

# CLIMATE INVESTMENT FUNDS

May 24, 2017

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**[APPROVAL BY MAIL]: LIBERIA: RENEWABLE ENERGY PROJECT (AFDB)(SREP)-  
XSREL032A**

**COMMENTS FROM SWITZERLAND**

Thank you for circulation the project application.

We have the following Questions (Q) and Comments (C):

1. Project description and rationale:

- a. (Q) The hydro power plant shall be connected to the cross-border transmission line between Liberia and Côte d'Ivoire. To what extent will the project thereby satisfy demand in Nimba County vs export electricity?
- b. (Q) Is the project also expected to provide electricity to Guinea? To what extent?
- c. (Q) Who will finance the implementation of the distribution grid which shall connect the rural population located along the existing cross-border line in Nimba County (the design of which is being financed by the SREP PPG) and the mini-grids that should "provide reliable and affordable electricity to the main towns of Nimba County" (p.16 PAD)? This distribution grid and these mini-grids do not seem part of the project.

2. Expected results:

- a. (Q) There is some confusion about the number of beneficiaries from improved access to electricity:
  - i. (SREP) Cover Page states: 282'500 men + 282'500 women
  - ii. SREP Results Framework (table 6, p.18 of PAD) states 64'644 men + 65'356 women
  - iii. Outline of SREP investment criteria (5.1, 2nd paragraph on p.16 PAD) states "the project could meet 13% of the current total electricity demand in the country and supply electricity to around 110'784 households and benefit to a total of 564'998 people of which around 50% would be women and children". [Note: probably more women and children than 50%]
  - iv. Under "Brief Description of Expected Outcomes" (para. 2.15, p.8 PAD) states "It is expected that over 7'000 new customers ... will connect to the grid by 2021 and an additional 11'000 more by 2041" [Note: the latter figure seems very low].  
Please explain the differences between these statements and clarify which one is the relevant expected outcome of the project with regards to the SREP contribution.
- b. (Q) The overall co-financing is stated as \$5.98 million in the Cover Page, \$6.0 million in Table 2 (p.9 PAD) Source of financing and \$4.59 million in Table 6 (p.18 PAD) SREP Results Framework. Please clarify which is the relevant figure.
- c. (C) The leverage factor of SREP financing of 1:0.26 (corresponding to an overall co-financing of \$6 million) is ten times lower than anticipated in the endorsed SREP IP for Liberia (1:2.6). It is appreciated that this fact is outlined and explained by the AfDB and that the Government of Liberia is adding a contribution (\$1.18 million) which was not anticipated in the IP.
- d. (Q) How many jobs are expected to be created by the project?
- e. (Q) Does the anticipated cost of USD 0.053/kWh (para. 1.10 p.3 PAD) reflect the full investment and O&M costs of the project?

3. Financial and economic viability:

- a. (C) It is noted that the economic viability parameters of the project are impressive (ENPV \$67-124 million; EIRR 22.9%-32.4%; EBCR 2.8-4.4) but these figures apparently include shadow prices for CO<sub>2</sub> emissions (Annex 2, Table 1, p.22 PAD).
  - i. (Q) What is the level of these shadow prices (in \$/tCO<sub>2</sub>eq)?
  - ii. (Q) What would be the economic viability parameters if these shadow prices were disregarded (or set to 0)?
- b. (Q) What would be the financial viability parameters (FNPV, FIRR and pay back period) of the investment on the basis of expected electricity sales and O&M costs?

4. Risks:

a. Under Environmental & Social (para.4.16 p.13 PAD) some negative impacts including income loss (resulting from losses in subsistence agriculture and fisheries) are mentioned. It is also stated that a grievance redress mechanism shall be set up to address such losses.

i. (Q) Have these potential losses been evaluated/quantified and what is their economic value?

ii. (Q) Who will finance the redress measures (compensations)?

b. (Q) With regards to the transboundary nature of the project (para. 4.17 p.13 PAD), will the existing regional agreements cover the project or is it necessary to negotiate a new agreement? How much time will this take? Is it likely to de-lay the project implementation?

c. (C) It is noted that the project is “likely to cause significant environmental and social impact” and that it may be vulnerable to climate change risks.

i. (Q) Does the budget foresee DRR measures to protect the infrastructure and mitigate the environmental and social impact risks? Who will finance such measures?

ii. (Q) Does the weir included in the project constitute an adaptation measure to climate change? What is its main function?

d. (Q) What would be the impact of the Macroeconomic Stability Risk rated “substantial” on the project implementation and O&M?

e. (Q) It is noted that the Sector Strategies and Policies Risk also rated “substantial” is (partially) mitigated by the SREP funded WB Liberia Renewable Energy Access Project. What is the progress of this project in terms of developing regulations for decentralized electrification?

5. Operation & Maintenance (O&M):

a. (Q) It is understood that the Rural Renewable Energy Agency (RREA) is implementing the project, but who will be responsible for O&M?

b. (Q) What capacity building measures are planned regarding O&M?

c. (Q) What are the anticipated annual O&M costs?

d. (C/Q) It is likely that a revision of the hydro-mechanical and electrical equipment will be necessary within the 30 years lifetime of the project. Have such costs been considered in the economic analysis? Who will finance them?

e. The plant will have a significantly different output during the dry and wet seasons with expected generation being respectively 14.7 GWh and 41.8 GWh (para. 2.10 p.6 PAD).

i. (Q) How much is the demand that needs to be satisfied?

ii. (Q) How will the shortfall (if any) of the supply be complemented during the dry season?

iii. (Q) What will happen with the excess electricity generated during the wet season?

6. Private sector involvement:

(C) It is noted that the Gbedin Falls hydro power plant presents the least cost option for electricity generation in the country (Affordability and competitiveness of renewable sources, p.16 PAD). It would therefore be a good case for private sector involvement or loan financing (vs less attractive projects having a stronger need for grants).

i. (Q) Have such options been considered? Why not?

ii. (Q) Is the GoL considering to involve private companies in the electricity generation sector in the foreseeable future?

iii. (Q) Could this project then be the object of a PPP involving a private company (for O&M and/or investment)?