

CLIMATE INVESTMENT FUNDS

August 4, 2015

APPROVAL BY MAIL: CTF REVISED INVESTMENT PLAN FOR INDIA

Responses submitted by the Asian Development Bank and the World Bank to the comments
submitted by the United Kingdom

India CTF Revised Investment Plan 2015

Queries from UK and Replies by MDB teams

UK Query	MDB Response
<p>Can you confirm if any CTF funds have been used for any of the projects that have been dropped?</p>	<p>No funds were used for the dropped projects</p>
<p>At the scale of solar projects envisaged, intermittency will be a significant issue. Could you provide detail on how intermittency and storage will be dealt with?</p>	<p>In the medium term, as India makes progress on meeting its solar targets, increasing rates of solar generation in the energy mix would pose challenges to power grid operators, including variability and uncertainty. Therefore dialogue is already underway on beginning to change power system planning, regulations and operations, in anticipation of increasing deployment of renewable energy. The World Bank, with ESMAP funding, is joining other development partners in India to support an ambitious pan-India renewable integration study to identify pathways to achieve cost-effective variable renewable energy grid integration (the VRE study). The core element of the VRE integration study is a production simulation modeling process in which generation resources are dispatched in optimized ways to meet demand at all hours throughout the power system. Potential grid reliability concerns from increased renewables, and crucially the exact investment requirements for grid reinforcement at specific locations, can be identified using this modeling framework. Intermittency is expected to become a significant issue when VRE penetration increases beyond 20% of capacity (which is much higher than current RE penetration). Solar intermittency is predictable to some extent, i.e., PV will not operate at night. As the costs of battery-based storage are also expected to decline rapidly during the next several years, deployment of “last mile” battery storage (especially in conjunction with rooftop solar installations) will mitigate intermittency challenges to some extent (see Annex 1, paragraph 64). Detailed requirements for storage and grid operations (including smart grid technologies) will depend on the specific project and</p>

	<p>requirements imposed by State-level electricity regulatory commissions. We are unable to provide project-level details at this point as these issues will be addressed during project preparation, feasibility assessment, and due diligence. Also, as large scale solar park projects are formulated at specific locations, this information will be provided by state authorities to the national-level VRE study team in order to inform regulators and transmission operators to enable simulation of the potential impact, and inform subsequent actions required.</p>
<p>Could you provide your assessment of the impact that this solar scale up will have on the coal-fired electricity generation sector?</p>	<p>The coal-fired subsector faces coal supply chain issues, i.e., the rate-limiting factor for new capacity is the import terminal and intermodal trans-shipment capacity. The massive scale-up of solar and other RE capacity is expected to achieve grid parity in the near term (e.g., 5 years) and coal parity in the medium term (within 10 years). In addition, imported coal is paid for with foreign exchange and this will further increase the attractiveness of shifting to “free” fuel sources such as solar PV. Continued expansion of RE capacity beyond the medium term is expected to decelerate future coal-fired power expansion.</p>
<p>Could you elaborate more on the developmental impact of these projects? E.g. are the solar panels manufactured in India? If so, how many jobs will this create?</p>	<p>The solar panels in both rooftops and solar parks projects will be sourced competitively by private developers, and could be domestically manufactured but not necessarily so. Developers must competitively bid to offer the lowest tariffs in order to get into solar parks and this requires a lifecycle cost approach to sourcing panels that will minimize both capex and opex costs i.e. combining upfront investment with reliability. Rooftop customers will have a choice of many installers and again domestic panels may not necessarily end up being the most competitive in all cases. The real sustained job creation impact will come from the need for wide-spread training of O&M technicians for parks and rooftops, to provide servicing needs over the 25 year asset life. MNRE is also launching a program to offer skills training to 50,000 “Surya Mitras” (Solar Friends), who will install and maintain solar panels, both ground mounted and rooftop. An indirect employment impact of increased</p>

