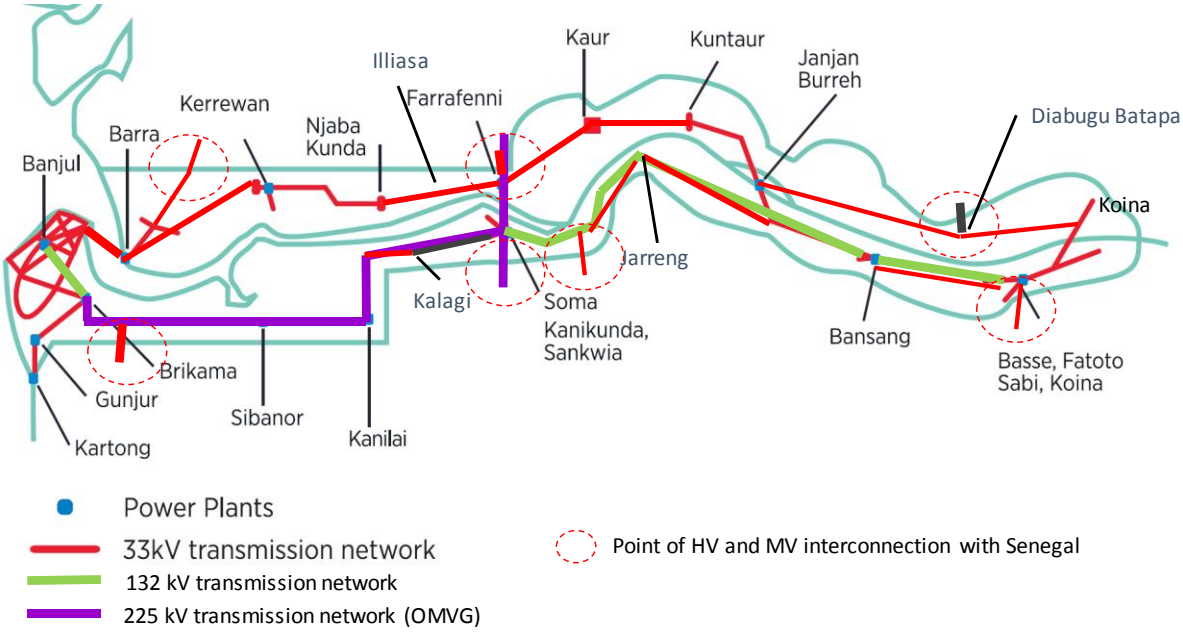
solution, provided the incremental costs are covered with concessional funds such as the Green Climate Fund. Gas-to-Power was also explored as a potential source of base load energy, but more work needs to be done to confirm the viability and timing of potential opportunities. The potential path to 300MW can be found in Figure 2.

Figure 2: Potential power generation expansion through to 2025 in The Gambia (Source: Gambia Energy Roadmap)



20. **In parallel, substantial investments in T&D infrastructure will be necessary to absorb new energy from these disruptions, reduce T&D losses, and extend distribution network throughout the country**. The Gambian distribution system (below 66 kV) is plagued with inefficiencies at distribution level while the transmission system (66 kV and above) is non-existent. These factors lead to high technical losses and unfeasible electricity transport over long distances. The rehabilitation of the existing distribution network and the creation of a transmission backbone (supported by the forthcoming OMVG 225 kV line from Soma to Brikama) will allow the reduction of losses and the unification of the country power system under a unique interconnected grid. Scaling T&D infrastructure to meet growth projections is estimated to require US$133 million by 2025, which will come through public finance. Figure 3 illustrates the network proposed for 2025. Several transmission projects are currently underway, which will improve the performance of the grid. Further investments in T&D are required to further reinforce and expand the existing network to cope with the expansion in generation identified as part of the roadmap.

Figure 3. Proposed network, 2025



Source: NAWEC

21. **An extension of the distribution network in the provinces (outside GBA) can enable expanded access and improved electricity services.** The creation a single more reliable network that can be supplied from different sources, either national generation, MV local imports from Senegal, or High Voltage (HV) imports from the regional pool. In addition, local MV cross-border connection, initially with a volume of imports up to 10MW from Senegal will facilitate the supply from the Senegalese grid thanks to a PPA between NAWEC and SENELEC.

22. **With only 47% of Gambian's having an electricity connection, increasing energy access is an important objective**. Given the size of the country, it is likely that the vast majority of the population should eventually be electrified through grid connections, which is the focus of the regional access project currently under preparation, in which the Gambia is eligible to participate. This regional access will be also supported by the investments in distribution under this project. In Senegal, a geo-spatial analysis concluded that 95 % of its population could be electrified through the grid by 2025, as this remains the least cost means to provide tier 4 level of service[2].

23. **The GERMP will support both of the disruptions mentioned, as well as the modernization and extension of the MV grid which is critical for the path to universal access.** The project will support the country's first utility-scale solar-PV plant, upgrades to the T&D infrastructure needed to absorb variable energy and imports, and extension of the distribution backbone throughout the country. Despite the

[2] Defined as more than 1250 kWh / year. For more information, see https://openknowledge.worldbank.org/bitstream/handle/10986/24368/Beyond0connect0d000technical0report.pdf?sequence=1&isAllowed=y

strong potential of solar described above, there is no utility-scale solar-PV in The Gambia. The GERMP will finance a 10-20MW plant, upgrade the transmission backbone from Brikama including a new dispatch center, which will increase the ability for the GBA network to absorb intermittent energy from solar and imports from the OMVG interconnector. The T&D component will also extend the distribution network to integrate the MV system in just one single one for the country.

Table 1 - Snapshot of electricity sector performance

Parameter	Value
Electricity Access rate	47% (2014)[3]
Number of electricity customers	187,000 (Nov 2017)
Installed capacity	Country: 99MW of which 54MW is available (Nov 2017) Banjul: 88MW of which 44 available (Nov 2017)
Peak Demand	Approximately 70MW, but generation requirement for up to 150MW given suppressed demand (2017)
Energy mix	100% HFO (2017)
Share of private sector in generation	0% (2017)
Average cost of service (cash needs)	$0.32 / kWh (2017 estimate)
Average tariff	$0.22 / kWh (2014) $0.26 / kWh (2017)
Average T&D losses	23% (2016)
Electricity bill collection rate	88% (2016)
Utility debt (electricity water and sewerage)	Stock of debt is ~D10billion (~$220m), or 4x annual turnover

24. **Cost recovery is estimated to be approximately 80 percent**. As mentioned in Table 1, the cost of electricity supply in The Gambia is estimated at approximately US$0.32 per kWh in 2017 on a cash-needs basis (i.e. cash needed to cover immediate operating costs and debt servicing of the utility), one of the highest in Sub-Saharan Africa. Total cost of supply is estimated to be as high as $0.39 / kWh in 2017 including operating costs and all capital expenditure obligations (many of which are serviced by the GoTG, not NAWEC). These estimates compare to average tariffs were US$0.26 per kWh. The cost recovery ratio has recently gone up due to decreases in oil prices and improvements in the fuel supply contracts to NAWEC. However, this effect has been partially offset by a 40 percent depreciation of the GMD against the U.S. dollar since early 2012. As a result, NAWEC accrues losses of GMD 50-80 million per month, or approximately US$15-25 million per year. Fully paying its fuel bills and meeting its debt-service obligations alone would entirely absorb its GMD 200 million in monthly revenue (of which, approximately one third would be debt servicing), leaving no resources for other basic operating costs (personnel, maintenance etc.).

