[1]Adegbite, Idowu, Reader and [2]Osifeso, Bunmi, Yemi, Lecturer
[1]Faculty of Law, OlabisiOnabanjo University, Ago-Iwoye, Ogun State, Nigeria.
Tel. +234 (0)8060164849 , +234 (0)8058871215, Email – idowu.adegbite@oouagoiwoye.edu.ng ; iadegbite@gmail.com, and
[2]Department of Business and Industrial Law, Faculty of Law, OlabisiOnabanjo University, Ago -Iwoye.
b.y.osifeso@gmail.com. Tel.+234(0) 8056696140

The Law, Education and Sustainable Energy Development in Nigeria

Abstract: There are several legal instruments and court judgments relating to the energy sector in Nigeria. The country is also a signatory to some vital United Nations General Assembly Resolutions on energy, yet the availability, affordability and accessibility of clean energy in the country to the teeming masses of people in the country is abysmally low. Among other factors, this work identified energy illiteracy as one of the potent factors militating against the enthronement of clean renewable energy in Nigeria at a level that it is available and affordable to the people. This gap in the law in theory and practical reality informed this paper. The negative effects of the gap are numerous cutting across the social, health, educational, agricultural, cultural, recreational and other strata of the society. This paper submits that the lofty ideals contained in the laws can be brought to reality through energy education among other reasons.

Introduction

Nigeria has a current population of about 200 million[1] and the percentage of Nigerians that have access to quality education is just very low. According to the UNICEF, about 10.5 million children are not in school in Nigeria even though primary education is officially free and compulsory. Similarly, the percentage of Nigerians that have access to clean and affordable energy is equally low. The 2020 World Bank Doing Business Report, Nigeria ranks 171 out of 190 countries in the provision of electricity, a development seen as a major constraint to the private sector. In fact, access to non- solid fuels in Nigeria struggles to an abysmal 4%!These statistics are alarming given the abundance of renewable energy sources in the country. The paucity of access to energy[2] in Nigeria is responsible for majority of the people resorting to unsuitable means of generating energy for survival and for the survival of their businesses. These unsustainable alternative sources of energy can at best be described as hazardous and at worst as antediluvian. They are not environmentally friendly. Some variants of the unsustainable energy sources includes, but are not limited to deforestation to get trees for firewood, using cow dung to cook, heavy reliance on coal, using saw dusts from saw mills, heavy reliance on fossil fuel and so on.

At the global level, the United Nations General Assemblyin its projected Sustainable Development Goals (SDGs) listed access to sustainable energy as one of the goals that humanity must achieve. Nobody must be left behind in the achievement of these lofty goals, Nigeria is an important member of the global human family, thus there is need to address this issue before it festered beyond the

•IDOWU ADEGBITE, Reader, Faculty of Law, OlabisiOnabanjo University, Ago-Iwoye, Ogun State, Nigeria. Tel. +234 (0)8060164849 , +234 (0)8058871215, Email – idowu.adegbite@oouagoiwoye.edu.ng ; iadegbite@gmail.com,., and BUNMI Y. OSIFESO, Lecturer ,Department of Business and Industrial Law, Faculty of Law, OlabisiOnabanjo University, Ago -Iwoye. This is an improved copy of the paper delivered by the IdowuAdegbite at the International Conference on Energy and Meteorology , at the Denmark Technical University, Copenhagen, Denmark in 2019.

[1]This is according to the World Bank Report, see http:// worldbank.org/indicator.

current level.

Conceptual Issues

Education is a special area of study that is fundamental to, and is the bedrock of all other fields of study. There are as many attempts to define education as there are scholars looking at the concept from divergent angles. For instance, the Lexicon Webster Dictionary[3], conceptualizes theverb 'educate' to imply"to lead forth, to bring up, to advance the mental, aesthetic, physical or moral development of, especially by teaching or schooling; to qualify by instruction for the business and duties of life, to teach, to instruct, to train, to rear…" .As a concept, the word 'education' on its own means:

> The process of educating, teaching or training; a part of, or a stage in this training; the learning or development which results from this process of imparting or acquiring skills for schooling; instruction and discipline in general; erudition; the academic discipline dealing with teaching and learning methods[4]

The Black's law Dictionary[5] defines education as giving a person all necessary instructions including(those ones necessary for) mental, moral and physical development'.Adeyemi (2011), perceives education as 'an instrument par excellence for achieving individual and social development'.On the other hand, Oni (2014) opines that education is about imparting and acquisition of knowledge, skills, habits and the powers of sound reasoning and judgment. It is achieved through teaching, training and personal observation and / or experience. In other to make a meaning, education acquired by one generation is passed on to the other. Olagunju (2012)submits that:

> Education is believed to be the literate art of understanding, reasoning and reinforcement of human intellectual growth and development for a better living among the citizens. Education can be regarded as a concept as well as a process… A concept because we cannot see it but rather feel it and a process because it is a continuous development in one's life. Thus it is very difficult to define education…
>
> Education involves the total personality growth and development of the individual through his/ her affective, cognitive and psychomotor domains and sensory organs in effective functionality of independent living for self survival and community living, through acquired experiences from informal and formal school system…

Odedeyi (2013)added his thoughts to the discourse when he commented on the purpose of education and opined that:

> For education to be gainful, it must provide holistic development in the educated. A properly educated individual is one who has leaned to be more purposeful having been empowered with the needed shill to maximize inherent attributes and channel his/ her resources towards making success in all ramification

As Odedeyi posited, education, in and of its own, is useless unless it can be used for the transformation of the educated person and he / she in turn used whatever has been leant for the improvement of his/ her society. Education therefore is not an end in itself but a means to an end.

