

# The Legal And Institutional Appraisal Of Renewable Energy As A Means Of Diversifying Energy Sources In Cameroon

KIMBI Leonard SAMBA<sup>1</sup>, KONGEH Vincent BANEH<sup>2</sup>

<sup>1</sup>Ph.D. Researcher in Public International Law, Graduate Teaching Assistance (Moniteur), Faculty of Law and Political Science, University of Dschang, Dschang, Cameroon.

Kimbileonard526@gmail.com

<sup>2</sup>Ph.D. Research Scholar, University of Douala, Faculty of Law and Political Science, Department of Public Law, Douala, Cameroon,

Inspector of Stores Accounting, Serving as a Stores Accountant in the Minister's Cabinet of Ministry of Water Resources and Energy, Yaounde, Cameroon.

bmegefeh@yahoo.com

**Abstract**—Economic development generally goes hand in hand with the growing consumption of energy resources. Indeed, energy is at the heart of any development process. Without it, there can be no industry, no transformation of raw materials, and therefore no modern economy. It is therefore that, no economic development is conceivable without energy that is available and accessible in quantity and quality. At global level, energy supply is still largely dependent on fossil fuels, which are used to produce electricity, which are non-renewable, limited and more polluting. Energy is responsible for more than two-thirds of the world's greenhouse gas (GHG) emissions, which are the main cause of global warming. Fossil fuels currently account for 81.7% of global energy consumption. With the growing appetite for energy resources in developed and emerging countries for energy resources marked by their non-renewable nature, this energy is creating tensions and poses new challenges leading to permanent search of alternative source of energy, one of the most urgent of which is the transition to renewable energy. In recent years, energy insufficiency and climate change has made the energy transition a cornerstone of public policy. To meet these challenges, this article with the help of legal methodology establishes that Cameroonian legislature has adopted various legislations including Law No. 2011/022 of 14 December 2011 governing the electricity sector with a view to its modernization and development. In its drive towards energy self-sufficiency, Cameroon has opted for a diversification of energy sources which include, combining energy from fossil and renewable sources. The structure of Cameroon's diverse energy is made up of hydropower (73.3%), fossil fuels (25.6%) and biomass (1%). These figures are certainly flattering, but in view of its “robust and dense potential” in renewable energy sources, Cameroon could become a model country with a completely decarbonized and secure energy system. With the help of legal and doctrinal

method, this article seeks to analyze both legislative and institutional contributions to energy diversification in Cameroon while establishing their weaknesses and propose solutions to those weaknesses.

**Keywords**—Legal, Institutional, Renewable Energy and Diversifying.

## INTRODUCTION

The legal framework for renewable energies in Cameroon is set out in various texts relating to the electricity sector, including Law No. 011/022 of 14 December 2011 governing the electricity sector in Cameroon. In addition to their tendency to reduce the dependence of the country on classical energy to electricity, these texts do not include in-depth regulation of renewable energies.<sup>1</sup> Nevertheless, Article 63 of Law No. 011/022 provides a broad definition of energy, which encompasses all forms of energy from renewable sources, namely: solar thermal and photovoltaic energy; wind energy; hydropower from water sources with an exploitable capacity of less than or equal to 5 MW; biomass energy; geothermal energy; marine energy. Reducing climate change through renewable energies is supported by the National Development Strategy 2020-2030 (SND 30). Launched in 2020, it aims to provide access to electricity for the entire population by 2030.

As far as the institutional framework is concerned, the 2011 law provides for the creation of an agency for the promotion of renewable energies. However, the Ministry of Water and Energy (MINEE) has a department for renewable energy and energy

<sup>1</sup> Malgré les apports de la loi n° 2011/022 du 14 décembre 2011, qui consacre une section aux énergies renouvelables, on peut continuer de parler d'un vide juridique concernant ce secteur car certains textes d'application de cette loi restent encore attendus.

management<sup>2</sup>, which is responsible for promoting the development of renewable energies. This framework has been extended to a number of ministerial departments that are working for the development of renewable energies.

However, the majority of the population do not have access to modern basic energy services, particularly in rural areas. Yet, Cameroon has potential in renewable energies, which remains under-exploited and whose development could make an effective contribution to improving the energy supply, which remains inadequate.<sup>3</sup> Despite the progress made over the years, 46% of households (81% in rural areas and 12% in urban areas) still do not have access to electricity. By 2035, the plan is to achieve an electrification rate of 98% in all of 14,207 localities in Cameroon.<sup>4</sup> Cameroon, like other African countries aspires to gradually replace fossil fuels with a form of energy that favours renewable energies, as well as reducing energy consumption and wastage, and energy savings in particular through improving energy efficiency and changing consumer behaviour. The government has therefore embarked on projects to build large hydroelectric dams, through public-private partnerships or independent power producers, and to rehabilitate certain hydroelectric infrastructures.

The government is also encouraging the construction of solar power and mini hydroelectric power stations to meet household demand. Its investment development plan aims to prepare for the post-oil era and establish a new, more strong and sustainable energy model to meet the challenges of energy supply, price trends, resource depletion and the imperatives of environmental protection, which requires a legal transition.

This article critically analyses and assesses, how the Cameroonian government has taken account of the benefits of renewable energies in view of straightening her sovereignty by reducing her dependence on foreign aid for economic development in the sector of water and energy. So, what are the contributions of the Cameroonian laws to renewable

energy and what are the identified potentials of Cameroon's renewable energy sources and mechanism for its transformation? To answer the above question, our section focuses on; **Legal Recognition of Renewable Energy as an Alternative Source of Energy (I) and National Exploitation of Renewable Energy by Small and Medium Size Enterprises (II)**

### **Paragraph I: Legal Recognition of Renewable Energy as an Alternative Source of Energy**

In Cameroon, as in most Central African countries, the development of renewable energies is still in its infancy. This is obvious when we look at the political, legal and institutional framework that governs it. Over the last forty years, Cameroon has undergone a succession of reforms in the energy sector. These have included state monopoly, privatisation and the gradual return to a state monopoly; but also, the development and adoption of numerous political and legal instruments. Despite these developments, the development of renewable energy remains limited in Cameroon, despite its significant potential. Hence the questions that need to be answered or at least clarified: What is the place of renewable energies in existing political and legal instruments? Is there a real political vision for renewable energy in Cameroon? Are there really any legal instruments governing the sector in Cameroon and what are their strengths and weaknesses? Can we identify a promising future for renewable energies in Cameroon from a legal and institutional perspective? To answer these questions, it is essential to conduct an exhaustive review of the various policies and legal texts relating to renewable energies in Cameroon.