25. **Cost and revenue data from NAWEC are rough estimates, as the utility does not have fully separated accounts for its electricity, water, and sewage activities**. The separation of accounts will be implemented by the Service Contractor financed through the GERMP PPF. This separation, expected to be initiated during 2018, will ensure more accurate figures on cost recovery, and increase transparency

[3] Source: SE4ALL GTF

on costs and cross-subsidies. A review of the tariff structure is planned with support of the World Bank funded Integrated Financial Management Information Systems project (IFMIS, P132881). The review will also assess, among other issues, the potential for an automatic pass through mechanism for fuel prices and exchange rates, and the allowed T&D losses.

26. **The turnaround of NAWEC into an efficient, credit-worthy, financially viable utility is a critical success factor in achieving the roadmap objectives.** With the current lack of financial viability, characterized by high levels of debt, inefficient operations including high T&D losses and low collection rates, and a stretched T&D network, the high levels of risk will be reflected in PPA prices for IPPs. To attract reasonably priced IPPs, the turnaround of NAWEC is therefore critical. Likewise, to avoid the risk of interruptions in the supply of electricity via imports due to non-payment, it is critical that NAWEC get to the point where it can meet any contractual commitments in relation to import purchase agreements. This financial turnaround would also mean that NAWEC would have sufficient resources to adequately maintain its assets and implement much-needed investment projects.

27. **There are several critical and inter-related elements to NAWEC's turnaround, which are being supported through the portfolio of World Bank engagements in the energy sector.** Today, NAWEC is insolvent. However, through the support of a debt sustainability consultant financed through the GESP, a path to financial viability has been identified. The main elements of the plan include:

- **The diversification of the energy mix toward low-cost renewable energy and imports via the OMVG interconnection is critical**. The Gambia remains 100 percent dependent on HFO which has a substantial impact on NAWEC's financial position. Generation depends on imported liquid fuel and without any automatic pass through mechanism which is difficult to implement given already cost-prohibitive tariffs. As a result, NAWEC remains vulnerable to price and exchange rate shocks (e.g. the GMD depreciated 200 percent against the US Dollar since 2000). However, the LCPDP outlines a generation expansion path which has the potential to dramatically reduce the cost structure. As discussed in paragraph 17, the OMVG interconnection, being financed by the World Bank, is a potential game-changer for The Gambia by allowing low cost imports. In addition, renewable energy also presents an excellent opportunity for The Gambia to transition to cleaner energy, reduce the cost of electricity, and increase national energy security with a local and unlimited resource. These opportunities to diversity

- **Debt restructuring**. As mentioned in paragraph 7, it is estimated that over $220 million / GMD10 billion debt has been taken out by or on behalf of NAWEC, equivalent to four times the utilities revenue. Debt servicing is therefore a major constraint on achieving financial viability. NAWEC is exploring options to restructure debt and reduce the debt burden to a level that is compatible with its balance sheet. Progress has already been made. For example, NAWEC has a D2 billion bond issued with five local banks. The terms of the bond were renegotiated in August 2017. With respect to future debt, under the IMF debt sustainability framework, SOEs including NAWEC are prevented from taking on any non-concessional debt. Therefore, any funding for NAWEC will have to be grant or highly concessional.

- **Competitive Fuel supply**. To the extent that NAWEC will continue to operate HFO plants, fuel cost

is the most critical operating expense. Under the former government, excessive fuel costs were a major burden to NAWEC. This saddled NAWEC with excessive premiums and prevented global oil price reductions to be passed onto NAWEC. Since the establishment of the new government, and with the support of the GESP, NAWEC has issued its first short-term competitively tendered fuel contract which helped to reduce the suppliers' premium for shipping, storage and delivery from US$150 to US$90 or below per metric ton, contributing to a savings of approximately US$1.5 million per year (approximately 3-4 percent of annual revenues). NAWEC must ensure that it continues to procure the most competitive price possible on its fuel purchases. A new competitive fuel contract was signed in December 2017, supported through a $45 million credit facility offered by the Islamic Development Bank which became effective in December 2017.

- **Reduced technical and commercial losses.** While T&D network losses have reduced in recent years from 27 percent to 23 percent. It is estimated that of the 23 percent losses, 14 percent are technical, and 7 percent are commercial. Bill collection losses represent additional commercial losses.

  Technical and commercial losses therefore remain well above international norms, especially for such a small system like in the GBA. NAWECs target is to reduce T&D network losses to 15 percent by 2025, which will be challenging to achieve in parallel to the substantial grid expansion plans. Key issues to be addressed, with the support of the Service Contractor for NAWEC financed through the GERMP PPF, include

  - **Reduced technical losses:** World Bank financing through the ongoing GESP will help to reduce T&D technical losses through investments in substations for technical losses reduction. Additional activities will be included in the GERMP. However, additional investments will be required to reach the 15 percent target. Part of the scope of the Service Contractor is to develop a T&D loss reduction plan for NAWEC, including the identification of investments and systems needed to manage losses effectively.

  - **Reduced commercial losses:** There are a number of activities planned or underway to reduce commercial losses.

    Poor bill collection rates have contributed to NAWECs financial insolvency, particularly from public sector entities. As of end-2016, total receivables stood at GMD 1.2 billion, of which approximately 50 percent was held by the central government, street lighting, and various municipalities (about US$12 million). Most government entities are now on prepayment meters, with the exception of some critical institutions such as military and hospitals. To date, there has been a vacuum of responsibility for the cost of electricity for street lighting (data on electricity consumption of street lighting not available).

    As part of the Word Bank's second DPO (P164545), the GoTG has agreed that electricity consumption for hospitals, military and street lighting will be financed through the central budget and paid at regular intervals, and government arrears will be cleared. All other public sector entities will transition to prepayment meters, if not done so already.

The GESP is supporting the reduction of commercial losses through the installation of new prepayment meters for residential customers and smart meters for large customers (whose voltage level does not permit the use of pre-paid meters). These meters will replace old credit meters which are thought to have lost calibration and which are easily tampered.

Finally, the Service Contractor will develop a revenue protection program to identify other areas of commercial losses and associated mitigation methods.

28. **Implementation of the measures above will be supported through the proposed project, but substantial risks remain to the goal of achieving financial viability.** Taking the measures outlined above into account, the updated financial model for NAWEC indicates that financial viability could be achieved by 2021. There are, however, substantial risks to this being achieved. In particular, it is critical for the GoTG to remain committed to the LCPDP and in particular the opportunity presented by the OMVG interconnection which will allow a fundamental shift in the landscape of The Gambia's power sector to lower cost of baseload energy. The path to financial viability also depends crucially on implementation of the actions in the financial recovery plan contained in the Memorandum of Understanding signed between NAWEC and MoFEA (March 2018).

