International Journal of Law and Societal Studies
ISSN: 3079-2614
DOI: 10.61424/ijlss
Journal Homepage: www.bluemarkpublishers.com/index.php/IJLSS

IJLSS
BLUEMARK PUBLISHERS

| RESEARCH ARTICLE

Decommissioning Renewable Energy Systems in Nigeria and the United States: Crafting a Legal Framework for Managing End-of-Life Solar Infrastructure

Omotola Osude
LL.B, B.L, LL.M, Centre for Commercial Law Studies, Queen Mary University of London, UK
Corresponding Author: Omotola Osude, **E-mail**: omotolaajamu@gmail.com

| ABSTRACT

Nigeria's rapid shift toward solar energy has filled critical power gaps, especially in off-grid communities. Yet, while policies encourage deployment, legal frameworks remain silent on what happens when solar systems reach the end of their life. This article addresses the legal vacuum surrounding decommissioning obligations in Nigeria's renewable energy sector, a growing concern as solar waste and battery toxicity pose rising environmental risks. Through a doctrinal and comparative lens, the paper examines statutory shortcomings in Nigerian law, including gaps in the Electricity Act 2023 and existing environmental legislation. It then contrasts this with selected U.S. state-level frameworks where solar developers must submit decommissioning plans, post bonds, or assume full financial responsibility for environmental cleanup, even in the absence of a unified federal law. Drawing on best practices from U.S. states like Maine, Louisiana, and Minnesota, the paper explores how legal certainty and proactive compliance mechanisms can prevent long-term environmental damage. Ultimately, the article proposes a binding decommissioning framework for Nigeria anchored on six core principles: the polluter-pays doctrine, extended producer responsibility, financial assurance mechanisms, site restoration, public participation, and environmental justice. These legal reforms are essential to avoid repeating the mistakes of Nigeria's oil sector and to secure a truly sustainable energy transition.

| KEYWORDS

Solar energy, Legal vacuum, Environmental legislation

| ARTICLE INFORMATION

ACCEPTED: 11 January 2025 **PUBLISHED:** 10 March 2025 **DOI:** 10.61424/ijlss.v2.i1.343

1. PART 1: Legal Context and Problem Definition

Nigeria's turn to renewable energy has been driven by chronic power shortages and the state's constitutional duty to protect the environment. Under the 1999 Constitution, the government "shall protect and improve the environment and safeguard the water, air and land" (Constitution of the Federal Republic of Nigeria, 1999). In practice, this duty has informed energy sector reforms that encourage private investment in generation from all sources, including solar. The Electric Power Sector Reform Act 2005 (now replaced by the Electricity Act 2023) and related policies have opened electricity generation to independent producers. Renewables are legally recognised, the Electricity Act 2023, for instance, defines renewable energy generation and tasks the Nigerian Electricity Regulatory Commission (NERC) with promoting off-grid, mini-grid, and standalone solar systems. However, despite this enabling environment, over a third of Nigeria's population remains off-grid, especially in rural areas (International Energy Agency, 2024). High costs of extending the grid and recent tariff hikes have made solar PV attractive: Nigeria's high irradiance (about 5.5 kWh/m^2/day) and new distributed-generation licensing rules have spurred a boom in rooftop and mini-grid solar installations (International Energy Agency, 2024). Solar panels paired

with batteries (usually lead-acid) and small wind turbines proliferate across villages and towns where the primary grid is unreliable (International Bar Association, 2023).

Despite this growth, Nigeria currently lacks any statutory requirements for the decommissioning or disposal of solar installations at the end of life. Leading practitioners note that "currently, there are no legal regulations and requirements for decommissioning renewable energy projects in Nigeria" (Foundation Chambers, 2020), neither the old Electric Power Sector Reform Act nor the new Electricity Act specifies obligations on project owners to dismantle or remediate solar sites (Amadi, 2020). More generally, Nigeria's environmental laws focus on impacts during operation: the Environmental Impact Assessment Act 1992 mandates that any development with significant environmental effects conduct an environmental audit and obtain approval before proceeding (Benchmac & Ince, 2019), and NESREA's enabling Act (2007) charges the Agency with enforcing waste management standards and hazardous substance disposal outside the oil-and-gas sector (National Environmental Standards and Regulations Enforcement Agency, 2007). However, no provision expressly governs renewable installations' "end-of-life" stage (Environmental Impact Assessment Act, 1992). In effect, there is a regulatory vacuum for decommissioning: after a solar farm or mini-grid system reaches the end of its useful life (typically 20–30 years for panels, shorter for batteries), neither federal law nor licensing conditions currently obligate the operator to remove equipment, recycle materials, or rehabilitate the site.

