Unlocking Energy Production in Cameroon

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Introduction

There can be no development without energy production. Cameroon's electricity generation capacity in 2018 was approximately 1402 MW, with 56.15% from hydroelectric sources, 43.84% from fossil fuels (17.55% natural gas and 26.29% oil), and the remainder from solar energy. Since its independence, Cameroon has enacted several policies designed to boost electricity access. The 2011 Electricity Sector Law establishes concessions, licenses, and authorization regimes for electricity activities, while promoting renewable energy and rural electrification. It also established a development fund for electricity with budgetary provisions

in the 2023 and 2024 finance law. Meanwhile, Decree No. 2025/009 outlines the financing of rural electrification projects and mandates the connection of renewable energy to the grid while supporting energy efficiency measures designed to diversify and expand electricity supply nationwide currently at 73%.

This policy brief reviews developments in Cameroon's electricity generation and outlines recommendations to support the generation of electricity that remains below capacity. ***Section one*** provides an overview of Cameroon energy sector, followed by the various investments and key projects in ***Section 2***. In ***Section three***, we provide an overview of renewable energy generation in the country. ***Section four*** covers how the country can attain an efficient energy mix, and we go on to outline the challenges facing the sector in ***Section five***. The policy recommendations follow before a brief conclusion.

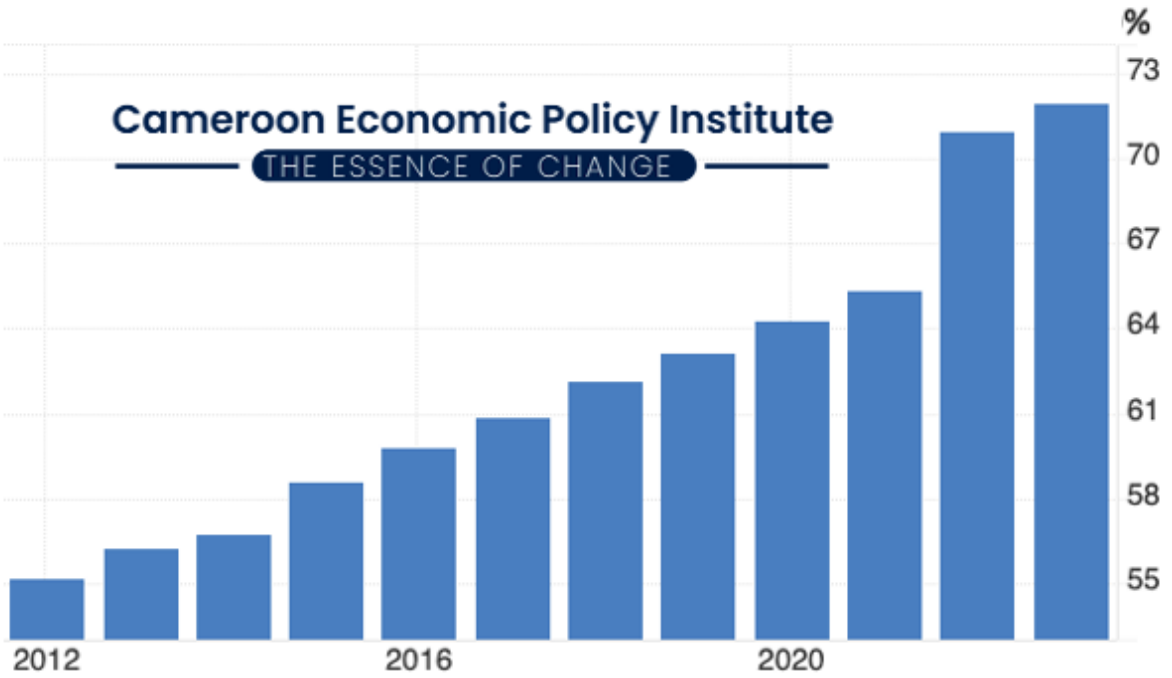
Section 1: Overview of Cameroon's energy Sector

Cameroon has a fairly diverse energy production mix. In 2020, the main energy supplier – state-owned Energy of Cameroon (ENEO) – reported electricity production of about 1529 MW, driven by hydroelectricity (61.7%), thermal power stations (24.1%), gas power stations (14.1%) and 0.1% from solar energy. The Ministry of Economy and Planning places total electricity generation at **1,652 megawatts**, projected to reach 5,000 megawatts by 2030.

As a result, less than 75% of rural citizens have access to electricity despite being located close to grids.

