

1. Title of the investment plan

SREP MALI - INVESTMENT PLAN Scaling Up Renewable Energy

2. Program under the SCF

Scaling Up Renewable Energy in Low Income Countries (SREP)

3. Name of the reviewer

Naceur Hammami

4. Date of submission

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5. Part I: General Criteria

Overall, the proposed Investment Plan SREP¹ Mali complies with the principles and objectives of the SREP and its implementation would help to develop the Malian energy sector in line with national policy and strategies set by the country for the energy sector in general and renewable energy in particular.

The proposed SREP-Mali relies heavily on the public sector capacity for its design and its implementation whereas one of the objectives of the SREP is the development and building capacity of the private sector and its contribution and involvement in the development of renewable energy.

The experience of Mali in the field of renewable energy, especially in the realization of small solar PV systems for decentralized electrification and water pumping was mentioned but not described in more detail. This would have been helpful because this experience can be used on a technical, technological and economical level to improve SREP. It seems that the capacity of certain public institutions for the implementation of the submitted Investment Plan will require further support by SREP particularly at the technical level.

The proposal of DNE² becoming the agency or unit for the implementation of micro-hydro component is unattractive. It appears that the DNE as a Direction of MEE³ plays two distinct roles and wears two hats as an actor and operator: first, its main role focuses primarily on developing policies and strategies in the Energy sector (tariffs, regulations, incentives, etc.) and second, it has a role in implementation and monitoring of energy infrastructure. In the absence of a national agency for renewable energy or energy management (renewable energy and energy efficiency) for implementing the country's policy in the field of renewable energy, on the one hand, and the absence of a real market for this energy, the DNE could play this double role to a certain limit. Since hydropower is more attractive in terms of sustainability than solar photovoltaic, for example, therefore the private sector should be more involved in this sector,

¹ SREP :Scaling Up Renewable Energy Program

² DNE : National Energy Directorate

³ MEE : Ministry of Energy and Water

eventually through a public / private partnership. Rwanda's PPP⁴ experience has demonstrated the reliability of this approach particularly in the area of hydropower and there is no reason why this component could not also be managed like the solar PV⁵ component in the IPP⁶ framework or like Rwanda's PPP approach.

SREP-Mali could be redesigned to include a more substantial commitment of the private sector and strengthening its capabilities. At the moment it is unclear how the proposed conversion can be sustained because there is a lack of focus on private actors.

The proposed SREP is not truly based on the results of a technical and economic evaluation or on specific Malian experiences. In fact, the proposal seems just to want to reply and comply with the criteria required by the program. The power capacity to be installed and the related costs appear out of nowhere and have not been justified. Also, details of project costs by component and benefits, the detailed financing plan with the identified contributors and the methodology for the realization of investments are not provided. Instead, it is proposed that these data will be gathered by detailed studies during project preparation.

However, in the absence of supporting documents for the figures presented in the proposal and based on the provided information, it is not possible at present to assess whether the proposals are viable. Project No. 1 on the development of grid-connected PV power plants is a good idea for the short-term, but there is no feasibility study. Concerning micro-hydro component, it equally lacks the information to assess its viability. The project on hybrid systems (isolated biodiesel / PV) is not sufficiently elaborated to allow a proper assessment of its viability. If the objective is to substitute the diesel, a comparative study with other renewable sources could be conducted to determine the most attractive, cost effective and available source. The solar kits, solar water heaters, also reduce the consumption of diesel for water heating and lighting the oil lamps, but with much lower investments.

The transformative impact is well developed for components 1 and 3 but not enough for component 2. SREP-Mali has addressed adequately the issues related to the promotion of lessons learned and their wider dissemination as well as those related to gender.

6. Part II: Compliance with the investment criteria or business model of the relevant program

- **Catalyze increased in renewable energy in total sector investment**

The Investment Plan states that the planned investment will attract both public and private sectors to contribute to financing the program. SREP aims to play a role in causing leverage on MDB⁷ loans in particular and all co-financiers, including the private sector in general. In the absence of data on the viability of projects, it is too early to expect contributions of MDBs. There is information missing on MDB's willingness to potentially co-invest in these activities, if this information exists then it should be included in SREP-Mali. If this information is not mentioned, the financing plan has a weakness at this level.

The SREP foresees that others will copy the program through the effect of demonstration, by building institutional capacity and by improving the confidence of investors, but the main actors for capacity building will be public institutions. This duplication should also come from the enhanced participation of private actors.

