

Climate Investment Funds

Expression of Interest Plan of Chad to participate in “Scaling up Renewable Energy Program in Low Income Countries” (SREP)

I. COUNTRY AND GOVERNMENT AGENCY SUBMITTING THE EXPRESSION OF INTEREST

Chad - Ministry of Economy, Planning and International Cooperation

II. DESCRIPTION OF THE COUNTRY’S SITUATION AND THE CONTEXT OF THE ENERGY SECTOR

Chad's energy situation is characterized by a crisis in resources and technologies. Consequently, less than 4% of the population has access to energy which is supplied on a non-regular basis at a high cost. Chad is the third largest country in the Central Africa sub-region, where the medium and low voltage are the most expensive (178 CFA per KWh of low voltage). The decrease in the production cost per KWh by Société Nationale d'Electricité (SNE) and hence of the consumer price to be accessible (100F/KWh) is foreseeable neither in the short nor in the medium term. Energy supply is a real problem in Chad due to the large deficit it has in energy production. The country uses diesel fired power plants for a large part of the produced electrical energy. Apart from the capital N'Djamena which totals almost 80% of electricity production in the country, there are only very few electrified cities and secondary centers with independent distribution networks.

In Chad, 90% of the energy used is provided by firewood and charcoal, 6-7% by petroleum products and 3-4% by thermal sources. In 2000, the Government launched a program in N'Djamena to replace the use of wood fuels through the use of butane gas.

The majority of Chadian households (69 %) use electricity for lighting and 11% of households use it as cooking fuel. Over 80% of electricity is consumed by households in the capital N'Djamena. The population also uses biomass as an energy source and the Société Sucrière du Tchad – Sugar Company of Chad (CST) – uses bagasse to produce energy.

The predominance of wood fuels in the energy supply and the coverage of a quality basic service of electricity and in a continuous way are still and will remain for a long time a challenge. Aware of this situation, Chad launched in 2012 a comprehensive program for renewable energy. Thus, to make energy accessible to a majority of the population and especially to promote renewable energy, the Government established the Agency for Renewable Energy Development (ADER).

The typology of electricity demand in Chad is as follows¹ :

<i>Number of inhabitants</i>	<i>Daily Demand</i>	<i>Type of commune in energy</i>	<i>Characteristics of the current demand</i>
<i>100 inhabitants</i>	<i>10 kWh</i>	<i>Scattered dwellings and villages</i>	<i>Main need for lighting in the evening. Energy mainly in primary forms for cooking. Mini individual power generators. No small industries.</i>
<i>1.000 inhabitants</i>	<i>100 kWh</i>	<i>Small and medium cities without electricity network</i>	<i>Problem of drinking water supply. Widespread individual power generators. No or very few small industries. A number of equipped social and public buildings or streetlight.</i>
<i>10.000 habitants</i>	<i>1.000 kWh</i>	<i>Medium cities with limited electrification or without network</i>	<i>MV / LV network with distribution in the morning and in the evening. Possible water pumping. Existing SMEs but power generators required.</i>
<i>100.000 inhabitants</i>	<i>10.000 kWh</i>	<i>Main cities with continuous electrification</i>	<i>MV / LV network, but under-sized, dilapidated and load shedding. Water pumping necessary and energy intensive. Existing SMEs but power generators required.</i>
<i>1.000.000 inhabitants</i>	<i>100.000 kWh</i>	<i>N'Djamena</i>	<i>Insufficient electricity generating capacity and network. Electricity expensive and not reliable. Large companies not connected or having their own generators.</i>

For cities already having continuous production, renewable energy will contribute to the improvement of the reliability and efficiency, while reducing hydrocarbon consumption.

III. RATIONALE FOR SREP FUNDING OF SPECIFIC SECTORS

The strong political commitment towards renewable energy is undeniably clear. However, it must be admitted that the current fiscal structure of the state does not allow hope for any significant allocation of funds to renewable energies. This finding is based on a number of

¹ *Master Plan of the Energy Sector in Chad*

projects that were initiated but never funded or partially funded or abandoned during their implementation. Therefore only a good financial partnership could help overcoming the problem of the national development of renewable energies

The other reason why the partnership and financial support is needed lies in the time factor. Should the Chadian government invest in the resources necessary for the development of renewable energy, it will do so at its own pace and depending on budget contingencies. External funding is hence needed to ensure the launch of the development policy of renewable energy.