In addition to ensuring energy security for the citizens, the development of renewable energy in Cameroon is aimed at introducing and promoting the transformation of exploitable renewable energy.<sup>5</sup> Thus, on the one hand, **there is a very dense and varied regulatory framework aimed at ensuring the energy security of citizens (A); on the other hand, a strengthened institutional framework with a view to ensuring implementation of these legal instruments (B).**

#### **A) Legislative Recognition of Renewable Energy**

For a long time, Cameroon's energy policy has been built essentially around electric energy. This approach is justified by the fact that all energy sources, even renewable energies, contribute to the production of electricity, which is the form in which most energy is consumed. An embryonic legislative (1) framework for renewable energy in Cameroon is essentially apprehended through the various texts relating to the electricity sector, which are the foundation on which energy security is based. These frameworks as legal foundation to which renewable

<sup>2</sup> Créée par le décret n° 2012/501 du 7 novembre 2012 portant organisation du ministère de l'Eau et de l'Énergie.

<sup>3</sup> La transition énergétique désigne l'ensemble des transformations du système de production, de distribution et de consommation d'énergie effectuées sur un territoire dans le but de le rendre plus écologique. Concrètement, la transition énergétique vise à transformer un système énergétique pour diminuer son impact environnemental. La transition énergétique s'appuie sur les progrès technologiques et les volontés politiques au sens large (gouvernement, population, ONG, acteurs économiques...).

<sup>4</sup> Ch. Tatsinkou, "Mainstreaming Energy Sustainable Development Goals (SDGs), Targets and Indicators into Statistical Programmes. Cameroon's Programme on Energy Statistics", Paper presented at a seminar in Addis Ababa, 2016.

<sup>5</sup> Article 65 de la loi de 2011.

energy is vested and surrounded with a number of vacuums (2).

### 1) An Embryonic Legislative Framework of Renewable Energy in Cameroon

The chronology of laws shows that it is the texts governing the electricity sector that are trying to regulate renewable energies in Cameroon.<sup>6</sup> It should be noted that energy security has always been the subject of legislation. Thus, the first law governing energy specifically, adopted for the territory of Cameroon under the French and British rule during the colonial period, dates back to 15 September 1921.<sup>7</sup> This colonial law relating to the use of hydraulic power the only source of energy considered renewable at the time, contributed to the establishment of a degree of energy security. At the time of independence, energy security was strengthened by three regional operators who shared the market for the production and supply of electricity: Cameroon Electricity Corporation (POWERCAM), Energie électrique au Cameroun (ENELCAM) and Électricité du Cameroun (EDC). It was not until 1975 that, these three regional operators merge into a large national concessionaire called, Société nationale d'électricité (SONEL)<sup>8</sup>, integrating the three segments of operation (generation, transmission and distribution) and with a monopoly<sup>9</sup> over the public electricity service, to ensure optimum energy security for the citizens of independent Cameroon.

The post-colonial period was marked by a review of the framework for energy supply with the promulgation of law no. 20 of 26 November 1983 on the electricity regime, the first piece of legislation on the regulation of electrical energy and, consequently, renewable energies, adopted by the institutions of independent Cameroon<sup>10</sup>. At the time, this law stipulated that electricity could be obtained from renewable energy sources<sup>11</sup>. According to paragraph 1 of Article 2: "Electricity is understood, under the terms of the present law, to be energy generated from primary sources (rivers, lakes or tides), mineral raw materials (coal, oil, nuclear substances, geothermal or other sources), or renewable energy sources (solar radiation, wind, biomass, etc.)".

The 1983 law was also the first to make the production and distribution of electricity to different legal regimes depending on the amount of power

exploited: the freedom regime, the declaration regime, the authorisation regime and the concession regime.<sup>12</sup> Because of the small amount of electricity that can be generated from renewable sources using the technologies available at the time (generally less than 1 MW), it can be considered that the freedom regime, which requires no administrative formalities, and the relatively simple declaration system, as defined in this law, were favourable to the development of renewable energy for the production electricity generation.<sup>13</sup>

Law No. 98/022 of 24 December 1998 governing the electricity sector and, by extension, regulating the renewable energy sector, comes at a time of economic and energy crisis. In effect, SONEL, which had held a monopoly on the electricity sector since 1975, was no longer able to fulfil its missions satisfactorily. The deterioration in SONEL's technical and economic performance, due to a halt in state funding as a result of the severe economic crisis of the 1990's, has led to a slowdown in electricity supply at a time when demand was at its highest, the growth in demand at the time was around 8% per year.<sup>14</sup> With the liberalisation of the electricity sector and the privatisation of SONEL as provided for in the 1998 law, introduced a major reform of the electricity sector. As such, privatised SONEL, which is responsible for generating, transporting and distributing electricity, for the purpose of strengthen energy security, benefited from a monopoly on transmission and distribution of energy.<sup>15</sup> In the interests of energy efficiency, the law also introduces three major players in the electricity sector: The Ministry of Mines, Ministry of Water Resources and Energy, the Electricity Regulatory Agency and the Rural Electrification Agency. However, only articles 5 and 40 of this law mention renewable energies. Article 5 simply states that renewable energy sources (hydraulic, solar, wind and geothermal) are "sources that exist naturally and are continuously replenished by nature", and which belong to primary energy sources. Article 40 (2) adds that the administration responsible for electricity shall ensure "[...] the monitoring of the use of primary energy sources, in particular renewable sources [...]".

