

## **SREP INVESTMENT PLAN FOR UGANDA**

### **AFDB RESPONSE TO SWITZERLAND COMMENT**

**SREP UGANDA INVESTMENT PLAN – ISSUES LIST**

#	Comment / Issue	Made by	Answer
<b>Financing Plan</b>			
1	What is the requested grant vs non-grant split in the IP?	SECO	<p>Uganda today is considered as low debt distress country and has been allocated an envelope of 50 m USD distributed between 22.50 as grant and 27.50 non-grants.</p> <p>The Government of Uganda is aware of the split between grant vs. non-grant resources as per SREP rules. Since the final split will depend on the Sovereign Debt Sustainability level of Uganda at the time of project submission as well as on the availability of SREP grant resources, a decision will be made during project preparation and submitted to the SREP Sub-Committee.</p>
2	<p>MDBS (AfDB) please explain the meaning of the sentence <i>“the co-financing amounts presented for the geothermal project are largely dependent on successful exploration of the resource”</i>. To what extent does that affect MDB co-financing? What is the MDB (AfDB) financing with its portion?</p>	SECO	<p>The co-financing amounts presented for the geothermal project include amounts both for the exploration phase but also for the design and construction of the power plants and auxiliary infrastructure.</p> <p>Annex 1 (p.84) present the indicative financing plan. Since the exploration phase and field development will be mostly covered by SREP, the Government of Uganda, MDBs and possibly other bilateral donors, the bulk of private sector financing for the power plant construction is dependent on the resource being proven. This was the case in the Kenya Menengai Geothermal Project approved by the SREP Sub-Committee.</p> <p>The final amounts to be provided by AfDB and/or WB through their IDA and ADF country allocations will be determined together with the Government of Uganda as part of the multi-year country programming exercises.</p> <p>As an indication depending on the country allocation for ADF, the co-financing might be 70 m USD as indicated on the table p.84.</p>
3	<p>Given the need to mobilize USD 230 million private sector financing for the geothermal project, we see a significant uncertainty to the 130 MW power plant actually materializing, even if/after the resources are proven by the exploration wells.</p>	SECO	<p>It is difficult to provide a precise answer until the geothermal resource being proven.</p> <p>The East African rift valley in which geothermal power has been exploited in Kenya has its western arm running through a big part of Uganda and there are clear surface indications of availability of</p>

	What is the MDBs' (AfDB and IFC) assessment of the chances of success?		<p>geothermal energy.</p> <p>In neighboring Kenya, geothermal resources have been deployed with excellent results. In Uganda surface exploration has been done and the next step is required to drill boreholes to demonstrate availability of steam for power generation.</p> <p>Geochemical and geological and geophysical surveys, geological surveys Transient Electro Magnetic investigation, remote sensing and environment studies were undertaken and showed positive results with an estimation of 450 MW capacity.</p> <p>For these various activities, the GoU obtained financial support from a wide spectrum of donors, including Iceland (ICEIDA), UNDP, OPEC, IAEA, JICA and Germany.</p> <p>If the first phase is successful, then MDBs believe that availability of funding for the construction will not be an issue.</p> <p>While preliminary surface studies in some sites are promising the risk still exist.</p>
<b>Results Framework</b>			
4	Why does the wind component have no target for increased access to modern energy?	SECO	<p>The figure needs to be reviewed.</p> <p>The GoU will commit in investing in the evacuation and distribution lines of the wind farm to increase the population, businesses and community to benefit from improved access to electricity.</p> <p>This will be well integrated in the results framework of the project document before SREP Sub-committee approval.</p>
5	What are the targeted installed capacities for the three projects?	SECO	<p>The targeted installed capacity resulting from the three projects is estimated at 155 MW (see Expected Impacts of the SREP Program). While this may seem small relative to the financial size of the overall SREP program, if successfully implemented, these projects have the potential to unlock significant additional investments in these technologies in the future. SREP will thus be catalytic by creating a track-record and demonstrating viability . 155MW should therefore be seen as a first phase.</p>
6	Assuming that the installed capacities are 130 MW for the geothermal project and 20 MW for the wind project, the expected outputs in GWh/y are	SECO	<p>This is a wrong figure and it will be reviewed to 877.73GW/h</p> <p>A revised results framework will be sent by the SREP Sub-committee,</p>