It is clear that there will be as many definitions as we have scholars and commentators on the subject and concept of education with different people making

[3]The Lexicon Webster Dictionary, Encyclopedic Edition, Vol.1, 1971, the definitions picked from the English Language Institute of America Inc. at p 323.
[4]Ibid
[5]Bryan A. Garner (Ed) ,Black's Law Dictionary, Eight Ed, Thomson West Pub . (1999)

their propositions from their peculiar experience in life and findings made by them. However, one thread that runs through the definitions quoted above is that education involves imparting knowledge by one person on another. It may be in a formal or an informal setting. The purpose of quality education is to make the learners well informed and better persons.

This paper submits that provided a well informed and better person has the necessary facilities in all ramifications, such a person ought to be able to transform his[6] society to a better one. A better society is one where the average standard and quality of living is above average. It is a movement away from the Hobbesian state of nature. The core technical meaning of education as a concept is left for the scholars in that filed. For the purpose of this work, education means enlightenment, training, acquisition ofskills, values and knowledge necessary to make meaningful impact in life in a positive manner.

It is pertinent to mention that in some countries, education is a right protected under the constitution of those countries. In India for instance, [7]Jain[8] in his treatise admirably put the Indian position in perspective as follows:

> (in respect of) the directive principle under Article 45 of the Indian Constitution, the courts has since elevated right to education to become a fundamental right from Article 21 of the Constitution. The word life has been held to include 'education' because education promotes good and dignified life.

It must be stated that in Nigeria education is also under the Directive Principles of State Policy[9], but the Nigerian courts have not pronounced on education as a fundamental right. The Nigerian courts have not extended the right to life to include the right to education.

In the Republic of South Africa, an African country like Nigeria, the South African Constitution[10] specifically provided in Section 29 that 'everyone has the right to education'. This paper submits that if education is elevated to the status of a fundamental right, then the gap identified by this paper that energy illiteracy is one of the banes of the society becomes easier to fill.

EnergyEducation

Energy is defined by The Lexicon Webster Dictionary[11] as "the inherent power, the power of operations, whether exerted or not, power vigorously exerted; strength of expression; the actual or potential ability to do work". Energy is thus indispensable to providing basic needs, eradicating poverty and meeting sustainable development goals… '[12]Energy is purely scientific while education traverses both science and humanities. There are scholars who are experts in the area of science education and who have written on that area of study[13]. Energy and education are not strange bed fellows. They have areas of convergences and overlaps. As a science, the type of energy which this paper focuses on mainly is the energy that generates electricity for both domestic and non-domestic uses.

Energy plays a pivotal role in societal development. It cuts across every facet of human activities health, economics, agriculture, transportation, education, sports, industry, government, and environment and so on. The importance of energy in the generation and distribution of electricity was paramount in the

[7]India was chosen as one of the countries for comparative discussion on this point because, it has some similarities with Nigeria. One the two counties are federations, two they were both in the Commonwealth having been colonized by the British government before and three, they both have heterogeneous communities making up their counties.

[8]Jain, M.P., Indian Constitutional Law, (sixth Ed.,) Lexis Nexis (2013) Haryana India, p. 1298

[9]Section 18 of Constitution of Federal Republic of Nigeria , 1999, (as amended) on educational objective of the government of Nigeria.
Edward Elgar pub., Cheltenham , UK., p.56Section 18 of Constitution of Federal Republic of Nigeria , 1999, (as amended) on educational objective of the government of Nigeria.

[10]The Constitution of Republic of South Africa, 1996.

[11]Ibid.

[12]Manuel Peter Samonte Solis , (2016) 'Human rights versus human needs: debating the language for universal access to modern energy services' in Jordi JariaiManzano , Nathalie Chalifour and Louis J. Kotze, Energy , Governance and Sustainability , International Academy of Environmental Law Series, Edward Elgar pub., Cheltenham , UK., p.56

mind of the Indian Supreme Court when the court in the case of *G. Sundarrajan v. Union of India*[14], a case related to nuclear energy power, national nuclear policy and development of nuclear energy held inter alia that:

> electricity is the heart and soul of modern life. Most of the states are in the grip of power cut; day and night, for a number of hours, which has adverse effect on their economic and industrial growth. To sustain rapid economic growth, it is necessary to double the supply of electricity.[15]… electricity is meant not only for the rich and famous alone, but also for the poor and down trodden[16]… they should also have adequate means of livelihood, job opportunities for which we have to set up industries and commercial undertakings in the public as well as private sector and also have to invite foreign investment. Generation of electricity is of extreme importance for their establishment and functioning and also for domestic consumption….[17]

Still on the crucial role of energy, Kim Talus opines that [18]

> …there are hundreds of different industries, only a few of which have spawned professional and academic sub – disciplines. The energy industries have been among the most dominant industries of the twentieth century – the life blood of the modern economies, fueling both industrial and private consumption. The energy industry lies behind every societal function…

Kim aptly captured the essence of the point being made in relation to the vital role of energy to human existence.

This paper operationalizes energy education for the purposes of this study to imply the enlightenment, the acquisition and application of proper information as far as the generation, distribution , transmission, conservation and prudent management of energy is concerned. Absence of energy education would lead to a state of energy illiteracy. Such a state portends grave consequences for sustainable development in all its ramifications.

