Project Information Document/ Integrated Safeguards Data Sheet (PID/ISDS)

Concept Stage | Date Prepared/Updated: 15-Jul-2016 | Report No: PIDISDSC18355

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Parent Project ID (if any)	Project Name
Kenya	P160009		Kenya: Off-grid Solar Access Project for Underserved Counties (P160009)
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
AFRICA	Jan 20, 2017	Mar 15, 2017	Energy & Extractives
Lending Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	The National Treasury	Rural Electrification Authority,Ministry of Energy and Petroleum	

Financing (in USD Million)

Financing Source	Amount
International Development Association (IDA)	150.00
Total Project Cost	**150.00**

Environmental Assessment Category	Concept Review Decision
B-Partial Assessment	Track II-The review did authorize the preparation to continue

Other Decision (as needed)

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B. Introduction and Context

Country Context

With a population of 45 million people and a GDP of US$61 billion, Kenya is one of the largest economies in Sub-Saharan Africa (SSA), achieving, in 2012, middle income country status. In the past several years, the GDP growth rate, hovering above 5 percent in Kenya, has outperformed the average for Sub-Saharan Africa – and is projected to rise to 5.9 percent of GDP in 2016 and 6 percent through to 2017, underpinned by trade and services. Information, communications and technology (ICT) is playing a large role in the services sector, contributing 4.1 percent of the value added in the country. Mobile phone coverage is 82 percent of the population; mobile payments have reduced the cost of money transfers, extended access by rural households, and a source of employment. Kenya also improved its business environment as the country jumped from 129 in 2015 to 108 in 2016 in the World Bank's Doing Business

Index. Kenya combines vibrant economic activity in some of the largest cities together with a continued dependence on agriculture in rural areas and widely heterogeneous access to education, electricity, services, and productive jobs.[1]

The effects of sustained macroeconomic growth are translating into improved quality of life. However, inequality remains high and opportunities are substantially different for those living in the arid and semi-arid regions of Kenya which are underserved, as well as between women and men. Kenya's decentralization is among the most rapid and ambitious processes globally, the devolution process seeks to narrow long-term, deeply entrenched regional disparities and increase the responsiveness and accountability of government, especially county governments to citizens.

The Government of Kenya (GoK), in Vision 2030, aims at transforming "Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens." Promoting equal opportunities across the entire Kenyan territory is key to realizing this vision. Access to competitively-priced, reliable, quality, safe, and sustainable energy is essential for achievement of the vision. Best estimates suggest the GoK will reach only 50-60 percent completion in generation and access targets defined in the 2013-17 Power Sector Strategic Plan. The total unsecured financing required across the sector value chain in generation, transmission, distribution, and off-grid is estimated at US$14-18 billion through 2020.[2]

Sectoral and Institutional Context

Kenya has experienced a dynamic policy environment since the mid 1990s when the Electric Power Act was enacted to establish an enabling framework for power sector development. The Act included the creation of a sector regulator, ERB and the functional unbundling of KPLC, mandating KenGen to be in charge of generation, while KPLC remained in charge of transmission, distribution, and retail functions. A second generation of reforms was introduced in 2006. ERB was transformed into a single energy regulatory body – ERC; KETRACO was set up to facilitate creation of new transmission assets; GDC was incorporated to de-risk geothermal development and, REA was created with the mandate of accelerating rural electrification. These two generations of reforms have achieved considerable progress in terms of market development. The sector operates on commercial principles supported by transparent financial relationships between the sector utilities and electricity retail tariffs are cost reflective. The generation sector is complemented by several private producers that sell electricity through long-term Power Purchase Agreements (PPAs) signed with KPLC.

Kenya has recently embarked on a third generation of reforms through the new Energy Policy and Energy Bill to align the policy and regulatory framework of the sector with the 2010 Constitution and its devolution framework. Some of the key provisions include: (i) the establishment of an obligation on the part of the national government and county governments to provide affordable energy services to all areas; (ii) sharing of roles of electricity planning, development, services, and regulation between the national and county governments; and (iii) enhancing competition in the power sector.

