

The Law's Role in Ensuring Energy Security for All People: The Case of Access to Electricity in Madagascar

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Abstract

This article highlights the important role of the law in ensuring energy security for all people. It discusses the issue of access to electricity in Madagascar. Access to electricity constitutes an important condition for a country's economic and social development. Different sectors, such as industries, healthcare, educational institutions, and households, rely on energy to fulfil their tasks. Any interruptions in the energy supply may result in negative economic effects and engender life loss. Using fossil fuels results in higher electricity production costs and constitutes a non-sustainable practice. With the potential of renewable energy sources such as solar and hydraulic energy, Madagascar can ensure energy security for its population. Nonetheless, the transition towards the use of renewable energy requires a reinforced legal framework governing the energy sector.

Keywords

Madagascar, Energy Security, Renewable Energy, Electricity, Law

1. Introduction

The role of law in ensuring energy security for all people in Madagascar is complex and multifaceted. A reliable, affordable, and sustainable energy supply constitutes a vital component of economic development for any country in the world. Energy security has become a critical issue today with the increase in climate risks, population growth, urbanization, and digitalization (Avtar et al., 2019).

Different sectors such as industries, healthcare, educational institutions, and households rely on energy to fulfil their tasks. Any interruptions in the energy

supply may result in negative economic effects and engender life loss (Navalona, 2022; GEM, 2023). From this perspective, the energy can be compared to a blood vessel of the country, and if any problem happens to this blood vessel, all the other parts of the country will bear the consequences.

The alleviation of poverty, the industrialisation process, or any development plan cannot be fully implemented without the existence of energy security. In the case of Madagascar, the country encountered a critical problem in energy supply. The National Company of Electricity “JIRAMA” is unable to provide a reliable, affordable, and sustainable energy supply for the customers. The country suffers from persistent blackouts due to outdated infrastructure and interrupted supply of fossil fuel (Express de Madagascar, 2023a).

According to the official statistics, in 2016, only 20% of the Malagasy population had access to electricity. In 2020, 33.7% of the population had access to electricity while the average percentage for Sub-Saharan Africa is 48.4% (World Bank, 2023). This means that the access to electricity in Madagascar is still low. Besides, those who have access are facing frequent blackouts. Face this situation, the issue of energy security cannot be ignored and needs to be addressed. The country has tremendous natural resources and capital that can be used to solve the issue. The exploitation of the country’s solar energy and hydraulic energy potential could accelerate the wide access to electricity for most of the population and leverage the economy of the entire country. For instance, Madagascar has a hydraulic potential of 7800 megawatts but has only exploited 250 megawatts, which represents only 3 per cent of this. Also, the solar energy potential of Madagascar is among the highest in Africa with 2000 kWh per square meter per year (Madagascar National Communication, 2016). From these perspectives, the use of renewable energy constitutes for Madagascar a means to ensure energy security for all people. However, the solution could not be implemented without an adequate environment. In this case, the law has a role to play in advancing energy security goals, shaping Madagascar’s energy landscape and ensuring equitable access to energy resources.

This article highlights the law’s role in ensuring energy security for all people in Madagascar by taking as a case study the issue of electrification. It also explores the adapted policies to the transition towards the use of renewable energy in Madagascar.

2. The Current Situation Regarding Energy Issues in Madagascar

During the last decade, access to energy in Madagascar has become difficult, therefore, numerous sectors of activities are the victims. Different reasons could explain the situation.