This gap is more than a policy oversight; it is a legal problem rooted in Nigeria's statutory framework. The absence of decommissioning rules means that the obligations implied by existing law to prevent pollution and protect human health cannot be fully discharged (Benchmac & Ince, 2019). For example, the Constitution's environmental objective (s 20) is to ensure the sustainable use of natural resources. If discarded solar panels or spent batteries are left as unmanaged waste, local communities suffer damage (broken panels, lead runoff, toxic chemicals). Similarly, while NESREA's mandate covers "storage, sale, use, handling and disposal of hazardous chemicals and waste" (National Environmental Standards and Regulations Enforcement Agency, 2007), solar waste is not explicitly defined as such. In practice, no one is held responsible for ensuring safe disposal. The EIA Act requires an environmental study before project approval but says nothing about post-project decommissioning plans. Thus, the law recognises environmental oversight at the start of a project but not at its end, an inconsistency that undermines the statutory goal of comprehensive environmental protection.

In brief, there is no clear legal framework prescribing how and by whom a solar facility must be dismantled, how wastes must be handled, or who pays for restoration. This legal lacuna persists despite Nigeria's broader commitments to renewable energy: its 2021 Energy Transition Plan aims for 6.3 GW of distributed renewables by 2030 (International Energy Agency, 2024). As more solar systems age toward obsolescence, the risk of unregulated waste and environmental harm grows. Unlike a mere policy choice, this issue engages enforceable law. Nigerian statutes can impose obligations (for example, NERC could have incorporated decommissioning conditions into generation licences, and NESREA could have issued regulations on solar e-waste), but they have not. Moreover, international and comparative practices underscore decommissioning, a recognised legal concern in renewables. For instance, the EU's Waste Electrical and Electronic Equipment (WEEE) rules assign producers responsibility for PV panel recycling, and many countries require decommissioning bonds for wind and solar projects. The legal problem in Nigeria is that without explicit statutory or regulatory direction, compliance relies on goodwill or general principles, leaving enforcement uncertain.

Recently, the Electricity Act 2023 has at least acknowledged the issue by empowering NERC to issue "renewable energy standards on installation, decommissioning and disposal of renewable energy accessories" (Electricity Act, 2023). However, these provisions are yet to be outlined in concrete regulations or licensing conditions. No specific timeline, funding mechanism, or technical decommissioning standard has been enacted. Thus, the core legal deficiency remains: unless decommissioning obligations are codified, end-of-life solar infrastructure may be abandoned without legal consequences; this is a legal problem not merely an abstract policy gap because it contravenes existing statutory objectives (environmental protection, waste management) and will eventually give rise to disputes over liability, land use and regulatory enforcement.

This essay adopts a doctrinal approach, closely analysing Nigerian statutes, regulations and case law to identify the precise contours of this problem under current law. It will then employ a comparative lens, examining how other jurisdictions have imposed decommissioning duties for solar and other energy installations (for example, through ministerial directives, licence conditions or deposit systems). Together, this legal research will demonstrate the need for explicit decommissioning norms and suggest how Nigerian law might borrow effective models from abroad to address the urgency of solar end-of-life management.

2. PART 2: Comparative Review of Decommissioning Frameworks

In the UK and EU, end-of-life rules for renewable installations (including solar) are embedded in consent conditions, environmental laws and waste regulation. Onshore solar developments typically receive planning permission under the Town and Country Planning regime, which often attaches conditions requiring equipment removal and site restoration once generation ceases. In practice, planning consents for solar farms usually stipulate that the site be decommissioned if it no longer generates electricity, with landowners and developers obliged to reinstate the land (for example, by removing panels and cabling to a specified depth and repairing drains). Such conditions create legal certainty by making clear from the outset that decommissioning (and removal of all equipment) is required, usually within a defined timeframe after the expiration of the permission (Cooper, 2023). At the same time, EU waste laws impose strict obligations on solar panel producers. Under the WEEE Directive (implemented in the UK by the WEEE Regulations 2013), photovoltaic modules are classified as Waste Electrical and Electronic Equipment, and the party that introduced the panels into the market remains responsible for financing their collection and recycling (Bush et al., 2025). In other words, panel manufacturers or importers must bear end-of-life disposal costs, giving environmental protection through the "polluter pays" principle.

