

CLIMATE INVESTMENT FUNDS

SREP/SC.6/Inf.2
October 26, 2011

Meeting of the SREP Sub-Committee
Washington, D.C.
November 1, 2011

SUPPLEMENTAL DOCUMENT TO KENYA'S INVESTMENT PLAN

REPUBLIC OF KENYA



**SCALING-UP RENEWABLE ENERGY
PROGRAM (SREP)**

**SUPPLEMENTAL DOCUMENT
TO KENYA'S INVESTMENT PLAN**

October 12, 2011

Introduction

1. Kenya is one of the six Pilot Countries selected to benefit from SREP. The SREP program will support Kenya's initiatives towards achieving a transformational change that will lead the country towards low greenhouse gas (GHG) emission development pathway by harnessing the abundant renewable energy resources in the country.
2. The following are the identified Projects presented in Kenya's Investment Plan:
 - a) Hybrid Mini-Grid Systems – to support scale-up of ongoing program for expansion of pilot hybrid mini-grids in rural areas to increase electricity access among households and institutions in isolated areas as well as to reduce local pollution and GHG emissions
 - b) Solar Water Heating (SWH) – to develop market incentives to scale up SWH systems for commercial, industrial and residential buildings and to increase uptake of SWH and reduce peak demand
 - c) Development of 200 MW of Geothermal – to accelerate the shift to geothermal based power as the main source of base load generation capacity
3. The Investment Plan for the SREP projects was completed and presented to the SREP Sub-Committee on September 8, 2011 via video conference. The Sub-Committee endorsed the investment plan as a basis for the further development of the projects foreseen in the plan. Noting the comments and questions on the investment plan by Sub-Committee members, the Sub-Committee requested the Government of Kenya and the MDBs to prepare a supplemental document addressing the comments and questions of the members, including those to be submitted in writing. The Government and the MDBs were requested to review the allocation of SREP resources to the proposed components of the plan and to provide further analysis on the prioritization of activities.
4. Sub-Committee members were invited to submit written comments on the plan by September 23, 2011, and the Government and MDBs were requested to prepare the supplemental document for circulation to the Sub-Committee at least two weeks before its next meeting on November 1, 2011. In submitting comments, members were invited to indicate strategic concerns they wish to see addressed in the supplemental document as distinct from comments that are to be taken into consideration in the further development of the proposed projects.
5. This document is the Government of Kenya's response to comments and reviews of the Investment Plan.

Comments and Responses

Ref. No.	Comments	Response
NORWAY (SEPTEMBER 6)		
1.	<p>Financing Modalities. The IP stops well short of defining the type(s) of SREP financing modalities, simply noting; “will likely include a combination of grant, concessional loans, and possibly guarantees. The modalities will be determined at the time of appraisal, in accordance with relevant SREP guidelines.” As outlined in SREP guidelines on financing modalities, it is encouraged to also test and demonstrate results based financing. For Kenya, this may particularly be relevant for mini-grids and solar water heaters, as these types of investments both can benefit from business model innovations and often require some level of continued support to ensure sustainability. Norway would encourage Kenya to look into whether result based approaches may be useful and effective for some of the components in the IP, and possibly enter into a dialogue with cif admin unit and ESMAP to look into different relevant tools.</p>	<p>As noted in Para 7 of Annex 5 (p.63) of the Investment Plan (IP), the possibility of piloting innovative schemes to enhance sustainability of projects, such as results-based financing scheme, will be considered during the project preparation. As suggested, in collaboration with the MDBs, GoK will explore and look into relevant financing instruments that will be helpful in achieving the development objectives of each project.</p>
2.	<p>Reliability of the Results Framework. Norway questions the reliability of some of the numbers presented in the Results Framework (pg. 8). For example, according to the Financing Plan (pg. 7), Hybrid Mini-Grid Systems will require a total investment of \$68 million but only provide access to some 11,000 mini-grid customers. This implies a price of more than \$6,000 per connection, which is extremely high and almost surely uneconomical. Are these numbers correct? If so, one would question whether the funds could be better spent, e.g. on grid connections or solar home systems etc, which would give a much lower cost per connection? (see below).</p> <p>Another example is that it states that the 200MW of geothermal generation will lead to about 1,000 tons of GHG emission reductions a year. This compares with a UNEP study which estimated that a 35MW site (Olkaria III, Phase 2)</p>	<p>Mini-grids:</p> <ul style="list-style-type: none"> i. The project will support (i) 27 new hybrid mini-grid stations and (ii) retrofitting of 11 existing stations. ii. The new stations will have a total installed capacity of 13MW (of which 4MW will be renewable) at capital investment cost of US\$28 million. The investment cost per additional connection, which is expected to be 11,000 by 2015, is about US\$2,545 per connection. Per connection cost of electrifying rural areas is higher than grid-based connections because the areas are located in isolated parts of the country where logistics of importing and transporting renewable energy equipment pose challenges. In the 27 proposed new hybrid stations, annual fuel savings of about \$3.2M would be realized compared to a scenario if all of the stations were diesel. iii. The retrofitting of 11 existing stations will add solar/wind renewable energy components of 3MW to the existing mini-grids with a combined installed capacity of 11 MW. The investment cost for the retrofitting is US\$21 million but displacing 30% of thermal power with PV in the existing

	<p>would lead to some 171,026 tCO₂ reductions annually – indicating a calculation mistake of more than 100x in great underestimation of reductions in the SREP project. Although this is likely a simple calculation error, emission reductions is a primary objective of SREP and should be quantifiable.</p> <p>A final comment regarding the Results Framework is that “Targets” for a large number of the “Indicators” remain “to be confirmed” (TBC). Norway does not immediately see why, for a number of these important indicators, targets cannot yet be defined.</p>	<p>11 plants would save the country \$1.56M annually in fuel costs. There are other resultant environmental and health benefits that may not easily quantifiable but are significant.</p> <p>iv. SREP-funded component will support distribution lines of the mini-grid stations.</p> <p>GHG calculation: The correct figure for the displaced amount of GHG emissions is approximately 1 million tons of CO₂e, assuming grid emission factor of 0.60 tons of CO₂e/MWh, which is included in the Updated Results Framework attached to this Supplementary Document.</p> <p>TBCs: An Updated Results Framework of the Program, which confirms most of the TBCs in the previous version, is attached as Annex 2 to this Supplementary Document.</p>
3.	<p>Financing to the geothermal project appears to be a good use of SREP funds. The geothermal investment carries with it both considerable risk and considerable potential benefit for Kenya and possibly the region. Not only could this specific project provide up to 400MW of power to Kenya, but it could also contribute as an important demonstration project that would encourage even private sector investments in a stable, secure and scalable energy source for the entire region. Providing “first-mover” capital for this investment appears to be a highly productive use of SREP funds.</p>	<p>As described in para 57 of the IP, the GoK team agrees with the view that the SREP-funded geothermal project will have a significant demonstration effect and will help encourage private sector investment in the geothermal sub-sector.</p>
4.	<p>- Is the hybrid mini-grid program feasible and/or economical? Norway remains concerned with the implications of the high cost associated with the hybrid mini-grid (if correctly estimated). The \$6,000 per customer would compare with some \$350-500/connection for both highly successful grid electrification programs in South Africa and Ghana, as well as mid-range solar home systems basically anywhere. Indeed, such an investment would imply a 5-yr loan repayment of \$100/month at 0% interest. Indeed, \$100/month would be well out of reach for nearly all poor rural households. This raises the question; in the country’s efforts to provide modern energy services to the rural</p>	<p>On the issue of per customer cost, please see the response above to question #2.</p> <p>On the issue of financing availability, the Agence Française de Développement (AFD) and the Nordic Development Fund (NDF) have confirmed their interest in supporting the hybrid mini-grid project.</p>