29. **Finally, NAWEC and the Government are expected to sign a performance contract, which is in addition to the NAWEC Service Contract**. To underpin the turnaround described above, a performance contract is expected to be signed between the MoFEA and the NAWEC Board of Directors. Indeed, the MoFEA expects to sign a performance contract will all SOEs, and NAWEC is expected to be the first. A precise timeline has not been set, but it is likely to be in place 2018-19. This performance contract will define clear targets for indicators such as plant availability, technical losses, bill-collection rates, and fuel efficiency of generation; with appropriate incentives to meet those targets. Such incentives are currently lacking. For example, NAWEC's current tariff structure allows for transmission and distribution losses of 20 percent, while actual losses total approximately 23 percent, and it provides no incentives for NAWEC's management to meet targets. The international experience underscores the importance of using incentives in performance contracts, including executive bonuses for achieving targets and salary reductions or other sanctions for failing to achieve targets. The contract would also include commitments from the GoTG, such as an agreement for the settlement of government arrears to NAWEC, which is expected to be part of the DPO under preparation (P164545).

30. As described above, the proposed project is well aligned with existing and pipeline projects financed by the World Bank as follows:

Gambia Electricity Support Project (US$18.5 million, P152659, approved April 2016). The project is well advanced, providing basic investment support to NAWEC including new generators, emergency fuel purchases, reinforcement in distribution substations, and prepayment meters.

OMVG Regional Interconnection project (IDA $47 million for The Gambia, P146830, approved April 2015). The project will connect The Gambia to the WAPP, enabling high voltage imports, and

provide the Western Transmission Backbone from Soma to Brikama.

Regional Access Project (P164044, pipeline, expected FY19) will build on the OMVG project to enable low cost access through grid densification. The project is expected to enable The Gambia to achieve 80 to 100 % access rates.

Regional Off-Grid Electrification Project (P160708, pipeline, expected FY19). The regional project for West Africa and Sahel countries is expected to accelerate the deployment of standalone PV systems for households, public services such as schools and health clinics, and productive uses.

31. The proposed project is also well aligned and coordinated with, and draws lessons from, the broader WB portfolio, in particular the DPO under preparation:
    - **DPO Series.** The emergency FY17 operation (P163285, US$56 million) focused on NAWEC's competitive fuel contract. The FY18-19 DPO series under preparation **(P164545, US$20 million for FY18; a total of $50 million expected in the series)** focuses on energy as one of the key sectors. As discussed above, the series will support increased bill collection from public entities, and the NAWEC performance contract.
    - **IFMIS project** Additional Financing **(P132881, US$5million)** which among other activities is financing audits of all SOEs which will inform the strategic priorities for NAWEC, and will support Technical Assistance to PURA to update the tariff methodology and tariff model.

32. Finally, the project is well aligned with active a pipeline projects from other donors. Table 3 outlines ongoing projects from other donors. There is effective coordination between donors active in the energy sector, achieved through regular donor meetings. The strategic roadmap was also developed through a consultative process involving all donors engaged in the sector.

C. Proposed Development Objective(s)

33. The Project Development Objective (PDO) is to improve the operational performance of the utility, and its capacity to dispatch variable renewable electricity.

34. The PDO level indicators are the following (Section VII presents the full Results Framework):
    - Improve operational performance:
        - Distribution losses in the GBA (percentage)
        - Power outages in the GBA (number per month)
    - Dispatch variable renewable electricity:
        - Increase in annual generation dispatched from variable renewable generation (solar) (GWh)
        - Installation of a Supervisory control and data acquisition (SCADA) system (Yes/No)

D. Project Description

35. There are three components to the proposed project: (1) on-grid solar PV; (2) T&D restoration and modernization; and (3) urgent institutional support for sector turnaround. The project components are described below, with a summary of project costs provided in table 2 below. Technical design details can

be found in Annex 1.

36. ***Component 1: On-grid solar PV (estimated US$ 27 million).*** This component will finance a greenfield 10-20 MWp solar PV plant, potentially including battery electricity storage system (BESS) to adapt output to demand profile and minimize grid absorption concerns (see Annex 1 for details). The utility-scale Solar-PV plant proposed under this project will consist on the preparation, financing, construction, and twenty-years of operation of a PV greenfield solar power generation of between 10 and 20 MWp in Great Banjul Area. The economic analysis is prepared based on the assumption of 16 MWp. The total actual electricity output capacity will be between 8 and 16 MVA and an aggregated active output between 7.5 and 15 MW.

37. According to a first theoretical assessment, the solar generation project plant will generate between 14 GWh et 28 GWh the first year of operation, with slightly reduction on the following years during the 20 years of expected operation due to the degradation of solar panels (around 0.3% per year).

38. The options for PV generation will be selected between two configurations: (i) option A: one single plant, likely to be connected in Brikama area; or (ii) option B: a series of 3-5 smaller plants scattered through the GBA with same total capacity.

39. For option A (a single plant for the whole capacity) the proposed site is located in Brikama, located 20 km from Banjul city. The GoTG would facilitate the area for the plant installation, with a surface of between 30 and 60 ha, allowing available space for future expansion. The terrain has been defined and its topography is appropriate for a PV plant, being flat and with proper road accesses.

40. For option B (several smaller plants with the same total capacity) the proposed sites will be located in the GBA. The GoTG would facilitate the areas for the plant installation, with appropriate surfaces according to plants sizes. The terrains will have to be identified during preparation. In principle, this second option might finance generation that would be located closer to demand centers meaning reduced losses, and reduced impact of grid absorption issues. However, it would increase the number of sites, and operation and maintenance requirements.

41. A specific feasibility study is being carried out by an experienced consulting firm and will provide a comparative analysis for both options. The GoTG will select the most convenient and the design and procurement process will be carried out for that option.

42. The existing studies include an EU-financed grid stability analysis that assess the capacity of the grid to absorb solar intermittent generation. This analysis concludes that a hybrid system (PV+storage) with an adequate smart control (SCADA) can allow a relative important amount of variable renewable energy (VRE) into the Gambian grid. The incorporation of smart elements for the coordination of the total generation of the system provide a qualitative improvement in the operation of the system as a whole as well as in the margin for integration of PV to the system. Main conclusions of the study are described in Annex 1.

43. The solar facilities will also be provided with energy storage for several different purposes:
    a. Provide stability to the GBA grid by smoothing solar generation
    b. Protect the solar generation from grid fluctuations.
    c. Allow that part of the solar generation during daylight to be used in peak times (normally in evenings in GBA)
    d. Provide additional ancillary services to the weak GBA system, mainly in voltage and frequency regulation

44. The size of storage to be installed in capacity and volume (MW/MWh) will be defined by the above-mentioned feasibility analysis that will consider the existing situation of the GBA system including the optimization of the demand-supply balance.