The Energy Act 2004 (as amended) and related decommissioning regulations govern offshore renewables in the UK. Sections 105–114 of the Act explicitly empower the Secretary of State to require offshore wind and wave energy developers to submit a decommissioning programme before construction (Department for Business, Energy and Industrial Strategy, 2017). The responsible party must provide a costed removal plan and adequate financial security. UK policy guidance emphasises that developers must prepare for end-of-life costs early ("polluter pays"). By obliging operators to submit binding plans and bonds, the UK regime prevents the abandonment of costly structures at public expense. It ensures environmental safeguards (e.g. safe disposal of turbine materials) under the OSPAR/UNCLOS conventions.

Across the EU, there is no single decommissioning law for renewables, but the general framework similarly relies on permit conditions and environmental laws. The EIA Directive (2014/52/EU) requires Member States to include "projected life-cycle including decommissioning" in any assessment of impacts. In practice, national planning regimes often condition approvals on restoration. EU-wide, the Environmental Liability Directive (2004/35/EC) imposes strict liability on operators for damage, incentivising careful site closure. As in the UK, the WEEE Directive (2012/19/EU) and Waste Framework Directive ensure that producers must arrange the recycling of used PV panels. In short, European regimes embed legal certainty by placing the onus on developers and manufacturers to plan for and fund decommissioning and on regulators to enforce clean-up obligations.

By contrast, the United States has no unified federal decommissioning law for renewables. For offshore wind on the Outer Continental Shelf, the Outer Continental Shelf Lands Act and BOEM rules require lessees to submit decommissioning plans with financial assurances. Nevertheless, for onshore solar, rules vary by state (DSIRE Insight, 2023). Some states have begun to impose clear duties. For example, Maine law requires any utility-scale solar installation to submit a decommissioning plan demonstrating sufficient future funding capacity to fully restore the land, primarily if it lies on or near farmland. Louisiana requires an approved restoration plan and financial assurance (bond or escrow) as a condition of any state land lease for alternative energy. At the local level, Massachusetts model ordinances (and others) recommend completely removing defunct solar farms, with all solid wastes properly managed and soils stabilised. Many U.S. states now expect developers to post decommissioning bonds or trust funds, ensuring cost recovery even if the owner defaults (McCullough Robertson, 2024).

Developed jurisdictions embed environmental protection and certainty by spelling out decommissioning duties in law or regulation. UK and EU law typically explicitly states the operator's end-of-life obligations (through licence conditions, planning conditions, and EPR rules) and requires financial security. U.S. state laws (where they exist) likewise mandate plans, clean-up standards, and bonds for solar projects. These measures ensure that site restoration and waste management are factored in from the project outset, protecting ecosystems and taxpayers (McCullough Robertson, 2024).

2.1 Nigeria's Legal Framework

Nigeria's statutes on energy and environment currently lack explicit decommissioning provisions for renewable projects. The new Electricity Act 2023 superseded the EPSR Act 2005 and primarily addresses market structure, licensing and investment. It contains no clause imposing an end-of-life obligation on power generators or specifying restoration duties or bonds for renewable facilities (Electricity Act, 2023). Licensing requirements in the Act (and the NERC regulations made under it) focus on technical, safety and tariff issues; the Act is silent on removing plant or site reinstatement when a generation license expires. Similarly, no other federal power law imposes a continuing duty to decommission at the project's end.

Environmental laws are also lacking in this respect. The NESREA Act 2007 establishes the National Environmental Standards and Regulations Enforcement Agency with broad powers to enforce environmental laws. However, there is no specific requirement that energy projects include decommissioning plans or bonds. Its enforcement focus (on pollution offences and waste disposal rules does not extend to ensuring that defunct solar equipment is removed or sites rehabilitated (National Environmental Standards and Regulations Enforcement Agency, 2007). In theory, the Environmental Impact Assessment Act could capture some end-of-life issues: its definition of "environmental effect" explicitly includes physical activities such as "modifying, decommissioning, [or] abandonment" of a project (Environmental Impact Assessment Act, 1992). Thus, a proposed solar farm might discuss future removal impacts in EIA practice. However, the Act creates no standalone obligation to prepare and implement a decommissioning programme; it merely mandates an initial impact study (and post-EIA monitoring) for projects likely to affect the environment. In sum, while Nigerian law recognises decommissioning as a concept for assessment, it never elevates it into a statutory duty or permit condition.