Kenyan power sector is in a comfortable place, generation capacity currently stands at 2,300 MW while peak demand reached 1,500 MW. The recent commissioning of 280 MW of new geothermal power (supported by the World Bank) expanded renewable energy contribution to 49 percent of total electricity generation, displacing

[1] World Bank, March 2016, Kenya Economic Update (Edition no. 13).
[2] Power Africa 2016

conventional thermal generation and leading to an average 12 percent decline in cost of electricity supply. Kenya has emerged as a star in achieving progress on electrification, growing from 23 percent in 2009 to about 50 percent in 2016, underpinned by huge investments across the sector value chain. The Last Mile Connectivity Program and the Slum Electrification Program (supported by the World Bank) are leading endeavors to bring power to millions of people that live within 600 meters of the distribution transformer.

Though Kenya has a long history of off-grid electrification in both mini-grids and standalone systems, there are many challenges to scaling-up off-grid electrification. First, there is no clear strategy to develop mini-grids or even how to operationalize them. Second, off-grid areas have not been mapped yet, thus, there is lack of clarity on where and which type of off-grid technology needs to be deployed. Third, private solar companies have a limited footprint in the northern and northeastern areas of the country. Fourth, the GoK supports universal tariffs in the country which collides with the higher cost of providing services in remote locations. Fifth, the implementation capacity of REA and the County Governments remains weak. Sixth, there is limited understanding of income, consumption patterns in the countries outside the 'commercial' areas, therefore understanding of affordability in underserved locales remains ambiguous.

Seizing the momentum on electrification, the GoK has therefore requested World Bank support to expand to areas where grid penetration remains limited, poverty is rampant, and social exclusion is prevalent. The proposed K-OSAP aims to increase access to energy in underserved counties in Kenya, and will connect people to electricity services using least-cost technology solutions based on locally abundant solar resources. Due to the remoteness and sometimes dispersed nature of the target populations and considering the lifestyles and socio-economic status of those residing in underserved counties, the project will be designed to address high costs of provision of infrastructure services, low affordability of the potential users, and sustainability of service provision. K-OSAP will establish frameworks by which the private sector can expand and increase involvement in these areas, and develop innovative public-private partnerships (PPPs) to leverage private sector resources and efficiencies for the sustainable provision of quality and affordable electricity services.

Relationship to CPF

The proposed Kenya Off-grid Solar Access Project (K-OSAP) is aligned with the Country Partnership Strategy (CPS - FY14-18), whose overarching goal is sustainable reduction in poverty and increased shared prosperity, with Kenya's Vision 2030 and its Medium-Term Plan.

The proposed K-OSAP is aligned with Sustainable Development Goal 7 (SDG7), Sustainable Energy for All (SE4ALL), and World Bank's Energy Sector Directions Paper (ESDP). The SDG7, Sustainable Energy for All, and ESDP all aim to 'Ensure access to affordable, reliable, sustainable, and modern energy for all." With a focus on the poor and underserved, utilizing abundant renewable energy resources, and creating an enabling environment for private sector involvement, K-OSAP will be designed to minimize the financial and environmental costs of expanding reliable energy supply to those in underserved counties, thereby supporting Kenya's efforts to achieve universal energy access and boosting shared prosperity.

The proposed K-OSAP is aligned with the Bank's Northern/Northeastern Development Initiative (NDI). In order to support Kenya in eliminating extreme poverty and boosting shared prosperity, the World Bank launched the NDI in June 2016 focused on transformative and integrated infrastructure (energy, transport, and water) investments that

are needed to connect the region to national and global markets. Success will require strong collaboration with county and national governments, the private sector, community based organizations, and development partners.

The proposed K-OSAP is also aligned with the principles set out in new strategic directions for the World Bank's Africa Energy Practice in the area of off-grid solar energy. A new World Bank approach paper to off-grid solar energy presents six ways that the World Bank can catalyze the off-grid solar market in Sub-Saharan Africa: develop the policy and regulatory environment for off-grid solar; support governments to mainstream off-grid PV into sector planning; facilitate access to working capital; issue guarantees to reduce risk for commercial lenders; use performance-based grants to push the market, when and where appropriate; and support receptive markets through quality assurance and consumer awareness.