Today, the reference text for renewable energies and energy security is law 2011/022 of 14 December 2011 governing the electricity sector. Some of its

<sup>6</sup> Global Village Cameroon, État des lieux du cadre réglementaire du secteur des énergies renouvelables au Cameroun, Rapport d'analyse, 2012, p. 50.

<sup>7</sup> Ibid.

<sup>8</sup> Ibid.

<sup>9</sup> Monopole qui perdurera jusqu'en 1998.

<sup>10</sup> Ministère des Mines, de l'Eau et de l'Énergie, Régime de l'électricité au Cameroun, Yaoundé, 1995.

<sup>11</sup> Global Village Cameroon, État des lieux du cadre réglementaire du secteur des énergies renouvelables au Cameroun, op. cit., p. 51.

<sup>12</sup> Articles 4, 5 et 7 de la loi n° 20 du 26 novembre 1983 portant régime de l'électricité.

<sup>13</sup> Il est toutefois regrettable que les centrales hydroélectriques, même les microcentrales, avaient été exclues du régime de la liberté.

<sup>14</sup> Global Village Cameroon, État des lieux du cadre réglementaire du secteur des énergies renouvelables au Cameroun, op. cit., p. 52.

<sup>15</sup> De même, cette loi de 1998 prévoit que la production sera libéralisée en 2001 et que la distribution deviendra libre à compter de juillet 2006. Toutefois, les modalités de libéralisation de la distribution ne seront jamais définies, reléguant la loi à un simple effet d'annonce.

provisions mark a significant step toward the promotion and development of renewable energies.<sup>16</sup> Article 3 deals with public electricity service.<sup>17</sup> Legally defined in article 63, renewable energies are recognised as socially and environmentally useful in article 64<sup>18</sup>. By virtue of article 59, renewable energy sources are given priority for rural electrification, with simplified rules set out in Articles 60 and 61 for the production and distribution of electricity from renewable sources in rural areas. The legal framework for the promotion of renewable energies, particularly the tax and customs benefits for products, goods and services intended for their use, as provided for in article 65,<sup>19</sup> are representative of the evolutionary process of energy security. With the unprecedented provisions of the 2011 law, Cameroon has sought to establish itself as a modern legislative player in the field of renewable energy even though these legal instruments are surrounded with some vacuum.

## 2) Legal Vacuum on Renewable Energy in Cameroon

Analysis shows that the legal framework that is supposed to guarantee energy security has a number of weaknesses. This is because, the regulatory framework is insufficient to guarantee energy security not to talk of renewable energy. An analysis of the regulatory framework shows that renewable energy security is not sufficiently guaranteed due to the absence of application legislation for certain laws (a) and a procedure manual to guide (b) prospective investors through the administrative process for investment in the domain of renewable energy.

### a) The Absence of Application Law

Recent developments in renewable energy in Africa show that several countries have adopted specific laws on the subject, such as Kenya (the 2019 Energy Act) and Gambia (the 2013 Renewable Energy Act). Despite this trend, Cameroon is still lagging behind, with renewable energies still the subject of only one section in Law No. 2011/022 of 2011 governing the electricity sector. No implementing legislation has been passed to complete this section and no operational impetus has been given by the government, thus creating a legal vacuum. The need

<sup>16</sup> La section 1 du chapitre 2 du titre 4 de cette loi est consacrée aux énergies renouvelables.

<sup>17</sup> Article 3 : le service public de l'électricité comprend « le stockage de l'eau en vue de la production d'électricité, la production, le transport, la distribution, l'importation et l'exportation de l'électricité en vue de la vente de l'énergie au public ».

<sup>18</sup> Article 64 : « Les énergies renouvelables contribuent à la satisfaction des besoins énergétiques des consommateurs. Elles concourent à la protection de l'environnement et à la sécurité de l'approvisionnement ».

<sup>19</sup> Article 65 : « L'État assure la promotion et le développement des énergies renouvelables ».

for a law dedicated to renewable energies, taking into account Cameroon's assets and realities, as well as the experiences of other countries, cannot be underestimated.

Similarly, the development of renewable energy targets is important, as these are considered to be technologically mature, profitable, sustainable and effective in combating the effects of conditionalities for foreign aids in the domain of water and energy, and to a certain extent, the effect of climate change. It is estimated that in 2017 investment in renewable energy capacity, mostly in developing and emerging countries, exceeded the amount invested in fossil fuel capacity.<sup>20</sup> Combined with a well-defined legal framework, the development of renewable energies can boost the economy and improve energy security.

### b) The Absence of Procedure Manuals

The absence of a procedure manual to help domestic investors, couple with administrative bottlenecks and the lack of a defined procedure in the energy sector are likely to hamper the development of renewable energies. The lack of a clear procedure for the exploitation, production and distribution of renewable energies contributes to the lack of transparency in this sector. A specific document should prescribe all the necessary administrative procedures, in accordance with legal standards, from obtaining permits to exploit renewable energies through to their distribution. Law 2011/22 sets out some requirements in this regard, but no implementing legislation has specified them, making the procedures difficult to grasp.<sup>21</sup>

The absence of a well-defined procedure and monitoring mechanism in the energy sector prompted MINEE to initiate the drafting of a manual to facilitate the application of the 2011 law. Such a guide would also be useful in the interests of transparency and confidence in relations with domestic and foreign partners. In addition, it could help to integrate renewable energies into the overall energy transition system, taking into account national realities and local circumstances.<sup>22</sup> For example, measures to encourage changes in behaviour and the deployment of renewable energy technologies should be illustrated in this procedure manual. Similarly, it

<sup>20</sup> IRENA et al., Renewable Energy Policies in a Time of Transition, 2018.