	<p>population, what criteria/selection process lead to the rolling out of solar/wind hybrid mini-grids as the best target of SREP funding?</p> <p>Norway is concerned not only about the high cost level but the existing plans and/or ambitions regarding the \$42m from development partners/commercial loans (note that the Annex only specifies development partners). Norway cannot find any additional information and would thus question the amount of risk being assumed by SREP in terms of either ending up with a larger financing portion of a smaller program than that envisioned in the IP, or that the program is scrapped altogether. We would appreciate more information regarding the status of the other financing.</p>	
5.	<p>The Solar water-heating component may provide important energy efficiency benefits and improved living standards for the urban middle-class, but may only indirectly contribute to poverty reduction. This is because the primary beneficiaries of such a program most likely will be urban dwellers with disposable income to purchase such units, albeit with a subsidy. However, to the degree that the program reduces energy use among these households, emissions will be reduced and energy will be made available for others, including the poor. In general, these trade-offs are simply noted and Norway views this as a reasonable use of SREP funding, assuming that it will be particularly effective at stimulating private investment and the market for such units.</p>	<p>As elaborated in Annex 5 of the IP (Solar Water Heating Project brief para 7), the potential reduction through the use of SWH on peak demand is 94MW. Thus the project will help reduce the peak demand for electricity and enable to free-up power generation capacity that will be available for significant scale-up of access by households. The project is also expected to contribute to encourage private sector participation through partnering with commercial banks. Please also see the response to question #9 below.</p>
6.	<p>Lastly, we would like to raise the issue and question why the plan is already now counting on a certain amount of the reserved funds (more than 50%). These funds have so far not been allocated.</p>	<p>The Investment Plan simply indicates the intention of the Government of Kenya to apply for reserve funds when the rules for allocation of the reserve are established. The plan provides an indication regarding how the funds can be used.</p>
SPAIN (SEPTEMBER 6)		
7.	<p>The major challenge we foresee is related to the role that the Geothermal Development Company (GDC) will develop in the geothermal plan. It is stated in the document that in 30 years 200MW capacity was installed in the country, while the objective is to install 5,000 MW by 2030, mainly reducing project</p>	<p>GDC capacity:</p> <p>i. Kenya has accumulated significant experience in geothermal development while developing the Olkaria geothermal field implemented by KenGen and the private sector (an IPP). Majority of GDC's staffs are former staffs from KenGen who have been trained in leading geothermal</p>

	<p><i>development to five years and trying to maximize replication in the 14 geothermal fields identified along the Rift Valley. The GDC is responsible for this scale-up in geothermal development in Kenya, and the achievement of the described goals mostly rely on it.</i></p> <p><i>We would like to have a bit more detailed information on the specific tasks and activities that the GDC is developing in order to be ready to adopt the proposed leadership in this energy sub-sector; also how all the knowledge and expertise needed has been, or is being, transferred to this institution. We would therefore wonder whether some of this knowledge transfer could be funded through SREP funds.</i></p>	<p><i>institutes around the world and, with an average of 15 years of experience; they are renowned experts in geothermal. The management team has a wide ranging expertise in all aspects of geothermal technology, environment & social economic issues, project management and legal & regulatory requirements;</i></p> <ul style="list-style-type: none"> <i>ii. GDC has successfully implemented initial exploratory works at the Menengai field and has engaged international consulting firms to conduct feasibility studies, design a framework for private sector participation in the geothermal development and refine GDC's business plans;</i> <i>iii. GDC has engaged an independent Geothermal Advisory Board composed of three international advisors to advise on the geothermal development process;</i> <i>iv. GDC has an elaborate staff development program which involves collaboration with professional institutions engaged in geothermal development, including: the United Nations University-Geothermal Training Programme (UNU-GTP) in Iceland, University of Auckland (New Zealand), University of Kyushu (Japan), BRGM (France), Federal Institute for Geosciences and Natural Resources (BGR) (Germany), IRIS(USA), ICS-UNIDO (Trieste & Pisa, Italy), University of Manila (Philippines), University of Aberdeen (Scotland) and University of Potsdam (Germany). Through the UNU support, GDC is in the process of establishing a Geothermal Training Institute. In addition, the Menengai project will have capacity development components, which will be financed by SREP and the development partners (please also see the response to question #12).</i> <p><i>A complete due diligence of GDC, including assessment of technical and financial capabilities and technical assistance needs, will be undertaken by the MDBs during project preparation.</i></p>
8.	<p><i>Also, an important part of the project (USD 25 million) in the geothermal area is planned to be funded through the reserve fund. To the extent that 6 countries may be competing for an initial amount of USD 60 million, it would be advisable to ensure that this second part of the geothermal project is independent from the initial works and that, in any event, it could be financed through funds other than the SREP funds.</i></p>	<p><i>On the reserve fund, please see the response to question #6. On geothermal development, the approach is divided into two stages: The first stage involves initial works to confirm resource availability whilst the second part of the geothermal project is for power plant development and this part is expected to be mainly financed by the private sector.</i></p>

9.	<p><i>Finally, under the Solar Water Heating project, it is pointed out (page 32) that “The project will have three components: a) financing scheme; b) capacity building (...); and c) awareness creation. We would appreciate if we could have further information on the financing scheme that it is planned to be used.</i></p>	<p>The financing scheme will centre on local banks that will invest in and manage the SWH Fund. SREP funds will be used to part guarantee disbursements from the banks to end users and also cover transaction costs of setting up the SWH fund within the selected banks. Depending on the source of other additional funds put into the SWH fund, the bank will charge an interest to cover costs and obtain a fair return on investment.</p> <p><i>Eligible SWH users/owners will identify appropriate SWH systems from licensed installer companies and apply to the local banks for financing. The banks will conduct due diligence on both the end user and installing company before disbursing funds for SWH installation. Uniform appropriate repayment terms, conditions and mechanisms will be developed by the banks taking into account the contribution from SREP and any other development financing agencies. The project is expected to soften the initial terms and conditions of the financing. The discount factor on the terms of the financing will then be progressively phased out as the market matures. This approach puts the finance sector at the core of promoting clean energy and sustainable development. A general outline of financing scheme is shown in Annex 1 of this Supplementary Document.</i></p>
SWITZERLAND (SEPTEMBER 5)		
10.	<p><i>The inclusion of USD 35million from the reserve fund is problematic insofar as all six pilot countries are likely to be competing for the USD 60 million reserve fund and thus its eventual use is unsure.</i></p>	<p><i>Please see the response to question #6.</i></p>
11.	<p><i>We recognize the demonstrative impact and transformative potential of the development of geothermal resources in the Menengai field and thus support the proposal to allocate the largest share of Kenya’s SREP allocation (of totally USD 50 million) to this project. However, we believe that an 80% allocation to one program is excessive and given the large commitments from the MDBs (WB group and AfDB) not absolutely necessary. While the geothermal development program scores highest against the SREP principles and</i></p>	<p>Resource allocation: <i>This allocation is informed by GoK’s priority of renewable energy projects that would result in high development impacts and was confirmed through the series of stakeholder consultations. Focusing on fewer number of key projects, rather than spreading resources too thinly across many projects, will result in higher impacts and better utilization of SREP funds. SREP funds amounting to \$40m is relatively small but it is essential for catalyzing the</i></p>

