

Intermittent Power Supply in Nigeria; Causes and Remedies

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ABSTRACT

The issue of intermittent power supply has been observed to be a key element to determine the progress of a nation. With the huge human and natural resources, the country is blessed with, it's quite absurd to see that industrialization is still at his cradle level. Hence, this paper has examined the various causes and effects of the situation and proffered recommendations towards resolving the problem. Among such recommendations are; increase investment strategies, effective protection of energy system facilities, exploitation of renewable energy, effective implementation of energy policy to mention a few. No doubt, with an extensive approach at implementing the above-mentioned recommendations, the country will experience improved electric power supply.

Keyword: Causes, Intermittent, Power Supply, Remedies, Nigeria

1. INTRODUCTION

It is a widely accepted fact that intermittent power supply in Nigeria has been a challenge for economic and industrial development in the country. With the abundant human and natural resources, the country is blessed with, it becomes absurd that after over hundred years of existence and over six decades of independence, Nigeria is still not getting it right in terms of energy sufficiency. If the problem is only that the power is insufficient, it would have been a much more bearable situation but the major problem is that the power supply is intermittent. Being intermittent mean that the consumers requiring electricity cannot predict when this electric power from the national grid will be available for their consumption .

In most situations intermittent power supply can be equated to no power supply as the work the power is needed for, might have been done before the supply is made available or the power is interrupted before what it is to be used for, is gotten ready. Intermittent power supply can also be equated to negative power in situations where the flip-flop nature of the supply causes damage to the device being powered.

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To appreciate and resolve the intermittent power supply situation in the country, it is appropriate we take a look at where we are coming from, where we are, and where we should be, then analyse the situations and propose how to move from where we are to where we should be. With the intention of addressing the issue of electrical power shortage and improving the reliability of the electrical power system, the federal government have, at one time or the other, had to: merge Electricity Corporation of Nigeria (ECN) and Niger Delta Authority (NDA) to National Electric Power Authority (NEPA) in 1972; change NEPA's nomenclature to Power Holding Company of Nigeria (PHCN) in 2005, focusing mainly on restructuring; privatize and split PHCN into 18 companies in 2012. However, records obtained so far have shown that all of these have had little or no positive impact on availability of electricity which is of utmost concern to consumers. (Awosope, 2014).

It is not an exaggeration to say that electricity supply contributed largely in making the world what it is today. Its importance to the masses, industries, etc cannot be overemphasized. The use of electric irons, televisions, radios, washing machines, refrigerators, video players, cookers, computers, fans, air-conditioners, etc are all made possible through electricity supply. In other words, any nation without electricity supply is like a car without fuel, she will remain stagnant. (Ojjezel, 2012).

In view of the aforementioned, the researcher examined the causes of intermittent power supply and proffered possible solution by looking at the historical development of electric supply, factors responsible for intermittent power supply and made valuable recommendations to address the situation.

2. HISTORICAL DEVELOPMENT OF ELECTRIC POWER SUPPLY IN NIGERIA

Electricity generation activities started in Nigeria in 1896 when the first power plant was built in Lagos. Although, it was not until 1929 when the Nigeria Electricity Supply Company (NESCO) was established as an electric utility company that the phenomenon spread as the Public Works Department (PWD) was empowered to build plants in different parts of the nation. (Emmanuel, 2016) In a view to effectively coordinate the electricity development, the colonial government enacted the Electricity Corporation of Nigeria statute No. 15 of 1950, popularly known as the ECN Statute, to establish the Electricity Corporation of Nigeria (ECN). Subsequently, by Decree No. 24 of 1st April 1972, the Electricity Corporation of Nigeria and the Niger Dam Authority (NDA) were merged to form the National Electric Power Authority (NEPA), with a mandate to develop, maintain and co-ordinate an efficient and reliable power supply in the country. Although, those of us of the recent generation knew NEPA to be a colossal failure, but those of the older generation may not share the same view because as at 1973, only eight of the present 36 States in Nigeria were directly linked to the National Grid. But at the time of the unwinding of NEPA, all 36 states but one are fed from the National grid. This is a huge success (Emmanuel, 2016). However, in 1988, a new decree was promulgated.

It named Commercialization and Privatization Decree No. 25 and was focussed at partial commercialization of power to attend to the acute power shortages in the country. By it, we had some independent power producers (IPPs) and state Governments power generating stations in the country. But the problem still persisted. (Emmanuel, 2016) In year 2000, the huge challenges in the power sector made the Obasanjo administration to directly oversee the NEPA and constituted a nine (9) Man Technical Board termed the Electric Power Implementation Committee (EPIC).