45. The project/s will likely include some minimal associated infrastructures (minor access roads, and interconnection lines to connect the solar plant to the grid etc.). The plant will be composed by a series of polycrystalline or monocrystalline photovoltaic modules installed on fix steel structures. Modules will be connected in strings, and the strings will be connected to the inverters. In any options the sites will be protected from intrusion by a fence. Considering the geographical situation of GBA, logistics will not be complicated. All the equipment can be delivered by road, on truck containers from the port of Banjul (25 km) or Dakar (300 km).

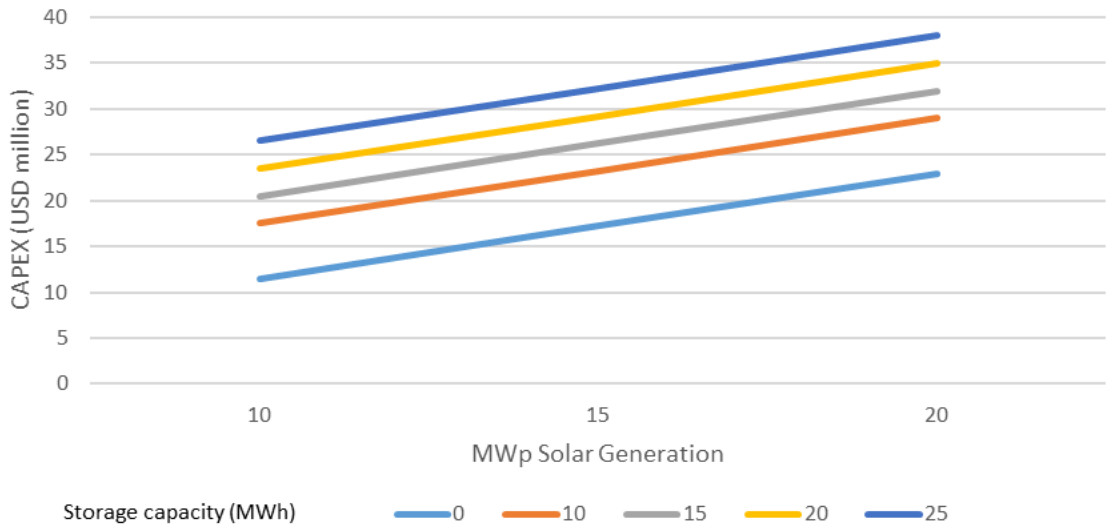
Contractual structure for component 1

46. The plant financed under this component (PV+storage) will be developed through a supply and installation contract with an international contractor.

Expected Generation cost

47. The mentioned feasibility study will provide an accurate study of plant cost based on international benchmarks and Gambian market assessment. However, from recent estimation and international information the estimated cost can be assessed at high level. Figure 5 shows a preliminary estimation depending on generation size (MWp) and storage size (MWh). The basis for that calculation are: $1.15million/MWp for the solar generation and $0.6million/MWh for the storage.

Figure 5. Preliminary CAPEX estimation depending on generation size (MWp) and storage size (MWh)



Connection to the Gambian grid

48. In option A, the plant will be connected to the existing grid (33 kV) or the future line that will be also financed by this project (132 kV). The undergoing feasibility study will define the exact characteristics of the grid connection. In option B, the undergoing feasibility study will provide the details once the locations are defined in coordination with the GoTG. The feasibility study will also recommend the appropriate measures for plant/s grid integration. Those measures will be implemented in the plant design. The new solar plant or plant will NAWEC to be trained in the integration of this type of variable renewable generation into the Gambian grid. This integration will be assisted by the installation of the SCADA under component 2 and by proper training financed under component 3.

49. ***Component 2: T&D restoration and modernization (Component cost US$77.6 million, IDA grant $26.2 million, EIB credit US$34.8 million and EU grant US$17.0 million)***. This component will finance T&D upgrades necessary (i) to absorb the additional generation capacity; (ii) to prepare for future capacity expansion including OMVG and other pipeline projects; (iii) to help reduce T&D losses and reduce power cuts (iv) to extend the distribution network throughout the country; and (v) to enable future grid extension. The investment under this component will be analyzed in detail through a feasibility study being financed under the GERMP PPF.

50. The current T&D network in The Gambia is mainly concentrated in the GBA. It is generally in good physical condition and sufficient for the currently existing load. However, the network losses are high (ca. 24%) and it is currently not possible with the available equipment (lack of meters, no SCADA, etc.) to separate technical and commercial losses and to determine the causes. The roadmap sets a target to reduce T&D losses to 15%, which is closer to the norm in Sub-Saharan Africa.

51. The most important transmission system is located in the GBA with 330 km in length of 33 kV transmission line and five 33/11 kV substations, supplied by two large power stations in Kotu and Brikama. The provincial mini-grids are each limited to a main growth center and its surroundings.

52. This type of grid with its 33/11/0.4 kV voltage levels is classified as the transmission and distribution system. The small size and the limited area of these mini-systems results to constraints that affect the reliability and supply security for the costumers. The expansion of these systems is not obvious as the limited size of the power stations poses some constrain to the development of the systems, while the management and maintenance of the facilities that is carried out with the traditional methods, is a challenge which affects both the operation of the system and the control of the losses.

53. Following recent studies[4], there have been several recommendations to solve the challenges by downgrading the 33 kV and subsequent voltages to a distribution voltage and introduce a higher voltage with new HV/MV substations which would serve as injection points on the distribution grid. Furthermore, On the other hand, investments in T&D will be required to increase absorption capacity for the drastic increase in generation capacity expected in the coming years, and to reduce T&D losses.

54. Various projects are being undertaken on the interconnected grid and in the provinces. These will improve the performance of the grid and are expected to be completed in the period through to 2020:
    - GESP investments. Completion expected for 2018.
    - India distribution in GBA. Completion expected for 2019.
    - OMVG 225 kV, which will provide a "Western" backbone for the country. Completion expected as soon as 2020. This interconnection with Senegal and the WAPP countries will create new substations in Soma and Brikama and will introduce a new voltage in the country (225 kV).

55. Further investments are required to complement the existing network and to reinforce the grid to cope with the additional generation identified in the Energy Sector Roadmap with the view to strengthen and prepare the network for future development and absorption of renewable energy. Details about the transmission and distribution pipeline and the financing is included in Annex 1. Component 2 will support various elements in the roadmap through the following sub-components:

