EmPower Nigeria

Improving Nigeria's electricity supply industry through public education

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Nextier Power is a consulting firm that provides policy advisory, investment advisory, and support services to the electricity supply industry. The firm aims to use this weekly publication to educate Nigerians on the intricacies of the Nigeria electricity supply industry on the assumption that a more informed public would advocate for the right policies and programmes which, in turn, would lead to a robust market that delivers the electricity needs of Nigerians. This column will cover everything from the basics of the industry to the more intricate, sometimes, complex policies and programmes.

Renewable Energy: Identifying Challenges and Offering Solutions

Introduction

For Nigeria to experience its growth projection, it is very important to tackle the looming power crisis in the country. It is a known fact that the power sector is the bedrock of a country's development. Because Nigeria's grid supply is at best unreliable and insufficient, there needs to be an innovative leap into electricity generation and supply from Renewable Energy (RE) sources in order to achieve its desired level of development. The country is already at an advantage because of its geographical position in the world – it is rich in sunlight. This should be leveraged to augment the current access to electricity in the country.

Renewable Energy and the Nigerian Power Sector

Nigeria is uniquely positioned as one of the best targets to benefit from renewable energy electrification. With one of the lowest energy per capita indexes in the world (144kW-hr) and the abundance of renewable energy sources, especially solar, there is a potential to be among the top-20 countries in the world RE index. According to an Ernest and Young report, Nigeria does not currently rank anywhere close to the top-40 countries on the world index for RE. The rest of this article focuses on identified challenges (Technology, Policies and Finance) and proposes solutions to these challenges

1. Technology

To deploy RE electricity supply, it is important to secure appropriate technologies. This depends on factors such as availability of raw material, technical capacity for design and maintenance, country standardisation and quality of materials.

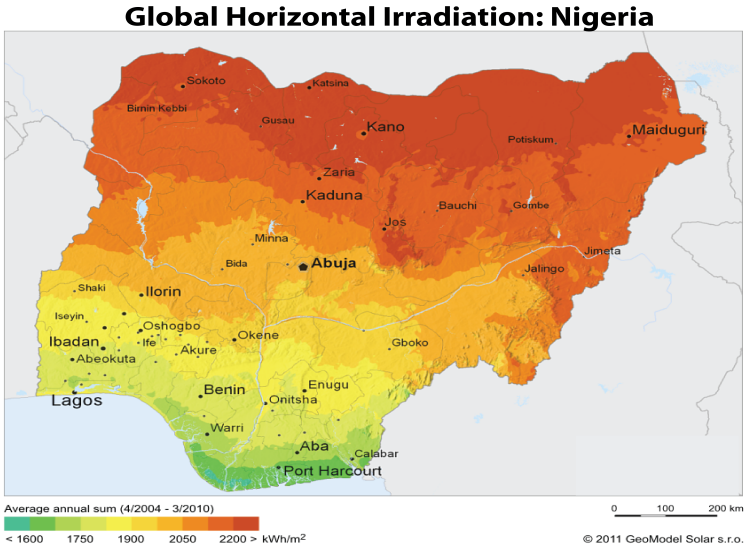
Current Challenges

Awareness and Education: The greatest challenge in mainstreaming RE in Nigeria is creating awareness. Typically, people do not know the difference between the normal grid electricity and renewable energy electricity. The general knowledge is that RE electricity can only power small capacity devices such as light bulbs; which would leave out other domestic, commercial, and electrical needs unmet.

Substandard Materials: The common sight of non-functional, substandard solar streetlights found along many roads has contributed to the mindset that RE electricity solutions do not work. This is not made any better by the fact that substandard renewable energy technology devices are continuously imported enmasse into the country proper quality control.

Intermittent performance: One of the most prominent challenges associated with renewable technology electricity generation is the intermittent availability of energy sources, especially solar. Solar energy can only be harnessed in the day time, when there is no rain. As a result, renewable energy generators may not provide electricity, leading to loss of productivity and revenue for the consumer.