Nevertheless, the Nachtigal Hydropower Plant financed by the World Bank Group and other partners could increase power generation by 30%. Meanwhile, Cameroon is currently developing several solar photovoltaic plants with a total installed capacity of 250 MW to transition to a greener electricity generation mix. While 72% of Cameroonians (Fig. 1) are reported to have an electricity connection, power outages continue to impact households and businesses negatively.

Figure 1: 72% of Cameroonians have Access to Electricity



Source: World Bank

ENEO (Energie of Cameroon S.A.) primarily manages the electricity infrastructure. ENEO is responsible for the production, transmission, and distribution of electricity in the country, operating under a concession agreement. Over the last decade, electricity access has increased, but power outages are common. While 72% of the population have access to electricity from the grid, electricity supply is not stable. The government enacted several regulations to support the development of the sector.

The electricity sector in Cameroon is governed by Law No. 2011/022 of December 14, 2011, which replaced the earlier Law No. 98/022 of December 24, 1998. This law covers generation, transmission, distribution, import, sale and export of electricity and sets the conditions to support fair competition in the sector. It equally establishes environmental protection, consumer rights, and sets out the obligations and rights of operators, including licensing, concession, and authorization regimes. The electricity sector is regulated by the Electricity Sector Regulatory Agency (ARSEL), which oversees licensing, consumer interest, and tariffs.

What is the Electricity Fund?

Law No. 2011/022 ushered the creation of a fund dedicated to the development of the electricity sector in Cameroon. It specifies authorities in charge of expenses relating to the development fund even as its functioning is to be determined by presidential decree. The finance law of 2022 (Law No. 2022/020 of 27 December 2022) allocated FCFA15 billions of 2023, listed under the special appropriations account, with funds allocated uniquely for the development and investment in the electricity sector, in line with the legal framework established by Law No. 2011/022.

Section 2: Investment in the Electricity Sector and key Projects

- **Government**

  The government of Cameroon has been actively involved in the energy transformation of the country, carrying out various infrastructural projects that would boost national energy production. The construction of the Memve'ele Hydroelectric Power Station kicked off in April 2012, and went operational in 2019, with a capacity of 211 megawatts of power. Among other funders, including the African Development Bank and the World Bank, the Government of Cameroon contributed 65 billion FCFA toward the 420 billion FCFA needed to cover the estimated cost of the dam. Another notable government investment in the electricity sector is the Lom Pangar Dam, which is projected to increase the output of existing hydroelectric plants by 120 megawatts during low-water periods.

- **Private Sector**

  ENEO, the primary electricity company in the country, operates as a public private partnership. The private British investment fund Actis owns 51% of the company and the State of Cameroon owning 44%, with ENEO employees owning 5% (ENEO). Over the last 10 years (2014-2024), ENEO has invested 400 billion francs towards the electricity sector in Cameroon. This investment aimed at modernizing and extending the distribution network of the company, growing electricity access to about 75% in the country. Also, the Norwegian company Scatec has been working to extend its solar power plants in Maroua and Guider. This infrastructure is expected to supply electricity to 200,000 households in Cameroon.

- **Multilateral Banks**

Key multilateral banks, such as the African Development Bank (ADB) and the World Bank, have borrowed money for Cameroon's electricity sector. The World Bank guaranteed an investment worth $794.5 million for the Nachtigal Hydropower project in Cameroon in a move expected to increase Cameroon's electricity generating capacity by 30%. This investment package consists of different financing tools including loans, guarantees, and currency risk management swaps to develop the hydroelectric potential of the country. In addition, the African Development Bank Group (ADB) approved a loan of EUR 74.25 million to initiate the Electricity Sector Recovery Support Programme (PARSEC). This program is helping Cameroon meet its energy needs and also provide energy export for neighboring countries like Chad (AfDB).

- **International bodies (E.U.):**

Through its Global Gateway (GG) initiative, one of the major goals of the EU is to promote Cameroon's energy transition, by promoting more sustainable energy production. The EU has provided EUR 50 million long term project finance loan to NHPC (Nachtigal Hydro Power Company) with the goal of increasing energy supply by 30% (EIB, 2018). Through the GG, the EU also provided 6.5 billion FCFA to support the adoption of solar energy in Sodecotton, shifting its reliance from diesel and other unreliable energy sources. To extend the reach of electricity, the EU is also implementing the Rural Electrification Master Plan (PDER) with the goal of connecting 10,000 towns and villages across Cameroon to reliable electricity by 2035.