Beyond these, only niche rules touch on decommissioning in the renewable context. For instance, the NERC Mini-Grid Regulations 2016 (updated 2023) contain a limited right for Distribution Companies (DisCos) to request the removal of isolated mini-grid assets if the DisCo's network expands into that area (Nigerian Electricity Regulatory Commission, 2023). Under the 2016 rules, a DisCo could require an off-grid operator to decommission and clear its equipment within two months without compensating the operator. The 2023 Regulations have amended this by mandating fair compensation if a DisCo forces decommissioning (Dentons ACAS-Law, 2024), consistent with stakeholder interests. However, this provision applies only to network integration; it does not create a general obligation on developers to remove idle solar arrays or restore sites at the end of life. No equivalent measure exists for grid-tied solar or other renewables.

Constitutional and policy provisions provide general environmental goals but no concrete decommissioning rules. Section 20 of the 1999 Constitution directs the state to "protect and improve the environment" (Constitution of the Federal Republic of Nigeria, 1999), and the government's power sector policies encourage renewables. However, the Constitution and national policies impose no enforceable decommissioning plan or financial security requirement on power producers. Protecting land and communities from abandoned infrastructure without statutory backing relies on ad hoc measures. In practice, enforcement agencies like NESREA or the Federal Ministry of Environment focus on pollution and siting compliance, not ex-post restoration of decommissioned sites. Nigerian courts have not (to date) established any general duty to decommission renewable energy facilities and no regulations mandate decommissioning bonds or trust funds as security.

Thus, significant doctrinal gaps exist in Nigeria's legal framework. There is no clear duty on renewable energy developers to remove equipment or rehabilitate sites at the end of operations. There is no statutory requirement to

submit a decommissioning plan or cost estimate to the regulator before or during project life. No law compels the posting of financial assurance (such as bonds or escrow) to guarantee decommissioning costs. Enforcement agencies have no explicit power to compel site restoration beyond general environmental penalties. These omissions create uncertainty: Without legal clarity, a defunct solar farm could be abandoned without guaranteeing removal, potentially leaving hazardous waste and degraded land. In legal terms, Nigeria's regime fails to internalise the end-of-life risks like the UK, EU, and some U.S. laws do. Without legislative reform or new regulations, decommissioning solar infrastructure remains a policy aspiration rather than a binding legal obligation.

3. PART 3: Legal Principles and Framework for Reform

3.1 Key Legal Principles for Decommissioning

Nigeria should anchor its decommissioning regime in established environmental-law doctrines and equitable responsibilities. First, the polluter-pays principle must be made a binding obligation. Under this principle, the solar equipment developer or producer must internalise all end-of-life management costs (including removal, recycling or disposal) rather than offloading them onto the state or communities, and this mirrors the EU Treaty's Article 191(2) and UK policy guidance, which requires that environmental harm be rectified at the source. The polluter bears the costs (Consolidated Treaty on the Functioning of the European Union, 2008). This requires developers to establish decommissioning funds or bonds at the project outset, as in Nigeria's upstream oil sector (Elias Gazette, 2024).

Second, extended producer responsibility (EPR) should be imposed as a legal obligation. In EU law, photovoltaic (PV) panel manufacturers must join compliance schemes and finance take-back and recycling of panels (Directive 2012/19/EU, 2012). Nigeria should similarly compel PV module producers and importers to fund the take-back of spent panels. This principle ensures that entities profiting from solar sales remain responsible for end-of-life management (a form of polluter-pays applied to the product chain).

Third, a precautionary and preventive approach must underpin the regime, requiring that decommissioning plans and financial assurances be approved before project development proceeds (for example, as part of an EIA or licence). This reflects the EU Treaty's precautionary principle and Nigeria's environmental policy, which mandates precaution where serious environmental threats exist. Early integration of decommissioning planning including adaptable, iterative project designs ensures that future uncertainties (namely, about waste toxicity or recycling technology) do not derail obligations.

Fourth, the restoration or "rectify at source" principle should be applied: Licensees must return sites to a clean state. UK offshore decommissioning guidance presumes that operators completely remove all infrastructure (G International Law and NRC staff, 2019). Nigeria's laws should similarly oblige renewable operators to remove or rehabilitate their installations unless exceptional conditions justify otherwise. This duty may be couched as a site-restoration requirement in the licence, aligned with the Constitutional directive that the State "shall protect and improve the environment."