Clean and Renewable Energy

According to the International Energy Agency (IEA), renewable energy is one of the key pillars of a low carbon economy, along with other elements such as energy efficiency, nuclear power and carbon capture storage'[19]. It is also … 'the energy that is derived from natural processes (for example, sunlight and wind) that are replenished at a higher rate than they are consumed . Solar, wind, geothermal, hydro, and biomass are common sources of renewable energy'[20]

Clean and renewable energy is the desire of humanity at the present moment. It is labeled clean because it is energy that is environmentally friendly and it is branded renewable because it is not exhaustible unlike its predecessors. Clean and renewable energy is also called modern energy. The importance of clean and renewable energy is underscored by the United Nations General Assembly (UNGA) resolution[21] aimed at enthroning clean and renewable energy in place of the old forms of energy such as fossil fuels, coals, and others. The said resolutions include:

(i) UNGA Resolution 65/151 adopted on 20 December 2010 on the international year of sustainable energy for all[22]; (ii) UNGA Resolution 67/215 adopted on 21 December 2012 which declared the year 2014 to 2024 as the United Nations decade of sustainable energy for all[23]; the (iii) UNGA Resolution 69/225 adopted on 19

[13]See for instance Prof. J.B. Bilesanmi – Awoderu, 'Science Education in Nigeria : Drowning But Waving', 61st Inaugural Lecture, (2012) Olabisi Onabanjo University, Ago – Iwoye, Ogun State, delivered on Tuesday the 11th day of December, 2012, especially pages 9 - 10 of the lecture.
[14](2013) 6 SCC 620 at 678
[15]At page 631,
[16]At page 718,
[17]Ibid.
[18]Kim Talus 'Internationalization of energy law'(2014) Research Handbook on International Energy Law, (ed) Kim Talus, Research Handbooks in International Law, Edward Elgar Publishing, Cheltenham , UK , p.3

December 2014 on the promotion of new and renewable sources of energy[24], and the (iv) UNGA Resolution 70/1 of 25 September 2015 on transforming our world : the 2030 agenda for sustainable development[25].

Part of the preamble to Resolution 69/225 is that the UNGA is ' deeply concerned that 2.6 billion people in developing countries rely on traditional biomass for cooking and heating, that 1.2 billion people are without electricity and that, even when energy services are available, millions of poor people are unable to pay for them' [26]Inability to pay for clean renewable energy means that there is denial of access to that category of energy.

The International Energy Agency (IEA)'s definition of access to energy was quoted by Manuel Peter Samonte Solis[27]as "a household having reliable and affordable access to clean cooking facilities , a first connection to electricity and then an increasing level of electricity consumption over time to reach the regional average'

While we noted that the fulcrum of this work is energy education, the importance of access to clean renewable energy by all can not be overlooked and it is apposite to mention it here now.
The contributions of Manuel Peter Samonte Solis [28]; Rosemary Lyster and Manuel Peter Solis[29], and Cristiane Derani[30] to this point is great and instructive. According to Manuel Peter Samonte Solis[31]:

> …access to modern energy services affects a variety of critical outcomes involving 'productivity, health, education, safe water and communication services, among others. .. by providing access to modern energy services like electricity, the poor are given the opportunity to move up the energy ladder, as it were, from traditional biomass fuels to modern energy and reap its positive environmental and health effects[32]… access to modern energy services addresses critical safety and health related concerns due to inefficient production and utilization of energy sources such as indoor air pollution, poisoning and fire hazards from the use of traditional biomass stoves, low – quality kerosene lanterns, and paraffin candles for lightning[33]… Access to modern energy services is inextricably linked to achieving international developmental goals in a definable and concrete sense[34]

In their own contribution Rosemary Lyster and Manuel Peter[35] Solis are of the view that:

> access to modern energy services is indispensable to providing basic needs, eradicating poverty and meeting sustainable development goals. This is because access affects a variety of critical outcomes involving 'productivity, health, education, safe water and communication services' among others[36]….

Cristiane Derani, underscore the link between access to clean renewable energy and development when the point was made that:

…sustainable development is not possible without sustainable energy[37]… and that the pathway towards energy sustainability requires the development of systems that support the optimal use of energy resources in an equitable and socially inclusive manner while minimizing environmental impacts[38]…

[19]Elodie Le Gal, (2016) ' Using social science perspectives on risk to implement an environmental justice analysis is this the right way forward to mitigate the social risks of low -carbon energy technologies and help policy – makers achieve renewable energy targets worldwide' contributed in Jordi Jaria I Manzano, Nathalie Chalifour and Louis J. Kotze (Ed.) *Energy , Governance and Sustainability*. Edward Elgar Pub, The IUCN Academy of Environmental Law Series. at 79.
[20]Elodie Le Gal, ibid, note 5 at page 79.
[21]The United Nations General Assembly Resolutions are hereinafter referred to simply as UNGA.
[22]www.http//unitednations A/RES/65/151 as accessed on 12 June 2019
[23]www.unitednationsA/RES/67/215 as accessed on 12 June 2019

The learned writers Manuel Peter Samonte Solis ; Rosemary Lyster and Manuel Peter Solis , and Cristiane Derani are all *ad idem* on the importance of clean and renewable energy to the society. Their submissions are in tandem with what the UNGA proposes for humanity. This paper submits that clean and renewable energy is a sine qua non to an improvement on the standard and cost of living and to a better society that is environmentally friendly. With such an importance attached to clean and renewable energy, no stone must be left unturned in ensuring that energy education becomes a reality.