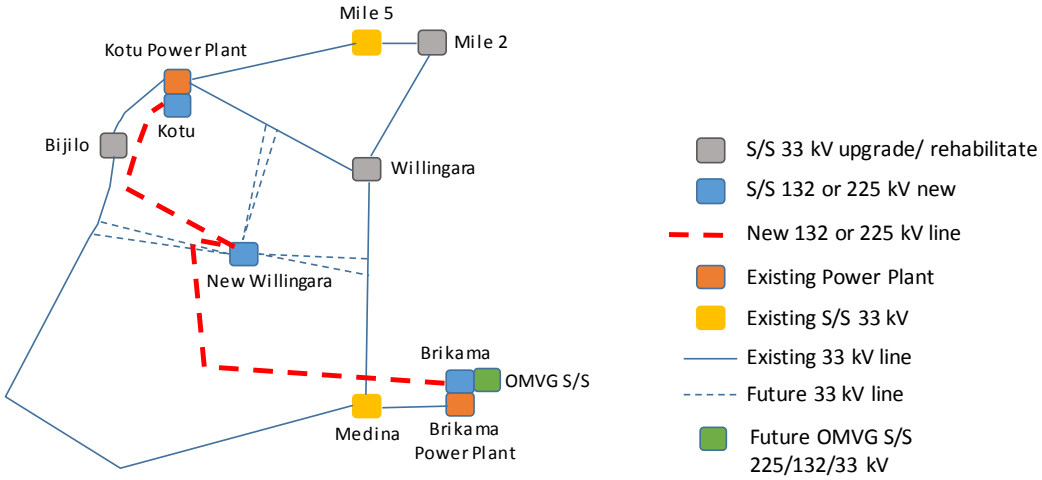
56. ***Sub-component 2.1- new Kotu-Brikama line (sub-component cost $12.0 million; IDA grant $12.0 million)***: this sub-component will finance a new HV transmission line between the two main power plants in the GBA. This will likely be a 132 kV around 30 km, prepared for double circuit. Brikama is expected to become the main hub for power supply in the country, with existing generation, proposed new developments, and the connection to the 225 kV transmission network from the OMVG. On the other hand, the major demand center of the country is around Kotu.

57. The Kotu-Brikama connection is therefore critical. However, the current connection between these two

[4] Feasibility study for national transmission line and dispatch center of The Gambia. AEC Kuwait – 2015
The Gambia Electricity Sector Roadmap – High Level Update. Government of The Gambia. September 2017

centers (supply and demand) is very weak and only supported by 33 kV lines. This link therefore poses a risk to the development of the main economic area of the country, and future developments of power generation in Brikama, expected to be under Private Sector Participation (PSP) schemes. The upgrade of the Kotu-Brikama line is therefore a critical short-term investment needed to enable access, improve service quality for the GBA customers, expand the ability of the network to absorb VRE, and reduce T&D losses by transferring the supply from existing HFO plants to the HV lines instead of the existing 33 kV lines.

Figure 6: Projected network to link Kotu with Brikama in the GBA, 2025



Transmission Lines

58. The project will finance two transmission lines that will be defined by the feasibility study, financed through the GERMP PPF. The study will propose the optimal technical design of the conductors (e.g. assess 225 kV instead of 132 kV, or if a double circuit is necessary etc.), and ground wire. Optical fiber will be included in the line for telecommunication purposes. It is expected that these lines will be above ground aerial lines, but some sections may need to be underground to mitigate social and environmental impacts, if it is financially and economically viable. As illustrated in Figure 6, this sub-component is expected to include:
    a. 18 km 225 or 132 kV single or double circuit transmission line from Brikama Power Station to the New Wellingara substation.
    b. 11.5 km 225 or 132 kV single or double circuit transmission line form the New Wellingara substation to Kotu Power Station.

Substations

59. The project will finance the construction of three new substations that will serve the new lines to be constructed. The substations to be built are (i) new project of 132kV New Wellingara Substation; (ii) new project of 132kV Brikama Substation; and (iii) new project of 132kV Kotu Substation. The substation

capacities will be defined through the feasibility study, but will have the following indicative features:

a. Voltage class: 132/33kV.
b. 132kV outgoing line: to be defined by study in coordination with NAWEC. Preliminarily, two outgoing lines in the current stage and future stage respectively, which apply sectionalized single-bus connection.
c. 33kV outgoing line: to be defined by study in coordination with NAWEC Preliminarily, ten outgoing lines in the future stage and six outgoing lines in the current stage, which apply sectionalized single-bus connection.
d. Reactive compensation: to be defined by the study in coordination with NAWEC.

60. ***Sub-component 2.2 – improved service quality (sub-component cost $13.9 million; IDA grant $9.9).*** This sub-component will finance a new integrated dispatch center with SCADA (controlling generation and transmission), upgrades to existing primary and secondary substations, and switch gear. Together, these investments will help NAWEC be able to track and improve the overall quality of supply in the GBA as well as the provinces when they are connected.

Dispatch Center

61. The feasibility study financed through the GERMP PPF will analyze and propose an optimal configuration for the new National Control Center of The Gambia which will consist primarily of two components:

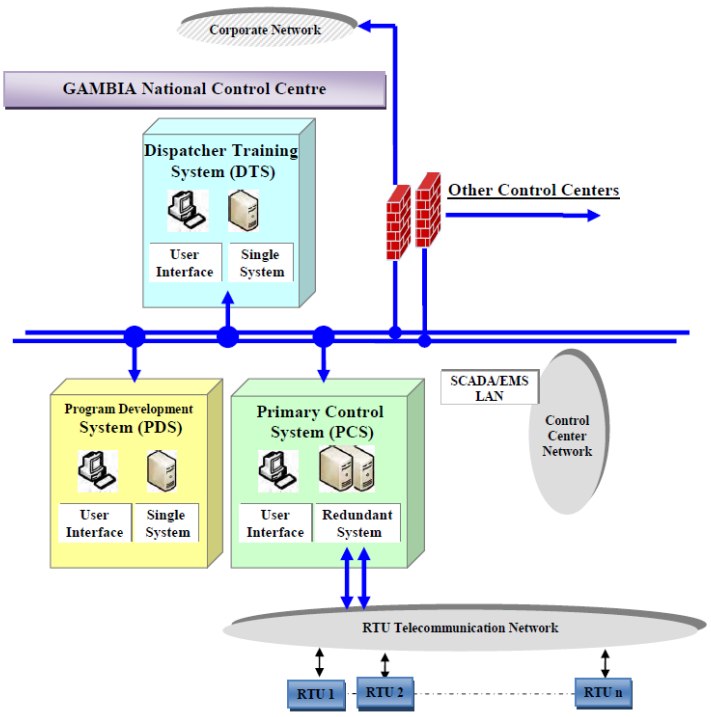
a. The computer system providing the SCADA/Energy Management System (EMS) functionalities and its necessary auxiliary (i.e.: UPS uninterruptible power supply, standby generator). The system is open, efficient and highly secured with modern management tools for power generation and transmission systems and using state of the art techniques in the field.
b. Modern buildings secured and adapted to a modern control center in real time.

62. The SCADA system is essential to facilitate the integration of renewable energy (both from domestic solar and imported hydro). SCADA is an essential tool to manage variable renewable energy, without which there is a high risk of stranded assets. If the instability cannot be managed, the operator will have recourse to HFO peaking plants to make up the shortfall.

63. The Gambia National Control Center will be composed of 3 main systems, which are illustrated in Figure 7:

a. Primary Control System
b. Program Development System
c. Dispatcher Training System

Figure 7: Preliminary scheme for the SCADA/EMS system



Source: Study financed by BADEA (AEC)

64. The feasibility study will also propose the rehabilitation and upgrades needed on the existing primary distribution substations (up to six), and assess the need to upgrade the 425 secondary substations in the GBA, including necessary measures for rehabilitating the ones that are not fully operational. These activities will then be financed through the project, which will further help to improve reliability and reduce distribution losses.

