

Regulating the Power Sector and Stemming the Tide of Crisis in Sub-Saharan Africa through Purposive Infrastructural Projects and Liberalised Electricity Policy Reforms

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ABSTRACT

This paper examines the regulation for the power and energy sectors in sub-Saharan Africa through the emplacement of a liberalised market policy. It sought to critically examine the delineation of energy crisis or energy shortage in sub-Saharan Africa, whilst interrogating whether or not having a robust energy mix was a panacea for resolving the energy crisis in Nigeria and indeed Africa. It sought to discover the regional strategic national energy policies that can be established to resolve energy crisis in sub-Saharan Africa and the regulatory reforms that can be introduced to stimulate private investments in energy infrastructure in the region, including the legal and regulatory framework for the introduction of decentralised energy options in sub-Saharan Africa and the lessons that can be gleaned from the European Union's liberalised electricity market in constructing a competent legal and regulatory framework to stimulate private investments in energy infrastructures in sub-Saharan Africa. The study concluded by contributing elaborately to the discussion on the importance of privatising and liberalising the power sector of sub-Saharan African countries from a legal perspective and critically examining the importance of decentralisation and diversification of energy sources in the region with a view to establishing how they are capable of enhancing infrastructure investments in the region's power sector in light of the EU experience with two most important mechanisms of liberalisation, namely unbundling and open access as it relates to the power sector of the sub-Saharan region.

Keywords: power, energy, crisis, sub-Saharan Africa, projects, security, sector

INTRODUCTION

This paper contextualises the energy crisis in the sub-Saharan African region and attempts to highlight various institutional and regulatory arrangements that can stimulate infrastructure investments in the power sector. The phrase 'energy' crisis has become a global phenomenon over the years, but it is actually used in various contexts and conveys a variety of meanings in each context (Aman, 1978). In this context, it is any significant shortage in the supply of electricity to an economy. It is posited that the sub-Saharan region of Africa is in the midst of an energy crisis with extreme electricity shortages that have had significant impact on the overall performance of the region's social and economic indicators (Eberhard et al., 2011). To this extent, there has been poor health care and educational facilities, constant blackouts, slow business growth and idle industries (Sparrow, Masters, & Bowen, 1999).^{*} This situation is caused by underinvestment in the power sector, a legacy of poor governance of the power sector in the region, the absence of full privatisation and liberalisation in the

^{*}According to the trio, shortages of electricity are a severe constraint on economic growth and poverty alleviation in West Africa. The lack of electricity is often exacerbated by shortages of imported fuel, wood/charcoal and other forms of energy. The high cost and unreliability of energy supplies is a handicap for industrial development and employment generation, and also for poverty alleviation and public health.

power sector, lack of optimum use of inter-regional and sub-regional power trade and investments, lack of adequate tools for effective energy planning and policy formulation and weak human and institutional capacities. To resolve the above challenges, this paper thus argues in favour of the adoption of decentralised energy options, (DEOPs) system and full privatisation and liberalisation as viable regulatory tools that will enhance private infrastructure investments in the region's power sector. These regulatory tools, if well implemented is posited, would have significant impact on the region's power sector because it is deemed to be capable of changing the culture of decision making from a centralised (command and control) paradigm to a decentralised process that will give private-sector investors the freedom to make decisions that will affect the power sector of the region.

RESEARCH QUESTIONS

This paper seeks to answer the following questions:

1. What is the delineation of energy crisis or energy shortage in sub-Saharan Africa?
2. Is having a Robust Energy Mix a Panacea for resolving the Energy Crisis in Nigeria?
3. What regional strategic national energy policies are established to resolve energy crisis in sub-Saharan Africa?
4. What regulatory reforms can be introduced to stimulate private investments in energy infrastructure in the region?
5. What is the legal and regulatory framework for the introduction of decentralised energy options in sub-Saharan Africa?
6. What lessons can be gleaned from the European Union's liberalised electricity market in constructing a competent legal and regulatory framework to stimulate private investments in energy infrastructures in sub-Saharan Africa?