Fifth, a sustainable development and circular economy principle should be recognised. Nigeria's National Policy on the Environment explicitly commits to sustainable development and intergenerational equity (Federal Republic of Nigeria, 1989). In the decommissioning context, this means mandating recycling and material recovery where feasible, setting recycling targets, and promoting product stewardship. For example, EU law requires that at least 85% of a solar panel's weight be recovered and 80% recycled. Adopting such targets or standards by regulation will ensure that end-of-life solar waste is managed as a resource, consistent with the environmental protection goals of UK/EU law and Nigeria's environmental objectives.

Sixth, environmental justice and equity principles must inform obligations. Nigeria's policy recognises intra-generational equity (fair sharing of environmental burdens among current communities). This suggests requiring community consultation on decommissioning plans and imposing stricter decommissioning duties on projects in

vulnerable areas to avoid undue harm. Likewise, provisions should guard against disproportionate impacts on poorer or rural populations. Finally, public participation and transparency should be guaranteed as a legal right (akin to the Aarhus principles applied in the EU or public-hearing requirements in Nigeria's EIA Act). All decommissioning approvals should be subject to public notice and comment as a matter of law, embedding democratic accountability into the regime.

These principles, polluter pays (with financial assurance), EPR, precautionary planning, site restoration, sustainable development/circular economy, and equity/participation are grounded in international and comparative law. They should be codified as binding obligations (not optional policies) within Nigeria's legal framework, ensuring that operators must lawfully fund and execute decommissioning and recycling.

3.2 Legal Mechanisms for Implementation

Implementing these principles will require both statutory reform and regulatory action. At the legislative level, the federal government should amend existing laws to insert clear decommissioning duties. For example, the Electricity Act 2023 already empowers the Commission to issue standards on "installation, decommissioning and disposal of renewable energy accessories"; NERC should immediately adopt regulations under this mandate requiring every solar-generation licence to include a decommissioning plan and financial security (similar to the Nigerian Upstream Decommissioning Fund rules). The Electricity (Amendment) Regulations could further spell out that licences for utility-scale solar must escrow a decommissioning fund and that licenses will not be transferable without approved reassessment of these obligations (Electricity Act, 2023).

Similarly, amendments to the Environmental Impact Assessment Act 2011 are warranted. The Act could be revised to require any major renewable project to include an end-of-life management plan as part of its EIA, with NESREA or the Federal Ministry of Environment empowered to refuse or suspend approval until adequate provisions are made (Environmental Impact Assessment Act, 2011). Nigeria might also enact a standalone renewable energy waste regulation under NESREA's mandate (section 23 of the NESREA Act 2007 already requires regulations on removal methods and "financial responsibility" for hazardous substances) (National Environmental Standards and Regulations Enforcement Agency, 2007). New regulations could designate PV modules as hazardous or priority waste, obliging producers to finance collection and recycling (paralleling EU WEEE rules).

On the regulatory side, agencies should issue binding rules to operationalise the principles. NESREA can use its powers to set technical standards on decommissioning procedures and safe disposal (per its s.23 mandate) (National Environmental Standards and Regulations Enforcement Agency, 2007). NERC should incorporate decommissioning in its licensing guidelines and monitor compliance as part of licence conditions. Moreover, the Federal Ministry of Environment could adopt guidelines or a national code of practice for renewable decommissioning (possibly under the National Environmental (Sanitation and Wastes Control) Regulations). These rules would create enforceable obligations: mandating periodic reporting of decommissioning progress and financial audits of the decommissioning fund.

Integration into licensing frameworks is also vital. The Nigerian Electricity Regulatory Commission (NERC) should amend its licence forms and rules so that no generation or mini-grid licence is issued without a certified decommissioning programme. Feed-in tariff regulations and PPAs (including Solar Purchase Agreements) should similarly stipulate that generators bear end-of-life costs. At the state level, state electricity laws (enabled by the Electricity Act 2023) can be harmonised to impose the exact requirements. For example, states could require distribution/transmission concessions to dismantle obsolete renewable infrastructure and provide restoration securities.