First of all, there is a lack of clear energy policies in the country. Although the Ministry of Energy has set goals to increase the access of the population to affordable, reliable, and sustainable energy; there are no specific renewable energy

policies to implement it (World Bank, 2018). As a result, the country continues to rely mainly on fossil fuels as sources of energy. The use of fossil fuels contributes to a great emission of greenhouse gases which affect the environment, and result in climate change. Also, with the existence of different risks linked to natural disasters, the international economy and relations, the supply of energy encounters difficulty. For instance, the existence of war in Ukraine has contributed to the increase in the price of oil in international markets. In Madagascar, the consequences of such a situation are very huge, especially for the economy. For the country, the price of fuel is a very strategic reference to maintain the stability of the price of the basic products, the costs of services, and the costs of production for industries. Any increase in the oil price results in generalized inflation, and affects a wide range of the population. According to the statistics, 80 per cent of the Malagasy population are farmers and 81 per cent of the population is living below the international poverty line (Rfi, 2022). In a such situation, the government has tried to limit the consequences of the inflation of the oil price by providing financial subsidies to fuel companies in the country so that they will sell it at a price fixed by the government. At first glance, the strategy seems to be successful, however, the practice is not sustainable. The costs of financial subsidies for fuel companies are taking a large part of the state budget, which still depends on international financial aid; as a result, the state cannot pay the promised subsidies to the fuel companies. The JIRAMA (National Company of Electricity), which is a state company, also benefits from the financial subsidies from the state to ensure that the national company maintain the costs of electricity stable (Express de Madagascar, 2023b). However, the problem is that the JIRAMA cannot honour its engagement towards the fuel companies because the costs of electricity production are higher than the costs at which they are selling it to the customers. Indeed, most of the national company's electricity production sites depend on fossil fuels. As a result, the fuel companies often interrupt the delivery of fuel to the national company, which constitutes the main cause of frequent electricity blackouts in the country. In the case of the National Company of Electricity, their engine powers encounter often technical problems because of their age. These issues have caused the state to buy new engines for the company. In some cases, the JIRAMA has entered into a rental agreement with private companies instead of buying new power engines. As a result, the charge for the electricity company rises and results in financial difficulties (Ketakandriana, 2017).

Secondly, there is a lack of investments in terms of renewable energy. As said earlier, the country possesses the highest potential for solar energy in Africa. It is estimated at 2000 kWh per square meter per year. If solar energy is promptly implemented, the persistent blackouts will be solved and the majority of the population will have wider access to energy. However, the implementation of solar energy systems requires investments. Although the state has started to implement solar parks in some districts of the country, these investments are still small compared to the needs of the population. In this regard, the state explains

that the national budget could not fully cover such investments and calls for financial support from international climate investment funds. Besides, international and national private companies are willing to invest in renewable energy but they hesitate because of the lack of comprehensive energy policies in the country (Solarquarter, 2023).

Corruption and crime hinder energy distribution in Madagascar. As the population and house construction increase, so does the electricity demand. However, the capacity of production of the National Company remains unchanged. The demand for new subscriptions is very high, and the waiting list for connection to the electricity network is long. Such a situation causes corruption because everyone wants to use electricity in their house, as soon as possible. Within the National Company of Electricity, some staff propose to the new customers the possibility of acceleration in the process of a new connection, and in a counterpart, they request money. The issue is that when a customer demands a new connection, there is already an amount that he/she needs to pay according to the location of the installations and receive a receipt for that. However, the requested amount to accelerate the process is not part of the customer's obligations and is out of the legal sphere. Also, the money doesn't enter into the financial assets of the company, which is already in a difficult situation. Besides, the company is a victim of different crimes such as the theft of materials, and even fuel theft (Garry, 2022a; FES, Transparency International, 2021).

Climate change affects the production of electricity in Madagascar. The sites using a mix of fuel and hydroelectric power are obliged to cut the electricity as the hydroelectric production is touched by the lack of rainfalls and water. It is for example the case of the electric network of Antananarivo, the capital city. The existing hydroelectric sites produce more than half of the needs of electricity power for the network of Antananarivo. With the problem of water, the production decreases and blackouts happen. This situation causes the public authority to provoke artificial rain to increase the water level in the sites. Although the solution is working, it is not sustainable and costs lots of money (Mandimbisoa, 2023).