	<p><i>operational criteria, it also bears the highest risks (notably a serious reputational risk in case of a failure). We thus suggest to reduce the allocation to the Geothermal Development of Menengai (Phase A) to 50% i.e. USD 25 million. The difference of USD 15 million could be used as described below.</i></p>	<p><i>level of MDBs' funding required to support the high level of investment involved in geothermal development.</i></p> <p>Reputational risks: <i>GDC has already drilled three exploration wells as of September 2011, and the results have shown the existence of the resource in Menengai, making important steps towards overcoming the initial resource risk barrier. In addition, we believe that the purpose of SREP is to support high risk, high reward projects.</i></p>
12.	<p><i>We recommend using USD 5 million to fund a Kenyan knowledge base for geothermal development, which should increase Kenya's chances to become a leader in this field.</i></p>	<p><i>SREP funding for capacity development has catalyzed additional support from MDBs, who are providing amount similar to what has been suggested.</i></p>
13.	<p><i>We recommend using USD 10 million to support the Solar Water Heating program that Kenya has proposed to fund from the reserve. We believe the program presents good potential for economic development and creation of employment, besides its impact on promoting renewable energy. Emphasis should be put on the formulation of a clear incentive mechanism to encourage companies and households to convert to solar water heating. Also the build-up of a dedicated industry (local assembly, engineering, installation and maintenance) should be favored to ensure sustainability.</i></p>	<p><i>As briefly described in the response to question #11, US\$40 million is committed for the geothermal project and US\$10 million is committed for the hybrid mini-grid project, exhausting the initial financing allocation for Kenya. Therefore, the solar water heating system project cannot be supported at this stage unless additional resources will become available.</i></p>
14.	<p><i>We support the USD 10 million allocation to a program to develop hybrid mini-grids in remote areas. In such a program, we would favor solar PV applications, which allow more flexibility than wind or solar thermal generation. The development of engineering, installation and maintenance capabilities should be emphasized and thereby synergies should be sought with other programs (solar PV installations in public institutions and off-grid solar PV installations), which are not targeted for SREP funding but also contribute to the scaling-up of renewable energy.</i></p>	<p><i>It is envisaged that the main source of renewable energy for the hybrid mini-grid project will be solar PV as suggested. However, depending on the resource availability and suitability of location and technology, the appropriate technology will be decided during the project design.</i></p>
15.	<p><i>Under the assumption that Kenya and the program qualify for a SREP reserve fund allocation, we support the inclusion of USD 10 million for transmission systems (cables, overhead lines and substations) to assure the connection of</i></p>	<p><i>The proposed transmission line is in the national transmission master plan and it will be used for the evacuation of all generation plants located within the region.</i></p>

	<p><i>the Menengai geothermal field to the national grid. These transmission systems should however concern the general infrastructure to be put in place for all power producers, not the power evacuation systems of individual power plants, which should be included in the latter and financed accordingly. The SREP contribution should thereby primarily be used to fund mitigation measures to the environmental and social impact of the transmission systems, as well as a possible financing gap.</i></p>	<p><i>Funding gap for the environmental and social impact assessment and mitigation measures will be financed by GDC through Government budgetary support. The initial ESIA Study for drilling has been undertaken and a license obtained.</i></p> <p><i>The proposed SREP funding from the reserve allocation will be utilized for establishment of common infrastructure such as access roads, water reticulation and other civil infrastructure.</i></p>
16.	<p><i>We believe that the incentive of a feed-in tariff of 8.5 US cents per kWh (with estimated production costs at 7 US cents/kWh) is enough to motivate private investors for the 200 MW power plant. Therefore we do not think a SREP contribution (as proposed from the reserve fund) is necessary for the power plant.</i></p>	<p><i>The cost of geothermal power generation, when exploration and production drilling as well as steam supply are included, can be higher than the existing FiT level. Therefore, despite the FiT policy, geothermal concessionaires (e.g. Longonot and Suswa) have not yet developed their concession fields thus necessitating negotiated Power Purchase Agreements for the Menengai IPPs. Actual modalities of using reserve funds have not yet been developed but while the set tariff will likely be adequate, there will still remain some regulatory risks as well as the need to reward first movers.</i></p>
AUSTRALIA/UK (SEPTEMBER 23)		
17.	<p>It is only the hybrid mini-grids component of the investment plan that shows direct development benefits via increased energy access. The majority of the funds are targeted at geothermal development, which relies on trickle down or indirect effects on access via an increase in grid capacity. Although of course generation capacity is required for grid expansion and lower cost and more affordable tariffs, this outcome is not guaranteed. Given the importance of expanding energy access for poor women and men in the SREP results framework, we would like to see a more direct indication of the proposed linkage between the increased geothermal generation capacity and more and lower cost grid connections. Either that, or we would suggest that the mini-grids component should be increased as a proportion of the SREP support</p>	<ul style="list-style-type: none"> <i>Kenya is currently facing inadequate power supply and despite the development of rural electrification, the inadequacy of supply is hindering access to electricity. Geothermal development will improve the power supply and hence pave the way to increased access.</i> <i>Geothermal will secure the needed baseload capacity and displace thermal and expensive emergency power, which is often called upon to provide baseload power. Hence, it will result in reduced tariff and increased affordability for consumers. Further, its development as baseload will help exploit the high potential of wind power in the country, which is amongst the highest in the world. Therefore, prioritizing geothermal development will be a crucial step for scaling-up renewable energy deployment in the country.</i> <i>Geothermal development, together with the expected co-benefit of exploiting wind potential, will help regulate the hydropower generation that is adversely affected by climate change.</i>

