

CLIMATE INVESTMENT FUNDS

January 20, 2015

APPROVAL BY MAIL: KENYA ELECTRICITY MODERNIZATION PROGRAM (SREP)

Response from IBRD to the Comments and Questions Raised by Sub-Committee Member from
Switzerland

Kenya: Electricity Modernization Project (KEMP)
Scaling-Up Renewable Energy Program (SREP)
Responses to Comments from Switzerland
January 2015

#	Comment	Response
1-a	<p>Financing: Compared to the IP there are considerable differences in the proposed financing set-up. Notably, the MDB and the private sector contributions are much lower in the project proposal. Please explain.</p>	<p>We have summarized below the reasons underpinning the differences in co-financing from private sector (increase), MDBs (decrease), and other development partners (decrease).</p> <p>Differences in private co-financing. Expected co-financing from the private sector more than doubles private investment anticipated at the IP stage. The KEMP project will test an innovative business model for electrification with a strong focus on increasing private sector participation in mini-grid deployment in Kenya. The objective is to enable replication and scaling-up of similar privately-led investments throughout the country. Consequently, the use of \$7.5 million of SREP funds channeled through the proposed KEMP project would leverage \$10.7 million of private investments, which is more than twice the amount of private resources anticipated at the IP stage. In addition, if the actual cost as a result of competitive bidding is lower, the private co-financing ratio will further increase.</p> <p>Differences in co-financing from other development partners. The co-financing support from other development partners has indeed decreased to the KEMP project, but materialized in the form of parallel activities in support of hybrid mini-grids development. For instance, the Agence Française de Développement (AFD) has committed EUR30 million for integrating renewable energy (wind, solar) into existing mini-grid systems, aiming at reducing diesel fuel consumption and concurrently lowering carbon emissions. The Nordic Development Fund (NDF) has committed EUR4 million for the “Off-Grid Electrification Using Wind And Solar Energy In Kenya” project that is retrofitting renewable energy into existing diesel mini-grid stations (Lodwar and Hola). The Kreditanstalt für Wiederaufbau (KfW) has agreed to finance three greenfield mini-grids, whereas the Africa Enterprise Challenge Fund (AECF) has committed \$150 million to support private sector investments in the region.</p> <p>Difference on MDB co-financing. Although MDB co-financing has decreased as compared to the IP stage, the successful implementation innovative business models under the KEMP project might attract additional MDB financing in support of hybrid mini-grid development.</p>
1-b	Financing: The leverage factor	See response to comment “1-a” above.

	for the SREP contribution (1:1.76) is much lower than announced in the IP (1:5.8). Please explain.	
1-c	Financing: The type of private sector contribution should be specified. How much should be equity and how much (commercial) loans? Will there be a draw on the IDA guarantee to secure these commercial loans?	<p>The type of private sector contribution will likely be a combination of equity and commercial loans for the generation component of the mini-grid system. The equity financing will likely vary from 30% to 100% depending on project.</p> <p>The IDA guarantee will not be used to secure commercial loans from the private sector for the mini-grid component. Refer to KEMP Project Appraisal Document (PAD) (Annex 2) for detailed description of activities covered under the IDA guarantee.</p>
2-a	Business model: Is the SREP component exclusively foreseen to buy down the investment in RE generating equipment? We would favor a model which also sets an incentive to maximize generation of electricity from RE and keep this generation level as high as possible over a pre-determined period of years.	<p>The three overarching objectives of the Government of Kenya are to secure adequate electricity supply at least cost, to increase electricity access, and to provide efficient and reliable electricity services to support economic growth. As of today, the provision of electricity in rural areas has imposed significant challenges and financial burden to KPLC. The service is unreliable; customers are not able to pay or even refuse to pay for the provision of poor quality services.</p> <p>The exact form of SREP contribution will be finalized during the tender process. The proposed SREP-funded project is expected to test a model to provide more affordable and reliable service of electricity through a combination of RE and thermal generation. Preliminary analyses carried out based on HOMER economic modeling indicates that having some share of diesel electricity is economically rational and least cost rather than 100% RE. Moreover, high cost of battery replacement in a 100% RE solution runs the risk of communities unable to afford battery replacement and so long term sustainability is at risk. As the marginal cost of renewable energy-based electricity from technologies such as solar, wind, hydro is close to zero, there will be a natural incentive to dispatch them first. The agreement with the IPP will stipulate requirements to maximize renewable energy generation in alignment with the aforementioned overarching objectives of the Government of Kenya. The IPP will be selected based on the least cost of electricity provided with a combination of capital subsidy and generation based subsidy (based on the energy generated). In either case, the recipient of the grant subsidy will be selected competitively subject to meeting demand, service, and quality standards.</p>
2-b	Business model: It is mentioned (point 9 p.106) that “fees charged by the services contractors will be passed-through into KPLC’s allowed tariff revenues”. Please explain	It is proposed that an operation and maintenance service contract will be tendered for the whole mini-grid system. The fees associated to this contract are expected to be recognized by the regulator and will be included in the tariff. In Kenya, there is a national uniform tariff for residential customers. The tariff is normally reviewed by the Energy Regulatory Commission (ERC)