China, through the Export-Import Bank of China (EXIM Bank), is also playing a major role in financing Cameroon's electricity sector. It has provided funding for the Lom Pangar and Memve'ele Dams and has been involved in negotiations to finance the construction of the Menchum Dam in the Northwest Region of Cameroon.

Section 3: Renewable Energy generation in Cameroon

Although renewables consumption is fast evolving in other parts of the world like the Asia Pacific, Europe and North America, important coordination efforts are vital among stakeholders in sub-Saharan African countries such as Cameroon. Currently, out of a total installed capacity of 1562.4 MW, hydroelectricity and solar contribute 959.6 MW and 30.83 MW, respectively, representing over 63% of Cameroon's energy mix (Business in Cameroon, 2024).

The country is endowed with substantial renewable energy (RE) potential, such as biomass, hydro, solar, and wind. However, only a very limited percentage of this RE potential is exploited so far. Currently, RE (except hydro) contributes less than 1% to the Cameroon's energy mix and the country aims for a 25% share by 2035 (Kidmo et al., 2021). The promotion of renewable energy is necessary for energy security and provides job opportunities to the country. Yet, the absence of proactive and long-term renewable energy policy and laws, in addition to less attention paid to renewable energy training and research, financing mechanisms, and unaffordable costs of renewable energy technologies to the underprivileged population are amongst present issues hindering the development of renewable energy in the country.

Cameroon's pursuit of affordable, reliable, and universal electricity access has been marked by key infrastructure developments, notably the fully operational Nachtigal hydroelectric dam, which now supplies nearly 30% of the country's electricity. Other major hydropower facilities include Edea, Song Loulou, and Lagdo. While hydropower remains the backbone of Cameroon's energy generation, efforts are underway to diversify the mix with renewable sources. Notably, solar photovoltaic projects such as the Guider Solar Plant and the ENEO Maroua Solar PV Park highlight the country's growing commitment to expanding solar energy capacity.

Cameroon's electricity sector is currently restrained by inadequate generation capacity. Cameroon aims to increase renewable energy to 25% of its energy mix and cut greenhouse gas emissions by 32% by 2035 (Ayuketah et al., 2022). However, current tax incentives are limited, benefiting only solar and wind technologies. To meet national targets, a broader incentive framework is needed, expanding VAT exemptions to locally-produced renewable energy and related equipment and current investment incentives. The World Bank-funded Regional Off-Grid Electricity Access Project supports solar adoption through targeted subsidies for startups, market entry, and performance in underserved areas. A holistic approach will drive investment, improve rural electrification, reduce energy deficits, and support Cameroon's transition to sustainable energy.

Section 4: Rethinking the Energy Mix

According to the International Energy Agency (IEA, 2023), Sub-Saharan Africa, including Cameroon, faces major obstacles in achieving the level of economic development required for the well-being of its population. For Cameroon, reliable access to electricity is especially critical as the country works toward its Vision 2035, which aims to transform it into an emerging economy. Expanding electricity access is central to supporting industrial growth, improving public services, and raising living standards—key pillars of this long-term national development strategy. Cameroon's growing population and economic ambitions demand a reliable, affordable, and sustainable energy system (Koščak Kolin et al.,2021). Currently, the country's electricity generation relies heavily on hydropower, which accounts for over 70% of the national energy supply. While hydro is renewable, its dependence on rainfall and vulnerability to climate change make it risky as a single dominant source. Fossil fuels, though still part of the mix, are finite and environmentally harmful. To ensure energy security and sustainability, Cameroon must rethink its energy mix by integrating more diverse sources, especially renewable energy like solar, wind, and biomass.

A balanced energy mix combining hydro, fossil fuels, and renewables will provide stability, reduce climate vulnerability, and boost resilience. Fossil fuels can serve as a backup during dry seasons, while renewables can power remote areas and reduce the burden on the national grid. Cameroon has significant solar potential, particularly in the northern regions, and untapped wind and biomass resources that can be developed with proper investment. Integrating renewables into the national grid requires both technical and policy interventions. First, grid infrastructure must be upgraded to handle decentralized and intermittent sources of power. Smart grids and energy storage systems can help balance supply and demand. Second, clear policies and incentives are needed to attract private investment in renewable projects. Off-grid and mini-grid systems should also be promoted, especially for rural electrification.