The effect of insufficient access to electricity affects not only the economy but the social life of the population. Due to the blackouts, many activities suffer economic loss, and if nothing is done to change the situation, many activities will shut down (Rfi, 2023). This situation has a social effect because it concerns many companies and employees. Besides, the access to healthcare is also affected by the existence of blackouts. Many hospitals don't have private power generator equipment and rely on the electricity provided by the national company (Vero, 2023; Express de Madagascar, 2023c). Some deaths linked to blackouts issue have been registered at the hospital. A little electricity cut may cause the death of the patient in an emergency (Madagascar Matin, 2023). Entrepreneurship, decent jobs, and healthcare suffer due to energy insecurity. The sector of education is also concerned. As the students and teachers are using technology gadgets for research, they are unable to do so with the frequent blackouts. Moreover, black-

outs engender public insecurity as the wrongdoer profits from doing unlawful acts (Garry, 2022b).

3. The Law's Role in Ensuring Energy Security for All People

The law plays an important role within the society. It sets different rules that need to be followed. For instance, the law can regulate the use of energy resources and make easier the people access to energy. Without proper access to energy services, people are destined to live in poverty. With the climate change issue, legal innovations contribute to advancing the global efforts to make a transition from high-carbon energy to low-carbon energy. From these perspectives, the energy law enhances the promotion of human rights and the protection of the environment. Access to energy services is part of basic human needs, and socio-economic rights cannot be achieved without access to such services. For example, without access to electricity, the women have to spend lots of time preparing food, and the children have less time to study as they help their families. Having access to electricity facilitates the tasks at home and enables the human right to live in dignity. Also, many economic activities depend on the use of electricity (Wewerinke-Singh, 2021).

The transition to the use of low-carbon energy or clean energy benefits the protection of the environment. Renewable energy constitutes an alternative to the current issue of energy. The role of law consists of promoting the implementation of infrastructures, enforcing service standards, and prohibiting discrimination. In line with this, the law can establish tax incentives for companies that invest in renewable energy, and facilitate the importation of the necessary materials. Also, the law can determine the standards of service for energy service providers to ensure that the customers enjoy a service of quality. Access to electricity as a contractual right needs the law to protect the rights of parties. The customers pay money to the company in exchange for access to the energy service. The company should ensure as much as possible that the customers enjoy a reliable and continued service. Any blackouts could cause important losses for the customers, and the law should enable them to ask for compensation.

As well, the law can ensure that all citizens, whether in urban or rural areas, enjoy the same privilege of access to energy services.

3.1. The Existing Provisions in Madagascar Regarding Access to Electricity

Electricity regulations in Madagascar are based on the law on electricity. Besides, the country has developed a national development plan which focuses on industrialization. In line with this, different projects such as One District One Factory were launched by the Ministry of Industry. However, industrialization requires reliable access to electricity. Also, the government has shown the will to develop the implementation of renewable energy projects in different districts. However, the issue is that the current legal framework is not yet adapted to reach

these goals.

In Madagascar, the JIRAMA (National Electricity and Water Company) is the main provider of electricity. The company has multiple installations in different administrative regions of Madagascar. In this regard, it produces and distributes electricity to the customers, and holds the monopoly of electricity production until the reform happens. Law 98-032 on the reform of the electricity sector in Madagascar has ended this monopoly and opened up electric power generation to private sectors. In line with this, the law authorizes private companies to produce electricity. This opening policy has enabled the electrification of some local communities in different regions of the country which didn't enjoy electricity before (Law 98.032, 1998). Nonetheless, it has also a negative impact on the functioning of the state-owned company JIRAMA. Once the private companies entered into the market of production, the JIRAMA started to rely on their productions to compensate for its insufficient production. As a result, the JIRAMA costs of production became higher, and the profit was reduced. The different events at the national and international level such as the political crisis, war, and the rise in the price of fuel, have engendered financial difficulties for the JIRAMA.