⁴ PPP :Public -Private Partnership

⁵ PV: Solar Photovoltaic

⁶ IPP : Independent Power Production

⁷ MDB : Multilateral Development Banks

- **Enabling environment.** SREP-Mali presents the country's commitment to promote long-term renewable energy as part of its energy strategy and goals of energy access. In fact, the SREP will be the main tool for implementing this strategy and increasing access to energy. SREP supports the strengthening of the policy of Mali and its regulatory environment and its institutions with a view to facilitating investment in renewable energy. However, an approach that focuses more on private sector investment would better reinforce the objectives of the SREP.

- **Increase energy access.** The proposed Investment Plan would allow a significant improvement in access to energy through the use of renewable energy with three components: grid connected solar PV, micro-hydro power and hybrid isolated systems (mini-networks.) These three components address the main obstacles to increasing access to electricity only. For this reason, traditional biomass, which provides 80% of the energy balance, is therefore not mentioned in the plan.

- **Implementation Capacity.** The SREP-Mali will be primarily implemented by DNE and AMADER⁸, with some participation of other national institutions (EDM⁹, CNESOLER¹⁰, ANADEB¹¹) and MDB's. Although private sector funding is available, there are no details of how it could be organized and realized. Also, SREP proposes to strengthen the capacities of local and national public execution, but this approach does not significantly involve the private sector. It does not really address the viability of the proposed implementation, including how to engage the private sector.

- **Improve the long-term economic viability of the renewable energy sector.** We note a lack of information on the returns on investments for the three program components. The Investment Plan addresses the country's strategy for private sector development in the renewable energy sector, without producing the necessary details, particularly in terms of distribution of responsibilities between the public and private companies in the production, installation, operation and maintenance of renewable energy technologies.

- **The transformative Impact.** Although the planned installed capacity of the three components does not significantly affect the energy balance of Mali, the Investment Plan provides transformational change at the national level once the expected results of the three components are achieved. But most importantly, this change might significantly and sustainably continue after SREP. However, two players are key to ensuring this goal and should be involved, these include: private and local financial institutions to expand the development of photovoltaic, hydro and biodiesel. The SREP is expected to give due importance to this aspect.

7. Part III. Recommendations

i) Role of Private Sector: It is recommended that SREP-Mali provide details, in particular, on how private developers will be hired to take responsibility for financing and implementing activities and the specific mechanisms to be used to achieve this. Detailed costs and benefits associated with the three components of the program must be studied before the launching of SREP. Financial contributions from all stakeholders should be identified in detail.

⁸ AMADER: Mali Agency for Domestic Energy and Rural Electrification

⁹ EDM : Energie du Mali SA

¹⁰ CNESOLER: National Solar Energy and Renewable Energies Centre

¹¹ ANADEB: National Agency for Bio-fuel Development

ii) Viability: At a minimum, preliminary indications on the viability of the proposed activities should be presented in the SREP Investment Plan. There are many experiences in the proposed activities especially for components 2 and 3, while certain details, especially the costs and benefits were not provided.

iii) At the financial level

a) Funding sources: it appears from the estimated total program budget (258.4 million USD) only 20.4% are secured by SREP and the GoM¹², approximately 27.5% guaranteed but not yet supposed achievable through the MDB and finally, the largest share, 51%, is not yet identified. To find this important extra funding through the private sector and development partners requires a lot of time and efforts by the GoM with support from the SREP. These contributions can only be identified after the technical and economic feasibility studies.

b) The cost details are lacking for the following components of the program and projects: the cost of kWh¹³ photovoltaic, hydro, biodiesel, cost of access, cost of installed KW¹⁴ or MW¹⁵, summary and detailed studies of projects, etc. The report should give price indications to justify the figures.

c) The unidentified financial contribution by private developers could be a barrier to the implementation of the program, mostly if the loan conditions from local and international commercial banks are not satisfied, or if these promoters, with limited means, are not eligible for a guarantee.

d) The financial implications of such programs requires several operations:

- ✓ The signature of financing agreements;
- ✓ The opening of special accounts and projects of the program by the GoM ;
- ✓ The establishment of a supply plan of accounts and related conditions and a disbursement plan;
- ✓ The study of an annual expenditure budget over the period of the program including the closing period of the project;
- ✓ The proposal of a system of internal audits and mid-term evaluations.

iv) At the technical level:

a) The presented implementation schedule of the three components is not detailed but it is too optimistic to complete within five years. The proposed schedule is based upon the presumption that the SREP funds will be allocated for a period of five years, but it seems that the nature and complexity of the proposed projects might require a longer implementation period. The most difficult step, which could take a long time, is the search for financing to complete the investment budget of each project. This might imply that the GoM would provide state guarantees, even when the loans are granted to the private sector. The conditions for granting such loans or grants differ from one lender / development partner to another. It will also take a long time to develop and approve a legal framework establishing the conditions for concessions to the private sector, establishing the tariffs and all the studies that need to be performed.