C. Proposed Development Objective(s)

The Project Development Objective is to increase access to energy services in underserved counties of Kenya

Key Results (From PCN)

PDO level indicator:
Increase access to electricity in the underserved counties

Intermediate level indicators:
Number of people provided with access to electricity by mini-grid systems
Number of enterprises provided with access to electricity by mini-grid systems
Number of community facilities provided with access to electricity by mini-grid systems
Number of people provided with access to electricity by standalone solar home systems
Number of enterprises provided with access to electricity by standalone solar home systems
Number of community facilities provided with access to electricity by standalone solar home systems
Number of water points provided with access to electricity by solar pumps.

D. Concept Description

Project Components

Component 1: Electrification through mini-grids
This component will support electrification of areas where electricity supply through mini-grids represents the least cost option from a country perspective. These systems will encompass all kinds of consumers – enterprises, community facilities, and households. Such clusters, where mini-grids could be viable, will emerge from the geospatial plan. The proposed K-OSAP will select a business model(s) based on World Bank experience with mini-grids in Kenya as well as GoK actions informed by the mini-grid regulations study.

Component 2: Electrification of households through standalone solar systems

- This component will support electrification of households using standalone solar systems in areas where load clusters do not exist and the best technical and financial solution is standalone solar systems. Two approaches

are being considered and an options study is currently underway (funded by Lighting Africa). Option 1: **open market approach** that supports the expansion of existing off-grid solar market in Kenya into the underserved counties. Substantial consultations was held so far with solar companies, corporate banks, and MFIs/consumer finance banks and an integrated financial solution (including a credit line facility for working capital, expansion subsidies, results-based carbon finance for developers) will be required to meet the industry needs. Option 2: **regulated approach to service delivery**, whereby long term service contracts (10-15 years) are remunerated based on a fixed recurrent fee (set by ERC) for operations period and a least cost bidding on an upfront fee. Subsidy would be paid to cover any shortfall of consumer ability to pay for either upfront payment or recurrent payments. This option will require defining a regulated basic service for different types of users (households, businesses, public facilities, farms, etc.) based on market assessment undertaken by the National Electrification Strategy, including performance levels in electricity supply to each type of user, technical specifications of equipment based on applicable international standards and quality standards in electricity supply. This option will aim to attract efficient private companies through international competitive bids (ICB) to award contracts for provision of electricity services through SHS, as per defined performance levels, technical specifications and quality standards in electricity supply

Component 3: Electrification of community and public facilities through standalone solar systems

This component will support electrification of public institutions and community facilities using mini-grids and standalone systems. Electrification of public institutions is a strategic priority for the GoK. The GoK through REA and MoEP has embarked on electrifying public institutions in the rural areas and connected power to 59,940 out 87,510 institutions classified as public institutions.[3] The remaining 27,570 institutions which have not been connected are mainly located in underserved counties. Multiple approaches could be used to achieve the desired outcome of electrified public institutions ranging from a public sector led procurement to a private sector led service delivery or a hybrid approach utilizing elements of both the public and the private sector approaches. Ongoing dialogue and negotiations with GoK, assessment of the electrification demand from public institutions (in terms of electricity demand and geographic spread), capacity of multiple public institutions to implement this component, capability and interest of the private sector and considerations on sustainability, affordability, reliability, and transparency are some of the factors that will determine the final approach to be adopted.

Component 4: Solar Pumping for Drinking Water and Irrigation

This component will support the installation of solar PV-powered water pumps for consumptive purposes. Empirical evidence suggests that PV-powered water pumping significantly reduces the cost of water extraction, through lower operational and maintenance cost for the benefitting farmers or communities. Interventions in potable water supply which best align with energy access issues will be further explored and designed during the preparation of this component, including: a) equipping of new boreholes under the School WASH program; b) equipping of new boreholes developed by counties (greenfield boreholes); and c) retrofitting of existing diesel-powered community water supply schemes with solar PV hybrid systems.