	<p>provided to bring the IP portfolio more into line with the SREP results framework.</p>	<ul style="list-style-type: none"> • <i>As elaborated in Annex 3 of the IP, geothermal will have the development benefit of enhancing energy security as well as improved access to electricity. Geothermal development will open up areas and develop local economies through infrastructure development such as roads and water.</i> • <i>GDC intends to utilize geothermal resources to promote socio-economic initiatives in surrounding communities, such as fish farming, improved pasture land, milk processing, and grain storage. Given women’s prominence in some of these activities, the project will contribute to economically empowering women by strengthening their capacities to undertake such activities. While men will benefit from the project, the project will serve to leverage greater opportunities to enhance the benefits to be shared by women.</i> • <i>The project will reduce poverty in the area due to the fact that unskilled jobs will be given to the local community members hence uplifting the livelihood of the local community both temporarily and for longer term and at the same time reducing the risk of HIV/AIDS.</i>
<p>18.</p>	<p>Given the fact that the SREP results framework also prioritises improvements in respiratory health, it is surprising that none of the proposed investments consider addressing cooking energy, while 68% of the population use firewood with consequent health and environmental impacts. The criteria used to eliminate addressing this issue were not clear in the IP. We would request clearer explanation of why improving access to cleaner cooking was not considered appropriate for SREP investment in this context.</p>	<ul style="list-style-type: none"> • <i>The IP had a Scaling-up Improved Biomass Cook stoves project. However, through the series of stakeholder workshops, the project was ranked low because the potential to scale it up was low compared to the other projects based on the experience in Kenya. Further, biomass cook stoves will not contribute significantly to augment baseload capacity, which currently is a pressing priority for the Government. Moreover, there are many players such as UNEP, UNDP, European Commission, and GIZ in the country operating in the field and, accordingly, it would be difficult to avoid duplication.</i> • <i>The SREP guidelines require that the projects be supported by MDBs. The MDBs in Kenya preferred to support the highest ranking proposals according to the screening process, which meant the biomass project could not be taken up.</i>
<p>19.</p>	<p>Generally, we agree with the technical reviewer that results framework is questionable in terms of its attribution to the SREP finance. The number of TBCs in the results framework at this stage, particularly relating to development benefits, gender, productive uses and social impacts is of concern. We agree with the Norwegian</p>	<p><i>The Results framework has been updated and is attached to this Supplementary Document.</i></p>

	<p>comments that the results-framework should be presented in a more complete state at this point.</p>	
<p>20.</p>	<p>There is a need to ensure appropriate social safeguard provisions are applied in the design of the transmission line project. We also note that the risk assessment does not currently address social risks of relocations caused by the transmission line project component. We would urge that the project design ensure appropriate social safeguard provisions are applied.</p>	<p><i>To make the projects sustainable and mitigate social risks, appropriate social safeguard measures will be incorporated in the design of the transmission line project. Please also see the response to question #33.</i></p>
<p>21.</p>	<p>We note with concern the relatively small share of private sector engagement. This is critical to the SREP goals of achieving transformative impact and catalysing increased investments. There is no clear model on how the private sector will be incentivised to engage. We would suggest the integration of a private sector plan or road map as part of the IP which would consider issues of subsidies, marketing of opportunities to the private sector, and possible use of public-private partnerships. This is particularly relevant as project risk is being bought down by SREP funding.</p>	<p><i>Over the years, the GOK has introduced key sector reforms including the unbundling of KPLC in the 1990's, establishment of the Energy Regulatory Commission (ERC), development of Feed in Tariffs Policy and the creation of the GDC. These reforms have been instrumental in crowding in private sector participation. Substantial portions of shares in the large utilities, KenGen and KPLC, are held by the private sector. There are currently five Independent Power Producers (IPP), 4 thermal and 1 geothermal with effective grid capacity of 347 MW (26% of total power generation). IPPs are expected to play a more important role in the future. There are on-going Power Purchase Agreement (PPA) negotiations with four new potential IPPs, one of which is wind.</i></p> <p><i>The GoK and GDC are pursuing a commercialization program that will focus on engaging the private sector to invest in the geothermal power generation through a Build, Own and Operate (BOO) structure. GDC will be responsible for the steam production and will sell the steam to private operators. To provide clarity on the steam resource and project costs, a feasibility study will be undertaken and will be shared with all bidders. A steam sales agreement will be negotiated and signed by both parties.</i></p> <p><i>In this regard, GDC has already issued an expression of interest and more than 20 potential investors have expressed interest, among which are some reputable companies specializing in power generation. The development of</i></p>

		<p><i>geothermal energy opens a new dimension for public-private partnerships in the energy sector. The approach GDC has adopted allows the public resources, including SREP, to be used to confirm the geothermal resource availability and establish the steam gathering network, thus mitigating and addressing many risks which private investors might be unwilling to take. Once GDC lays down the steam gathering infrastructure, this unlocks the generation investment decisions for private capital and attracts needed funding into the sector. In addition to upstream field development, MDBs are also willing to support risk mitigation instruments for the private sector after the steam field is developed. As a consequence, private sector participation reduces the dependence on the donors' and public resources in the sector.</i></p>
22.	<p>The geothermal component, as the Swiss memo indicates, is by far the largest at 80% of overall spend. As noted in point 2 above, we are concerned about the extent of this as a proportion of total SREP funds without a direct indication of how this will be translated into expanded coverage and new more affordable connections. We would agree with the Swiss that a review of the balance of investment versus mini-grids would be appropriate.</p>	<p><i>Please see the response to question #11.</i></p>
23.	<p>Further to this, we note that in spite of being a high proportion of SREP funds for Kenya, this financing is a relatively low proportion of the total investment required for the geothermal development. This is a concern in that SREP funds do not seem to be essential to the geothermal development overall. With the money almost completely focused on drilling pilot holes, our understanding is that this is first loss risk money to develop this resource, while other finance is waiting to see whether geothermal is viable at this site. We would be more comfortable if this first loss was shared with the other potential investors who will come in if the viability is proven.</p>	<ul style="list-style-type: none"> <i>Although the SREP financing share is a relatively low proportion of the total investment required for the geothermal development, it covers the exploration drilling phase, which is a risky but critical stage as it proves availability of the resource. Moreover, the SREP financing is crucial for mobilizing MDBs' support to the project, which in turn will be instrumental in catalyzing additional financial resources. Risk sharing models such as proposed by the Africa Rift Geothermal Development Project (ARGeo), KfW's Geothermal Risk Mitigation Facility (GRMF) and the World Bank's Drilling Risk Mitigation fund are being considered for future developments since they are still in formative stages. Therefore it is paramount that this phase is handled carefully to attract subsequent</i>

	<p>This is particularly important since any SREP impacts on clean energy access with the majority of funds supplied are currently applied at both at high risk and low direct connection with energy access expansion.</p>	<p><i>investments that would enable realization of the green energy resource. In addition to upstream field development, MDBs are willing to support mitigation instruments after the steam field is developed.</i></p> <ul style="list-style-type: none"> • <i>GDC has already drilled the first three wells that are successful thus mitigating the first loss risk. The SREP funds will be used to upscale the drilling of a known potential of the resource. Through a request for Expressions of Interest, GDC has shortlisted 19 developers who have indicated a willingness to undertake the development once the resource is proven.</i> • <i>GeothermEx, which is a Schlumberger company and one of the leading consultancy firms in the geothermal sector with more than 35 years of geothermal resource consulting in similar projects worldwide and considerable experience in Kenya, has confirmed the resource availability in Menengai, and notes that more accurate and complete characterization of resource risk will become available when more drilling of wells have been completed and tested. For this to happen, SREP's contribution will be crucial.</i>
<p>PRIVATE SECTOR OBSERVER (SEPTEMBER 7)</p>		
<p>24.</p>	<p><i>SREP governance warrants a full and transparent engagement of all stakeholders towards and in the IP preparation process, with the objective of entertaining valid concerns and also fulfilling the bare minimum requirement for sustainable development. We all understand that the inception of CIF followed the Bali track and the Bali track being a grandchild of the CSD, this step must genuinely be embedded in the process as a pillar. This then means that engagement alone of an MDB in the IP preparation cannot validate a choice of side skipping this step. Private sector stakeholders wish to know and deserve the report of the entire stakeholder consultation process in this IP and in other IPs to come. This constituency also kindly request, as is customary with any transparent process, the full proceedings of and the consultation documents to be publicly displayed on the CIF site for reasonable number of days before endorsement calls are extended.</i></p>	<p><i>In addition to Annex 2 of the IP, please see, inter alia, the records of stakeholder consultations that have taken place during the MDBs Scoping Mission as well as MDBs Joint Mission:</i></p> <p>Scoping Mission: http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/Kenya_post_mission_report_March_10_2011.pdf</p> <p>Joint Mission: http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/SREP%20Kenya%20Joint%20Mission%20AM%20v6.pdf</p>
<p>25.</p>	<p><i>The objective of the SREP being tied to pursuing a strategy that will combine</i></p>	<p><i>Please see the response to question #21.</i></p>