The implementation schedule covers all stages of project implementation including the mobilization of funding, the signing of agreements, setting up the regulatory framework and

¹² GoM : Government of Mali

¹³ kWh : Kilowatt -hour

¹⁴ kW : Kilowatt

¹⁵ MW :Megawatt

development and implementation of the relevant laws, undertaking of feasibility studies and project implementation, development of business plans, etc.

b) Since the objective of the SREP-Mali is also to involve the private sector in investment in solar PV, it is recommended to provide more than one developer to adhere to the program, but also to have types of facilities and investments. However, the 20 MW that requires a priori an estimated investment of USD 60 million could be spread over several plants from a few tens of kW to several MW.

c) Regarding the quality of products to install and maintain, it is recommended to use from the beginning a procedure of inspection and control by the GoM (implementing agency for the program or project) but also by the SREP. A system of technical advice or even grant eligibility of the sponsor / investor and technology to provide and install is largely recommended, including a list of standard technical specifications for each project.

v) At the institutional level

a) The private sector is not an executing agency as provided in the project 1: PV / IPP. It is an investor who will have to sign contracts with banks and the implementing agency (GoM).

b) The experience of Mali teaches that many national institutions are dealing with Renewable Energy, however, the roles, missions and limitations of each are not clear, nor is the synergy between them. This situation needs to be clarified before the program begins. For more effectiveness, it is recommended that a single agency or institution is responsible for implementing the program. A National Agency for the implementation of the country's policy, for the development and promotion of renewable energy and energy efficiency is largely justified.

c) Regarding the steering committee and the coordination unit and to avoid duplication of roles of actors and operators in this program, it is recommended that the MEE and its directions play its role in policy development (visions, strategies, regulations, etc..) and the implementing agencies play their roles in implementing these policies: technical and financial management of projects and programs. The Coordination Unit would normally sit within the implementing agency of the program while the Steering Committee may be within the MEE.

d) At the level of operators, the private sector is considered a crucial partner for the implementation of the program. However, certain conditions must be satisfied in order to promote its involvement;

- ✓ a clear regulatory framework, supportive and accompanied by simple procedures, benefits, incentives ;
- ✓ electricity tariffs should be studied and fixed with a guaranteed purchase by the national electricity company, or by final consumers;
- ✓ Technical capacity should be provided for the development of business plans;
- ✓ A banking system should be available and flexible enough to provide loans to projects that are not yet known to them and to private companies that generally do not have financial capabilities and are not solvent vis-à-vis banks (no guarantees).

e) To provide the SREP program maximum conditions for success, and based upon consultations held with various stakeholders in the design of the Investment Plan, it is recommended that players such as the Ministry of Finance, Private Sector Federation, National Company of Electricity, etc.. be closely associated in the preparation of projects and define their roles in their implementation.

vi) In conclusion

- 1.** The proposed Investment Plan SREP-Mali program is interesting on several levels
 - a) Despite the pilot nature of this program, it includes the installation of 38 MW. This is a fairly significant contribution to the national capacity of Mali.
 - b) The proposed projects are technically innovative (PV grid connected, PV-Diesel hybrid systems) as well as institutionally (IPP, PPP, etc.), not only at a national but also at a regional level.
 - c) It includes interventions of several donors and several mechanisms and collaboration with the public and private sector.
 - d) Experience to be acquired by Mali in the development of large renewable projects and therefore creating a real market in this area.
- 2.** The proposed projects are complex and require consistent technical assistance and comprehensive and detailed studies as well as training at all levels. A conducive regulatory framework fixing the prices of sale / purchase and the eligibility of projects and developers is the basis of the program's success.
- 3.** For national grid connected solar PV, it is essential to conduct a technical and economic justification for one or more small plants. Having several plants would involve several types of private operators.
- 4.** The creation of a national agency for renewable energy and energy efficiency for Mali is important today in order to implement the policy of the country, to avoid duplication of roles between different implementing agencies, to demarcate the roles of the Ministry and the implementation agencies and to address the problem of lack of synergies between the different stakeholders, based on the assumption that donors will also make use of this agency for implementing projects in this field.