<sup>21</sup> Mary YAYA KENFOY, Mireille Esther BATJOM, & Carole Valérie NOUAZI KEMKENG, « le cadre juridique des énergies renouvelables au cameroun : une contribution à la sécurité énergétique des citoyens ? » in *Énergies renouvelables, transition énergétique et enjeux climatiques en droit africain*, Revue Africaine de Droit de l'Environnement, Presses Universitaires de Ouagadougou N° 06, 2021, p.177.

<sup>22</sup> A. Nguesseu, D. Thang et R. J. Ndjeudja, Options politico-juridiques pour un envol durable des énergies renouvelables au Cameroun, op. cit., p. 39.

should reflect the share of renewable energy in Cameroon's nationally determined contribution to the goal of reducing GHG emissions by 32% by 2035.

### **c) Strengthened Institutional Framework with a view to Ensuring Implementation of Legal Instruments**

The creation of an agency in charge of the promotion and development of renewable energies is envisaged in Article 67 of the 2011 law. In addition to this provision, the institutional framework for renewable energies includes many players who, in the day-to-day conduct of their activities, play a significant role in the development of renewable energies in Cameroon.<sup>23</sup> These institutions are arranged in to; **Those Charged with Management and Control (1) and Those Charged with Technological Research and Training (2).**

#### **1) The Institutions Charged with Management and Control**

These institutions act as players in providing a framework for the renewable energy sector to ensure effective energy security. They are many in number but we will analyse only a strategic few which are; the Ministry of Water and Energy (a), Electricity Regulatory Agency (b), Rural Electrification Agency (c), Energy Steering Committee and National Committee of the World Energy Council (d).

##### **a) Ministry of Water Resources and Energy**

The Ministry of Water and Energy (MINEE) is responsible for drawing up and developing energy policies. It is responsible for designing, implementing and monitoring government policy in the electricity sector, taking into account technological developments, development needs and the priorities set by the government in this area. In particular, it is responsible for general planning; conducting sectoral strategic studies; awarding concessions and licences; approving operators' investment programmes and electricity tariff policy.<sup>24</sup> In the interests of energy efficiency and security, a sub-directorate for renewable energies has been set up within MINEE.<sup>25</sup> It is responsible for prospecting and drawing up an inventory of available renewable energy resources, research and technology transfer, designing and implementing development programmes and pilot projects, monitoring operations in the sector, disseminating the best techniques for using renewable energy resources, and so on. It has a studies and standardisation department dedicated to drawing up a national renewable energy strategy and a renewable energy development map, updating the database on

<sup>23</sup> Global Village Cameroon, État des lieux du cadre réglementaire du secteur des énergies renouvelables au Cameroun, op. cit., p. 60.

<sup>24</sup> Article 71 de la loi de 2011.

<sup>25</sup> Décret n° 2012/501 du 7 novembre 2012 portant organisation du ministère de l'Eau et de l'Énergie.

renewable energy consumption, monitoring best practice in renewable energy development and monitoring organisations and operators in this field.<sup>26</sup> The sub directorate also has a renewable energy development department responsible for identifying and disseminating incentives for renewable energy consumption, motivating operators in the sector, implementing best practices and techniques for the optimal use of renewable energy resources, monitoring pilot projects in the field and applying safety measures for installations and equipment for the production and use of renewable energy.<sup>27</sup>

##### **b) Electricity Regulatory Agency**

In the specific sector of renewable energies, the Electricity Regulatory Agency (ARSEL) is responsible, under the terms of Article 11 of the Law of 2011, to grant licences to operate in the electricity sector. It is also responsible for setting the prices at which electricity is sold, particularly electricity produced from renewable sources. Depending on the amounts set, it can therefore promote or discourage energy security and the development of renewable energies.<sup>28</sup>

##### **c) Rural Electrification Agency**

The Rural Electrification Agency (AER) is responsible for promoting rural electrification.<sup>29</sup> In this capacity, it provides operators and users with the technical and possibly financial assistance required to develop rural electrification. In the absence of a specific institution dedicated to the promotion of renewable energies, the AER today appears to be the institution that, by default, assumes this function. This role can be deduced from the 2011 law, which directs the electrification of rural areas towards the priority use of facilities for producing electricity from renewable energy sources, such as micro-hydro power stations or solar photovoltaic power stations. REA is the most likely to dynamically boost the energy security of the rural population.

##### **d) Energy Steering Committee and National Committee of the World Energy Council**

The Energy Steering Committee,<sup>30</sup> a little-known institutional player, is proving to be a focal point for renewable energy in Cameroon, as it is a unit for reflection, support and supervision of strategies for managing energy crisis situations and for finalising the

<sup>26</sup> A. Nguessou, D. Thang et R. J. Ndjéudja, Options politico-juridiques pour un envol durable des énergies renouvelables au Cameroun, op. cit., p. 29.

<sup>27</sup> Global Village Cameroon, État des lieux du cadre réglementaire du secteur des énergies renouvelables au Cameroun, op. cit., p. 61.

<sup>28</sup> Ibid. p. 62.

<sup>29</sup> L'AER a été créée par le décret n° 99/193 du 8 septembre 1999, en application de l'article 58 de la loi de 1998, repris par l'article 62 de la loi de 2011.

<sup>30</sup> Créé à la Présidence de la République par le décret n° 2003/243 du 12 décembre 2003.

national energy plan. The National Committee of the World Energy Council,<sup>31</sup> for its part, is a body reporting to the Minister in charge of energy, whose main mission is "to prepare and ensure Cameroon's participation in the work of the World Energy Council and to monitor the application of the Council's recommendations in Cameroon". Founded in 1923, the World Energy Council covers a full range of energy-related issues, including renewable energy and energy security. Its objective is to "promote the sustainable supply and use of energy for the benefit of all", in terms of accessibility, availability and acceptability.

## 2) The Institutions charged with Technological Research and Training on Renewable Energy

These institutions act as players in providing a framework for the renewable energy sector to ensure effective energy security. They are many in number but we will analyse only a strategic few which are; The Energy Research Laboratory (a) and University institutions (b).