Chad has enormous potential in terms of investment opportunities in the sector of renewable energies (solar, wind, biomass). There is a project for the establishment of a manufacturing photovoltaic system to solve the problem of electrification especially in the provinces and rural areas. It should be noted that an unlimited amount of glass sand is available, which is the main material for the manufacture of solar panels. In addition, Chad records, in the north, from 2850 to 3750 hours of sunshine per year with an overall intensity of radiation from 4.5 to 6.5 kWh/m² per day. Chad is also one of the Sahelian countries where the use of wind energy is less difficult. Indeed, the average speed of calm winds varies from 2.5 m / s to 5m / s from south to north.

The Master Plan of the Energy Sector notes that Chad has a good potential for renewable energy, in particular, very good solar resources throughout the country, good wind potential resources in the north and a good biomass potential in the southern zone.

Because of the diversity of its use (rural electrification and solar water pumping) and the low demand for equipment maintenance, solar energy (particularly photovoltaic plants) features an enormous potential for Chad.

There are no obstacles to the deployment of renewable energy in Chad. However, it should be noted that there is a need to provide adequate training for skilled human resources in the sector. The deployment of renewable energy will create a conflict of interest between the proponents of this sector and those of fossil fuels. Specific measures should be taken to ensure the safety of facilities.

IV. ENABLING ENVIRONMENT IN TERMS OF POLICIES AND REGULATIONS

Chad has enormous economic potential, but years of conflict have prevented the country from tapping this potential for its development. As so truly observed by His Excellency Idriss Deby, President of the Republic, "Chad is a country blessed by God. It has a rich and vast natural potential." Today there is encouraging progress in the areas of peace, political and social dialogue, stabilization of the macro-economic framework, socioeconomic infrastructure, promotion of employment, improved quality of public service and of the business climate.

Act No. 014/PR/99 stipulates in Article 4 that the state may delegate the generation, transmission and distribution of electrical energy which is an industrial and commercial public service under the exclusive domain of the State to one or more legal entities of public law or private law in Chad. In Article 12, the Act creates a Regulatory Body with legal

personality and financial autonomy called Regulating 'Authority of Electric Energy «under the responsibility of the Minister of electrical energy.

Finally Act No. 014/PR/99 provides in Article 16 that the public service of electric power is provided by delegation of the State. In this regard, the delegate will pay all taxes, duties, fees and charges of any kind whatsoever. It may be admitted to one of the privileged regimes of the Investment Code. Any natural or legal person acting as service provider of decentralized power is granted financial benefits such as reduced customs duties on specific components (e.g., products for the promotion of renewable energy technologies) or lower taxation. This service provider can benefit from long-term credit mechanisms, subject to the acceptance of a business plan (which will make it possible to control the technical and financial quality of the decentralized electrification project and help to improve it).

In the field of energy, there is a strategic framework for energy policy in Chad that is defined in "The letter of policy and strategy for the electricity sub- sector." The letter defines primary and secondary objectives: on the one hand meeting the energy needs of the entire population in particular electricity at a lower cost; on the other hand, expanding access to energy for industrial and agricultural production.

In an effort to create incentives and favorable conditions for the improvement of the business environment, many initiatives have been taken to promote the Energy Sector in Chad. These are:

- The development of an energy Master Plan;*
- The implementation of a new institutional and regulatory framework to substantially improve the management of energy issues and, in particular, electricity consisting in particular of (i) the complete restructuring of the Société Nationale d'Electricité (the national electricity company) and (ii) the creation of an independent agency responsible for the regulation, development, access and promotion of investment in the sector.*

In terms of regulations for the promotion of investment, the implemented legal arsenal consists of a full range of legal texts and incentives.

In the tax field regarding companies, the State guarantees (i) the widespread application of the Value Added Tax (VAT); (ii) the application of the zero rate of VAT on exported products allowing the reimbursement of the VAT paid on investment and operating costs of exporting companies; (iii) a reduction in the amount of technological research contracts concluded with a university, research or education institute or higher education institution based in the community (CEMAC) and on consultant contracts whose headquarters are located in a member country; (iv) maintaining the tax burden to an acceptable rate in return for investment and operating costs incurred by the company in rural areas and for social services corresponding to the regular functions of the State (health, energy ...); (v) the exemption from the Fiscal Minimum Tax (IMF) the license, the tax on the rental value of the professional premises (TVLP), the real estate tax (CFPB) and the tax on undeveloped properties (CFPB) for newly created or extended companies pursuant to the provisions of Articles 16 and 118 of the General Tax Code in respect of taxes on society. It provides for the possibility to make accelerated, declining or constant depreciation throughout the period of exemption from

corporate income tax (CIT) and the possibility of a deduction of 40% of the amount invested from the taxable bases subject to tax on the income of physical persons and tax on corporate profits in accordance with Articles 136 to 142 of the General Tax Code (CGI).