Aware of the difficulties encountered by the governance of the energy sector in Madagascar, the government enacted a new law on electricity in 2017. The main objectives of the law consist of offering a favourable environment for investments, the development of renewable energy, and the access of the population to modern energy. From these perspectives, the law has established two different institutions in charge of the governance of energy, which are under the supervision of the Ministry of Energy. The first is called "Office de Régulation de l'Electricité" (Bureau of Electricity Regulation); its role consists of developing and implementing national policies on energy. The second is named "Agence de Développement de l'Electrification Rurale" (Agency in charge of the development of rural electrification); its role consists of developing access to electricity in rural areas). For renewable energy, the law highlights in its article 11 that the state ensures the promotion of renewable energy; and if required, the state can establish an agency which will be in charge of the promotion of renewable energy. Indeed, the state will define in the tax code the advantage offered to those who produce or offer services related to renewable energy (Law 2017-020, 2017).

At first glance, the law appears to provide the necessary measures to ensure energy access for all individuals in Madagascar. Nonetheless, in practice, there is a problem with its implementation.

First of all, the role of each institutional organization in the implementation of the law is not clearly defined. Although the law has provided the role of the "Office de Régulation de l'Electricité" (Bureau of Electricity Regulation) and the "Agence de Développement de l'Electrification Rurale" (Agency in charge of the development of rural electrification); it is critical to mention that the issue of energy is not solely an affair of the Ministry of Energy but requires collaboration with other departments. The absence of coordination and collaboration between

different state departments constitutes a block to the transition towards the use of renewable energy. For instance, the Ministry of Energy (MEEH) has granted a concession for hydroelectric production to HIER in Bealanana, a project financed by the European Union. However, a portion of the upstream watershed interferes with the mining perimeter authorised by the Ministry in Charge of Mines, which significantly alters the watercourse and distorts the feasibility study already established. Indeed, it has been observed that in the region of Fandriana, the mining activities located upstream of the hydro plant operated by HIER have been generating solid deposits that are being carried by the watercourse, causing the turbine to wear prematurely (Ketakandriana, 2017). It is believed that the issue could have been avoided if there was better communication and coordination among various ministerial departments. In the case of tax incentives for services related to renewable energies provided by the electricity law, operators in the sector complain about the non-application of this provision by the customs administration. Besides, the issue of decentralization slows down the efforts to implement efficiently the law. If we refer to the structure of the Ministry of Energy, the Regional Direction of this Ministry doesn't have the power to decide on local issues, it belongs to the minister at the central government to decide. The issue is that the country has about 114 districts, and 1693 municipalities; therefore, it is difficult for the minister to handle quickly and efficiently all the different issues in each administrative division.

Secondly, the provisions on renewable energies in the Electricity Law of 2017 are not explicit about the strategies and mechanisms to ensure the implementation of renewable energies in the country. Although it is mentioned the possibility of creating an agency in charge of the promotion of renewable energies, the agency in question has not yet been implemented. The law also provides that the conditions related to the financing of renewable energy projects and their promotion will be defined by a decree, which is not done until now. Also, companies operating in the field of renewable energy face a significant challenge due to the lack of available expertise and specialized competencies. This scarcity of skilled labour frequently forces companies to seek outside talent, and the costs associated with this strategy are very substantial.

Thirdly, the issue of JIRAMA is related to the legal framework governing energy in Madagascar. The law has defined different categories of energy actors in the country such as buyers, producers, and concession holders. JIRAMA is the unique buyer of electricity in the country. It has a problem in honouring its financial engagement due to the different reasons explained above but also due to the contract that linked it to its partners. For instance, the contract related to the location of generators between JIRAMA and its partner is under the regime of a commercial contract. The problem is that these companies' partners are acting like producers and, therefore should be under the regime of concession holders. Besides, the structure and the management system of JIRAMA constitute a problem that blocks its development. The fact that the state is the unique shareholder of the company makes it vulnerable to political decisions that may not

