

Country/Region Name:

Republic of Chad

Generation and demand:

Energy access in Chad is extremely limited, reaching only 8% of the population with 13% access in urban areas and 1% in rural areas.

Chad currently only has about 190MW of installed electricity generation capacity produced from diesel generators, but with only 107MW operational and available to serve a population of 14.5 million people. Per capita electricity consumption is one of the lowest in the world at about 13kWh/year and electricity costs are among the highest, ranging from lows of \$0.16/kWh to beyond \$0.63/kWh. Chad's electric grid is limited to N'Djamena, the capital city, and suffers frequent outages, and with a national grid network not likely in the short-to-medium term, power generation therefore remains highly localized.

According to the International Forum on Renewable Energy, Chad has significant potential in renewable energies. From the north to the south of the country, the sun shines from 2,750 to 3,250 hours a year, which gives an average of 4 to 6kWh/m² per day. Wind potential is significant in the northern part of the country, where wind speeds average 7-8 m/s; and some small private wind power projects are under development.

The government of Chad developed an Emergency Electricity Access Plan (PUAE) in 2020 as an analytical, programmatic and strategic document relating to the complex equation of electricity availability/accessibility in Chad. In the document, it is stated that the national utility, Société Nationale d'Electricité (SNE), is working to find solutions to problems of inefficiency (technical and commercial losses) and strengthen production capacity to increase available power from 107.5 MW to nearly 162.5MW by 2023. By 2030, the government's overall objective is to achieve:

- (i) an electricity access rate of 53% across the country
- (ii) a rural access rate to electricity of 20% and
- (iii) a share of renewable energies at 20% in national electricity production

In the PUAE document, the Chadian government has planned to make available an additional 283.5MW by 2025 with the support of the African Development Bank, other international financial institutions and donors that include the following large projects.

- (i) 40MW Chad-Cameroon grid interconnection project in the Bongor-N'Djamena axis.
- (ii) 32MW Djermaya solar IPP project in N'Djamena.
- (iii) 2x15MW Cjadrans project.

- (iv) 16MW Solar power plants (mini grids) - network + MV / LV networks for Mongo, Ati, Am-timan, Oum-Hadjer and Moussoro, being mobilized by ZIZ Energie through a state/private partnership.
- (v) 150MW micro grids and standalone solar connected in 14 headquarters of the provinces and all the administrative centers of departments through SMEs.

The 32MW solar PV plant in Djermaya, 30km north of N'Djamena, and currently under construction is the first utility-scale renewable energy project and will be the first privately owned, financed, and operated power plant in Chad once fully financed and constructed. It will be structured through a power purchase agreement (PPA) between InfraCo Africa, Chad's Ministry of Energy and the national utility, Société Nationale d'Electricité (SNE). Once the solar plant is operational, the cost of the electricity generated by the solar plant will be (\$0.15 /kWh, which is less than half the present average cost of power in Chad.

Electrical Interconnection and import/export:

Chad's electric grid is limited to the capital N'Djamena and suffers frequent outages. Given the low electrification rate in the country, most villages and small cities are not currently reached by the grid. In N'Djamena, the network is obsolete and covers only one third of the surface, while in other large cities (Moundou, Abéché, Sarh) the urban network is more recent but usually limited to the main axis.

Electricity imports and exports are liberalized, and generation is open to competition, or can be awarded under a declaratory regime either for self-generation or for IPP. IPPs can sell directly to large consumers after the exclusivity period that should be set in the SNE delegation contract and would pay a transit fee to use SNE transmission network.

The country does not import or export any electricity although there are plans to construct a 40MW Chad-Cameroon grid interconnection project in the Bongor-N'Djamena axis by 2025.

Market Structure:

The National Electricity Company (SNE) is the main electricity supply institution. Of the 190MW country installed capacity (107 MW available), 56MW comes from three third-party suppliers, namely V-Power, Aggreko, and the National Refining Company (SRN). V-Power and Aggreko are facilities operating under short-term leases, and therefore quite expensive. Generation is currently exclusively based on diesel supplied from the Djermaya refinery.

The Chadian grid is characterized by, among other challenges a dilapidated electricity distribution network, commercial underperformance and faces marketing problems given the low billing/collection rates and the shortfall caused by fraudulent connections.

It is also experiencing a large operating deficit due to low revenues and high costs caused largely by the purchase of fuel and lubricants which accounts for 80% of the operating burden.

SNE has the monopoly of power transmission and distribution in the whole country, but due to limited capacity, they have allowed other operators in areas outside of their current operations, to develop and operate, for example, isolated mini grids.