65. ***Sub-component 2.3 – distribution backbone in the provinces (sub-component cost $48.0 million; IDA grant $1.0 million).*** The component will finance the interconnection of the existing isolated MV networks scattered throughout the country, including a submarine cable from Barra to Banjul. The extension of the distribution network in the provinces (outside GBA) will enable extended access and improved electricity services. Currently, the distribution network in the provinces consists of a series of isolated grids supplied by small diesel groups.

66. The connection of the different isolated grids will allow the creation a single more reliable network (Figure 3) that can be supplied from different sources, either national generation, MV local imports from Senegal, or HV imports from the regional pool most of which is expected to come from hydropower. The submarine cable will help increase overall stability of the grid through the creation of a MV loop. The substations will need to handle the change in capacity between the distribution network in the GBA (33kV) and the provinces (30kV). In addition, local MV cross-border connection with Senegal will facilitate the supply from the Senegalese grid thanks to specific Power Purchase Agreements between NAWEC and

SENELEC. Some Low Voltage lines may also be financed if there is a need and budget available.

67. This interconnection will consist of up to 400 km of MV lines and approximately 10 primary substations. The potential beneficiaries of these interconnection would be the population of all provinces outside GBA and Lower River province, equivalent to approximately 37 percent of the population (approximately 690,000 inhabitants and 59,000 households). A specific feasibility study will be conducted to identify the exact scope of the different interconnection projects.

68. ***Sub-component 2.4 – customer connections, Demand Side Management (DSM), and loss reduction activities (sub-component cost $3.7 million; IDA grant $3.7 million)***: this sub-component will finance investments to enable NAWEC to connect new customers through the provision of at least 31,000 prepayment meters (sufficient to provide a stock of meters for 2019 and 2020), a meter testing lab, and DSM activities such as the supply and installation of LED bulbs to replace incandescent bulbs in government offices and street lights in the GBA and provinces, and DSM equipment. This sub-component will also finance equipment needed to identify and reduce T&D losses at NAWEC, such as Advanced Metering Infrastructure.

69. ***Component 3: Institutional strengthening and project implementation support (component cost $15.6 million; IDA grant $14.1 million)***. This component will finance key activities related to urgent activities to restore the sector, improved operational performance of NAWEC, and project implementation support.

70. ***Sub-component 3.1: NAWEC turnaround (subcomponent cost US$7.4 million, IDA grant US$7.4 million).*** The GERMP will finance various activities designed to support the turnaround of NAWEC's operational performance, such as:

- **A NAWEC Service Contractor (contract activated in November 2017**). This GERMP will finance a three-year service contract which will be a critical support to strengthen NAWEC's technical, financial, and managerial capacity. This activity was originally expected under GESP but following a project restructuring, will now be financed through the GERMP. Among others, the service contractor activities include
    i. Preparation of an Organization Audit and proposals for restructuring of NAWEC
    ii. Preparation of a business plan NAWEC, including performance targets, which will form the basis of the NAWEC Performance Contract
    iii. Design of a new IT system to integrate accounting, billing, payroll, stock, and other accounting functions
    iv. Separation of financial and commercial accounts (electricity from water and sewerage)
    v. Creation of a customer call center to take citizen feedback and respond to questions/concerns
    vi. Preparation of a Revenue Protection Program, and
    vii. Preparation of a T&D loss reduction program.

- **New NAWEC IT system for NAWEC**: A separate contract will be issued for the installation of the new IT system, defined by the service contractor. The IT system will streamline NAWEC's

operations, integrating all the processes into one single system. It will also improve the internal and external reporting for NAWEC management and decision making, and enable the process of separation of electricity, water, and sewerage accounts. This activity was originally expected under GESP but following a project restructure, will now be financed through the GERMP.

- **Communication and citizen engagement campaigns** regarding the power crisis in The Gambia to engage with customers on the reasons for the crisis and efforts being taken to address the crisis, and to encourage citizen's awareness and support for residential conservation measures. Some activities will be financed through the GERMP PPF. The emergency communications campaign forms a critical part of NAWEC's citizen engagement activities. The PPF has enabled NAWEC's first use of social media including the creation of a NAWEC Facebook page which has had very high levels of engagement especially from the youth. The activity will also support the establishment of regular press briefings, and the creation of a TV campaign in order to maintain an open channel for dialogue between customers and NAWEC.

- **Capacity building activities** for NAWEC technical management and staff, training activities will include, but not limited to, technical areas such as:
    i. Procurement, project management and contract management of renewable plants;
    ii. O&M of solar plants potentially through learning trips and south-south exchange
    iii. Operations of HV lines;
    iv. Grid management and SCADA in a diversified generation pool with variable renewable energies and reduced T&D losses
    v. Citizen's engagement and community outreach; and
    vi. Energy sector planning including planning software

71. ***Sub-component 3.2: Strategic support for the energy sector (subcomponent cost US$2.6 million, IDA grant US$2.6 million)***
Activities included in this sub-component include:
    - **Strategic studies for the sector** including a new masterplan which will form the basis of the next iteration of the strategic roadmap expected in 2019 (see box below), and others such as the preparation of a formal grid code for The Gambia electricity sector.
    - **Technical Assistance to the MoPE, MoFEA, and the Office of the President**, including activities such as the provision of energy advisers to support the preparation of IPPs, identify and negotiate power import agreements within the WAPP, support for the institutional reorganization of MoPE etc.
    - **Auditor for the MoFEA-NAWEC performance contract**: as discussed in paragraph 29, the MoFEA are expected to sign a performance contract with NAWEC. The GERMP will finance an independent third-party consultant to validate the Key Performance Indicators (KPIs). The GERMP will also support, as needed, Technical Assistance to the sector to develop the capacity to effectively monitor the performance contract, likely within the MoFEA.

Box – scope of activities in the proposed power sector masterplan

- A detailed, GIS-based **demand forecast.**
- A **solar optimization** study to map solar sites, start the process of land banking, and assess the optimal expansion of solar given grid and space constraints, and identify any institutional, regulatory or legal updated that might be necessary.
- A **gas-to-power options** study including an assessment of options including developing a gas-to-power regional project with Senegal, importing gas from Senegal such as a gas pipeline, the possibility of domestic gas and therefore the option of a bridge solution in The Gambia.
- An update to the **Least Cost Power Development Plan,** which incorporates output from the previously mentioned components.
- A **T&D masterplan.**
- **Synthesis paper** summarizing all the findings (and which would become the new roadmap).

72. ***Sub-component 3.3: Project Preparation and Implementation Support (subcomponent cost US5.7 million; IDA grant US$ 4.2 million)***

Activities included in this sub-component include:

- **Owners Engineer to assist NAWEC in project implementation**. The project will finance an owner's engineer to supervise the execution of Components 1 and 2. The owner's engineer will also provide procurement assistance to the Project Implementation Unit (PIU).
- **PIU costs** including additional capacity building activities such as intensive training sources and south-south learning on safeguards and procurement, consultants to assist at critical parts of project implementation, a project vehicle and IT equipment for the PIU.
- **Key studies for project preparation** including preparation of feasibility studies and tendering documents.
- **Preparation of safeguards instruments** such as the Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF) financed through the GERMP PPF, and any Environment and Social Management Plan (ESMP) documents, and Resettlement Action Plan (RAP) documents that are subsequently required.
- **Implementation of safeguards instruments**, including the actions identified in the ESMF and RPF excluding compensation, which will be financed through Counterpart Financing. The estimated cost of compensation is $1.5 million, to be confirmed during the preparation of the RAPs. This component will also support the creation of a functional Grievance Redress Mechanism (GRM).