benefit the interests of the company and even the customers. The JIRAMA is a single-member limited company. According to the company law, in article 519, public limited companies with shareholders equal to or less than three must be managed by a general administrator (Law 2003-036, 2004). This administrator takes on the responsibility for the administrative and management functions of the company. In line with this, the JIRAMA with a unique shareholder should be administered by a general administrator and not by the board of directors in the actual form. Financial partners of Madagascar have assigned experts to find out the problem of JIRAMA. As a result, experts have proposed different options such as augmentation of the shareholders to enable the functioning of the board of directors; development of Public-Private Partnerships; and the creation of three different companies for production, transport, and distribution (Ketandriana, 2017).

3.2. Recommendations to Improve the Legal Framework Governing Energy

The legal framework governing energy in Madagascar should be reinforced to ensure energy security for all populations. For instance, concrete provisions on financial incentives for investments in renewable energies should be adopted. It enables the promotion of investments in this sector and establishes a climate of trust for companies. It is not sufficient to provide that companies working on renewable energy will benefit from tax preference without any precision about the tariffs applied. The application of the principle of good governance and transparency requires clear provisions. Indeed, the provisions for the creation of the agency in charge of the promotion of renewable energies are needed. Among the roles of the agency is the sensitization of the population about the benefits of renewable energies and the promotion of investments linked to renewable energy technologies. Indeed, the promotion of capacity building in renewable energy for local technicians, and the research in this field are recommended. It will be possible with the development of partnerships with international partners. They can assist in sharing expertise with local technicians and in financing the building of infrastructures. The development of renewable energy infrastructures such as solar parks, hydroelectrical centres, and distribution infrastructures is important. In line with this, the JIRAMA should develop strategies that enable the company to adopt renewable energy. The legal framework for energy should be revised to enable the promotion of Public-Private Partnerships, which should be based on the win-win principle.

Also, the energy law and policies should highlight the role of different state departments regarding the implementation of the provisions. It will allow the coordination of the actions of these institutions and the establishment of legal stability. The acceleration of the transition towards the use of renewable energy requires effective decentralization. Local authorities should be given decision-making power so that local initiatives will be not blocked by a long process within the central government.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- Avtar, R., Tripathi, S. M., Aggarwal, A. K., & Kumar, P. (2019). Population-Urbanization-Energy Nexus: A Review. *Resources*, 8, Article No. 136.
<https://doi.org/10.3390/resources8030136>
- Express de Madagascar (2023a). *Électricité-Retour des délestages dans tout le pays*.
<https://moov.mg/article/75111-electricite-retour-des-delestages-dans-tout-le-pays#body2>
- Express de Madagascar (2023b). *JIRAMA—Une subvention de 441 milliards d'ariary en trois mois*.
<https://lexpress.mg/05/05/2023/jirama-une-subvention-de-441-milliards-dariary-en-trois-mois/>
- Express de Madagascar (2023c). *SANTÉ—Les hôpitaux touchés par le délestage*.
<https://www.moov.mg/article/80211-sante-les-hopitaux-touche-par-le-delestage#body2>
- FES, Transparency International (2021). *Les risques de corruption dans le secteur électrique à Madagascar* (p. 97).
<https://en.transparency.mg/telechargements/les-risques-de-corrupcion-dans-le-secteur-electricite-a-madagascar/>
- Garry, F. R. (2022a). Carburant, délestage-Razanamahasoia enfonce le clou. *Express de Madagascar*.
<https://lexpress.mg/02/07/2022/carburant-delestage-razanamahasoia-enfonce-le-clou/>
- Garry, F. R. (2022b). Détournement De Carburant—Des employés de la Jirama devant le Pôle anti-corruption. *Express de Madagascar*.
<https://lexpress.mg/15/10/2022/detournement-de-carburant-des-employes-de-la-jirama-devant-le-pole-anti-corruption/>
- GEM (2023). *Lettre ouverte aux Autorités publiques concernant la distribution et la production d'énergie*.
<http://www.gem-madagascar.com/publications/communiqués/presse/2023-12-12-151500-lettre-ouverte-aux-autorites-publiques-concernant-la-distribution-et-la-production-denergie>
- Ketakandriana Rafitson (2017). La lente marche vers la transition énergétique à Madagascar: Etat des lieux et perspectives (p. 29). *FES Madagascar*.
- Law 2003-036: Company Law in Madagascar.
<https://www.droit-afrique.com/upload/doc/madagascar/Madagascar-Loi-2003-36-societes-commerciales.pdf>
- Law 2017-020: Electricity Code of Madagascar.
https://edbm.mg/wp-content/uploads/2017/12/Loi-n-2017-020_elec.pdf
- Law 98.032 on the Reform of the Electricity Sector in Madagascar.
<http://www.ore.mg/TextesDoc/Loi%20ELEC%2098-032.pdf>
- Madagascar Matin (2023). *Délestage—L'Hôpital Hjra parmi les victimes*.
<https://www.matin.mg/?p=31318>
- Madagascar National Communication (NC). NC 2. Page xvii.
<https://unfccc.int/documents/124426>