	<p>generation through solar PV would come from improved energy supply to small and medium enterprises which are expected to grow and expand their hiring</p>
<p>Could you elaborate more on the additionality that the CTF funding will achieve for each of the new projects that have been added to the Investment Plan?</p>	<p>The massive scale-up of 100+ GW of new RE capacity is unprecedented in the developing country context. As noted in the revised IP, investment will need to increase from about \$6 Billion per year for all renewables today, to about \$17 Billion per year for solar PV alone, and concessional finance is warranted to facilitate the scale and timely mobilization of financing to meet the ambitious targets. There is already a large overall infrastructure investment effort underway in India, with competition for funds from many sectors that are seeking commercial lending to complement limited public funds. Commercial banks still perceive solar PV as a relatively unknown and risky proposition (particularly so with rooftop PV). Banks will not take the risk of lending to rooftops and ground-mounted solar projects on the scale that is required, without CTF and MDB support, when they can manage their risk exposure through lending to familiar sectors such as airports, highways, inland waterways, shipping, housing etc that are all expanding. Rooftop PV simply cannot get attention in this crowded space, given the lack of track record and risk perceptions. In the case of rooftops, the CTF funding will trigger the launch of a market that barely exists today (40MW to 40GW). In the case of solar parks, CTF funding will allow the rapid scaled up of the limited experience with ground-mounted capacity today (4GW to 60GW).</p>
<p>The envisaged solar parks will occupy large tracts of land (e.g., more than 10,000 acres for the Pavagada Solar Park in Karnataka) with significant environmental and social costs. Has the MDB triggered any of their social and environmental safe-guards? If so, what are the envisaged social and environmental implications of the projects? If the safe-guards have not been triggered, why not?</p>	<p>All MDB environmental and social safeguards will be applied as per operational policies and guidelines. Environmental and social impact assessments and management plans, including land acquisition, will be prepared and implemented during project preparation as per MDB requirements. The preferred sites for solar parks are areas where land is not being utilized for other productive purposes and which are not host to sensitive ecosystems. Based on prior experience with large-scale RE and solar parks development, application of MDB safeguards systems in</p>

	<p>parallel with GOI regulatory requirements will be able to resolve any issues. The Rewa Solar Park site has already completed a baseline survey for environment and social assessment purposes as per MDB requirements, and the data is being analyzed. The Pavagada Solar Park site has been visited on three occasions by the MDB safeguards team, and efforts are underway to support the JV company of the proposed solar park to mobilize efforts to conduct a similar baseline study. The site today is barren and not being used for anything else.</p>
<p>Can the project team provide us with details and outcomes of the stakeholder engagement, in particular, with any affected communities?</p>	<p>Details to be developed on a project specific basis during preparation, and will be provided when projects are presented for funding approval (at appraisal stage) as per normal CTF and MDB procedures.</p>
<p>With regard to the Solar Rooftop PV project, could the project team set out the financial implications of using CTF funds in the form of a loan vs. a guarantee?</p>	<p>The choice of instruments is not yet finalized and may potentially have combination of lending and guarantees. It will depend on the type of pipeline and creditworthiness of borrowers. Guarantees may be able to provide higher leverage, while loans will be required due to the massive scale of investment proposed. Banks noted that when they use their own funds at the very start of the program, it may increase costs due to various statutory and regulatory reserve ratios that apply to their own funds raised from local depositors. This increases the cost of funding. Guarantee vs. loan will depend on specific details of project structuring, determined during preparation and due diligence stages.</p>
<p>Also regarding the Solar Rooftop PV project, the indicative financing plan and 1500MW target implies that the cost per MW installed is \$1.06m/MW installed. This is significantly below the current market price of c. \$1.6m/MW installed, and seems very ambitious. Could the project team elaborate on what assumptions were used to derive the 1500MW installed capacity target in the Solar Rooftop PV Project? The total capital costs associated with installing 1500MW rooftop PV would exceed the financing sources detailed in the indicative financing plan, even without provision for battery backup and therefore seem ambitious.</p>	<p>\$1.6 remains the project assumption. The annex does not accurately present the fact that CTF and MDB resources will be revolved resulting in additional co-financing from commercial banks and developers at the level of \$600-800m. The table will be corrected.</p>
<p>Have the Solar Rooftop project team looked at the financing mechanisms used by M-KOPA in</p>	<p>The MDBs are familiar with the pay-as-you go business models pioneered in Kenya and</p>