E. Implementation

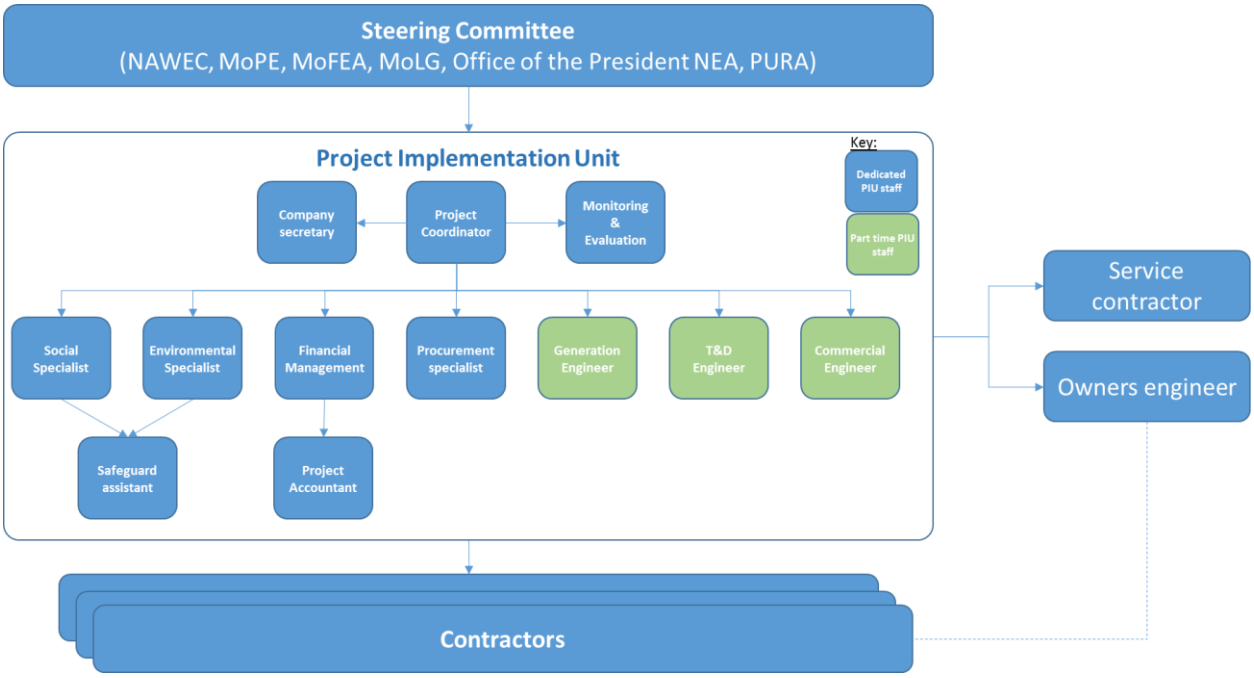
73. Implementation arrangements are summarized in Figure 8. NAWEC will be the implementing agency of the GERMP, assuming all fiduciary responsibilities and responsibilities for reporting to the Bank. NAWEC has experience in hosting an implementation unit with the GESP and the PIU has received specific training in Bank fiduciary rules and guidelines. The GESP PIU will be enhanced and used for the purposes of GERMP implementation. Key functions will become dedicated (project coordinator, procurement specialist, financial management specialist, environmental safeguards specialist, and social safeguards

specialist). Other specialists include the project accountant, and the M&E specialist, and technical specialists such as generation, T&D, and commercial.

74. The owner's engineer financed under Component 3 will provide support to the implementation of GERMP components 1 and 2. The Owners Engineer will provide support to the PIU in the form of highly qualified power engineers to assist in matters and ensure that the project meets the Bank requirements on procurement and social and environmental safeguards, Occupational Health and Safety issues, and conduct the supervision of investments under Components 1 and 2. The Owners Engineer will therefore help avoid design errors, and keep the project on schedule. However, the ultimate responsibility for project management will lie with the PIU.

75. The Steering Committee (SC) established under GESP will be expanded for GERMP given the scale up in the scope and complexity of activities. The new SC is expected to include representation of various ministries at the Permanent Secretary level. The SC will include the MoPE, MoFEA, Ministry of Local Government (MoLG), Office of the President, PURA, the National Environmental Agency, and NAWEC. it will provide advice on strategic questions related to the GERMP's implementation. The SC will meet at least biannually and will monitor project advance and planning for subsequent periods.

Figure 8 – Implementation arrangements



76. The roles and responsibilities of the GERMP PIU will be spelled out, including the owner's engineer, and implemented in accordance with the Project Implementation Manual (PIM), which will be completed by NAWEC before effectiveness. The service contractor, recruited under Component 3, will also provide inputs on technical, financial, and commercial aspects to complement the monitoring of the project outcomes.

77. Preparation of site-specific safeguards instruments will be deferred to during project implementation, according to the Safeguards Action Plan included in the Project Appraisal Document. This is permitted as the project is being prepared under Paragraph 12 of under OP 10.00. For the activities that require an Environmental and Social Impact Assessment (ESIA), bidding documents will not be advertised until the ESIA has been completed.

F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)

Some potential sites have been identified and are being assessed as part of ongoing feasibility studies. These include a 23 ha plot of land at Jambur for the on-grid solar field, and potential routes for the Kotu-Brikama transmission lines.

G. Environmental and Social Safeguards Specialists on the Team

Ruma Tavorath, Environmental Safeguards Specialist
Mamadou Moustapha Ndoye, Social Safeguards Specialist

SAFEGUARD POLICIES THAT MIGHT APPLY

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	All the activities proposed under the project will have moderate to low potential impacts, associated with construction and maintenance. These include issues related to impacts on avifauna due to proximity to forested areas; clearance of vegetation and trees; sourcing of construction materials and generation of waste; erosion management of transmission poles; pollution of air, water, land and noise; occupational health and safety of workers; community safety; management of labor influx and cultural property management and chance finds.

Natural Habitats OP/BP 4.04	No	
Forests OP/BP 4.36	Yes	Since the proposed transmission lines could pass nearby designated forests, the policy is being triggered to ensure appropriate attention is paid during the ESIA process. Attempt will be made during the ESIA and feasibility studies to avoid any impact even on the fringes of the forests
Pest Management OP 4.09	No	
Physical Cultural Resources OP/BP 4.11	No	
Indigenous Peoples OP/BP 4.10	No	
Involuntary Resettlement OP/BP 4.12	Yes	The options being considered for the grid-connected solar PV plant, such as the Jambur site, will likely involve land acquisition leading to economic or physical displacement. The transmission line could also cause economic and physical displacement, especially those in urban areas like Brikama. The main social impacts are expected to be on livelihoods and income – employment, crop losses, tree losses, building losses, land losses (solar site, partial impact on habitat plots), Loss of community and individual equipment.
Safety of Dams OP/BP 4.37	No	
Projects on International Waterways OP/BP 7.50	No	
Projects in Disputed Areas OP/BP 7.60	No	

KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

The project is expected to have substantial positive benefits such as improved standard of living and higher possibility of income generating activities due to consistent and reliable electricity supply. The use of renewable energy will contribute to the reduction of greenhouse gas emissions and other air pollutants. While the project is not expected to have significant large-scale and irreversible impacts, project activities will have localized, site-specific impacts which will need to be adequately managed.