II. **The Need For Energy Education**

At this critical period of humanity, with just ten years to the date set by the UNGA for the realization of the sustainable goals, the necessity for having energy education becomes more compelling now than before. Some of the reasons that makes it more compelling include the ones now discussed hereunder:

i. Energy education will have a robust impact on energy jurisprudence. This area of the law will continue to develop so as to accommodate new and emerging frontiers of energy law. The importance of this to the courts, to the investors and the practitioners will be enormous.

ii. Energy education will lead to a reversal of energy poverty. Research by stakeholders in the energy sector indicates that energy poverty is staring us at the face. According to Susan L. Sakmar:[39]

> energy poverty is an emerging issue making its way through policy circles that recognizes that, despite the projected increase in energy use around the world, many households in the developing world still lack access to modern energy services. The numbers are quite striking many: the IEA estimates that 1.4 billion people – over 20 percent of the global population – still lack access to electricity and some 2.7 billion people still rely on traditional uses of biomass for cooking…

Energy education will assist in reversing this ugly trend. We can transform from energy poverty to energy prosperity with ease.

iii. Protection of human rights and enhancement of same. The rights of stakeholders in the energy sector will be better protected with energy education. The investors, the consumers, the government and others will heave a sigh of relief once the rules of engagement are complied with. Once there is energy for people to consume and prepaid meters installed for all consumers the bills will be paid, the investors will make their profits and the government will earn its tax. The destruction of equipment due to frustration will become history. Those by -passing electricity meters will no longer have any reason to do so. Education will liberate the minds of all.

iv. A person that is educated knows when to insist that violation of his rights should be compensated by the wrongdoer. In the area of energy, the energy suppliers, producers, distributors or anyone along the chain from production to the ultimate consumer has a duty of care to the ultimate consumer of the final product and thus they could be held liable. This was underscored in the case of *G. Sundarrajan v. Union of India* [40] when the court held *interalia* that 'the person carrying on activity which is hazardous or inherently dangerous is liable to make good the losses caused to any other person by his activity. The absolute or strict liability principle extends not only to compensate the victims of pollution, but also the cost of

[24]www.unitednationsA/RES/69/225 as accessed on 12 June 2019.
[25]www.unitednationsA/RES/70/1 as accessed on 12 June 2019
[26]Ibid.
[27]Manuel Peter Samonte Solis, ibid, at page 56 , note no.2. He quoted the IEA International Energy Agency , Energy for All : Financing Access for the Poor' in Special Early Excerpt of the World Energy Outlook 2011 (2011)
[28]Manuel Peter Samonte Solis, ibid.
[29]Rosemary Lyster and Manuel Peter Solis, (2016) 'Adaptation and the energy sector' in Daniel A Faber and MarjanPeeters, Climate Change Law, Elgar

restoring environmental degradation'

v. Compliance with the global movement from wholesale dependence on fossil fuel energy to renewable energy, Energy transition from a carbonated energy system to a decarbonised one will be achieved.

vi. The sustainable development goalnumber 7 of the UNGA on energy for all will be achieved with ease. Education will stimulate quality research in attaining the goal.

vii. Education will make hitherto unscrupulous consumers and criminal elements who are fond of stealing electric energy through illegal connections to desist from such acts. Education broaden their minds to realize the criminal implications and the inherent dangers of illegal tampering with electric cables and pilfering energy.

viii. Consumers and people will appreciate the importance of stopping the avoidable waste of electricity. Education is capable or resulting in curbing wastages people will know that they are to use energy only for sustainable purposes. Electricity should be switched off when it is not needed. A common example is street lights that are switched on in the afternoon when it is not needed whereas at night when it is most required, it is not available because it had been squandered in the afternoon.

ix. Leakages that are injurious to the environment can be addressed and corrected on time.

x. Encourages and accentuate the importance of embracing smart buildings where less energy is required to function optimally – lighting, ventilation,cooling, heating, storage and waste management where energy is generated from wastes.

xi. Energy education will make researchers to intensify research into more renewable sources of clean energy while jettisoning the hitherto fossil energy that is not friendly to the society. Stimulation of research is another advantage of energy education. Research and educational Centers are further challenged to do more in the performance of their mandates in the aspect of energy education, areas where there are gaps in the curricula will be identified and sustainable solutions proffered for the society. Fabrications of equipment and necessary gadgets consistent with renewable energy becomes imperative.

xii. Education equips people for future challenges. In the case of *G. Sundarrajan v. Union of India*[41], the Indian Supreme Court held *inter alia* that 'education and knowledge management is essential to equip people with culture of preparedness for adulthood, once people are well sensitized, it will help in removing prejudices' This is fundamental to sustainable development.

xiii. The people have the power under the Freedom of Information Act to ask questions from the leaders. An informed mind will ask questions. Answers to the questions will assist in making informed decisions. This enhances transparency, accountability and promotion of peaceful co-existence. The people have the power under the Freedom of Information Act to ask questions from the leaders.

xiv. The environment stands to gain tremendously from energy education. The enlightened mind of a reasonable person will inform him that energy must be used in a sustainable manner to preserve the