Global Horizontal Irradiation: Nigeria



Proposed Solutions

To address this challenge, it is important to demonstrate to Nigerians that RE sources provide electricity as well as conventional power from the grid. This can also be achieved in schools by adjusting curriculums to reflect the significant importance of renewable energy, with a new focus on local case studies, rather than generic global ones. When Nigerians see that renewable energy electricity works, it becomes easier for more to accept and adopt these technologies.

In order to prevent the importation of substandard materials, the Renewable Energy Association of Nigeria is in collaboration with the Standard Organisation of Nigeria, to ensure that every material being imported into Nigeria meets the minimum quality standard. To foster rapid development of renewable energy adoption, there is need to organise renewable energy training workshops for all engineers, technicians, and craftsmen.

2. Renewable Energy Policies

Strong and long-term political support at the federal, state, and local government level is a consistent component in the successful development of renewable energy. The political support includes the proper implementation of policies and strategies, price support mechanisms, provision of funds for R&D activities as well as the deployment of renewable energy technologies. The Renewable Energy Masterplan was first prepared in 2007 and revised in 2012.

In recent times, the Nigerian government has put in more effort into designing policies that encourage the adoption of renewable energy technologies. Some of these policies include the mini-grid regulations which is intended to accelerate renewable energy electrification

Current challenges

Although there are a number of policies designed to aid rapid adoption of renewable energy, the major challenges lie in the proper enforcement and implementation of these policies. Such implementation are constrained by changes in government jurisdiction, uncertainties in the energy market, instability in the macro economy, international shocks and operational risk

Proposed solutions

There needs to come into existence focused, responsible and purposeful political leadership at the heads of the various government tiers (Federal Government, State Government and Local Governments). The culture of discontinuity of policies in cases of changes in government or organizational leadership should be discouraged. Laws should be enacted that will guarantee continuity of policies made towards the adoption and development of renewable energy electrification.

There has been a wide gap between the development goals of a policy at the formulation stage and the realization of such goals on implementation. To close this ever-widening gap, there is the need for enhancement in the extent to which the public bureaucracy in Nigeria effectively implements policies.

3. Finance

Financing has always been and will continue to remain a key factor in the success of renewable energy adoption in Nigeria. Unless adequate financing is in place, renewable energy projects electrification cannot be implemented, even though all the right policies and technological capacities are in place.

Current challenges

High capital costs: Renewable energy ventures often have high capital costs, and many projects require external support in the initial start-up phases, either from the government or from private investors. Access to affordable finance is a major constraint because commercial banks are often unwilling to finance renewable energy projects due to market uncertainties and perceived high risks. In some cases, there are limited data and information on the renewable energy industry to guide investors and financiers.

Forex Volatility: The fact that RE technologies are still being imported makes the market immensely vulnerable to forex volatility, leading to large price fluctuations within a short period.

High interest environment: One of the major components of interest rate is inflation and the current Nigerian interest rate is hoovering at 15 percent annually.

Proposed Solutions

For renewable energy project developers, Tax waivers, waivers on clearing costs and duties. and double bottom line investments e.g., green funds are applicable. Green funds go beyond considering only financial returns to also considering environmental impact. The most comfortable financing for customers should constitute low interest rates and low percentage of required down payment. In communities where individual project developers cannot access financing, community financing schemes, where a group of developers form an association, provides more assurance for revenue generation. This in turn improves the bankability of such projects, making them more attractive to be invested in.

Renewable Energy Future Outlook 2020

The Nigeria's Vision 2020 goal is to generate, transmit and distribute 35,000 MW of electricity by the year 2020, with 20 percent of this generated from renewable energy sources (Energy Sector report on Vision 2020). The vision 2020 mandate was designed with the objective to ensure that the power sector is able to efficiently deliver sustainable, adequate, reliable and affordable power in a deregulated market, while optimizing the on and off-grid energy mix. Generating 20 percent of the country's power from renewable energy will sufficiently diversify the country's energy mix and ensure energy security.

Conclusion

Nigeria stand to gain numerous advantages with the adoption of renewable energy electrification. For the country to enjoy these benefits, it is crucial to examine the current state of the power sector and strategize towards bridging the foundational gap between the current situation and the desired standpoint. Technology, policy, and finance complexities need to be simplified to ensure its maturity, availability and affordability, making available possibilities for small, medium and large-scale developments in this sector.

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