<p><i>public sector and private sector actions, the SREP should seek to overcome economic and non-economic barriers in order to scale-up private sector investments contributing to the objectives of the SREP. This essentially means that the underlying proposal has to be Additional, which essentially means that it would not easily have occurred without SREP funding.</i></p> <p><i>The Geothermal proposal for funding, that targets detailed surface exploration, infrastructural development, drilling of exploratory and appraisal wells would not have occurred since it is largely a pre project exercise with some risk of failure. A last mile SREP funding of 40mil over a 145mill Government seed fund with a purpose of further scale up by private sector seems clearly transformational. However, since the scaling up phase is postponed to a reserve fund, it can't be assured whether similar funding model based on top up crowd in from Grants and MDBs is not going to be followed for the subsequent phase.</i></p> <p><i>SREP governance won't have a control over the second phase and it is very difficult to imagine the level of innovation or transformational effect from SREP financing in phase I, if business as usual financing grid is reverted to in phase II. In this regard I recommend the inclusion of statements or schedule of disbursement in the IP that are strictly tied to other elements related to proposed creation of enabling environments that should be performed in parallel. The alternative is truncating the share of SREP for the Geothermal proposal to be a maximum of 25% and the balance distributed to the RE fund pool, Hybrid mini grid and solar water heating projects.</i></p>	<p><i>Phases 1 and 2 of the geothermal project are seamless effort of the same project, and are separated simply because different players are involved.</i></p> <p><i>Disbursement schedule will be prepared during project design stage.</i></p>
<p>26. <i>We are aware that there are statements in the IP that refer to the plan for interplay of private sector efforts in scaling up RETs. Much of it is reflected under each program in terms of creating enabling environment, access to the grid for power supply using FiT instruments and access to project finance from a RE fund pool to be established by Kenyan Government. Clearly, however the share of allocation of SREP fund lacks fairness (80:20) between projects that</i></p>	<p><i>Please see the response to question #11.</i></p>

	<p>could be propelled by different constituencies. Apart from this the proposal for the hybrid mini grid system is strongly supported.</p>	
<p>CIVIL SOCIETY ORGANIZATION OBSERVER (SEPTEMBER 7)</p>		
<p>27.</p>	<p>Civil society participation in the IPK development <i>In preparation of the Plan, one civil society organization, the Kenya Institute for Public Policy Research and Analysis (KIPPRA) was consulted. A key number of concerned and aware non-governmental organizations such as the Kenya Climate Change working group are not mentioned in the IPK. We request that further consultations regarding the development of this Plan include this working group as well as other key stakeholders.</i></p>	<p>Besides KIPPRA, a number of CSOs were consulted during the IP preparation. Please refer to the workshop summary attached below: http://www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/SREP%20Kenya%20Joint%20Mission%20AM%20v6.pdf CSOs will be invited to attend Consultative Group meetings during the SREP implementation.</p>
<p>28.</p>	<p>Access to key documentation <i>To appreciate the scope, legal and policy context of the IPK, access to or availability of key documentation referred to in the Plan is needed. These include:</i></p> <ul style="list-style-type: none"> • Kenya Vision 2030 as the National Economic Development Blueprint • Sessional Paper No.4 (2004) on Energy Policy • Energy Act of 2006 • Least Cost Power Development Plan • Rural Electrification Master Plan • Feed-in Tariff Policy • Kenya National Climate Change Response Strategy • Gender Audit of Energy Policies and Programmes in Kenya (2007) 	<p>Most of the documents requested are available online in the public domain:</p> <ol style="list-style-type: none"> a. Kenya Vision 2030: http://www.vision2030.go.ke/index.php/front/library b. Sessional Paper No.4 (2004) : http://www.erc.go.ke/erc/Regulations/SESSIONAL%20PAPER%204%200N%20ENERGY%202004.pdf c. Energy Act of 2006: http://www.erc.go.ke/energy.pdf d. Least Cost Power Development Plan: http://www.erc.go.ke/erc/LCPDP.pdf e. Feed-in Tariff Policy: http://www.erc.go.ke/erc/fitpolicy.pdf f. Kenya National Climate Change Response Strategy: http://www.environment.go.ke/wp-content/documents/complete%20nccrs%20executive%20brief.pdf g. Gender Audit of Energy Policies and Programmes in Kenya:

		<p>http://www.enerqia.org/knowledge.centre/gender-audit-reports/</p> <p>The Rural Electrification Master Plan is not available online presently but is available from the Rural Electrification Authority and the Ministry of Energy</p>
<p>29.</p>	<p>Clarity of indicators in the Results Framework</p> <p><i>Indicators for the following Results have yet to be confirmed regarding specific baseline data as of 2010 and target data. This data is necessary to inform decisions to implement the IPK, particularly regarding key primary and co-benefits which the Plan intends to achieve. Both decision-makers, entities potentially involved in the management and implementation of the Plan, communities affected by implementation and key beneficiaries should have access to this information at the earliest possible stage of the Plan’s development.</i></p> <p><i>Results 4 under Project Outputs and Outcomes concerns “Decreased cost of electricity.”The two indicators provided are reductions in annual generation costs in (1) isolated mini-grids and (2) in main grids. Both baseline and target costs are not confirmed.</i></p> <p><i>All indicators in relationship to results under the Catalytic Replication criteria remain to be confirmed except for one. Desired results under this parameter include (1) an increase in renewable energy generation investments, (2) improved enabling environment for renewable energy production and use, and (3) increased economic viability of renewable energy sector. The absence of baseline ad target value data for indicators under these results may trigger a lower confidence in the IPK achieving key SREP objectives i.e. the scaling-up of renewable energy in Kenya and addressing key development barriers.</i></p> <p><i>All indicators in relation to criteria area: Transformative Impacts in Kenya are also not confirmed. The results desired is to transform energy supply and use by poor women and men in Kenya, to low carbon development pathways. The</i></p>	<p>Please refer to the updated Results Framework attached to this Supplementary Document.</p>