RESEARCH METHODOLOGY

Based on the legal background of this study, the methodology to be adopted in this paper is both analytical and expository. This study is library-based and secondary data collection is mostly from contemporary energy journals such as Oil, Gas & Energy Law Journal, International Energy Law Review, Journal of Energy and Natural Resources Law, and other relevant online database sources such as Westlaw, Lexis, HeinOnline and Text Books Research in Libraries.

THE IMPORTANCE OF THIS STUDY AND CONTRIBUTION TO THE POWER AND ENERGY SECTORS

Without out electricity and energy to generate that electricity, there would be no development (Yergin, 2012, p. 266). Insufficient electricity in the continent of Africa is a major hindrance to the economic development of Africa. According to the World Bank Fact Sheet, most of the African continent is still in the dark after nightfall more than a century after the invention of light bulbs, hence school children cannot read after dusk, companies and businesses cannot grow, and clinics cannot refrigerate vaccines, and industries are idle all of which leads to setback on economic growth, job creation and livelihood (Yergin, 2012, p. 266).

The absence of sufficient power or alternative energy sources in sub-Saharan African countries makes attracting private sector investments a daunting task especially when the investment climate is not encouraging. This underscores the need for the region to decentralise its energy options by considering alternative sources of energy in order to address the problem of electricity shortages. Currently, there is a global consensus that the challenges of increasing energy demand, global warming and rising energy prices can be addressed through the development of renewable energy (Bhattacharyya, 2006). As a key

component of the concept of DEOPs, if renewable energy is actively pursued in the sub-Saharan region, it can provide the needed energy for industrial development and domestic use (Oniemola, 2016).

Thus, this paper is essential in assisting the sub-Sahara region to seek for viable solutions to the energy crisis in the region by having a robust energy mix which can be achieved via decentralisation and diversification of their energy sources. A consideration of the regulatory tools identified in this research proposal will certainly help to reposition the power sector of the sub-Saharan region to be in line with what is applicable in the EU. Countries such as the United Kingdom, Kenya, Morocco and Latin America have used privatisation of electricity and DEOPs to attract funds from the private sector to relieve the burden of inadequate government funding or subsidy in the power sector.

ENERGY CRISIS CONCEPTUALISATION IN CONTEXT

There exists a plethora of energy issues in sub-Saharan Africa requiring future directions. They include the absence of both a national and a regional energy growth strategy, an ill-planned energy investment drive and absence of a regional cooperation for mitigating energy poverty like the integrated European Union, EU's advanced electricity market that guarantees a stable supply of power to European residents (Davidson, 1992). Man's dependence on energy is a fact of international life and the disruption, turmoil and evident risks to energy resources demonstrate both its tangibility and how fundamental it is to modern life (Cameron & Neal, 2002). In the African continent, it is widely recognised that the availability of sufficient power is a fundamental key to its development (Oke, 2012). Despite the fact that the continent is endowed with both fossil fuels and renewable energy resources, about 25 countries in sub-Saharan Africa is facing power shortages evidenced by rolling blackouts (The World Bank, n.d.). As a result of this deficiency, the economic growth and development of the region has been constrained, leading to serious impact in their daily lives.

One major factor contributing to the challenge of power shortage in sub-Saharan Africa is the lack of access to the available electricity in response to the rapid growth in electricity demand. Statistics show that only about 53% and 8% of urban and rural population, respectively, have access to available electricity in sub-Saharan Africa as compared to 99% and 88% in northern Africa (ICSU, n.d.).

One thing that can be gathered from the above is that there is the need to introduce institutional and regulatory tools that will stimulate private infrastructure investments in the region's power sector. These regulatory tools which will take the form of decentralisation of energy options, diversification and full privatisation and liberalisation of the power sector in the region will entail the provision of incentives to attract a considerable amount of infrastructure investments in the region's power sector and the adoption of international and domestic policies and laws.