- Mandimbisoa, R. (2023). Jirama: De la pluie artificielle pour diminuer le déléstage? *Tribune de Madagascar*.
<https://www.madagascar-tribune.com/Jirama-de-la-pluie-artificielle-pour-diminuer-le-delestage.html>
- Navalona, R. (2022). JIRAMA: Amplification des délestages fréquents dans de nombreux quartiers de la capitale. *Midi Madagasikara*.
<https://midi-madagasikara.mg/jirama-amplification-des-delestages-frequents-dans-de-nombreux-quartiers-de-la-capitale/>
- Rfi (2022). *Les Malgaches se préparent à une hausse des prix du carburant*.
<https://www.rfi.fr/fr/afrique/20220701-les-malgaches-se-pr%C3%A9parent-%C3%A0-une-hausse-des-prix-du-carburant>
- Rfi (2023). *Madagascar: Les délestages suscitent la détresse des petites et grandes entreprises*.
<https://www.rfi.fr/fr/afrique/20230703-madagascar-les-d%C3%A9lestages-suscitent-la-d%C3%A9tresse-des-petites-et-grandes-entreprises>
- Solarquarter (2023). *Investment Opportunities in Madagascar's Solar Sector: A 2024 Perspective*.
<https://solarquarter.com/2023/12/01/investment-opportunities-in-madagascars-solar-sector-a-2024-perspective/>
- Vero Andrianarisoa (2023). Délestage Jirama Mahajanga—Les préjudices sont inestimables. *Express de Madagascar*.
<https://lexpress.mg/24/05/2023/delestage-jirama-mahajanga-les-prejudices-sont-inestimables/>
- Wewerinke-Singh, M. (2021). A Human Rights Approach to Energy: Realizing the Rights of Billions within Ecological Limits. *Review of European, Comparative & International Environmental Law*, 31, 16-26. <https://doi.org/10.1111/reel.12412>
- World Bank (2018). *The Force of the Sun: Madagascar Embarks on Renewable Energy Production*.
<https://www.worldbank.org/en/news/feature/2018/10/10/the-force-of-the-sun-madagascar-embarks-on-renewable-energy-production>
- World Bank (2023). *Madagascar Set to Expand Access to Renewable Energy and Digital Services Thanks to \$400 Million Credit*.
<https://www.worldbank.org/en/news/press-release/2023/04/07/madagascar-afe-set-to-expand-access-to-renewable-energy-and-digital-services-thanks-to-400-million-credit#:~:text=An%20estimated%2033.7%25%20of%20the,the%20largest%20unelectrified%20population%20worldwide>