### a) The Energy Research Laboratory

The Energy Research Laboratory (LRE)<sup>32</sup> deals specifically with energy-related research. It has a section dedicated to non-conventional energies, including renewable energies. The LRE conducts theoretical and practical research into renewable energies to assess their potential, enhance the energy conversion system and save energy. In this respect, it has already obtained some convincing results, notably on the characterisation of fuels (wood, coal, sawdust briquettes, etc.) and combustion parameters (improved stoves) for the determination of standards applicable to these fields. The LRE carried out the first assessment of Cameroon's renewable energy potential, contained in the 1990 National Energy Plan.

### b) University Institutions

University institutions play a leading role in research into the development of renewable energies. The University of Ngaoundéré, through the University Institute of Technology and the National College of Agro-Industrial Sciences, is promoting experimental and operational research into the various sources of renewable energy. The Institut Supérieur du Sahel (ISS) is one of the first training establishments in Cameroon to include renewable energy in its curriculum. The importance it attaches to renewable energies stems from a number of favourable factors, including its geographical location (a Sahelian zone where solar radiation predominates) and socio-economic activity dominated by livestock farming and agriculture (a strong presence of bioenergy and the need to preserve harvests). The choice of these energies by the ISS is driven in particular by the

desire to increase the rate of rural electrification, while reducing the excessive cutting of wood. Equipped with a renewable energy research laboratory, ISS is a center for popularising the technological and socio-economic issues involved. The École Nationale Supérieure Polytechnique has an energy laboratory with four specialities: energy technology drying, decentralised energy production, energy audits and thermal building. Finally, at the University of Dschang, the Department of Rural Engineering in the Faculty of Agronomy and Agricultural Sciences is a center for research into renewable energies. It can be seen that the practice of initiating uncoordinated projects in the renewable energy sector, which is often criticised in government ministries, is also found in these institutions.<sup>33</sup>

At institutional level we still discover some limits that need to be elucidated here. The multiplicity of uncoordinated interventions in the renewable energy sector has a huge impact on energy security in Cameroon, insofar as the overlapping competences of the players involved do not favour the harmonious development of renewable energies.<sup>34</sup> In addition, the dependence of public and semi-public players conditions the decision-making processes and limits consumer access to the decision-making spheres.

As mentioned above, several institutions work, each at its own level, to directly or indirectly supervise the renewable energy sector. These include the AER, ANAFOR, ARSEL, LRE, SONATREL and many other ministries whose activities relate to renewable energy. The proliferation and diversity of public, semi-public and private players does not make it easy to coordinate their actions and makes it difficult to effectively implement procedures that are often different. It is therefore important to structure this sector judiciously so that each institution has a specific mission, while ensuring that their roles are precisely defined and well respected. If necessary, certain institutions can be merged to achieve greater efficiency and lower operational costs.<sup>35</sup> To achieve this, all decision-makers and stakeholders must act and cooperate in related areas in a synergistic and innovative manner.<sup>36</sup>

In recent years, the electricity sector has undergone numerous name changes, but in reality, the state has maintained control over the ownership and management of the institution. For example, five of the nine members of ARSEL's board of directors are appointed by the government and only one represents consumers. This can be a serious challenge to free decision-making and the sound

<sup>31</sup> Créé par le décret n° 96/036/PM du 21 février 1996.

<sup>32</sup> Créé en 1979, le LRE est lié à l'Institut de recherche géologique et minière, qui dépend lui-même du ministère de la Recherche scientifique et de l'Innovation.

<sup>33</sup> A. Nguesseu, D. Thang et R. J. Ndjéudja, Options politico-juridiques pour un envol durable des énergies renouvelables au Cameroun, op. cit., p. 36.

<sup>34</sup> Ibid, p. 28.

<sup>35</sup> Ibid, p.38.

<sup>36</sup> IRENA et al., Renewable Energy Policies in a Time of Transition, op. cit., p. 15.

management of energy resources. In addition, the heads of the bodies concerned are appointed by the President of the Republic or by ministerial decree, which does not allow them to be autonomous without government intervention. Given that electricity producers and distributors still pay little attention to renewable energies, private players can make a significant contribution to their development if they have decision-making autonomy in this respect. Cameroon's potential, which is estimated at an average insolation of 9.8 kWh/m<sup>2</sup>/d, that is, 4 kWh/m<sup>2</sup>/d in the south and 5.8 kWh/m<sup>2</sup>/d in the north.<sup>37</sup> If properly exploited, it will make a major contribution to reducing the country's dependence on foreign aids for economic development in the sector of energy, poverty and maintaining electrical stability in all regions of the country.

### Paragraph II: National Transformation and Exploitation of Renewable Energy

Access to energy is one of the prerequisites for development, as every activity requires a supply of energy. Consequently, energy is a lever for job creation and economic and social well-being. A State cannot therefore envisage its development without the coherence energy supply and demand, and without policies and institutions designed to promote sustainable access to energy.<sup>38</sup> At present, almost all countries are currently trying to introduce renewable energies into their energy policies, but the development of these energies is encountering obstacles in both developed and developing countries. The need to set up incentive mechanisms for the development of this Renewable Energy (RE) sector, while at the same time guaranteeing political control of the process for its economic and social benefit is imperative.<sup>39</sup> Policies and legal texts relating to renewable energies have been adopted to facilitates its exploitation as seen above. This paragraph analyses the political, legal and institutional environment for renewable energies in Cameroon and proposes ways of improving the sector. To achieve this, we are to review the strategic frameworks and legal texts of the energy sector, and then conducted interviews with resource persons from government institutions, civil society and the private sector working in this sector.

<sup>37</sup> Global Village Cameroon, État des lieux du cadre réglementaire du secteur des énergies renouvelables au Cameroun, op. cit.

<sup>38</sup> Mewouth, A. (2015). Développement des énergies renouvelables et conservation des écosystèmes naturels : Analyse d'un rapport encore mal compris au Cameroun. Afrique & Science. Récupéré sur <http://africa-and-science.com/wp-content/uploads/2015/11/Conservation-des-%C3%A9cosysteme-Article-de-Armel-MEWOUTH-17-Novembre-2015.pdf>. 14p.