Component 5: Technical Assistance and Capacity Building

This component will finance various technical assistance and capacity building activities to ensure the sustainability and measure the impact of the interventions devised and implemented within the other components of K-OSAP. Subcomponents initially identified include: a) Consumer Awareness: this sub-component will finance and design and implementation of a concerted consumer education campaign for the provision of off-grid electricity services; b)

Monitoring and Evaluation: apart from the regular monitoring and reporting activities, the project will fund the use of the multi-tier framework approach to assess the impact of the project activities on energy access; c) Geospatial planning capacity building and training: building upon the development of Kenya's geo-spatial electrification plan, this sub-component will identify and implement organizational arrangements as well as build robust capacity to maintain a comprehensive, multi-layer national power sector GIS database and replicate the geospatial electrification planning exercise in the future; and d) Capacity Building of REA, MoEP, Private sector, and County Governments: this sub-component seeks to strengthen the technical and management capacity of REA, MoEP, private sector and the county governments in pertinent areas for effective project implementation.

SAFEGUARDS

A. Project location and salient physical characteristics relevant to the safeguard analysis (if known)

The proposed project will target the so-called 14 marginalized areas (underserved) or counties that represent 72% of the country's total land area and 20% of the country's population. Population densities are low and the lifestyle is predominantly pastoral and low level sedentary farming on marginalized soils of the arid and semi-arid lands. These counties are deficient in terms of access to good roads, electricity, portable water and social services due to their remoteness from national infrastructural networks.

B. Borrower's Institutional Capacity for Safeguard Policies

The Kenyan Rural Electrification Authority (REA) and the Ministry of Energy and Petroleum (MoEP) will be the lead implementing agencies at the national level for the proposed project. Both REA and MoEP have implemented several World Bank financed projects and do have in-house capacity to handle safeguard issues related to infrastructure operations in the sector. At the national level the National Environmental Management Authority (NEMA) that has the overall mandate for ensuring environmental sustainability, compliance monitoring and enforcement of safeguard performance and standards will augment the oversight role played by MoEP. At the county level where capacity for safeguard compliance monitoring and enforcement may be limited, the county level NEMA offices will provide technical support. Also, the proposed project will provide capacity building support in the form of training to staff of county environmental ministries, and will also benefit from the recently rolled out Kenya Devolution Support Program that seeks to build the capacity of counties in several sectors including safeguard implementation, monitoring and compliance enforcement. Kenya is developing a national legislation or regulations on the disposal of solid waste and e-waste. In the interim, K-OSAP will support the development of a project-specific environmental code of practice (ECOP) as a guidance on approach for the management of spent batteries, with the aim of ensuring that risks to the environment and human health are prevented or mitigated.

C. Environmental and Social Safeguards Specialists on the Team

Gibwa A. Kajubi, Edward Felix Dwumfour

D. Policies that might apply

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	Predicated on the assumption that civil works may involve minor excavations that would result in land clearance, land take, health and safety issues related to de-manufacturing, recycling, storage, transport and disposal of spent batteries.
Natural Habitats OP/BP 4.04	Yes	Predicated on the assumption that natural habitats may be affected by erection of poles and mini-grid stations
Forests OP/BP 4.36	No	
Pest Management OP 4.09	No	
Physical Cultural Resources OP/BP 4.11	TBD	
Indigenous Peoples OP/BP 4.10	Yes	The proposed project will be operating in areas where the overwhelming majority of the beneficiaries may be classified as underserved, vulnerable and marginalized
Involuntary Resettlement OP/BP 4.12	Yes	The proposed project may result in land acquisition since the installation of mini-grid systems may take place on private or communal land or public lands occupied illegally by squatters.
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	

E. Safeguard Preparation Plan

Tentative target date for preparing the Appraisal Stage PID/ISDS

Jan 15, 2017

Time frame for launching and completing the safeguard-related studies that may be needed. The specific studies and their timing should be specified in the Appraisal Stage PID/ISDS

Since the specific locations for the proposed off-grid and mini-grid systems are unknown at this stage of project design the project will prepare an environmental and social management framework (ESMF), Resettlement Policy Framework (RPF) and Social Assessment that will provide broad guidelines on how emerging and potential environmental risks and social impacts should be dealt with. Besides, these instruments will highlight broadly key environmental, safety and social issues that need to be considered.

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APPROVAL

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