Encyclopedia of Environmental Law, Vol 1 , p.595

[30]Cristiane Derani, (2016), 'Agriculture, energy and development : an uneasy relationship, in Jordi Jariai Manzano , Nathalie Chalifour and Louis J. Kotze, Energy , Governance and Sustainability , International Academy of Environmental Law Series, Edward Elgar pub., Cheltenham , UK.,

[31]Manuel Peter Samonte Solis, ibid at page 56

[32]Here at page 57 of his work, he quoted the World Bank, World Bank, The Welfare Impact of Rural Electrification : A Reassessment of the Costs and Benefits (2008) p.31

[33]At page 57 of his work , he quoted Sovacool and Ira Matina Drupady, Energy Access, Poverty, and Development, (2012) 48-49, Douglas Barnes and Willem Floor, 'Rural Energy in Developing Counties : A Challenge for Economic Development' (1996) 21 Annual Review of Energy and the Environment 499

[34]Here at page 58 of his work, he quoted Yinka Omorogbe, Policy, ' Law and the Actualization of the Right to Access to Energy Services' , in Kim Talus (ed), Research Handbook on International Energy Law (Edward Elgar publishing Ltd, 2014) p.361

environment and not to abuse it.

xv. Time is now to start preparing for the period when the non- renewable sources of energy will go into extinction or will not be attractive any longer in the international energy market to generate income for the country. Loss of income for a country without adequate preparation for coping strategies often results into financial strains on the people. Such strains could lead to economic depression which in turn have a lot of social upheavals in its trails. Proper education could avert avoidable crisis in the future when free money to squander is no longer available. Energy education will let us know that smart renewable energy options should be embraced now.

The observation of the Round Table on Achieving Sustainable Energy for All in Nigeria[42] that:

> Fossil sources of energy will eventually run out: Uranium in 35 years, Crude oil in 40 years, natural gas in 65 years and coal in 180 years. Renewable energy sources are tied to nature and will never run out. The prices of non-renewable energy sources will continually rise while the prices of renewable energy sources will drop as technology improves

The above observation is very apposite, and is a clarion call to do the needful now.

xvi. The increased global demand for energy on the one hand and the fast depletion of non renewable energy on the other hand compels energy education to become a must .

xvii. Compliance with due process in all aspects is a by product of education. Applying due process in the energy sector is long overdue. All stages of the sector require that due process must be enthroned. Due process mention here includes compliance with all aspects of laws, regulations, policies and directives. In the foregoing segment of this paper, we have tried to mention a few of the associated benefits of having energy education. Energy is too important to be ignored. This paper submits that the benefits of energy education mentioned above will propel all stakeholders to do the needful and let clean , renewable energy become the order of the day. To sustain the clean and renewable energy in Nigeria, the role of the law cannot be underestimated. The next segment of this paper is to have a brief discussion of the extant laws in support of clean and renewable energy in Nigeria.

III. **Nigerian Jurisprudence in Support of Clean and Renewable Energy**

The laws in operation in Nigeria as at today are adequate to kick start the process of enthronement of renewable energy and a movement away from the non- renewable generation, distribution, transmission, conservation and management of energy. The laws discussed here includes judge made laws or judgments of courts and statutes. In the case of *Jos Electricity Distribution Company v. John*[43] A customer of the Jos Electricity Distribution Company (the Appellant in the case) sued the company alleging that the company wrongfully disconnected electricity to his apartment. The company contended that it is not a government agency, that it is a mere private enterprise. Because of the novel judgment in Nigerian jurisprudence, copious parts of the decision will be quoted in this paper to drive the points home. The Court of Appeal held inter alia that:

> the Appellant cannot therefore rightly contend that it is a mere private enterprise which does not exercise duty of public nature let alone owe any one public duty. ……. meaning the Appellant owes public duty to its consumers. ….. the Appellant herein is under statutory duty to connect customers for the purpose of receiving the supply of electricity subject to terms and conditions as the

[35]ibid, [36]Rosemary Lyster and Manuel Peter Solis Ibid at page 595
[37]Ibid at page 297, [38]Ibid at page 298
[39]Susan L. Sakmar , Energy For the 21st Century , Opportunities and Challenges for Liquefied Natural Gas (LNG), (2013) New Horizons in Environmental and Energy Law, Edward Elgar Publishing, Cheltenham. UK, at page 20.
[40] supra, [41](2013) 6 SCC 620 at 678
[42]Roundtables on Achieving Sustainable Energy for All in Nigeria' ,Prof. Epiphany Azinge (Ed) *A Book of Communiques,* 2013 Roundtables of Nigerian Institute of Advanced Legal Studies , at page 315
[43](2018) LPELR-46395(CA)

commission may fix in its license. Also by the same Act, the Nigerian Electricity Regulation Commission is empowered to develop, in consultation with the licensees, consumer protection standards. Such standards includes: procedures for disconnecting non-paying customers or for those in breach of other terms and conditions. ……..required statutory notices before disconnecting his light in line with the Commission's procedure for connection and disconnection of electricity services as in the gazette. Paragraph 6 (c) (i) (ii) of the Federal Republic of Nigeria Official Gazette No. 103 Lagos - 2th December, 2007 Vol. 94 vide Government No. 72 Page B485 - 492 titled Nigerian Electricity Regulatory Commission's Connection and Disconnection Procedures for Electricity Services 2007 S.I.NO. 41 OF 2007 published under the Electric Power Sector Reform Act No. 6 of 2005, provided thus:

(c) where, due to an act or omission of a customer, a meter located in his premises is inaccessible to be read for a period of three consecutive bills: Provided that the Distribution Company.