	<p>indicators include (a) the number of new households connected to electricity in rural areas, (b) the population (rural) consuming energy services from new hybrid renewable energy systems, and (c) change in the energy development index –EDI (per capita energy consumption). Target data is lacking and is critical information for decision-makers regarding the IPK.</p> <ul style="list-style-type: none"> • Decreased cost of electricity • Catalytic replication • Transformative impacts 	
<p>30.</p>	<p>Governance of key implementing national institutions</p> <p><i>Given the unbundling of the vertically-integrated Kenyan electricity subsector monopoly and related sectoral reforms, an objective analysis of the governance of current electricity sector institutions should be provided to reinforce confidence in the development and implementation of planned SREP projects. This enables national and local stakeholders including the renewable energy private sector, programme beneficiaries and affected communities, to build their confidence in the accountability, transparency and integrity of electricity sector institutions. Such institutions include:</i></p> <ul style="list-style-type: none"> • Ministry of Energy (MOE) • Energy Regulatory Commission (ERC) • Rural Electrification Authority (REA) • Kenya Electricity Generating Company (KenGen) • Kenya Power and Lighting Company (KPLC) • Kenya Electricity Transmission Company (KETRACO) • Geothermal Development Company (GDC) • Independent Power Producers (IPPs) • Energy Tribunal • Green Climate Facility 	<ul style="list-style-type: none"> • Please refer to para 16 as well as Annex 1 of the IP on institutional and technical/managerial aspects. • For an objective analysis done by a third party, please refer, for example, to an assessment by the World Bank (Annex 11, Project Appraisal Document of the Kenya Electricity Expansion Project) available on line at: http://go.worldbank.org/N1BOU7Z5Z0

	<ul style="list-style-type: none"> • National task Force on Accelerated Development • Least Cost Power Development Plan Committee 	
<p>31.</p>	<p>Renewable Energy Sector Context</p> <p><i>The IPK recognizes that geothermal resources have an estimated potential over 7000MW are providing less than 200MW of electricity to date since the first drilling in 1955. In this context, providing an objective analysis as to why production has been limited to date may provide guidance for understanding potential or existing impediments to the IPK proposed actions facilitated by SREP financing. Some of these impediments may have not been fully captured in the present IPK.</i></p> <p><i>The IPK notes that the Government is undertaking a number of actions to promote solar PV systems around the country. One of these is the adoption of Energy (Solar Photovoltaic Systems) regulations (2011) which are expected to “provide a licensing framework for the solar PV value chain...” the governance of this licensing framework will be a crucial factor to enable equitable development of this energy source in the country.</i></p> <p><i>Regarding the solar water heating component, it is unclear how the government will regulate and implement a mandatory installation of heaters in the absence of a climate change policy. SWH installations usually attach high costs in terms of equipment and in technical maintenance costs. What plan is envisaged to support parties required to have and maintain the heaters in short, medium and long term scenarios.</i></p>	<p><i>Table 4 in the IP summarizes some inherent barriers affecting renewable energy development as well as mitigation measures already undertaken by the Government. SREP will address the remaining risks, which will be critical for scaling-up their deployment as shown in the table in Annex 3 attached to this Supplementary Document.</i></p> <p><i>We agree that the governance of the solar Water Heating licensing framework is important. This issue is managed by the Energy Regulatory Commission, which is an independent institution.</i></p> <p><i>The Energy (Solar Water Heating) Regulations 2010 http://www.erc.go.ke/erc/Regulations/Draft%20(Solar%20Water%20Heating)%20Regulations.pdf require that all premises within the jurisdiction of a local authority with hot water requirements of a capacity exceeding 100 litres per day shall install and use SWH. For existing premises a 5 year compliance period has been given.</i></p> <p><i>The regulations will be enforced through local government authorities that approve building designs for construction. No building with a hot water demand of more than 100 litres per day will be approved for construction without a SWH. The local electricity utility will not connect power supply to a building without a solar Water heater installed. To ensure quality all installer companies will be licensed by the regulator. The regulator will through agents carry out random inspections to ensure compliance with the law.</i></p> <p><i>Given the regulations are secondary laws, a person contravening the provisions of SWH Regulation commits an offence and shall, on conviction, be liable to a fine or imprisonment or to both as specified by the law.</i></p>
<p>32.</p>	<p>Risk Assessments</p>	<p><i>Institutional capacity, including procurement, financial management, and</i></p>

	<p><i>Institutional risks in the IPK are rated as “low.” The risk assessment itself is skeletal highlighting key areas where independence and transparency of key institutions are regarded. More information is needed to substantiate the assessment. The IPK states: “Institutional capacity of the implementing agencies including their capacity to handle procurement, financial management, and environmental and social safeguards will be assessed before project appraisal and, where necessary, capacity development will be provided.” An independent assessment of these capacities will be important to establish that implementing agencies comply with internationally recognized standards regarding procurement, financial management and environmental and social safeguards. This assessment provides important information for decision-makers, potential capacity development actions, and governance concerned stakeholders. Results of the assessment should be made publicly available.</i></p>	<p><i>environmental and social safeguards will be carried out in accordance with the guidelines of the MDBs financing the project. The assessment of these aspects will be done during the project preparation, and the results will be disclosed on the respective MDBs’ website as part of their project appraisal documents.</i></p>
<p>33.</p>	<p>Social Risks</p> <p><i>Public consultations are a mandatory part of Environmental Impact Assessments (EA). The IPK risk assessment states that “the addressing of feedback (of consultations) by the project proponent is generally included as a condition for approval of the EA. Appropriate social development measures will be incorporated into project design.” While this is a highly welcomed measure, consultation practices have shown that serious consideration of public views can often be disregarded or not sufficiently addressed in project designs prior to implementation. Attention and scrutiny need to be paid to ensure the robust character of consultation practices and the degree to which the views of stakeholders are effectively addressed at the project development and implementation stages. This would be highly important if any of the proposed projects would have a direct or indirect impact on the livelihoods of people in the implementation of projects.</i></p>	<p><i>For each project to be supported under SREP, Environmental and Social Impact Assessment will be undertaken.</i></p> <p><i>For the Menengai geothermal development project, ESIA has been carried out with extensive consultations, and the National Environmental Management Authority (NEMA) has given the project an environmental license. The ESIA report is available on request from GDC. The updated ESIA will be posted on the GDC website. The ESIA will be updated to incorporate further drilling works, transmission line and power plant development. No relocation is anticipated for the project because the rigs and the proposed generation facility (as presently envisaged) lie within Kenya Forestry Service land, there are no residents within the project boundary. Acquisition of way leaves for the transmission line will be required.</i></p> <p><i>For the hybrid mini-grid and the solar water heating system project, ESIA will be done during the project preparation.</i></p>