It is noted that the concept of privatisation and liberalisation in the power sector requires a transition from a sector dominated by a vertically-integrated (state-owned) utility towards competition, especially through a process of corporatisation, commercialisation, legislation, establishment of an independent regulator, introduction of Independent Power Producers (IPPs), restructuring and unbundling, divestiture and privatisation of generation and distribution assets and a systematic introduction of competition (Gratwick & Eberhard, 2008). The process further requires concrete levels of regulatory oversight and commitment to guarantee efficiency, reliability and protection of all stakeholders, the success of which will depend on the presence of a strong independent regulator whose role is to ensure compliance with the law, guidelines and regulations (Oyewunmi, 2013).

However, it is pertinent to note that not every liberalisation and privatisation programmes in the power sector has proven to be successful, scholars have in this regard,

advocated that countries seeking to liberalise their power sector must learn from the California electricity crisis and avoid repeating the mistakes that led to the failure in that exercise (Flippen & Mitchell, 2003). Therefore, to be successful, power liberalisation and privatisation programmes should cater for the general and the peculiar circumstances of the context where the scheme is to be implemented (Braide, 2013).

At the heart of the energy crisis in the sub-Saharan African region is also the failure of the region's national governments to recognise the advantages of a decentralised energy options (DEOPs) system which focuses on a holistic approach to sustainable energy policies. One fundamental problem with the regulatory and governance framework of the power sector in most sub-Saharan African countries is the over-centralisation of management responsibilities and administrative structures. Thus, the concept of "Decentralised Energy Options (DEOPs)" advocates dissolution of the governance structure, multiplication of the means of production, control and management of responsibilities and availability of affordable options (Braide, 2013). Furthermore, it entails the sourcing of energy from renewables or alternatives as a means of providing low-cost, affordable, sustainable and regular electricity by decentralising the available energy sources in the country (Braide, 2013).

The European Union (EU) implemented the DEOPs system far back as the late 1990s by sourcing some of its energy from renewables to prevent shortage of electricity supply in the future (Üşenmez, 2011). This move was further strengthened by the European Parliament, which obliges member states to generate about 15 percent of its electricity from renewable sources by 2015.[†] One major advantage of keying into the concept of the DEOPs is therefore the opportunity available to the private sector to dominate generation and distribution of power as it has been done in England and Wales (Gnansounou, 2008). The use of this DEOPs system has thus led to significant progress and reforms in the policies and regulatory framework of Morocco's energy sector.[‡] Countries in sub-Saharan region of Africa can therefore take clues from the EU and the Kingdom of Morocco with far-reaching ambition for the renewable energy sector as a result of the rise in domestic demand for electricity.[§]

Beyond the introduction of the regulatory tools mentioned above, the issue of providing a conducive business environment for the private sector participation to thrive also comes to mind. This further underscores the need to create an investment atmosphere that is able to instil unflinching confidence in the investors that recouping the invested capital with competitive yields would not in any way be clogged. As a corollary to this issue, the question remains how easily will the governments of countries in sub-Saharan Africa be ready to respect and honour contractual terms involving private sector participation, especially where such participation requires both local and foreign funding which can only be accessed in an environment where contractual terms are honoured and how the obedience of such contractual arrangements would not interfere with their ownership and power-distribution and ownership policies and structure? (OECD, n.d.) As one scholar rightly commented on the need for sanctity of contracts for the success of the power sector reforms in Africa, "The implication of failure of the Government to adhere to the principle of sanctity of contract, will go a long way in destroying the confidence every would-be investor ordinarily would have in taking investment decision" (Ayeni, 2016). Therefore, to secure private sector participation in the power sector, there has to be a guarantee of cost recovery and return on investment (Bacon & Besant-Jones, 2001).

[†] Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market.