(I) Informs the Customer by written notice or telephone contact of the inaccessibility of the meter and requests him to provide access arrangement and he fails to do so.

(ii) Gives the Customer a written warning that unless he provides access by a given date (which shall not be less than 10 working days to enable the Customer provide reasonable access arrangement) electricity supply to the Customer shall be disconnected.
See also: Paragraph 9 (a-d) of the Connection and Disconnection Regulations Procedures (supra).

By the rule pursuant to EPSRA as stated above, it is a statutory duty placed on the Appellant to issue the Respondent with the relevant notices and in the prescribed manner before proceeding to disconnect his light. …I hold that the Appellant empowered by EPSRA to distribute electricity to the public including the Respondent has a duty of public nature and as such is under statutory obligation to abide its performance standards and codes; and maintain Consumer standards part of which is the service of necessary notices as mandated by the Connection and Disconnection Regulations Procedures developed by the Nigerian Electricity Regulatory Commission pursuant to EPSRA. ……. Speaking of contractual relationship, it is the Appellant with the Federal Government of Nigeria through Nigerian Electricity Regulation Commission by virtue of EPSRA that are in contract relationship. Upon a passionate view of the Respondent's claim at the trial Court, I do not agree with the Appellants' counsel that the Respondent's claim rests on contractual obligation. Where a body established and regulated by statute is empowered to provide public utilities for the citizens; the ensuing relationship is not contractual. What exists as in this case is an 'Utility Service Provider' and 'Consumer' relationship. In other words, it is a Provider Consumer relationship. The Nigerian Electricity Regulatory Commission (NERC) has been empowered by the Electric Power Sector Reform (EPSR) Act, 2005 to ensure an efficiently managed electricity supply industry that meets the yearnings of Nigerians for stable, adequate and safe electricity supply. In a nutshell, the Act mandates the Commission to provide quality services to customers evidenced by providing electricity consumers' rights. The Act placed a ministerial duty on the Appellant in that the requirement of issuance of notices before disconnection made by the Commission pursuant to the Act placed a non-discretionary duty on the Appellant in its performance. So a consumer can successfully maintain an action against any electricity distribution company where his right has been violated. Like any other consumer, an electricity consumer enjoys consumer protection.[44] In the present case, the Appellant, Jos Electricity Distribution PLC which has been statutorily empowered to provide electricity within the Appellant's environs owes a public duty to its consumers. The Respondent's relationship with the Appellant is such that must be accorded mutual respect being one that originated and is regulated by

[44]Bold mine for emphasis.

statute. From whichever way it is viewed, I will still come to the conclusion that the Appellant's Respondent's relationship is not contractual but one which the law enjoins a duty to be performed by the Appellant and which the Appellant neglected to carry out. Accordingly, the Respondent has a right to seek for an order of mandamus to compel the Applicant to carry out its duty to wit: to reconnect the electricity supply of the Respondent in his residence.

The importance of the decision in this case is that a customer can successfully maintain an action against the electricity distributors; that it is wrong on the part of any electricity distributing company to disconnect a customer except in accordance with the due process laid down in the statute and that consumers of electricity companies enjoy consumer protection under the law. The next judgement of the court is equally important in the protection of customers of electricity companied against arbitrary exercise of power on the part of the company.

In the case of *Mike Kpemi v Benin Electricity Distribution Company Plc*.[45], the Honourable court held that there is a duty on the electricity company to install meters in the houses of consumers of its product and frowned at estimated billing methods employed by the company. The court held further as follow:

> By section 67 of the Electric Power Reform Act (the Act), the defendant, by receiving a license from the Nigerian Electricity Regulatory Commission, had a duty to install meters in the houses of consumers of the product. The Meter Asset Provider Regulations 2018 (Regulation NERC-R-112) came into force on 08/03/2018. The Nigerian Electricity Regulation Commission promulgated it, by the force of sections 80 and 97 of the Act. It is applicable to all distribution licensees and customers and all types of end-user customer meters in Nigerian Electricity Service Industry. The claimant would qualify to be a customer under the regulation because he is an end user of electricity from the defendant, a distribution licensee. By the 4th paragraph in the regulation, defendant has a metering obligation and is responsible for meeting its metering targets as specified by the Nigerian Electricity Regulatory Commission from time to time. that the defendant has a duty to provide meters, subject to availability. It is the view and holding of this court that the duty of the defendant to provide meters is not subject to such a condition because the defendant did not prove that fact, at the trial.
>
> It is also the view of this court that the application of estimated billing is not at large, but subject to specific computation formula, based on verifiable data, as provided in paragraphs 7 and 8 of the Nigerian Electricity Regulatory Commission (Methodology for Estimated Billing) Regulation, 2012. It was the duty of the defendant, who solely keeps records of all details constituting input into formula for computation, to prove that the bills issued to the claimant conformed to the prescription and the formula for computation provided in the regulation in issue. The defendant did not give evidence of such facts at the trial or plead the facts. Thus, it was completely out of place, for the defence counsel, to provide a chart in the defendant's final written address seeking to provide evidence, which the defence witness should have provided.
> A declaration is hereby made that the electricity consumption billings of the claimant's residence at Bethel Estate, Oba-Ile, Akure by the defendant without first installing a meter despite repeated application for same by the

[45]suit No: AK /94/2019, judgment delivered on 23rd April, 2020 by Hon. Justice Adegbehinde, in Akure, Ondo State of Nigeria

claimant, therefore, causing noticeable periodic unexplainable differences in the bills is arbitrary, unjustifiable, wrongful and illegal.

ii. The defendant is hereby ordered to immediately install a metering device at the claimant's residence, at Bethel Estate, Oba-Ile, Akure, subject to the claimant subsequently paying rates approved by the Nigerian Electricity Regulatory Commission for the type of meter installed, where applicable.

iii. The defendant is hereby restrained from billing the claimant's residence and from disconnecting the claimant's house from the defendant's network unless and until a meter is first installed at the house.