	<p><i>Further, while it is not suggested that people or communities would need to be relocated for project implementation purposes, confirmation of this matter would be a key consideration. Any relocation action should ensure an appropriate consultation processes and include, where relocation is inevitable, an appropriate compensation package.</i></p>	<p><i>Furthermore, as stated in para 66 of the IP, the organizational arrangements for SREP will have Consultative Group that includes NEMA and CSOs.</i></p>
<p>34.</p>	<p><i>Financial Risks</i></p> <p><i>The IPK states that “... making new business models for geothermal development, managing hybrid mini-grids and solar water heating systems financially sustainable would require regulatory measures and market research.” According to this analysis, financial sustainability depend significantly on regulatory measures and market research which are currently not in place. The confidence in both factors having positive impacts on financial sustainability should be a key concern for decision-makers, support actions and eventual programme beneficiaries.</i></p>	<p><i>Financial viability of each project will be examined during project preparation, including the issue of regulatory environment.</i></p>
<p>35.</p>	<p><i>Financing plan and planned energy cost reductions</i></p> <p><i>The total amount of finance required for 200MW Geothermal Phases A and B, the Hybrid Mini-Grid Systems and the Solar Water Heating Component is USD \$928 million. Of this amount the SREP would finance USD\$85 million. The total contribution of the Kenyan government is estimated at USD\$132 million. The World Bank group and the African Development Bank aim to fund USD\$321 million and the remaining USD\$242 million is to be financed by development partners and commercial loans.</i></p> <p><i>Within this financing plan, it is not clear whether the finance from the latter two sources will be largely in concessional or non-concessional loans or other funding arrangement. The terms of the financing plan are linked to the IPK aims to increase access to electricity at low cost to wider communities throughout Kenya and to support the country’s sustainable development plans. It is reasonable to question whether this financing arrangement result in</i></p>	<p><i>It is expected that the funding from the MDBs during the initial phase (US\$244 million) will be on concessional terms; the remaining US\$77 million could be on quasi-commercial terms by the private arms of the MDBs. The US\$242 million funded by development partners/commercial loans is expected to be on commercial terms.</i></p> <p><i>Given this combination, these projects by themselves would not create upward pressure on the retail tariffs.</i></p>

	<p><i>increased energy costs to poor communities in short, medium or longer terms. This is a key concern which could be addressed better by demonstrating that energy costs will remain affordable for recipient communities notwithstanding the financing arrangements proposed.</i></p>	
<p>NORWAY (SEPTEMBER 27)</p>		
<p>36.</p>	<p><i>Energy access for the population.</i> <i>First, it is clear that by increasing the installed capacity of the power system by 200-400 MW, one will make available energy to the entire population, including vital public institutions and services, as well as poorer households. A 200 MW geothermal installation would likely allow for about 1,500 GWh annually. This would provide sufficient energy for some 400,000 households consuming 300kWh/month. Further, given that no other grants appear to be involved in the geothermal investment, SREP financing is likely to be the high risk capital and is thus instrumental in leveraging the other financing. Thus, with a \$40m contribution from SREP, one directly contributes to sufficient energy to supply some 400,000 households, or about \$100 of SREP funding per household. This would compare with 11,000 households gaining access from a \$10m SREP + \$42m in grants to mini-grids – or nearly \$5,000 per household. While we recognize that this is not a straight forward or just comparison (neglecting both grid costs and power reliability issues) it should raise some doubt as to whether or not the SREP portion of the mini-grid investment indeed has a higher (direct) poverty alleviation effect than that of the geothermal investment.</i></p>	<p><i>The GoK team agrees. On the issue of mini-grids, please see the response to question #2.</i></p>
<p>37.</p>	<p><i>Clean base power that supports economic development and other renewables.</i> <i>An additional important benefit of the geothermal investment is the provision of base power from a clean resource. This type of power is particularly valuable, especially in a system that will eventually come to rely on variable and unpredictable renewable sources such as wind and solar. Thus, in addition to providing clean base power to both households, small businesses and industrial applications, it also allows for increased investment in other renewables. That is, by its nature, geothermal is a resource that can offer both</i></p>	<p><i>The GoK team agrees.</i></p>

	<i>scale and flexibility that can spur economic growth in a way other renewables cannot.</i>	
38.	<i>The potential for a large multiplier effect. In addition to the direct impacts of the proposed investment in geothermal, there is a real potential that by assuming the associated first-mover risks one could achieve the above mentioned impacts many times over. That is, if this project is successful and other investors follow suit, this SREP investment will have been seen as breaking the path for projects that would replicate the positive effects listed above many times over, and potentially benefit the entire region.</i>	<i>The GoK team agrees.</i>

Annex 1: PROPOSED FINANCING SCHEME STRUCTURE FOR SWH

The schematic below outlines the general structure of the proposed financing scheme

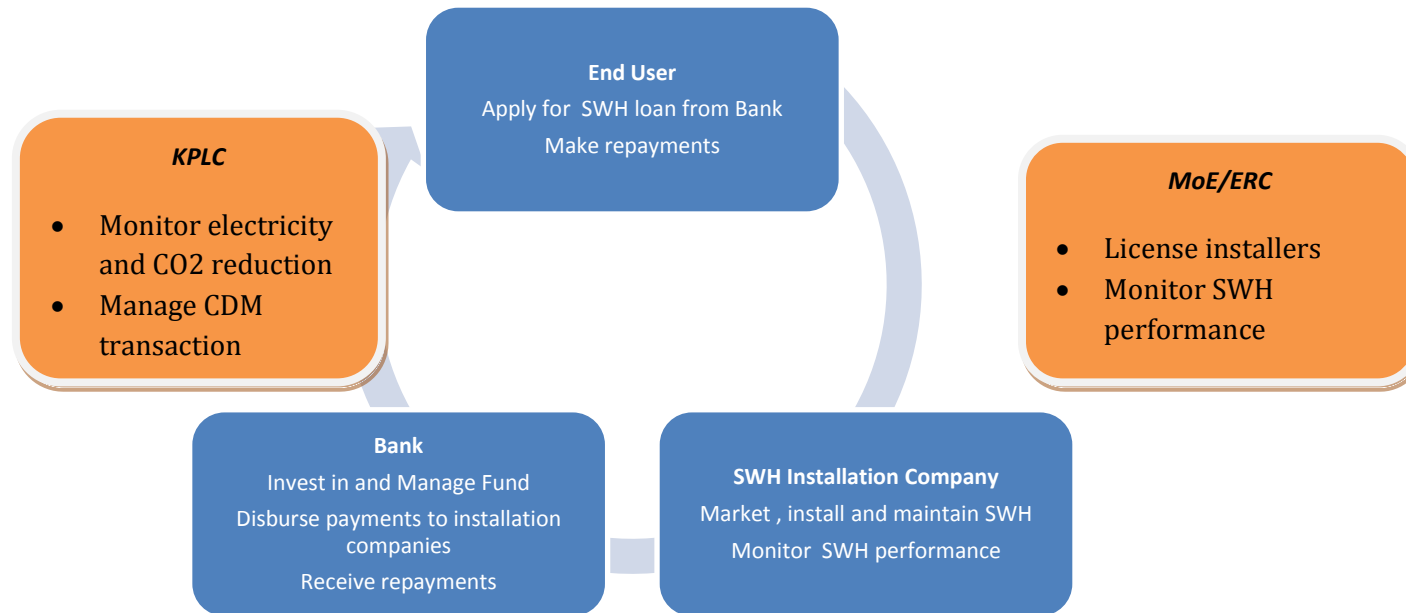


Figure 1: General structure of the proposed financing scheme

To ensure quality systems are delivered and installed the Energy Regulatory Commission (ERC) will license solar water heater installers and technicians as well as monitor performance of installed systems in accordance with the Solar Water Heating Regulations.