[‡] Renewable Energy in Morocco. Retrieved May 25, 2023, from <http://www.nortonrosefulbright.com/knowledge/publications/66419/renewable-energy-in-morocco#section5>

[§] *Ibid.*

On the question whether or not having a robust energy mix was a panacea for resolving the energy crisis in Nigeria, scholars (Agbaitoro, 2017) are united in their affirmation that a robust energy mix with full concentration on the development of renewable energy resources is capable of resolving the energy crisis in Nigeria (Agbaitoro, 2017). On what energy crisis or energy shortage in sub-Saharan Africa means. It is the shortage or any significant bottleneck in the supply of energy resources to an economy. In literature, it often refers to one of the energy sources used at a certain time and place, in particular, those that supply national electricity grids or those used as fuel in industrial development. The most potent energy problem in Sub-Saharan Africa is thus posited to be that in sub-Saharan Africa alone, 600 million people, or approximately 53 per cent of the region's population, live without access to electricity (OECD, n.d.). Thus, hundreds of millions more have only limited or unreliable electricity (OECD, n.d.). According to the African Development Bank,** more than 640 million of the continent's 1.4 billion people do not have access to electricity, despite long incubating programmes from Zimbabwe to Egypt to electrify rural areas that have, for years, been neglected in energy planning.

Nigeria's absurd lack of local oil refining capacity has equally left it exposed to the vagaries of fuel price changes in the international market. The failure of the energy policy and its impact on the lives of almost 200 million Nigerians have also been regrettably harrowing. Businesses are shutting down and many people are losing their jobs.

As stated earlier, the main energy source of Sub-Saharan Africa is fossil fuel. Fossil Fuels and hydroelectric power make up the largest share of sub-Saharan African electricity. Southern Africa has 91 percent of all of Africa's coal reserves and 70% of the nuclear/uranium resources in Africa, according to Professor Iwayemi (ICSU, n.d.).

It is posited that energy transition to renewable energy sources remains a major way of the perennial energy shortfall in sub-Saharan Africa. It is affirmed that unlike fossil fuels, some energy sources are totally renewable, and do not emit greenhouse gases. These clean and sustainable alternative energy solutions therefore include solar energy, hydropower, wind energy, geothermal energy and biomass energy. Attaining a worthwhile energy mix in Nigeria will however significantly impact on the energy crisis. As currently, the on-grid energy mix in Nigeria is dominated by thermal (80%) and hydro (20%) power generating sources (ICSU, n.d.). What is then the solution to the energy crisis?

The best possible solution is to reduce the world's dependence on non-renewable resources and to improve overall conservation efforts. Much of the industrial age heavily relied on fossil fuels, but there are established technologies that leverage renewable energy sources, such as steam, solar, and wind in alternative sources of energy generation.

The United Nations' Conference on Trade and Development, UNCTAD^{††} urges countries in sub-Saharan Africa to use their vast renewable energy reserves and pool resources through regional trade and investment of the AfCTA. Whilst there is no central regional legal and regulatory framework for sub-Saharan Africa as a whole, Nigeria, like many other African countries, has its own legal and regulatory framework for regulating renewable energy. The legal and regulatory frameworks applicable to distributed/C&I renewable energy include: The EPSR: This Act provides for the establishment of the Nigerian Electricity Regulation Commission, (NERC) and the REA. Renewable electricity generation, distribution or transmission projects are carried out under the appropriate licence granted by the NERC. The EPSR Act provides the legal and regulatory framework for the sector. It is the principal law for the regulation of the sector. The fundamental change it

** African Development Bank Report on Energy Crisis in Sub-Saharan Africa. P. 37.

†† UNCTAD, 21st May, 2023. Retrieved June 11, 2023, from <https://www.unctad.org>

birthed was the privatisation of the government-owned electricity company and the process towards a completely liberalised market.