<p>Kenya? Is there any reason why this model would not work in India?</p>	<p>being implemented elsewhere; the MDB teams are continuing to review other business models in other parts of the world that may be applicable to India. Lessons learned will be incorporated into project design considering Indian legal and regulatory framework. For rooftops the idea is to “commoditize” rooftop PV systems and lower the financial entry barriers. The participating banks already have very active consumer financing programs in place for appliances, vehicles and scooters, household items, and even mobile phones, which can all be bought on installment plans. With the correct interventions, and support from CTF/MDBs they are trying to see if customer demand for rooftop panels can be boosted through similar payment plans.</p>
<p>For the Solar Park Infrastructure the RE target seems very ambitious compared to the assumed financing need. Is it that only a percentage of project sponsor costs are taken into account as mobilised? If so, the same should apply to the RE target (i.e. reduced by additionality.). Could the MDB staff provide their cost assumptions underlying the indicative financing plan of the new Solar Park Infrastructure and Solar Park Transmission Evacuation Infrastructure project? It is unclear how the financing sources indicated relate to the current 2000MW RE installation target.</p>	<p>It should be noted that the MDB+CTF financing need refers only to the common (shared) infrastructure and not to the generation plants. The MDB+CTF will assist in creating an enabling location so that the park owners (the public sector Joint Venture company) can run a competitive, plug and play bid where private sector developers will be selected based on lowest tariff offered in order to set up generation plants and generate their power in a common location.</p> <p>2000MW is the expected fully capacity of the proposed solar parks which will be reached overtime resulting in \$2000-3000 million private investments. \$1000 million was a conservative estimate for the first few years. We will make the Annex clear.</p>
<p>We would like to see more of a rationale as to why the SEEP project has been dropped. We recognise that the market for fans has changed since the original IP, but we would be interested to know if any consideration was given to adapt this program to cover other technologies instead (e.g. Air conditioners, refrigerators). Given the shift away from energy efficiency in the IP, we would be keen to know more about the government's future plans in this area.</p>	<p>The SEEP project dialogue has been an extremely valuable engagement tool on the topic of energy efficiency. The PDO has been overtaken by events, as noted. Manufacturers are already producing energy efficient fans (without subsidy). In addition, the on-granting of CTF loan to private sector faced legal complications. The design of the SEEP program is still being considered for future programs once the learning from the fans experience is internalized.</p>

<p>Finally, we have noted an error in Table 19, page 38. The installed capacity target is indicated as 1500MW despite the project target of 500MW</p>	<p>Response to query about 1500MW: SECI has been mandated by MNRE to install 1500MW. World Bank financing is being sought for only the first 500MW in order to help SECI to develop a leveraging model and demonstrate it to the market. SECI will then use a similar financing approach to secure its remaining 1000MW but this remainder may not be financed by MDB/CTF. We will update the annex accordingly.</p>
<p>The IP does not say anything about local content requirements (LCRs), which have been a concern for us in previous projects. Are there any existing LCRs that would apply to the PV or solar park projects? What measures are the World Bank and ADB planning to take to ensure that future projects resulting from this revision do not contain any market-distorting requirements like LCRs? We look forward to the response. Thank you.</p>	<p>It is important to note that at the scale of development envisioned, India will need all global and domestic players to combine the efforts to meet the challenge. The recent developments in the PV sector clearly indicate India's commitment to encourage strong competition and create level playing field for all players. The CTF funded projects will follow MDB procurement rules. We suggest discussing specifics of individual projects after the investment plan is approved and the project preparation is advanced.</p>