Climate Investment Funds

November 9, 2015

SREP Investment Plan for Bangladesh

World Bank Response to Comments from Switzerland

Scaling-up Renewable Energy Program (SREP)
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No	Questions/Comments	Responses
Financing Plan		
1	(Q) For grid connected renewables, what is the difference between the component to be implemented and co-financed by the WB and the one by IFC?	The difference is in the way the financing will be delivered, and the cost of the financing. The World Bank component would be lent to the Government of Bangladesh to i) on-lend to the winning bidder(s); and/or ii) to invest in other infrastructure required to make the project happen (for example, transmission lines required to connect the facility to the grid). The IFC component would be a direct investment in private sector companies developing the project. Close coordination will be ensured throughout project preparation and implementation to seek the complementarity between two approaches and structure effective public-private partnership arrangements to unlock grid-connected RE markets.
2	(C/Q) It is mentioned that the guarantee instrument (PRG or similar) representing half of the WB's co-financing (i.e. $100 million) would be provided only if required by private sector bidders: (a) Under what circumstances will private bidders require such guarantees?	The most common risk to power projects is the offtake risk (ability of the off-taker to pay for the tariffs agreed in the Power Purchase Agreement (PPA) or purchase the volumes or capacity agreed in the PPA). If the private sector perception of such risk is too high, a higher risk premium will be required by the private sector. The partial risk guarantee (PRG) instrument will help to mitigate such risk, reducing the risk premium required by the private sector.
3	(b) What is the WB's assessment at this stage, as to the need of these guarantees?	It is difficult to predict, at this stage, whether investors will require a guarantee. Offtake risk does not, at the moment, seem to be significant in Bangladesh, as the off-taker (Bangladesh Power Development Board, BPDB) has established a track record of paying to the independent power producers (IPPs) on time despite their own financial constraints (resulting from below cost-recovery tariff) and dependence on government subsidy to meet the shortfall . There has never been any de-fault in payments by the BPDB since IPPs started to operation in Bangladesh in late 90s. Conditions may be different, however, for the country's first large scale renewable

		energy plant (as was the case when the first gas-fired IPP was introduced in Bangladesh in the 90s). Risks and the need for guarantees will be assessed more thoroughly at the project preparation stage, as part of the feasibility studies. The feasibility study would include "market sounding" to assess investor interest and the conditions under which they would be most interested in participating in the tender including the need for such guarantees.
4	(c) Could the use of these guarantees, if not required by the most interested bidders be used to enlarge the project, i.e. to extend its scale?	It may be possible that the bidder may not require the guarantee for the project scale envisaged, but only at a higher scale. The need for guarantee at different scale will be determined during the feasibility studies and accordingly the guarantee instrument will be offered. It is to be noted that the guarantee instrument will be offered during the bidding stage, and therefore all bidders will get to know of the guarantee instrument being offered. On completion of the bid evaluation, appropriate due diligence on the winning bidder will be carried out by the WB to offer the guarantee instrument to the winning bidder.
Results Framework		
5	(Q) It is difficult to conceive that in 2014 99% of off-grid households had access to electricity in a context where 34% of the rural population had no access. Please explain this figure and the target of 100% by 2020.	This is a typo. The 99% access rate refers to the urban population, the rural population has a 66% access rate (as is reflected in Figure 2.11 in the investment plan). The goal is to provide access to the remaining 34% in rural areas by the year 2021. We will fix the IP accordingly.
6	(Q) Is there really no multi-dimensional energy poverty index (MEPI) for Bangladesh? The footnote seems to be taken from the IP of Vanuatu.	This was mistakenly copied when using the table used for the Vanuatu IP as a template. The case in Bangladesh is also the lack of adequate supply of electricity for those connected to the grid and of course, lack of access to electricity for the off-grid areas where even solar home systems (SHS) have not reached. Recently, a quick phone-based survey under a World Bank supported project has con-firmed low quality of supply to those connected to the grid. Applying the multi-tier framework for access, most of the households connected to the grid were found to be having a low tier of access (less than tier 2 in the scale of 5). A more robust survey for multi-tier access is currently being planned under the World Bank sup-ported project. We will fix the IP accordingly.
7	(Q) What is the projected increase in annual public and private investment in renewable energy? The figures are	Government target is to increase the share of renewable energy in power generation to 10% by 2020. No specific investment figures have been