After mentioning two decisions of the courts in relation to electricity in Nigeria, the relevant statutes regulating electricity energy in Nigeria will now be mentioned in this work.

The Constitution of the Federal Republic of Nigeria(CFRN) 1999[46] is the basic law from where every other laws in existence derives their validity. Considering that Nigeria is a federation, energy featured on the legislative list at both the federal and state levels**.** Item number 13 on the concurrent legislative list made pursuant to section 4 of the CFRN relates to electric power. It specifically provided for the power of the National Assembly to make laws for the federation or any part thereof with respect to (a) electricity and the establishment of electric power stations, (b) the generation and transmission of electricity in or to any part of the federation and from one state to another state.

Item number 14on the same concurrent legislative list provides in similar tone that the House of Assembly of a State may make laws for the State with respect to (a) electricity and the establishment in that State of electric power station, and (b) the generation, transmission and distribution of electricity to areas not covered by a national grid system within that state.

The implication of the constitutional provisions is that both the federal government and the component State governments in Nigeria have enough constitutional powers to embark on projects that will result in the generation, distribution and transmission of electricity as a form of energy for the entire country.

The Miscellaneous Offences Act[47], is an Act of the Federal government of Nigeria. In the area of electricity it prohibits unlawful tampering with electricity items. Some of the salient provisions of the Act are:

S.1(3) is on willful destruction of public property that includes electricity power line : unlawfully or with intent to destroy or damage , removes, defaces, or damages.. is guilty on conviction to imprisonment for a term not exceeding twenty – one years without the option of a fine.

S.1(9) tampering with electric plant, works, etc. any person who unlawfully disconnects, removes, damages, tampers, meddles with or in any way whatsoever interferes with any plant, works, cables, wire or assembly of wires designed or used for transforming or connecting electricity shall be guilty of an offence and liable on conviction to be sentenced to imprisonment for life

S.1(10) tampering with electric fittings, etc, any person who unlawfully disconnects, removes, damages, tampers, meddles with or in any way whatsoever interferes with any electric fittings, meters or other appliances used for generating transforming, converting, conveying, supplying or selling electricity shall be guilty of an offence and liable on conviction to imprisonment for a term not exceeding twenty – one years

This law is important in that it protects the equipment of investors in the energy industry. Provided that the right enforcement mechanisms

[46]Hereinafter simply referred to as CFRN 1999 as amended.

[47]Cap M 17 LFN , 2004 as updated on 31st December, 2010

are in place this Act is would make investors to enjoy an enabling environment for their business. The Act in a way also protects the environment in that in the absence of epileptic power supply, consumers will not see the need to engage in unsustainable means of generating energy.

The Energy Commission of Nigeria[48], is a creation of statute. The Commission is charged with the responsibility for coordinating and general surveillance over the systematic development of the various energy resources in Nigeria.

The Commission has a Department known as Energy Planning and Analysis (including Energy Efficiency Demand Management and Conservation, Rural Energy, Alternative and New and Renewable Energy Sources)[49]

Among other things to enhance the importance of this Commission[50], the Minister for Science and Technology is a member of the Commission. Science and technology have a lot to do with education.

There is a Technical Advisory Committee of the Commission consisting of professional representing the government Ministries, government Agencies, or Professional organizations such as Science and Technology[51]; Education[52] Solar Energy Society of Nigeria[53], and Centers for Energy Research and Development at the Ahmadu Bello University, Zaria ; Obafemi Awolowo University, Ile – Ife ; Usmanu Dan Fodio University, Sokoto; University of Nigeria, Nzukka, and any other new Centre that may be established from time to time.

The Commission can make recommendations for the exploitation of new sources of energy as and when necessary.[54]

This paper submits that under a good government coupled with enabling environment, this Commission has all it takes to take Nigeria out of the woods of non- renewable energy sources, to bail Nigeria out of the scandalous inability to consistently generate a meager 6,000 megawatts of electricity in a spate of 356 days without any break.

The power to launch out into renewable energy is already there for a proactive Commission to tap into and move the nation forward. The research Centers for Energy are not operational due to a myriad of factors.

The above are some of the enabling laws that make it possible for Nigeria to make a leap forward in the quest for clean and renewable energy. The problem is not the dearth of laws, rather the problems are manmade. Education can open our eyes to the beauty inherent in clean and renewable energy, but energy education is not where it ought to be today in Nigeria, this is also due to man made challenges. These challenges are the focus of discussion in the next part of this paper.