The mandate of the Board was to ensure uninterrupted power supply by December 31, 2001. The board reported directly to the President and also had inclusive mandate to generate 4000MW by the stated date. Part of the Board's mandate was to restructure NEPA to meet present day realities and to encourage private sector participation in the industry. The Committee prepared the National Electric Power Policy (NEPP) in 2001 and the National Energy Policy in 2003 with the all-inclusive theme of optimal utilization of the nation's energy resources; from fossil fuels and renewable sources, for sustainable development with the active participation of the private sector. In addition, the committee established the National Independent Power Projects (NIPP) in 2004 as a fast-track government funded intent to stabilize the power sector and drafted the Electric Power Sector Reform Act (EPSRA) 2005, which is the principal legislation governing the power sector in Nigeria.

The EPSRA proposed the incorporation of an initial holding company called Power Holding Company of Nigeria (PHCN) to bear the assets and liabilities of NEPA (See Section 1 of the EPSRA Act). It also established the Nigerian Electricity Regulatory Commission (See Section 31 of the EPSRA Act). Other great initiatives of the Act include the allowance for power generation companies fondly called GENCO's. (Emmanuel, 2016)

In accordance with the EPSR Act, the federal government duly incorporated and constituted the board of directors of PHCN as a public limited liability company mandated to take over all the assets and liabilities of NEPA. The Act also provided for the unbundling of PHCN into new business units comprising six generation companies, eleven distribution companies and one transmission company, which will be handed over to private sectors through outright core investor sales and concessions. Under the Act, PHCN was scheduled to remain in existence for only eighteen months, following which its staff and other assets and liabilities were to be assigned to the new business units created from its unbundling. (EPSR, 2005)

3. CAUSES OF INTERMITTENT POWER SUPPLY IN NIGERIA

The availability of electricity at regular basis has been a major challenge in Nigeria from time immemorial. According to statistics obtained from the Central Intelligence Agency (CIA) World Factbook (2016), only 45% of Nigerians had access to electricity, which is not even regular. But stable power supply is the prime mover of technology and social development. In view of this, the researcher grouped the causes as technical and non-technical.

3.1. Technical Issues

- a. **Inadequate Grid Power:** One of the major causes of intermittent power supply in Nigeria is load shedding. Load shedding is a consequence of inadequate power generated in the National grid. According to CIA World Factbook (2016) statistics, Nigeria is one of the countries with the least energy per capita in the world; it is absurd to see Nigeria with a population of over 200 million generating 3000 MW plus of electricity whereas countries such as Turkey with a population of 81 million plus generating a whopping 29, 000 MW plus of electricity.
- b. **Power Loss on Electric Power Network:** In Nigeria, from the point of generation, via transmission, down to distribution and consumption points, there is a massive loss of electric energy along the network. It is a double tragedy for a country like Nigeria whose generating capacity is far below expectation to still experience the problem of energy loss along the network. (Ohajianya et al, 2014) opined that from the point of power generation in Nigeria, there is over fifty percent power loss. According to (Akpojedje, 2017), some of the

factors responsible for power losses on electric power networks are lengthy distribution lines, neutral failure, unbalanced phase loading, inappropriate citing of transformers, overloading of distributors, etc. At the point of consumption, majority of electricity consumers in Nigeria leave their electric devices “ON” even when they are not needed (Ohajianya et al., 2014). Thus, one of the major causes of intermittent power supply in Nigeria is as a result of losses on electric power network. Other technical problem includes;

- c. Rampant illegal connections to the nation’s power grid.
- d. Overloading pressure on distribution systems and predominant low voltage conditions.
- e. Network constraints.
- f. Incompetent work force.
- g. Delayed in access to spare parts/consumables.
- h. Effects of natural deficit e.g. wind, rain fall, swamps.