There are equally some regulatory bodies in Nigeria for renewable energy. They include: Nigerian Electricity Regulatory Commission (NERC), the Federal Ministry of Power and The Energy Commission of Nigeria, (ECN). Similarly, in South Africa for instance, the NERSA, established in terms of the National Energy Regulator Act of 2004, is mandated to regulate South Africa's electricity, piped gas and petroleum industries and to collect levies from people holding title to gas and petroleum.††

Finally on the research questions to be answered in this paper, there are a number of vital lessons to be gleaned by sub-Saharan Africa from the EU electricity market template and strategy. It is noted that an integrated EU energy market is the most cost-effective way to ensure secure, sustainable and affordable energy supplies to EU citizens. Through common energy market rules and cross-border infrastructure, energy can be produced in one EU country and delivered to consumers in another country seamlessly, sub-Saharan Africa should take a cue from this.

It is further noted that the EU electricity market thrives on the principle of a liberalized electricity market theory. Energy liberalisation refers to the liberalisation of energy markets, with specific reference to electricity generation markets, by bringing greater competition into electricity and gas markets in the interest of creating more competitive markets and reductions in price by privatisation (Joskow, 2008). Beyond market liberalization, the EU strategy is one that should be emulated. The energy transition consists of a socially fair and cost-efficient process moving from fossil fuels to a clean energy system based on increased use of renewable energy sources, their systemic integration and the reduction of greenhouse gas emissions (Joskow, 2008). The two major market mechanisms for electricity trading that permitted this should however be discovered and encouraged to continue. In principle, there are two types of capacity mechanisms, the strategic reserve and capacity markets. The strategic reserve is thus a kind of insurance service for short-term emergencies in the electricity system by which electricity quantities are traded on a spot market.

CONCLUDING REMARKS

This paper has thus attempted to fill two yearning gaps: first, it has contributed to the discussion on the importance of privatising and liberalising the power sector of sub-Saharan African countries from a legal perspective. Furthermore, it has critically examined the importance of decentralisation and diversification of energy sources in the region with a view to establishing how they are capable of enhancing infrastructure investments in the region's power sector. Secondly, this paper has provided a more in-depth and critical review, particularly in light of the EU experience with two most important mechanisms of liberalisation- namely unbundling and open access as it relates to the power sector of the sub-Saharan region. It is submitted that one of the reasons for choosing Europe as a comparative benchmark is the striking similarity between the electricity industry's structure in most sub-Saharan African countries and that of the EU before liberalisation, i.e. a state-owned and vertically integrated power structure. Also, the structural advantage of the European Electricity Directives offers certain recommendations for the electricity liberalisation in the sub-Saharan region.

†† The NERSA Act 2004.