<sup>39</sup> Tchagpa, F. (2014). La concurrence dans l'économie du Cameroun, New York, CNUCED, 2014, p.82.

According to a study sent to Cameroon's Ministry of Water and Energy, the Central Africa's leading economic power intends to increase its renewable energy capacity (currently less than 1%) to 25% by 2030. The study, which condemns the low use of renewable energies, whose under-exploitation deprives more than 10 million people in the country of electricity, explained that by increasing this capacity, the Cameroonian government could bring balance to the national energy mix, which is dominated by hydroelectricity (more than 90%).

To achieve this objective, the Cameroonian authorities have launched various projects to increase investment in renewable energies. In 2017, for example, the country launched a project to electrify 1,000 rural localities using photovoltaic systems. This mega project has already covered 350 localities in the country. In addition to the rural electrification project, the government plans to develop 50 mini solar power stations, with the involvement of the Rural Electrification Agency (AER). The government has also identified 148 sites with a potential of between 5KW and 500KW, and 17 sites with a potential of 10 MW. In detail, the Cameroonian government has allocated the 25% of renewable energy as follows: 11% to small-scale hydroelectricity, 7% to biomass, 6% to photovoltaic solar energy and 1% to wind energy. To properly evaluate this paragraph, it is necessary we analyze, **the national renewable energy potentials (A) and the transformation of renewable energy (B)**

#### A) National Renewable Energy Potentials

Cameroon's energy sector is characterised by insufficient supply, but significant potential deposits of natural gas, hydroelectric power and other renewable energies (solar, biomass, wind). Oil, which has been exploited since the early 1980s and makes a significant contribution to the balance of trade (50% of exports in 2014), reached its production peak in 1985. In 2019, primary energy production was split between biomass (53%), hydroelectricity (3.5%) and fossil fuels (43.2%), including oil (28.3%) and natural gas (14.8%). Crude oil is exported (90.5%) and natural gas (70%), but almost two-thirds of the petroleum products consumed in the country are imported.

The primary energy consumed in the country in 2019 broke down into 71.1% biomass, 4.6% hydroelectricity and 24.3% fossil fuels (oil products 18.3% and gas 5.9%). Electricity accounted for just 7.1% of final energy consumption in 2019. Its production broke down into 61.7% hydroelectricity, 0.5% biomass, 0.2% solar and 37.6% fossil fuels (oil 12.0% and natural gas 25.6%). Per capita electricity consumption is only 8% of the world average, 46% of the African average and 3.6% of the French average. Numerous hydroelectric projects are currently underway, and should significantly boost the country's production. Energy-related CO<sub>2</sub> emissions in Cameroon are only 6% of the world average and 26% of the African average.

Concerning Cameroon's potentials in renewable energy runs from wood, thermal, solar, wind and geothermal which are examined subsequently.

-Wood for heating; Wood energy is the leading energy source used in the country, accounting for 72.6% of consumption in the early 2010s, compared with 20.1% for petroleum products (oil, petrol, LPG) and 7.3% for electricity.<sup>40</sup> (Biomass (animal droppings, household waste, organic plant matter, firewood, etc.) is also important. With regard to wood in particular, according to statistics from the Minee Inspector General, Cameroon has 17.4 million hectares of dense forest, 1.4 million hectares of open forest and 06 million hectares of wooded savannah).

-Thermal power stations; There were 39 thermal power stations in 2013. They use gas (Kribi) or fuel oil.<sup>41</sup> Eneo operates 6 diesel thermal power stations connected to the grid,<sup>42</sup> of which are shut down, as well as 26 isolated power stations with a total capacity of 43 MW. The Limbe thermal power plant (85 MW) was commissioned in 2004 following major load shedding on the grid between 2001 and 2003.<sup>43</sup> Globeleq operates the Yassa-Dibamba thermal power station (86 MW: 8 diesel generators of 10.76 MW each, which can run on heavy fuel oil or gas), built as an emergency measure by AES-SONEL to make up for an estimated energy shortfall of around 120 MW by 2012<sup>44</sup>, as well as the Kribi power station (216 MW: 13 generators of 16.6 MW running on natural gas), built between 2010 and 2012 in Mpolongwe, a town located 9 km from the city of Kribi.<sup>45</sup> Globeleq plans to increase the capacity of the Kribi plant to 330 MW by adding 7 Wärtsilä gas-fired units.<sup>46</sup>

-Solar; The potential of solar energy ranges from 4 kWh/m<sup>2</sup>/day in the south of the country to 6 kWh/m<sup>2</sup>/day in the north. Eneo Cameroon plans to build photovoltaic plants to back up existing diesel plants, which would continue to operate in the evening. The project will be carried out in several phases, the first of which will include solar power stations in the communes of Djoum, Lomié, Bertoua, Yokadouma and Ngaoundal; a second phase will extend to Eneo's 25 isolated diesel power stations; this will save fuel and improve coverage of demand; but the cost is two to four times higher than the average selling rate per kWh. The Ministry of Water and Energy is also developing a programme of mini

solar power stations in 166 localities over the medium term.<sup>47</sup>

-Wind; Favourable wind speeds have been identified, in excess of 2 m/s in the north specifically in, the Kaélé and Lake Chad regions, and up to 6.6 m/s on the Monts Bamboutos in the West Region<sup>48</sup>.

-Geothermal, Geothermal potential has been identified in Meiganga, Tignère, Ekondo Titi and Nwa<sup>49</sup>.

## B) The Transformation of Renewable Energy

Cameroon has significant potential in terms of renewable energy sources, in particular a large solar field and large biomass resources. However, access to energy remains precarious, particularly in rural areas. This precariousness is most acute in the North and Far North regions, where the electrification rate is very low, at less than 22%, and where more than 95% of households use wood fires for cooking. Given that these regions are located in an ecologically fragile area, with a high level of socio-economic and environmental vulnerability, the Ministry of Water and Energy, with the support of UNESCO, has developed this two-year project with funding from the India-UN Development Partnership Fund. The main expected impact of the PUERTEM project is that at least 1,000 households (around 6,000 people) will have access to clean energy, enabling them to lead fuller lives and break out of the cycle of poverty by reducing their pressure on the environment.