	not consistent.		
7	The output from the solar PV installations seems low in relation to the investment. Please explain.	SECO	<p>The project output of the Solar PV installations is low as the project consist of 2 components:</p> <ul style="list-style-type: none"> <li>(i) Mini grid program in isolated islands</li> <li>(ii) Net metering is a pilot project in the national building in urban areas.</li> </ul> <p>The Mini grids are high capital costs in those remote areas and the net metering is a pilot activity</p> <p>These are best estimates and shall be reviewed before approval by MDB and if need in the project document as per the SREP Results Framework.</p>
8	The targeted 462 kWh per capita electricity consumption by 2020 seems very high in relation to the baseline? How realistic is this target in the eyes of the MDBs?	SECO	<p>The 462 kWh is based on the National Development Plan (2015-2020) target.</p> <p>MDBs are of the view that it will be very challenging for Uganda to meet this target given current market conditions but we acknowledge the significant efforts and investment being made by the government in increasing the supply of energy with cheaper and more reliable sources of energy can only improve the consumption of its population.</p>
9	We appreciate the rather ambitious objectives of the IP but would like to caution that these are essentially depending on the success of the 130 MW geothermal project which seems rather risky.	SECO	<p>This is well noted and acknowledged by the Government of Uganda in Section 13 (Risk Assessment of the IP). This needs to be understood in the following light: (i) the surface studies indicate considerable untapped geothermal potential; (ii) Exploration drilling is a high-risk enterprise best handled with public funds: in this regard SREP has a unique vocation to share that risk has demonstrated in other countries; (iii) The upside of the high-risk is high return: if successful, the geothermal opportunity will provide with a base-load energy source capable of mitigating hydro availability risk and displacing fossil fuel generation. Finally, the long-term development and economic potential impact of the other two projects is considerable and should not be underestimated.</p>
<b>Geothermal Project</b>			
10	What is the time frame for the geothermal project from the approval of the IP to project submission and approval by the SREP SC and the MDBs, over to the exploration drillings, field development, PPP tendering and construction by a private	SECO	<p>As per the project concept note, the final project report is expected to be submitted to the SREP Sub-Committee during the last quarter of 2016 and is expected to be approved by the implementing MDB before the end of 2016.</p>

	developer of the power plant and transmission infrastructure?		<p>This will mark the launch of the implementation of the envisaged project activities. In parallel, IFC will immediately start in the implementation of the advisory component which will greatly contribute to a swift implementation of the exploration phase by the Government of Uganda and with support of AfDB.</p> <p>The full commission of the envisaged power plants will be dependent on a number of variables and providing a timeframe for their commission at this stage is counterproductive. Nevertheless, GoU is of the view that this will not happen before 2020-2022</p>
11	To what extent are the costs for transmission lines needed to connect the geothermal power plants to the grid included in the cost estimates? Who will be responsible for the transmission line, the utility or the developer of the power plant?	SECO	<p>The cost estimates already include an estimation for the transmission lines and auxiliary infrastructure that shall be required to connect the generation infrastructure to the grid.</p> <p>Both the government and MDBs are of the view that if exploration phase is successful and the resource is proven for commercially viable generation, financing for the transmission infrastructure will not be an issue.</p>
12	The estimated/identified geothermal potential in Uganda is 450 MW vs 7000 MW in Kenya. The more advanced Menengai project in Kenya was recently re-dimensioned from 400 MW to 60-120 MW after and as a consequence to the exploration phase. To what extent is such a (likely) development "priced" into the IP? How is it justified that 68% of the SREP resources are concentrated on the rather high risk geothermal project?	SECO	<p>The 400 MW was an estimation of the total geothermal potential in the Menengai field based on surface studies. The perception is that the financial resources that were allocated to the Menengai exploration phase were insufficient to drill all the identified wells. This is a riskier part of geothermal development and therefore public funding is sought for mitigating this risk. For the Menengai, the referred 120 MW correspond to the amount that has so far been proven and more resources are required to drill the remaining wells.</p> <p>The above-mentioned risk is common to all geothermal sites around the world, and in most cases it is never fully mitigated. In the SREP project, The Government believes that with the preliminary studies done and the support of Iceland and Kenya – countries with significant knowledge in the sector – this risk can be highly mitigated and financial resources effectively used.</p> <p>As for the utilization of 68% of the entire SREP allocation, this is to ensure economies of scale in the drilling program based on cost estimates of full exploration of a single well between USD 4 – 6 million.</p>