The proposed transmission routes come close to some designated forests (Bijilo Kabafita, Bamba and Salagi Forest Parks). There is a risk that the routing may have an impact on these forests, either due to clearance of trees or disturbances to the wildlife and the rich avifauna, if not properly managed. Other generic impacts of upgrading and construction of T&D lines and also of setting up of Solar PV plants are related to excavations and earthworks;

vegetation clearance of localized grass and trees; location of transmission poles and risk of erosion based on the site-specific topography; sourcing of construction materials and waste generation. These activities can also have potential social impacts during works, including risk to public and community health and safety; inconveniences such as disruption of services, pollution due to emissions to air, water and land and noise of works.

Labor influx can pose potential social risks to local communities and will need to be well managed. Such a linear project can also have possible impacts on local cultural property (places of worship; spiritual or culturally sensitive sites; graves; chance archaeological finds, etc).

Sites involving potential resettlement impacts are not definitively known. They will have to house solar power plants. Sites, such as the Jambur site, will likely involve land acquisition leading to economic or physical displacement. The transmission line could also cause economic and physical displacement, especially those in urban areas like Brikama. The main social impacts are expected to be on livelihoods and income – employment, crop losses, tree losses, building losses, land losses (solar site, partial impact on habitat plots), Loss of community and individual equipment.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:
n/a

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.
Routing of the transmission lines need to be considered in the feasibility studies to minimize potential environmental and social impacts (while crossing populated sections; forested areas; and sites prone to erosion). Alternatives will also be assessed for the site of the solar plant.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.
An Environmental and Social Management Framework (ESMF) has been prepared which provides guidance on how to identify potential adverse environmental and social impacts from project activities, and how to plan, implement and monitor measures to mitigate them. Consultations with the various stakeholders along the routing of the transmission lines have been adequately conducted and documented. Mechanism for setting up a Grievance Redressal mechanism has been detailed along with guidance for preparing and monitoring Environmental and Social Management Plans. The ESMF also includes budget for implementation and monitoring and commissioning an independent environmental audit.

Institutional capacity to handle Environmental Safeguards is inadequate and will be enhanced by hiring of technical consultant within the Project Implementation Unit (PIU) with added support from the owner's engineer. There is an existing Bank funded project being managed by NAWEC which has an Environmental specialist, who has been trained by Bank staff. The ESMF include budget for training workshops for building capacity of the staff of NAWEC and other collaborating institutions and partner agencies on potential impacts and measures before the identification of site-specific activities. The Regional Technical Advisory Committees will also be sensitized. Training of construction workers is a requirement for the private contracted companies responsible for works.

The Government has also prepared Resettlement Policy Framework. Once the project sites are known, RAPs will be developed in accordance with the RPF, the social safeguards requirements of the co-financiers, as well as The

Gambia's relevant laws.

Site-specific safeguards instruments will be prepared during project implementation, per the Safeguards Action Plan included in the Project Appraisal Document.

NAWEC does not have a Social Specialist and will therefore need to strengthen its capacity and expertise to take charge of all aspects related to social protection and social development. Communication on the project with development actors, local authorities, and communities is needed to maximize the social outcomes of the project. Government support to NAWEC and communities could also help maximize the social benefit of the project

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

Consultations were held with communities from projects sites at Jambur, a potential site for the 23 hectare on-grid solar field; T&D route from Brikam I/II Power Station to Kotu Power Station; Bakoteh Fish Market / Ice Plant; Farafenni Upper Basic School and Kuntair Health Centre. Other stakeholders included National Water and Electricity Company; National Environment Agency; Ministries of Petroleum and Energy; Lands and Regional Governments and Decentralization and Local Government along with Departments of Forestry and Physical Planning and Housing. The Technical Advisory Committee from West Coast Region was also consulted. These consultations covered a range of issues including impacts, mitigation measures; land ownership and land use; maintenance and roles and responsibilities etc. Procedures and timelines for local consultations during the preparation and finalization of the site-specific Environmental and Social Management Plans are included in the ESMF.

These communications initiated in the preparation of the project with ESMF and the RPF will be continued with the RAP during the implementation and the follow-up of the project. As provided under World Bank policy OP. 4.12 information and consultation on the GERMP Resettlement Policy Framework shall be organized as follows: (i) Organize Resettlement Policy Framework validation workshop for all relevant stakeholders for comments, including PAPs; (ii) Share with the Lenders for comments; (iii) Incorporate stakeholders' comments.

Public participatory consultation will be done through stakeholders' meetings and workshop at suitable locations such at the "bantaba" (this is an open space in the village where people meet to discuss village matters), and the official residence or offices of the local leaders. Comments will eventually be considered for incorporation in the RAPs.

The main stakeholders are representative persons like Members of the National Assembly (NAMs), Regional Governors, Village Councillors, Village Development Committee members, the PAPs, NGOs and civil society, etc. Vulnerable groups will be include: elderly; sick/disabled, including HIV/AIDS; children; women; unemployed youth; orphans; households headed by women that depend on sons, brothers, and others needing support and are especially vulnerable. A grievance resolution committee, GGRC, is proposed to be set up with the following membership to address grievances, as well as informing and coordinating with relevant stakeholders to ensure they use or participate in the GRM.

B. Disclosure Requirements

The review of this Safeguards has been Deferred.

Comments
An Environmental and Social Framework has been prepared. Once project sites are known, Environmental and Social Impact studies will be prepared as needed.

Resettlement Action Plan/Framework/Policy Process

Date of receipt by the Bank	Date of submission for disclosure
04-Jan-2018	01-Feb-2018

"In country" Disclosure

Gambia, The
01-Feb-2018

Comments
Published in NAWEC website

C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)

OP/BP/GP 4.01 - Environment Assessment

Does the project require a stand-alone EA (including EMP) report?
Yes
If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?
Yes
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?
Yes

OP/BP 4.12 - Involuntary Resettlement

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?
Yes
If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?
No

OP/BP 4.36 - Forests

Has the sector-wide analysis of policy and institutional issues and constraints been carried out?
Yes

Does the project design include satisfactory measures to overcome these constraints?
Yes

Does the project finance commercial harvesting, and if so, does it include provisions for certification system?
No

The World Bank Policy on Disclosure of Information

Have relevant safeguard policies documents been sent to the World Bank for disclosure?
Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?
Yes

All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?
Yes

Have costs related to safeguard policy measures been included in the project cost?
Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?
Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?
Yes

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APPROVAL

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