Cameroon's current energy development is centered around three essential elements that is, sufficiency, reliability and clean energy supply; access to modern energy services over the long term; and making energy not only an asset for industry<sup>50</sup> but also domestic use.<sup>51</sup> In view of this significant potential, Cameroon has sufficiently diversified energy resources, the development of which would enable it to be reasonably self-sufficient in this sector. The country plans to double its energy production, i.e. an increase in energy consumption per GDP unit to 45% by 2035.<sup>52</sup> Initially, this ambition was based primarily

<sup>40</sup> Historique de l'électricité au Cameroun [archive], Eneo.

<sup>41</sup> Ibid.

<sup>42</sup> Ibid.

<sup>43</sup> La centrale thermique de Limbé [archive], Eneo

<sup>44</sup> La centrale thermique de Yassa-Dibamba [archive], Eneo.

<sup>45</sup> Kribi : La première centrale à gaz du Cameroun [archive], Eneo

<sup>46</sup> en)Kribi Expansion [archive], Globeleq

<sup>47</sup> Cameroon Tribune, « Electricity: The contribution of renewable energy » [archive], sur [www.cameroonweb.com](http://www.cameroonweb.com) (consulté le 17 juillet 2016).

<sup>48</sup> Cameroon Tribune, « Electricity: The contribution of renewable energy » [archive], sur [www.cameroonweb.com](http://www.cameroonweb.com) (consulté le 17 juillet 2016).

<sup>49</sup> Ibid.

<sup>50</sup> MINEE-REMP. Etude de mise en place d'un Plan de développement du secteur des énergies renouvelables au Cameroun, Rapport, 2017, p.260.

<sup>51</sup> MINEPDED. Contribution Prévue Déterminée au Plan Nation (CPDN). Récupéré sur <https://www4.unfccc.int/sites/NDCStaging/Pages/All.aspx>, 2015, p.17.

<sup>52</sup> MINEPAT. Cameroun Vision 2035.Document de travail. 2009, p.76.



on large-scale energy production based on hydroelectricity, followed by oil and natural gas. In recent years, however, there has been growing interest in including renewable energy sources in this ambition. In its Development Strategy (SND30), the country intends to pursue its policy of development of an energy mix based on hydroelectricity, photovoltaics, gas-based thermal and biomass energy.

Despite the country's large natural endowment of energy resources, barely 6% of the country's energy resources are currently being exploited.<sup>53</sup> The country faces a serious energy deficit, particularly in terms of electricity. For example, more than 38% of urban households still do not have access to electricity, compared with around 65% in rural areas.<sup>54</sup> In this context, it is clear that renewable energies have an essential role to play in bridging the Cameroon's energy deficit, and this will undoubtedly require fairly incentives.

As a remedy to electricity acute deficit in the country, the government has decided to put in place a solar power plan in the northern regions of the country which constitute about 30MW Solar power capacity plan. According to the government communique, Cameroon is finally launching its long-awaited 30 MW solar power plan project in the northern regions. The project, which was announced in 2021, is expected to be commissioned in September 2023 and to that effect the minister of Water Resources and Energy paid a visit to the Extreme North Region from the 19 to the 23 of September 2023.

The two solar power plans, which are located in the towns of Guider and Maroua, will have a combined capacity of 30 MW. The project is expected to significantly improve the quality of electricity supply in the northern part of the country, which has been prone to power outages in recent years. The project is also expected to reduce the need for costly thermal power plans, which will save the government money. In addition, the project is expected to create jobs and boost the local economy.

The Cameroonian government awarded the contract for the solar power plant project to SCATEC, a Norwegian renewable energy company. SCATEC will be responsible for the construction, operation, and maintenance of the project for a period of 25 years. The solar power plan project is part of Cameroon's efforts to increase its reliance on renewable energy and reduce its carbon footprint. The country has set a

target to increase its renewable energy share to 20% by 2030.

However, as the government had initially anticipated, the project could not begin in 2021 due to technical limitations. "It's an interesting project, but we have to be cautious for two reasons. First, it's a new technique in Cameroon, and solar energy is somewhat unique. Even though there is plenty of sunlight in the North, solar energy is by definition variable, as such not steady whereas, both industrial and residential customers demand a stable energy supply, we must make sure that these modular power plans will deliver it. So, there are technical aspects that need to be verified. Second, faced with this spontaneous offer, we are still obliged to conduct consultations to ensure there are no alternative offers," a source close to the matter told Business in Cameroon in May 2021.

The delay in implementing this project forced the Cameroonian government and Eneo in 2021 to transfer 20 MW of thermal power from the Ahala power plant (near Yaoundé) to Garoua (12 MW in Djamboutou) and Ngaoundéré (8 MW) to alleviate daily power outages for the populations and businesses in the northern region. According to internal Eneo sources, this capacity transfer resulted in unaffordable additional fuel costs of about CFA2.4 billion per month (CFA80 million per day).

Thus, this project is a sign of Cameroon's commitment to renewable energy. The country has set a target to increase its renewable energy share to 20% by 2030. The solar power plan project is a step in the right direction towards achieving this goal. An official release from the Department of Water Resources and Energy revealed that Minister Gaston Eloundou Essomba presided over the launching ceremony during his visit to the site from the 19 to 23 of September 2023.