3.2. Non- Technical

- a) Inconsistency in Government Policies: This is one of the greatest causes of intermittent power supply in Nigeria. In Nigeria political arena, no government wants to continue on any policy she inherited from the previous administration. The present government believes the vast majority of the policies inherited from the previous administration are bad, thus, should be treated with levity.
- b) Incompetent Staff of The Energy Companies: This is a general Nigerian problem where companies especially government firms, employ workers not based on merit and competence but on favouritism and tribalism. Because of this, no regime company in Nigeria that requires workers with professional and technical competence has ever succeeded. NEPA and PHCN had staff, majority of which were employed through the back door and therefore, the only thing they seemed to know was how to climb electric poles and cut cables. On November 5, 2013, Nigerians rejoiced as government transferred ownership of generation, transmission and distribution of electricity to private companies. At least Nigerians believed that with the private ownership of these companies, the companies would subsequently hire competent staff that will revive the system. But six months after, Nigerians from all works of life becomes disappointed that power supply has gone from bad to worse (Ukoko et al, 2014). These new companies still retain the old incompetent staff of NEPA and PHCN for reasons best known to them. Other non-technical limiting factor includes:
 - c) Bad consumer’s attitude to payment of electricity bill.
 - d) Financial corruption of top management staff.
 - e) Illegal manipulation of consumer meters.
 - f) Political instability and inconsistent energy policy.
 - g) Galloping foreign exchange.
 - h) Bureaucracy in government.

4. CONCLUSION

In this paper, the researcher has been able to trace the historical development of electric power supply in Nigeria, state the causes of intermittent power supply and provided the necessary way forward in addressing the situation.

5. RECOMMENDATIONS TO ADDRESS INTERMITTENT POWER SUPPLY IN NIGERIA

5.1 Exploitation of Renewable Energy:

Nigeria is naturally endowed with varieties of renewable energy sources. Coincidental, the future of global economy in general is likely to consume more renewable energy, due to the fact that fossil fuels reserve is decreasing rapidly due to the current situation of increasing technological advancement. As global energy need continues to increase more efforts will be required to sustain the corresponding rising demand for energy. In this case, renewable energy technologies might play wholesome roles to bridge the gap between demand and supply of electricity.

5.2. Effective Implementation of Energy Policy:

Government policies are vital to ensuring that the energy sector advances sustainable development. There are many policy domains where policies influence how and how much energy is produced, converted, transported, distributed and used. Ensuring that energy systems develop in a way that best supports and agrees with sustainable development requires communication and co-ordination among all relevant policy areas at all levels of government (OECD, 2004; OECD, 2006; IEA, 2007; IEA, 2008; IEA, 2010). Full communication and co-ordination across all policy domains affecting the development and use of energy are still rare, just as they are in many other fields.

Resolving energy challenges requires an integrated sustainable development approach hinged on increased co-ordination among diverse fields and stakeholders. A wide range of government departments and agencies should be involved in the formulation and implementation of energy policies in various sectors (OECD, 2007).

5.3. Increase Investment Strategies:

Presently, investment pace in the Nigerian power Sector is characteristically low. This is because enabling law for private sector participation is not adequately implemented. Effective inclusion of private sector will no doubt support increase generation capacity and as well strengthen transmission investment and distribution capacity. Private sector participation in power sector investment has great influence to liberate electricity market and thereby allows for sustainable competition.

5.4. Effective Protection of Energy System Facilities:

The country currently owns about five refineries that operate less than half of their capacity. The government needs to manage these refineries instead of having the oil refined outside the country. As regards to preserving the useful life of the refineries as well as existing infrastructure, vandalization is a common setback. Those responsible should realize that it is only to the nation's detriment as more money that could have been put to good use elsewhere is spent on fixing the damages. Consequently, it diminishes the morale of the government as is reflected in its unwillingness to make future investments in such infrastructure. This act should be prohibited and made punishable by the law. Citizens also ought to adopt the shared moral responsibility of respecting public property for the common good.

5.5. Increase in Manpower Development via Overseas Training:

Training of manpower for power sector development is an inevitable idea. Lack of technical expertise is one of the major challenges with potential to cause setback to the growth in power sector.

Manpower requirements involve design, manufacturing, construction, installations, maintenance and operations. Lack of knowledge to execute any of these tasks could turn-out to be major problems.

5.6. Collaborations for Investment in the Energy Sector:

Since Nigeria is a developing country with weak technical knowhow, it is encouraging to relate with develop nations to enhance investment in the country's power sector. This will enable local engineers learn modern technologies.

5.7. Rehabilitation and Maintenance of Existing Electricity Generating Stations to Raise the Level of Effective Capacity

Most of the equipment installed in existing power stations are obsolete. Energy facilities are not regularly overhaul as at when due. Hence, maintenance policy should be reviewed to include provision for regular maintenance culture.

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