This deduction is made on the results of the year or during the year in which will occur (i) the completion of construction, (ii) the payment for purchases of materials or equipment; (iii) the settlement of contributions to joint venture companies.

The entitlement to these exemptions is based on the importance of investment and the location of the company. A tax system that is conducive to the development of renewable energies was implemented consisting in the elimination of VAT, taxes and customs fees on the concerned equipment.

The 2014 Finance Act in article 3.5 paragraph 29 thereof exempts from VAT "the acquisition of materials and equipment for the production and promotion of renewable energy."

The State guarantees the freedom to transfer capital including:

- *Regularly recorded profits;*
- *The proceeds of sale or liquidation of assets;*
- *Savings on salaries of foreign persons employed in a company based in Chad.*

Companies whose capital comes from other countries and branches of companies who are nationals of third countries shall have the option to acquire the rights of any type for exercise of their activities: property rights, intellectual property rights , concessions, administrative authorizations and permits, participation in public procurement under the same conditions as Chadian companies subject to the provisions of the Public Procurement Code.

As part of the decentralization policy activities, particularly in industry, export promotion and development of local raw materials, specific benefits are granted to companies that invest in remote areas, far from urban centers and with low industrial concentration. These include (i) an exemption period granted in Article 21 over a period of five (5) to ten (10) years; (ii) equipment premiums to compensate for the social services provided by the company and which are included in the normal mission of the State.

These measures are adjusted according to the volume of investments and to handicaps to be overcome without creating a serious distortion to competition rules.

Chad's strategy in terms of renewable energy consists in:

- *Setting up an institution for coordinating the activities of renewable energy development;*
- *Developing a plan and initiating the training of qualified human resources in the field of renewable energies;*
- *Designing the legal framework for the sector of renewable energy;*

- *Developing a national plan for the development of renewable energies;*
- *Developing a wind atlas of Chad to exploit wind energy;*
- *Starting a number of pilot projects; Initiating projects by big city and small administrative unit.*

Sector priorities are (i) the adoption of a law regulating the sector of Renewable Energies, (ii) the local production of quality solar panels and (iii) training qualified personnel.

V. INSTITUTIONAL AND TECHNICAL CAPACITIES

In Chad several ministerial departments are involved in the promotion of the Private Sector, primarily the Ministry of Economy, Planning and International Cooperation; the Ministry of Trade and Industry, the Ministry of Tourism Development and Crafts, the Ministry of Justice, the Ministry of Public Service and Labor, the Ministry of Finance and Budget and the Department of Energy and Oil. To complete their actions, organizations have been established such as the National Vocational Training Fund (FONAP), the National Board for the Promotion of Employment (ONAPE), the Chamber of Commerce, Industry, Agriculture, Mines and Crafts (CCIAM), the National Investment and Export Agency (ANIE), the Public – Private Dialogue Forum (FODEP) and the Agency for the Development of Renewable Energy (ADER).

To ensure the coordination national policies on the development of renewable energy, the Agency for the Development of Renewable Energy (ADER) was established in August 19th, 2013 by Ordinance. The ratification process of the Ordinance by the Parliament, the signing of the decree of operation and the appointment of Directors are underway.

ADER's mission consists in:

- *Participating in the design of the national plan and of the plans of sectors and regions for the development of renewable energy after the evaluating and implementing the resource mapping of the country's different areas.*
- *Advising and centralizing information on all the measures necessary to implement the national strategy for the development of renewable energy and on the energy efficiency measures developed by the government.*
- *Mobilizing investment and setting up the financial mechanisms and tools to ensure the implementation, operation and monitoring of all projects, whether initiated by communities, public bodies or individuals,*
- *Conducting activities and projects of economic, commercial and industrial nature in vocational and university training contributing to the promotion of renewable energies.*
- *Proposing and disseminating standards and labeling for equipment and devices producing energy from renewable sources*
- *Maintaining relations of technical and professional cooperation or partnership with foreign organizations pursuing the same objectives.*

ADER is working to identify and conduct pilot projects with a number of partners and to represent Chad in international meetings on renewable energy. Working in multidimensional interaction with several technical partners, ADER has a staff of varied profiles. This is how it was up to several challenges faced in these days in terms of program design, development and negotiation of contracts for renewable energy. With two engineers and a legal expert specializing in the sector with the support of an administrator involved in the development of public policy in the field, ADER has institutional and technical skills.