	not stated but it must be assumed that they exist for Bangladesh.	estimated for this. This investment plan for SREP funding is the first attempt to quantify realistically the investments anticipated in renewable energy. As the financing plan shows, total investment is expected to be US$730 million with a government contribution of about US$95 million (mainly in the form of exemption of duties and taxes).
8	(Q) Over and above the 50,000 people expected to be connected through off-grid projects, what is the expected number of people, businesses and community services who will benefit from "improved" access to energy through the grid-connected projects?	Grid-connected projects are going to benefit both existing consumers and customers that are given new connections when the grid is connected. The capacity added to the system will provide improved grid stability and capacity to meet the demand of new customers. There are currently 18.2 million grid-connected customers (see Table 2.5 of the Investment Plan). At least this number of customers can be estimate to benefit from improved reliability. Also, the energy supply expected from the grid connected projects is sufficient to meet the annual energy needs of at least 900,000 people.
9	(Q) What is the expected reduction or avoidance of CO2 emissions related to the expected SREP outcomes?	It is an oversight that this estimate was not included in the Results Framework. It is expected that the CO_2 emissions avoided by the SREP outcomes will be roughly 225,000 tons of CO_2e annually, based on a grid emissions factor for Bangladesh of 0.656 tonnes/MWh for grid-connected plants and an emissions factor of 0.80 tonnes/MWh for off-grid components.
10	(C) In general, the results should be detailed by project or IP component. This will facilitate the future project approvals, which can then be compared to the IP.	We note that the total GWh generation will need to be corrected in the results matrix, from 475 GWh to 332 GWh. The figure 475 GWh was derived from more aggressive assumptions on the installed capacity. However, a more conservative and realistic target of around 200MW for grid-connected RE was presented while finalizing the Investment Plan. It can be broken down by component as follows: • 289 GWh annually from grid-connected solar • 43 GWh annually from off-grid solar Please also note that the results of the increased supply of RE are subject to further change and refinement as project sites are determined and site-specific feasibility studies are conducted during project preparation. We will fix the IP accordingly.
RE potential		

11	(C) The summary of RE potential (table 3.1) lists a total of (only) 3666 MW with solar parks, solar rooftop, solar irrigation and wind power being the only RE sources with large potentials. This total potential seems small in relation to the pre-sent installed capacity and peak demand (7000 MW). Additional potentials will need to be identified rapidly if RE is supposed to also address the growth of electricity demand in the long term.	Agreed. The resource potential for wind and solar parks were conservative estimates that assumed only two percent of land with generation potential was a viable location. Solar rooftop estimates was based on Dhaka and a small part of Chittagong due to a lack of information on rooftop availability. Additional studies are needed to identify the viability of specific locations for all these technologies. It is expected that the SREP investments will unlock the potential for grid-tied renewable energy allowing Bangladesh to more aggressively pursue renewable energy scale-up once the first round of grid-tied investments materialize with support from SREP.
12	(Q) Why is the hydropower potential so small? This is surprising in a land with many rivers. We would especially expect significant potential for run-of-the-river HPPs. To what extent has this already been assessed and what were the conclusions?	Bangladesh does have many rivers, but is also low-lying, with 75 percent of the country less than 10m above sea level. It is mainly a flat land. These characteristics have two implications for hydropower: (i) Most hydro sites have a very low "head" (vertical difference between high and low water), and (ii) there are significant concerns (based on prior experience) about land use and flooding associated with hydro projects. The only large hydropower plant in the country (Kaptai, built in 1961) displaced over 100,000 people due to flooding from the dam's reservoir. [See Section 3.1.8 of the Investment Plan]
13	(C/Q) We also noted that in the 500 MW solar program, the bulk of the rooftop installations are destined to public buildings (160 MW) and little to residential and commercial (10 MW) or industrial buildings (20 MW): (a) (Q) Why is the proportion allocated to residential/commercial and industrial buildings so small?	The 500MW solar programme included 160MW 'social sector projects' consisting of rooftop solar in public buildings (health centers, remote educational institutes, religions establishments and government buildings). The remaining 340MW was 'commercial projects' consisting of mini-grids, solar parks, solar irrigation, and rooftop solar in industrial/commercial buildings. The idea behind the 160MW of social sector project was to demonstrate the viability of rooftop solar and kick-start the market for roof-top solar in the private sector. When the 500MW plan was drawn a few years ago, very little was known about the feasibility of rooftop solar in the private sec-tor, hence the prominence of the public sector projects in the rooftop solar segment in the 500MW plan.
14	(b) (Q) What proportions for rooftop solar in the proposed SREP program are destined to public buildings vs residential, commercial or industrial buildings?	The solar rooftop program does not specify the type of building. A detailed feasibility study as part of project preparation will identify the mix of public and private buildings where rooftop solar will be feasible. The procurement models described in the IP are meant to favor flexibility.