REFERENCES

- Agbaitoro, G. (2016). A Missed Opportunity to Strengthen the Nigerian Environmental Regulatory Framework within the Oil and Gas Industry: A Critical Analysis of the case of *Jonah Gbemre v Shell Petroleum Development Company of Nigeria Limited*. *A.J.I.C.L*, 7(9), 35.
- Agbaitoro, G. A. (2017). Is having a robust energy mix a panacea for resolving the energy crisis in Nigeria?. *Renewable Energy Law and Policy Review*, 7(4), 7-16.
- Agbaitoro, G. A., & Ojong-Okongor, E. (2017). Resolving the Implications of Maritime Boundary and Delimitation Disputes on Oil and Gas Industry Growth and Development in the West African sub-Region: The Way Forward. *Oil, Gas & Energy Law Intelligence*, 1(1).
- Amakoromo, M. K., & Agbaitoro, G. A. (2016). Reforming the Regulatory Framework for Offshore Health and Safety in the Nigerian Oil and Gas Industry: Lessons from the United Kingdom. *Oil, Gas & Energy Law*, 14(4).
- Aman, A. C. (1978). The Energy Crisis: A Few Perspectives. In *Cornell Law Forum* (Vol. 5, 11).
- Ayeni, O. (2016). The Need for Sanctity of Contracts for the Success of the Power Sector Reform: An Investor's Experience. *Thisday lawyer Newspaper (Nigeria)*. Retrieved from <http://www.thisdaylive.com/index.php/2016/04/26/the-need-for-sanctity-of-contracts-for-the-success-of-the-power-sector-reform-an-investors-experience/>
- Bacon, R. W., & Besant-Jones, J. (2001). Global electric power reform, privatization, and liberalization of the electric power industry in developing countries. *Annual Review of Energy and the Environment*, 26(1), 331-359.
- Bhattacharyya, S. C. (2006). Renewable energies and the poor: niche or nexus?. *Energy Policy*, 34(6), 659-663.
- Braide, T. G. (2013). Power Sector Reform in Nigeria: Can the Roadmap turn on the Lights? *I.E.L.R.*, 290.
- Cameron, R. & Neal, L. (2002). *A Concise Economic History of the World*. Oxford: Oxford University Press.
- Davidson, O. R. (1992). Energy issues in sub-Saharan Africa: future directions. *Annual Review of Energy and the Environment*, 17(1), 359-403.
- Eberhard, A., Ronés, O., Shkaratan, M., & Vennemo, H. (2011). *Africa's Power Infrastructure, Investment, Integration, Efficiency*. The World Bank. Retrieved from <http://www.ppiaf.org/sites/ppiaf.org/files/publication/Africas-Power-Infrastructure-2011.pdf>
- Flippen, E. L., & Mitchell, A. K. (2003). Electricity utility restructuring after California. *Journal of Energy & Natural Resources Law*, 21(1), 1-18.
- Gnansounou, E. (2008). Boosting the electricity sector in West Africa: An integrative vision. *International Association of Energy Economies, Third Quarter*.
- Gratwick, K. N., & Eberhard, A. (2008). An analysis of independent power projects in Africa: understanding development and investment outcomes. *Development Policy Review*, 26(3), 309-338.
- ICSU. (n.d.). International Council for Science (ICSU) Regional Office for Africa Science Plan *Sustainable Energy in sub-Saharan Africa*. Retrieved May 30, 2023, from <http://www.icsu.org/icsu-africa/publications/ICSUROASciencePlanonSustainableEnergy.pdf>
- Joskow, P. L. (2008). Lessons Learned from Electricity Market Liberalisation. *MIT Economics Review*, 6, 123-157.
- OECD. (n.d.). Achieving Clean Energy Access in Sub-Saharan Africa, OECD Reports. Retrieved August 9, 2023, from <https://www.oecd.org/case-study.pdf>

- Oke, Y. (2012). Beyond power sector reforms: The need for decentralized energy options (DEOPs) for electricity governance in Nigeria. *Nigerian Journal of Contemporary Law*, 18(1), 67.
- Oniemola, P. K. (2016). Why should oil rich Nigeria make a law for the promotion of renewable energy in the power sector?. *Journal of African Law*, 60(1), 29-55.
- Oyewunmi, T. (2013). International Best Practices and Participation in a Private Sector Driven Electricity Industry in Nigeria: Recent Regulatory Developments. *I.E.L.R.*, 8, 306-314.
- Sparrow, F. T., Masters, W. A. & Bowen, B. H. (1999). Electricity Trade and Capacity Expansion Options in West Africa *Purdue University Institute for Interdisciplinary Engineering*. Retrieved from <http://www.ecn.purdue.edu/IIES/SUFG>1999>
- Talus, K. (2013). *EU Energy Law and Policy: A Critical Account*. Oxford University Press.
- The World Bank. (n.d.). Fact Sheet: The World Bank and Energy in Africa. Retrieved from <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/0,,contenMDK:21935594~pagePK:146736~piPK:146830~theSitePK:258644,00.html>
- Üşenmez, E. (2011). The UK's Energy Security. In G. Gordon et al. (Eds.), *Oil and Gas Law: Current Practice and Emerging trends* (2nd ed.). Dundee University Press.
- Yergin, D. (2012). *The Quest: Energy, Security and the Remaking of the Modern World* (Rev., Upd.). Penguin books.