Improved electricity access can transform lives and boost development. It enables better healthcare through powered clinics, supports education with lighting and digital access, and drives job creation through industrialization and small businesses. Reliable electricity can reduce poverty, improve security, and bridge the urban-rural development gap (World Bank, 2025). Moreover, a greener energy mix will help Cameroon meet its climate commitments and reduce dependence on imported fuels. By rethinking its energy mix and embracing renewables, Cameroon can build a more inclusive, resilient, and sustainable energy future.

Section 5: Challenges Facing Cameroon's Energy Sector

According to the World Bank (2023), Cameroon's energy sector holds great potential, but it faces a range of structural and systemic challenges that hinder progress toward reliable, equitable, and sustainable electricity access. Among the most pressing are financial constraints, regional disparities, institutional weaknesses, and governance issues.

Financial gaps remain a major obstacle. Significant investment is required to expand generation capacity, upgrade transmission and distribution infrastructure, and support the integration of renewable energy sources. However, public funding is limited, and private sector investment is constrained by perceived risks, regulatory uncertainty, and long project approval timelines. Additionally, electricity tariffs are often below cost-recovery levels, leading to revenue shortfalls for utility companies such as ENEO, and deterring further capital inflow.

Regional disparities in energy access further complicate national development goals. Urban centers, especially in the South and Centre regions, benefit from relatively better electricity supply, while many rural and northern communities face frequent outages or remain completely off-grid. These disparities not only deepen social and economic inequalities but also slow rural development and hinder Cameroon's efforts towards becoming an emerging economy.

Institutional gaps also undermine sector performance. The roles and responsibilities of various actors—such as the Ministry of Water and Energy, the Electricity Sector Regulatory Agency (ARSEL), and the Rural Electrification Agency (AER)—are often unclear or overlapping, resulting in inefficiencies and project delays. Furthermore, weak coordination between national and local authorities affects the implementation of energy projects and limits the scaling up of renewable solutions (African Development Bank, 2022).

Lastly, **governance and regulatory weaknesses** hamper progress. Although there is a legal framework for liberalization and public-private partnerships, enforcement is inconsistent. Transparency in licensing, procurement, and project monitoring is often lacking, leading to

delays and investor hesitancy. Moreover, regulatory bodies are perceived as lacking autonomy and capacity to effectively oversee the sector.

Addressing these challenges will require coordinated reforms, increased investment, and stronger institutions. Improved governance and targeted financial mechanisms, especially for renewable and off-grid solutions, can help Cameroon build a more inclusive and resilient energy future.

Policy recommendations

Diversify Energy Sources: While a huge focus on energy investment has been directed towards hydroelectric power, over-reliance on it exposes the grid to vulnerability, especially during the dry season. It is important to diversify energy sources to ensure sustainability, but also meet the energy needs; by investing more in solar, wind, and biomass. This way, the state can leverage the natural potential of the different regions to adequately cover electricity needs. For instance, accelerating solar energy adoption in the far north region and wind energy in the coastal regions. This will also further reduce reliance on fossil fuels for energy.

Modernize and strengthen grid Infrastructure: Cameroon has immense potential for electricity generation, ranking third in hydroelectric potential in sub-Saharan Africa. However, there are still shortcomings with incidents of frequent power outages. This can be tackled by directing investments towards strengthening and modernizing the current grid so that they can be used to capacity and meet the energy demands of the population.

Improve and strengthen regulatory framework: A recurring issue in the electricity sector in Cameroon is delays in the completion of energy projects. We propose adequate oversight to see the projects are accurately forecasted and completed within the agreed timeframes. This ensures reliability and reduces extra costs incurred due to such delays. Adequate oversight will also go a long way to ensure good quality of infrastructure to meet the needs of the citizens. We recommend a 5-year favorable tax provisions especially for renewable energy. This will promote the adoption of renewable energy sources, expand access to electricity and cut down on the use of fossil fuels.

Conclusion

Cameroon's energy sector is undergoing significant transformation, aiming to expand electricity access and transition to a more sustainable energy mix. While over 70% of the population now has access to electricity, frequent outages and regional disparities persist. Hydropower dominates generation, but reliance on it exposes the grid to climate risks. The government, private sector, and international partners have invested heavily in infrastructure, including major hydro and solar projects, to boost capacity and diversify sources. However, challenges remain: limited funding, regulatory delays, and institutional weaknesses hinder progress. To achieve its Vision 2035 and meet growing demand, Cameroon must modernize grid infrastructure, strengthen regulatory oversight, and accelerate the adoption of renewables such as solar, wind, and biomass. Targeted policy reforms and investment incentives are essential to ensure reliable, equitable, and sustainable electricity for all, supporting economic development and improving living standards across the country.

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