Responsible Government Department:

The Ministry of Energy (MoE) oversees the energy sector, including planning, policy formulation and implementation, and sector monitoring and evaluation, as well as supervision of the State-owned companies in the energy sector. In its capacity, the MoE supervises the National Electricity Company (SNE), the Renewable Energy Development Agency (ADER) and the Electricity Sector Regulatory Authority (ARSE). SNE oversees electricity generation, transmission, and distribution.

To ensure the coordination of national policies on the development of renewable energy, ADER was established by ordinance on August 19th, 2013. ADER's roles includes the following:

- Participating in the design of the national plan and of the plans of sectors and regions for the development of renewable energy
- Evaluating and implementing mapping of the country's renewable resources.
- Advising and centralizing information on all the measures necessary to implement the national strategy for the development of renewable energy and energy efficiency.
- 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.

Since its creation, ADER has focused on the promotion and development of decentralized photovoltaic systems and support to the development and negotiation of on-grid photovoltaic IPPs, particularly the Djermaya Solar project.

Existing/Planned Energy Legislation:

The legal framework of the electricity sector is defined in the new law 36/PR/20 (and its decree 1841) that was introduced in Aug 2020. It creates a new IPP framework using a regime of licenses (generation, transmission etc.) decree n° 1841/PR/MPME/2019 of 08 Nov 2019 on conditions and modalities for generation licensing that was enacted in June 1999.

The law defines electricity generation, transmission and distribution as a public service that can be delegated by competitive bidding to a private or public operator through several legal models: concession, leasing, management contract and other models. A private concessionaire, Veolia had been recruited to operate the country's electricity assets, but this option was abandoned following the failure of the 2000 to 2004 private management contract. In 2011, a decree designated SNE as main operator and transferred to SNE all public electricity sector assets.

Under the law, electricity tariffs are to be set at a level allowing to recover the cost of service, which is not currently the case, including the delegation fee and the profit margin. Higher costs of isolated systems are also to be reflected in the tariff, which could therefore be differentiated from the on-grid tariff for isolated systems.

The Electricity law introduced in 2020 created the Electricity Sector Regulatory Entity (ARSE), whose mandate includes the control of sector activities and the proposal of electricity tariffs to the Government. Other mandates include the approval of the sector multiannual investment plan, and the approval and supervision of sector works above athreshold amount to be determined.

The finance law and budget of 2020 provided a fiscal exemption for solar equipment.

Environmental Legislation for RE:

Chad has spelled out its policy on the environment and on climate change in its National Adaptation Plan (NAP). The issue of environmental protection is enshrined in articles 47 and 52 of the Constitution of Chad, and Act N°014/PR/1998 defines the general principles for protecting the environment. In 1992, Chad signed the United Nations Framework Convention on Climate Change (UNFCCC), which was ratified on 30 April 1993. Since then, the country has produced the Initial and Second National Communications relating to climate change, in accordance with the relevant UNFCCC provisions.

The country is undertaking several interventions to fight climate change, including activities such as planting thousands of trees each year and implementing the national program for the development of green belts around Chadian cities. In addition to these green belts, ten million trees are being planted as part of the African Great Green Wall initiative, and National Tree Week has been officially launched. Chad also established a Special Fund for the Environment (FSE) in 2013, to mobilize its own resources through the establishment of specific taxes.

Chad intends to reaffirm its determination to contribute to the global effort to reduce GHG emissions and reinforce its resilience to climate change, implementing coherent programs which will enable it to become an emerging country by 2030, whilst favoring low-carbon development, as far as possible with the means available.

Existing/Planned Certificate Systems:

There is no existing or centrally planned certificate system in the country. One of ADER's roles is to propose and disseminate standards and labeling for equipment and devices producing energy from renewable sources but this has yet to be actioned.

Energy Peace Partners is proposing to issue Peace Renewable Energy Credits (P-RECs), which are designed to stimulate renewable energy market development in fragile and energy poor regions. P-RECs would monetize renewable energy generated in Chad, where renewable energy investment is limited, to help renewable energy developers implement new projects or extend existing projects. This would support market development and expand renewable energy purchase options in a country and region with limited infrastructure, while extending the benefits of the renewable energy revolution to vulnerable communities.

Extent of Engagement with Government:

So far, we have had no engagement with the Government on the issue of Environmental Attribute Certificates due to limited government capacity and the nascency of the renewable energy sector in Chad.

Expected response from Government:

Limited.

Current Environmental Reporting in Energy:

Not to our knowledge

Any other Relevant Information:

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Code Manager Observation