In order to share the benefits of the power system peak reduction, KPLC will implement a CDM project whose carbon revenues will be channeled back to electricity consumers through a tariff adjustment or a delayed upward tariff review. Consumers will therefore benefit from reduced power costs, while the utility will benefit from reduced systems stress and the delivery of improved services. Consequently KPLC will monitor the reduction in power consumption as well as develop and manage the SWH CDM component arising from the project.

ANNEX 2: UPDATED RESULTS FRAMEWORK

Table 10: Updated Results Framework of the Program

Results	Indicators	Baseline (year 2010)	Targets	Responsibility for collection	Data Source	Data availability (Yes/No)
Project Outputs and Outcomes						
1. Increase in number of women and men supplied with electricity	Number of customers connected to Main grid	1,441,139	2,200,000 (by 2015)	KPLC	Project M&E	Yes (KPLC Annual Reports)
	Number of customers connected to Mini-grid	22,500	33,500 (by 2015)	KPLC	Project M&E	Yes (KPLC Annual Reports)
2. Decrease in GHG emissions	Displaced amount of GHG emission in the Isolated Mini-Grid in tonnes per year	0	9,722 ¹ tonnes of CO ₂	REA	Project M&E	Yes (KPLC Annual Reports)
	Displaced amount of GHG emission in the National Grid in tonnes per year	0	967,104 ² tonnes of CO ₂	MoE	Project M&E	Yes (KPLC Annual Reports)
3. Increased RE supply	a) Amount of energy in GWh from RE annually	3,525	5,167 (by 2015)	KPLC	Project M&E	Yes (KPLC Annual Reports)

¹ Total CO₂ avoided by 3MW solar PV added to existing mini-grids and 4MW solar added to new 27 mini-grids to be constructed.

² Total CO₂ avoided by 200MW geothermal at 92% load factor and grid emission factor of 0.6ton/MWh

Results	Indicators	Baseline (year 2010)	Targets	Responsibility for collection	Data Source	Data availability (Yes/No)
	<i>b) Additional geothermal power connected to the national grid</i>	0 MW	200 MW by 2015	KPLC	Project M&E	Yes (KPLC Annual Reports)
4. Decreased cost of electricity	<i>Reduction in annual generation costs in the isolated mini-grids³</i>	USc30/kWh	USc21/kWh by 2018	MoE	Project M&E (Household Surveys)	KPLC
	<i>Reduction in annual generation costs in the main-grids⁴</i>	USc5.1/kWh	USc4.8/kWh by 2018	KPLC	Project M&E	KPLC
5. Learning about demonstration, replication and transformation captured, shared in Kenya and to other countries in SSA especially in EAC.	<i>Number and type of knowledge assets (e.g., publications, studies, knowledge sharing platforms, learning briefs, communities of practices, etc.) created</i>	0	3	GDC, REA, MOE, KPLC, ERC	Project M&E (Entity reporting)	Power Sector Institutions' websites
6. New and additional resources for renewable energy projects	<i>Leverage factor of SREP funding; financing from other sources (contributions broken down by Donors (MDBs and</i>		1:8	MoE, GDC, REA	Project M&E (Entity reporting)	MOE

³ Generation fuel cost

⁴ Generation fuel cost

Results	Indicators	Baseline (year 2010)	Targets	Responsibility for collection	Data Source	Data availability (Yes/No)
	<i>Bilateral, Government of Kenya, CSOs, private sector) (USD Millions)</i>					
Catalytic Replication						
1. Increase in renewable energy generation investments	a) Percentage (%) of RE investment of total new energy investment	0	55.5%	MoE	Project M&E (Entity reporting)	ERC
	b) Amount of RE generated by the private sector in new RE plants	0	82%	MoE	KPLC	Yes (KPLC Annual Reports)
2. Improved enabling environment for RE production and use	a) Adoption of and implementation of low carbon energy development plans	0	Develop a Renewable Energy Master Plan	ERC	ERC	ERC
	b) Enactment of policies, laws and regulations for renewable energy	1	<ul style="list-style-type: none"> •SWH Regulations •Small scale Solar PV and wind Regulations 	Energy Regulatory Commission	ERC	ERC
	c) Replication of the development model	OMW	5,110 MW RE by 2030	GDC	Project M&E	GDC and MOE
3. Increased economic viability of renewable energy sector	a) Percentage (%) of private sector RE investments of total new energy investments	0	45%	MoE	Project M&E	ERC

Results	Indicators	Baseline (year 2010)	Targets	Responsibility for collection	Data Source	Data availability (Yes/No)
	b) Increase in population working in the RE generation sector.	0	380	MoE	Project M&E	ERC
Transformative Impacts in KENYA						
Transformed energy supply and use by poor women and men in Kenya, to low carbon development pathways	a) Number of new households connected to electricity in the rural areas.	190,799 (This calculation is taken from the KPLC Annual Audit Report)	582,212 by 2015 (This is projected from the KPLC Annual Audit Report and taking an annual growth of 25%)	KPLC	Project M&E	Yes (KPLC Annual Reports)
	b) Population (rural) consuming energy services from new hybrid RE systems	0	33,500 (by 2015)	KPLC	Project M&E	Yes (KPLC Annual Reports)
	c) Change in the energy development index - EDI (per capita electricity consumption)	139 (This current index)	160 by 2015 (This is the target which will be calculated taking into account the new established power plants	MoE	KPLC,	Yes (KPLC Annual Reports)

<i>Results</i>	<i>Indicators</i>	<i>Baseline (year 2010)</i>	<i>Targets</i>	<i>Responsibility for collection</i>	<i>Data Source</i>	<i>Data availability (Yes/No)</i>
			and growth of population)			

ANNEX 3: RISKS TO BE ADDRESSED BY SREP

Remaining Risks	SREP Activities
<p>Geothermal</p> <ul style="list-style-type: none"> • <i>High cost of resource assessment</i> • <i>High resource risk</i> • <i>Human resources constraints</i> • <i>Delay in delivery of new capacity to the grid</i> 	<ul style="list-style-type: none"> • <i>Feasibility studies</i> • <i>Production wells</i> • <i>Capacity building</i> • <i>Early generation (well heads)</i> • <i>Expedited generation capacity additions</i>
<p>Hybrid mini-grids</p> <ul style="list-style-type: none"> • <i>High capital cost</i> • <i>Renewable energy resource distribution relative to existing grid/load centres</i> • <i>Challenges in reaching financial closure</i> • <i>Lack of appropriate and affordable credit and financing mechanisms</i> 	<ul style="list-style-type: none"> • <i>Purchase of equipment</i> • <i>Focusing on trading centres in isolated areas</i> • <i>Transactions support</i> • <i>Design works and capacity building to encourage private sector participation</i>
<p>Solar water heating (SWH) system</p> <ul style="list-style-type: none"> • <i>Limited capacity for equipment acquisition/ supply</i> • <i>Lack of appropriate and affordable credit and financing mechanisms</i> • <i>Human resources constraints</i> 	<ul style="list-style-type: none"> • <i>SWH equipment and installation.</i> • <i>Project implementation arrangements in partnership with private financial institutions</i> • <i>Capacity building and awareness raising</i>