13	<p>The estimated overall costs of \$388.8 million for 130 MW (i.e. \$2990 per kW) is at the upper range of the IRENA cost estimates for direct/flash technology geothermal power generation (\$1900-3800). There is some concern that the costs would be too high to attract private sector investment for plant construction and infrastructure if the proven field resources are significantly lower than 130 MW.</p>	SECO	<p>USD 2.990 lies in the middle of the IRENA cost estimates range. The figures presented in the IP are an estimation that was based on similar projects in the region, namely the Menengai project.</p> <p>Final amounts will be assessed during appraisal and submitted to the SREP Sub-Committee once project is ready.</p> <p>Private sector participation will ultimately depend on the tariff paid by the off-taker (making project financially viable), and this will be a function of various factors including generation costs of other technologies and the "premium" paid for a resource with a near 100% availability factor.</p>
<b>Solar PV Mini-Grids and Net Metering</b>			
14	<p>We take note that the GoU considers that SREP would have a little role to play in the scale-up of on-grid solar PV, taking into account the other programs running in Uganda and the relatively increased affordability of solar PV technology as equipment prices decrease. However, we caution on the general assumption that programs to involve private sector investments will be automatically successful once cost covering feed-in tariffs are set. SREP, in particular with the rather large availability of highly concessional capital, could in our opinion also play a decisive role in scaling-up or accelerating programs which are just in their starting blocks.</p>	SECO	<p>Indeed, we are of the view that, given the involvement of GetFit in supporting investments in on-grid Solar PV technology, the added value of SREP would be very limited and not transformational.</p> <p>The GoU agrees with the observation that SREP's highly concessional resources should be used to scale-up and accelerate programs in their starting blocks. This is indeed the case with geothermal, wind and decentralized solar pv. Additionally, SREP intervention will not merely target the issue of "cost recovering tariffs", but will also look at other enabling environments that could prevent meaningful private sector participation in nascent technologies".</p>
15	<p>The net-metering component seems to be confined to public buildings (p.85 "rooftop systems in national buildings") Why? Net metering is a good model to motivate (private) consumers to generate their own electricity with the possibility to exchange excess production against supplies at other times. A restriction to public buildings fails to unleash the potential of net-metering to raise private sector investments.</p>	SECO	<p>This component includes regulations, legislation, standards, strategy and investment guidelines which are intended to pave the way for private sector net metering. The public sector net metering will serve to pilot the project, build awareness, and overcome technical hurdles before expanding to private sector implementation.</p>
<b>Wind Project</b>			

16	Also regarding wind power, there is little/no ambition to motivate private sector investments? Why? In the international context, wind power is already recognized as a commercially viable investment for the private sector.	SECO	<p>The Government of Uganda agrees with the potentially strong role of private sector in investing in a mature and competitive technology such as wind, there is still no credible and consistent wind measurement data to back-up this assertion and this is a key roadblock for private sector appetite.</p> <p>The project preparation grant will thus address this issue with the installation of wind masts in the Karamoja region to significantly expand the data collection efforts of the GoU.</p>
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