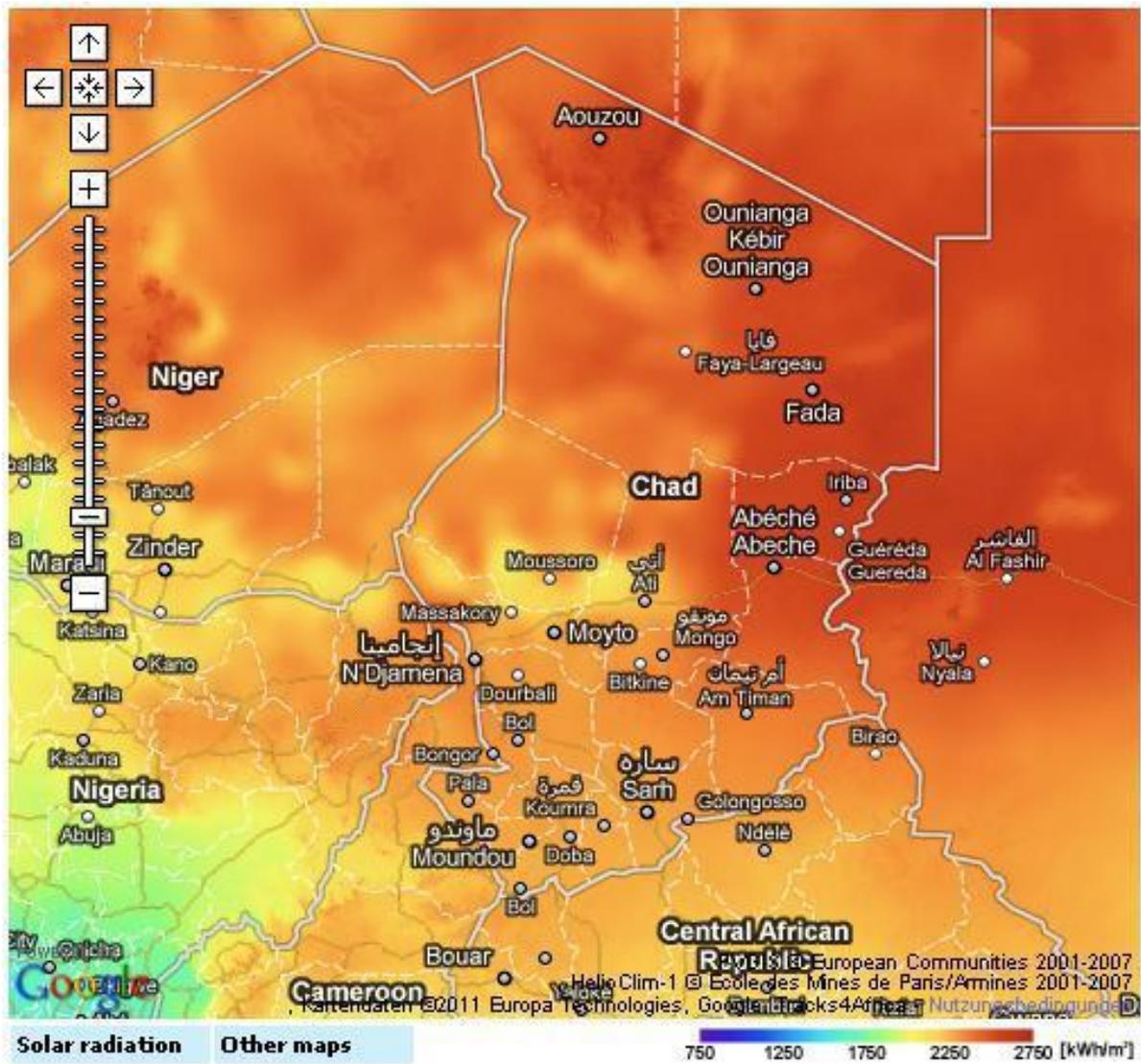
VI. PROGRAMS OF MULTILATERAL DEVELOPMENT BANKS AND DEVELOPMENT PARTNERS

A project for the Promotion of New and Renewable Energies particularly aiming at (i) developing and implementing a sectoral plan for capacity building; (ii) defining the architecture of institutional, regulatory, methodological and normative frameworks and (iii) defining and implementing at the central level information systems for the knowledge and dynamic monitoring of the area. The project is funded by the United Nations Development Program (UNDP).