With this development in the energy sector, the sector still suffers from the lack of no specific legal instruments for RE in Cameroon. The legal text that needs to be referred to regarding the framework for this sector is Law No. 2011/022 of 14 December 2011 governing the electricity sector in Cameroon. This law considers the following energy sources as RE: solar thermal and photovoltaic energy, wind energy, hydraulic energy from watercourses with an exploitable power less than or equal to 5 MW, biomass energy, geothermal energy and marine energy. These energy sources are only considered from the perspective of decentralised production of electricity for rural areas. It is therefore tempting to say that the State of Cameroon is reducing renewable energies to an alternative to electricity production for isolated areas with little or no connection to the national electricity grid. The legislator has not provided a framework for the various energy services that are important, in particular the supply of efficient equipment, advice on improving energy performance,

<sup>53</sup> Levin, k., Rich, D., Bonduki, Y., Comstock, M., Tirpak, D., McGray, H. et Waskow, D, Conception et préparation des contributions prévues déterminées au niveau national (Intended National Determined Contributions, INDC). PNUD et WRI. 2015,p.124.

<sup>54</sup> MINEE-REMP, Etude de mise en place d'un Plan de développement du secteur des énergies renouvelables au Cameroun, Rapport, 2017, p.260.

maintenance services and as well as the financing solutions required.

Despite the lack of a legal framework for the renewable energy sector, the government has introduced a number of tax and customs measures to encourage investment in the sector, notably through the two circulars below:

-Circular n°001 /CF/MINFI/CAB dated 09 January 2012 specifying the terms and conditions application of the provisions of Article 128 (6) and (17) of the General Tax Code;

-Circular no. 01 /MINFI/DGI/LC/L dated 30 January 2012 setting out the terms and conditions for application of the tax provisions of law n°2011/020 of 14 December 2011 enacting the Finance Law of the Republic of Cameroon for the 2012 financial year. These incentives target specific materials and equipment used for the capture of solar and wind energy and converting them into electricity for lighting.

The law n°2013/004 of 18 April 2013 laying down incentives for private investment in Cameroon incentives for investment in various sectors, including renewable energy sectors, including renewable energy. Unfortunately, little is known about these schemes the general public. In theory, these measures should contribute to the development of renewable energy in Cameroon, but 10 years on, we can say that there is a need to assess the added value and, above all, the impact of these measures assessment of the added value and, above all, the impact on the supply of RE services in households.

## CONCLUSION

The above-mentioned measures could have had a greater impact if they had been part of development policy for the RE sector in Cameroon, with instruments for monitoring their application and assess their impact. So far, we cannot really say that these measures have facilitated the emergence of the renewable energy sector in Cameroon and equipment remain very highly needed, and quality still leaves something to be desired. Who has benefited from these measures? Shouldn't a national strategy for the promotion/development of renewable energies prior to the introduction of incentives?

## SELECTED BIBLIOGRAPHY

1) **Levin, k., Rich, D., Bonduki, Y., Comstock, M., Tirpak, D., McGray, H. et Waskow, D.** Conception et préparation des contributions prévues déterminées au niveau national (Intended National Determined Contributions, INDC). PNUD et WRI. 2015, p.124.

2) **Tchapga, F.** La concurrence dans l'économie du Cameroun, New York, CNUCED, 2014, p.82.

3) **Mewouth, A.** Développement des énergies renouvelables et conservation des écosystèmes naturels : Analyse d'un rapport encore mal compris au Cameroun. Afrique & Science.2015, p.14. Récupéré sur <http://africa-and-science.com/wp->

<content/uploads/2015/11/Conservation-des-%C3%A9cosysteme-Article-de-Armel-MEWOUTH-17-Janvier-2024.pdf>. 14p.

4) **A. Nguesseu, D. Thang et R. J. Ndjeudja,** Options politico-juridiques pour un envol durable des énergies renouvelables au Cameroun, 2022, p. 39.

5) **Mary YAYA KENFOY, Mireille Esther BATJOM, & Carole Valérie NOUAZI KEMKENG,** « le cadre juridique des énergies renouvelables au Cameroun : une contribution à la sécurité énergétique des citoyens ? » in Énergies renouvelables, transition énergétique et enjeux climatiques en droit africain, Revue Africaine de Droit de l'Environnement, Presses Universitaires de Ouagadougou N° 06, 2021, p.177.

6) **Ch. Tatsinkou,** "Mainstreaming Energy Sustainable Development Goals (SDGs), Targets and Indicators into Statistical Programmes. Cameroon's Programme on Energy Statistics", Paper presented at a seminar in Addis Ababa, 2016.

7) **IRENA et al.,** Renewable Energy Policies in a Time of Transition, 2018.

## REPORT AND OTHERS

1) Global Village Cameroon, État des lieux du cadre réglementaire du secteur des énergies renouvelables au Cameroun, Rapport d'analyse, 2012, p. 50.

2) Ministère des Mines, de l'Eau et de l'Énergie, Régime de l'électricité au Cameroun, Yaoundé, 1995.

3) Cameroon Tribune, « Electricity: The contribution of renewable energy » [archive], sur [www.cameroonweb.com](http://www.cameroonweb.com) (consulté le 17 juillet 2023).

4) MINEE-REMP. Etude de mise en place d'un Plan de développement du secteur des énergies renouvelables au Cameroun, Rapport, 2017, p.260.

5) MINEPAT. Cameroun Vision 2035.Document de travail. 2009, p.76.

6) MINEPDED. Contribution Prévue Déterminée au Plan Nation (CPDN). Récupéré sur <https://www4.unfccc.int/sites/NDCStaging/Pages/All.a.spx>, 2024, p.17.

## LEGISLATIVE TEXTS

1) Le décret n° 2012/501 du 7 novembre 2012 portant organisation du ministère de l'Eau et de l'Énergie.

2) La loi n° 20 du 26 novembre 1983 portant régime de l'électricité au Cameroun.

3) Décret n° 2012/501 du 7 novembre 2012 portant organisation du ministère de l'Eau et de l'Énergie.

4) Le décret n° 2003/243 du 12 décembre 2003 portant création du comité de pilotage énergétique.

5) Le décret n° 96/036/PM du 21 février 1996

6) Le décret n° 99/193 du 8 septembre 1999

7) La loi n° 2011/022 du 14 décembre 2011 régissant le secteur de l'électricité au Cameroun.