15	(c) (C) The question arises as to what extent the residential/commercial and industrial rooftop solar could be an important and still untapped potential, considerably underestimated in the IP.	Agreed, the solar rooftop potential is underestimated. A conservative estimate was used because concerns were raised over the availability of rooftop space, especially residential buildings. In Bangladesh, due to limited land availability rooftops are often used for drying laundry and as a public gathering spot. Additionally, there were questions about which commercial buildings have the structural integrity needed to hold a rooftop system. Several stakeholders suggested that both of these factors would severely limit any assumed availability
16	(d) (C/Q) Also related to rooftop solar, the concept of net-metering has been successfully applied in various countries and was also proposed in SREP investment plans. Has net-metering been considered for the IP of Bangladesh? What were the conclusions?	Given the low end-user tariff (that is partly subsidized), the net metering will not be attractive for rooftop solar. A feed-in tariff will need to be introduced that gives adequate incentives for rooftop solar.
17	(C/Q) The identified potential for waste-to-energy (1 MW) from municipal waste is also surprisingly low for a country with large cities. WtE has the double advantage to address the municipal waste problem along with the energy needs. To what ex-tent has the assessment of WtE potential been included in the proposed WtE component of the IP?	The 1 MW of potential refers only to the GoB's pilot project to establish waste collection practices. We agree that Bangladesh has vast resource potential in terms of daily municipal waste production, but without established waste collection practices actual technical potential cannot be estimated. The WtE component of the financing plan calls for SREP funds to be used for advisory support in identifying technical and commercial options for a WtE plant and the development of a feasibility study. [See Section 3.1.7 of the Investment Plan]
Electricity tariffs and subsidies		
18	It is noted that Bangladesh uses cross-subsidies in its electricity tariffs but that these are "not sufficient to cover the lost revenue for selling the majority of electricity at below-cost recovery". (Q) Besides the cross-subsidies, does the GoB actually subsidize the low electricity tariffs? If yes, what is the magnitude of such annual subsidies?	Yes, GoB subsidizes the tariffs. The difference between the cost of power purchase by the off-taker BPDB and the bulk supply tariff (at which the off-taker sells to the distribution utilities) is provided by the Government as direct budgetary transfer to BPDB. This amounted to about US$800 million in FY14 (compared to US$584 million in FY13, and US$840 million in FY12). Government has a target to keep the transfer within BDT 60 billion (about US$770 million) in the current FY.
19	(Q) Does the GoB subsidize fossil fuels? If yes, how much does the fossil fuel subsidy for electricity generation represent in annual subsidies?	Yes, GoB subsidizes fossil fuels to the tune of about US$800 million annually (with power sector accounting for about a third of the consumption of fossil fuels). How-ever, this subsidy has come down considerably in recent time with the drop in international oil prices.

20	(C) Fossil fuel subsidies and subsidized electricity tariffs are likely to be the reason why rooftop solar PV installations on residential and commercial buildings are not producing electricity, despite their installation being required by the GoB. A pecuniary incentive should be created for solar rooftop installations on residential, commercial and industrial buildings to produce electricity.	Agreed. The rooftop solar component in the IP would introduce a feed-in tariff and guaranteed offtake (set by the Regulator or specified in a PPP contract) which would provide the financial incentives for rooftop solar.
Barriers/Enabling environment		
21	(C/Q) The absence of a comprehensive legal and regulatory framework for RE, notably a lack of feed-in tariffs for grid-connected RE, seems to be a major barrier for all of the technologies proposed for SREP funding. The GoB needs to address this issue in view of improving the enabling environment for RE. Since no provision for SREP support is foreseen in the investment plan, it is assumed that the GoB either has the capacities to address these issues or receives support from other sources therefore	The project preparation foreseen under each component will include technical assistance which helps put in place feed-in tariffs. The ongoing IDA technical assistance program will also support the development of legal and regulatory framework for grid-connected RE. As noted above, these feed-in-tariffs may be set by the regulator (The GoB has prepared Draft Feed-In Tariff (FIT) Regulations (2015) that would set regulations for wind and solar tariff structure and design. [See Table 2.8]), or would be specified in the contracts between private developers and the transmission company.