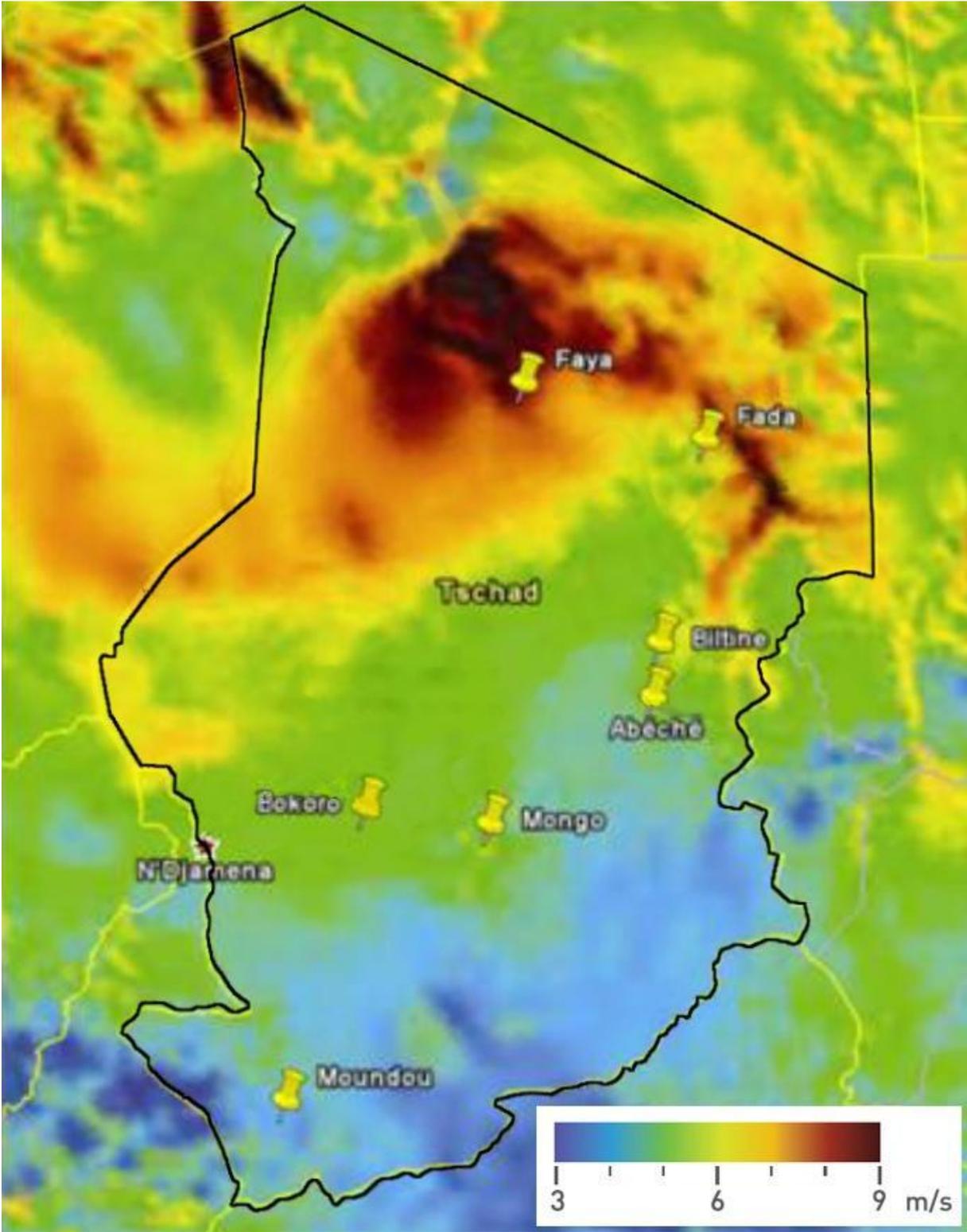
With support from the Global Environment Fund (GEF) through the UNIDO, a project to promote renewable energy for rural electrification and its use for productive purposes is being implemented. The objective of the project is to promote renewable energy based on mini-systems in order to increase the access rate of the populations in rural and semi-urban areas, to electricity instead of fossil fuels. It will specifically (i) provide information on renewable energy sources, (ii) demonstrate the technical feasibility and commercial viability of renewable energy based mini-systems, (iii) provide financial support, (iv) strengthen institutional capacity and (v) contribute to the improvement of the regulatory framework.

SREP financing will strengthen the capacity based on the sector plan developed under the project funded by UNDP. I will also help to implement on a larger scale, the technical feasibility and commercial viability demonstrated with the support of UNIDO. This is how the production of solar panels will be funded locally.

Appendix 1 : Map taken from PVGIS showing solar resources in Chad



Appendix 2: Wind energy potential in Chad



Appendix 3: Example of unexploited biomass (remains of millet)