	this concept?	and includes the new operating cost associated to serve new customers, either on-grid or off-grid.
2-c	Business model: There is some concern that the concept of passing-through the diesel fuel costs creates an incentive to use the diesel generators as much as possible. This is not aligned with the objectives of maximizing the output of RE and should be addressed in some way. Please explore a solution.	Typically, the tariff structure for IPPs which has also been applied in the Kenyan IPPs has been a fixed component for recovery of fixed investment costs (including return on investment & fixed O&M costs) and a variable energy component per kWh for recovery of running costs of the plant only (e.g., lube oils). Fuel pass through is meant to recover actual fuel costs incurred based on predetermined maximum specific fuel consumption of diesels, which will be quoted by bidders and guaranteed. The IPPs do not make money from fuel nor from energy (kWh) charges. Therefore, there is no incentive to dispatch more fuel based generation. The ERC is responsible for approval of the negotiated PPAs between KPLC and the power producers. The tariff mechanism, including its provisions for pass-through to customers of currency fluctuation, inflation and fuel costs, is based on cost recovery principles and ensures that both public and private sector financed investments in the sector remain viable.
2-d	Business model: A fixed capital contribution for RE equipment is not aligned with the objective to seek competitive prices and benefit from declining costs for RE equipment. A solution should be sought to incentivize the procurement of high quality equipment at reasonable costs.	Awards are made competitively and least cost bidder will be assigned the service. This is no different from the Feed-in-tariff approach used for grid tied RE in many countries including those in Europe, as well as Kenya
3-a	Cost assumptions: At \$6000 per kW installed capacity the cost assumption for solar PV generating units (including balance of system) are at twice the average costs for 2012 (not 2015!). These cost assumptions are very high and efforts must be made to incentivize cost effective procurement.	<p>Cost assumptions are conservative and aligned with investment costs exhibited in existing and similar mini-grid systems in Kenya. Current data provided by the Rural Electrification Authority (REA) for four existing diesel mini-grid stations with integrated solar PV (i.e., Edlas, Lokichogio, Takaba, Rhamu) show that the installed costs for solar PV capacity ranged from \$6,000 to nearly \$9,000 per kW. However, as explained in the PAD, the project introduces new implementation arrangements (e.g., clearer responsibilities for each implementing agency and enhanced supervision arrangements) and new procurement arrangements (e.g., procurement of main equipment in bulk and independent contracts for construction and installation) to maximize the resources available and efficiently implement the project with the expectation to reduce cost and reach more customers.</p> <p>Furthermore, experience of World Bank-funded projects shows that costs can be reduced for about 20-25% when comparing with other procedure of financing, owing to reduced country and payment risk. In addition, we expect that the global cost reduction</p>

		in some technologies will also allow keeping the price down. Therefore, it is expected that the proposed design will lead to larger number of customers connected at a lower cost.
3-b	Cost assumptions: The assumed costs for civil works also seem high.	The cost estimate for civil works is conservative. Please refer to response to comment “3-a” above.
3-c	Cost assumptions: The assumed cost structure (table p.107) does not correspond to the proposed financing structure as outlined in point 9 p.106. It is notably unclear, who should cover the civil works cost. Please explain.	The table on page 107 provides the breakdown of cost assumptions based on 250kW hybrid mini-grid systems, whereas paragraph 9 (on page 106) provides an overview of the proposed PPP business model. The nature of the civil work in hand will determine whether the cost is borne by the Government or private investor. As a principle, civil works related to the generation assets (e.g., fuel facilities) will be borne by the private developer, whereas the government will be responsible for associated infrastructure such as land clearing, roads, etc.
4	Procurement: The project proposed to use PPPs with Power Purchasing Agreements to be concluded between interested developers and KPLC, yet no mention is made to PPP specialists regarding the procurement. Please explain.	In order to ensure successful implementation of the project, REA’s capacity to implement the SREP-funded Component C2 will be strengthened with the deployment of additional staff, including a procurement specialist, legal specialist, environment and social specialist, and renewable energy engineer. Additional support will be provided by a transaction adviser (consultant firm) that will provide all the specialized expertise in the areas of structured finance, design of competitive processes for selection of private entities in public private partnership arrangements, contract negotiations with private parties, project supervision, etc. Please refer to the PAD (pages 50-51) for further information about implementation arrangements.
5	Recommendation: In accordance with our earlier comments at the stage of the SREP Investment Plan for Kenya, we recommend to concentrate the RE part of the mini grids on the most appropriate technology (presumably solar PV) and to emphasize on the development of engineering, installation and maintenance capabilities, using synergies with other (e.g. off-grid electrification) programs.	Agree.