IV. **Problems Militating Against Energy Education in Nigeria**

Education in the area of renewable energy is still at a relatively new stage in some parts of the world.[55]Energy education is desirable but the factors militating against sound energy education in Nigeria are legion. Some of the factors are discussed in this section of this paper.

a. Lack of training facilities and equipment is a major challenge. This has to be addressed so that qualitative energy education can be given to all and sundry especially stakeholders in the sector. The academic unions in many academic institutions are constantly drawing the attention of relevant government agencies to the paucity of facilities and equipment necessary for energy education.
b. Insufficient personnel is another major challenge to energy education. There is dearth of qualified manpower required to handle the trainings and machines. This problem is begging to be answered. The problem of brain drain is so pervasive in the country. The best hands are leaving the country in droves. This is also having its negative toll on experts that can teach energy education.
c. Bad government policies – the policies of

[48]Cap E 10 LFN 2004 as updated on 31st December, 2010
[49] S.1(1) (2) (b), [50]S. 2 (a) (iii), [51]S. 3 (2) (c) , [52]S. 3 (2) (I), [53]S. 3 (2) (l), [54]S.5 (d) (I),
[55]Abdurrahman Karabulut , EnginGedik , Ali Keçebas, Mehmet Ali Alkan , 'An investigation on renewable energy education at the university level in Turkey' , Renewable Energy 36 (2011) 1293 – 1297

the government ought to be attractive to and not repulsive to energy education. What we have in place are policies that are repulsive to qualitative learning. If from 1960 when Nigeria became an independent country she is still in this prostate state of energy generation , distribution , transmission and conservation , then the government policies in this area should be completely overhauled without any delay.

a. Corruption–Endemic systemic corruption has affected every segment of the Nigerian society. Corruption is a global challenge. Energy education has its own share of being negatively impacted by corruption.
b. Excessive profiteering – Energy companies making excessive profits at the expense of plowing funds back into acquisition of modern equipment, training and education and other facilities. This is made possible because of what the energy companies called estimated billing method which allows the companies to bill customers while using no
c. Vandalisation and sabotage of equipment. When this happens the vandals involved in the sabotage makes quick fact money and engaging in educational programme no longer has any meaning to them. Secondly, the necessary equipment that may be used for learning are lost to vandalization.

V. **The Way Forward**

In achieving energy education as proposed in this paper, certain things must be put in place. Those things include the ones discussed below:

a. Better government policies: there must be a deliberate improved policy on the part of the government to encourage energy education in Nigeria. As the driver of all policies that benefits the populace, the government has a duty to properly fund education, initiate improved policies and take steps to sustain such policies.
b. In addition to better government policies, good governance is a must. Good governance includes the government and the governed doing what they are supposed to do at the right time in accordance with due process. With good governance, the relevant government agencies will do the needful without waiting for prompting from any other person. The enforcement machineries of the relevant enactments will be activated thus giving the extant laws the bite and respect they deserve. It is submitted that good governance is a sure antidote to systemic corruption and gross inefficiency in the society.
c. Improved educational curriculum:- considering that renewable energy is to take over from the present non renewable forms of energy, the operators of the renewable energy needs to be properly schooled in the legal, technical, managerial , environmental and other aspects of the renewable energy components that are germane to sustainable development. The way to do this is to amend the educational curricular of the training institutions to accommodate such novel development that the operators will meet in the day to day activities.

In the area of renewable energy, Abdurrahman Karabulut , EnginGedik , Ali Keçebas, Mehmet Ali Alkan (2011) proposed some energy related topics to be taught in the improved curriculum as including Energy crisis and sustainability ; Solar energy technologies; Geothermal energy technologies ; Other energy technologies ; The use of fossil fuels; Bio-mass technologies ; Wind energy technologies ; Hydrogen energy technologies; Energy economies , and Energy management Which we now add energy efficiency, energy security, etc. [56]

It is also submitted that the improved educational curriculum should be extended to specialist in the areas of environmental engineering to accommodate trainings in the design, construction and management of modern buildings and the environment in such a way that less energy is consumed while optimal illumination, ventilation and

[56]Abdurrahman Karabulut , EnginGedik , Ali Keçebas, Mehmet Ali Alkan, ibid

waste management are achieved with ease.

d. Mass education through the mass media outlets to inculcate the right attitudinal changes in the people must also be done in a more efficient manner. The components of such mass education must include: sustainable usage of available natural resources by all ; protection and preservation of all public utility equipment coupled with the consequences for wrongful tampering with such equipment ; the rights and duties of energy consumers and the rights and duties of energy companies. Such duties of consumers include duty to pay for energy consumed, to conserve energy and minimize energy waste while consumers rights include the right to be issued pre-paid meters promptly, to be supplied with safe energy that will not damage consumers gadgets and properties, and right to receive relevant energy related information.
e. The provision of adequate modern training facilities and equipment is also proposed as one of the pathways for achieving the sustainable development goal number 7 by Nigeria. Funds must be made available for research into the existing and future renewable energy sources. Good governance and monitoring will ensure that the funds are channeled to the right sources and that funds do not end up in the wrong hands and for wrong projects.

VI. **Conclusion**

This paper has tried to discuss the trio of law, education and sustainable energy focusing on the thread that runs through the three of them. Considering that the time frame set by the UNGA for the realization of the sustainable development goal is just 10 years away, Nigeria cannot afford to be left behind by the rest of the world. Energy is crucial to sustainable development in all its ramification. The country is blessed with many sources of renewable energy sources. The challenges to optimal exploitation of the renewable energy sources are surmountable. Energy education, good governance and respect for the extant laws, plays a prominent role in surmounting those challenges. Renewable energy is sustainable and clean. It is the way to go and we must all embrace it.