A combination of statutory mandates (in primary Acts and amendments), regulatory standards (from NESREA, NERC and the Ministry of Environment), and licensing conditions will operationalise the above principles. This multi-tiered approach mirrors successful frameworks elsewhere for example, Minnesota law now requires large wind projects to submit decommissioning plans and bonds with their permit applications (Minnesota Administrative Rules, 2004).

Nigeria's law already envisions a decommissioning fund requirement in an analogous sector. Embedding such obligations into law and regulation will close current gaps and make the duties enforceable, not merely aspirational.

3.3 Legal and Regulatory Implications

A coherent decommissioning framework is urgently needed to fill a critical legal gap. Today, Nigeria's renewable sector operates without clear decommissioning rules. Formalising decommissioning in law will enhance legal certainty for all stakeholders: investors will know their exit obligations in advance, and communities will know that clean-up is mandated by law (rather than left to ad hoc contract clauses). By codifying obligations in statutes and regulations, the regime empowers agencies (NESREA, NERC, Ministry of Environment) to enforce against non-compliant projects; this strengthens the rule of law in the energy sector.

Environmentally, the benefits are clear. Legal decommissioning duties ensure that end-of-life solar panels (which can contain toxic materials like lead and cadmium) are not dumped in landfills or abandoned. Instead, mandated recycling and waste management will protect soil and water from contamination and recover valuable materials aligning Nigeria's practice with global circular economy goals. This protects public health and natural resources and fulfils the state's constitutional obligation to "protect and improve the environment."

In regulatory terms, these changes also promote compliance and fairness. Without statutory clarity, some operators might evade responsibility or seek to shift costs to the government, risking litigation or sanction. A clear legal regime removes ambiguity: Operators who fail to decommission as required would face statutory penalties or licence revocation. The regulatory process becomes more predictable and transparent for instance; licence applicants can be told upfront exactly what financial assurances are needed. This predictability is essential for investor confidence and ensuring renewable energy development is truly "sustainable".

Finally, there is an urgent legal imperative. Nigeria has ratified international conventions (as an example, on hazardous wastes) and faces mounting solar deployment; a flood of panels will reach end-of-life within decades. Establishing decommissioning law now avoids future compliance risks and environmental damage. It also responds to constitutional and policy commitments: Section 20 of the Constitution creates a directive duty of environmental protection, and sustainable development is a stated national goal. By enshrining decommissioning duties in law, Nigeria will meet these duties and signal to the international community that it values both renewable expansion and environmental stewardship (Constitution of the Federal Republic of Nigeria, 1999).

3.4 Personal Reflection and Urgent Call for Reform

Nigeria, often hailed as the "Giant of Africa," has long relied on its abundant oil and gas resources since their discovery in the 1950s. Despite decades of revenue from these sectors, the nation remains in a state of underdevelopment. A stark example is the numerous abandoned oil wells scattered across the country, which continue to leak pollutants, devastating local communities and ecosystems. The absence of proper decommissioning protocols has led to prolonged environmental degradation and health crises.

Transitioning to renewable energy, particularly solar power, presents a promising path forward. However, this shift is fraught with challenges. The high cost of solar installations, especially batteries, makes them inaccessible to the average Nigerian, whose minimum wage is approximately ₦70,000 (International Labour Organization, 2024). Many citizens resort to loans or payment plans to afford these systems. Yet, there is a glaring lack of awareness about the long-term implications, such as the need for proper decommissioning and waste management of solar components.

The market is inundated with imported solar products, often sold by vendors without any accountability or traceability. Unlike developed nations where product lifecycle management is standard, Nigeria lacks mechanisms to monitor and manage the influx and eventual disposal of solar equipment. This gap raises concerns about future environmental hazards, as expired solar panels and batteries could become the next wave of electronic waste.

Compounding these issues is the paradox of Nigeria exporting electricity to neighbouring countries like Togo, Benin, and Niger, while many of its own citizens endure unreliable power supply. Reports indicate that Nigeria exported electricity worth ₦181.62 billion between January and September 2024 (The Electricity Hub, 2024). Yet domestic power outages remain commonplace. This situation underscores systemic inefficiencies and misplaced priorities within the energy sector.

To avert repeating past mistakes, Nigeria must enact comprehensive legislation that mandates decommissioning plans for renewable energy projects, enforces producer responsibility, and ensures public awareness campaigns. Establishing a robust legal framework is imperative to safeguard the environment, protect public health, and truly harness the benefits of renewable energy.

References

[1] Amadi, J. O. (2020). Renewable energy projects in Nigeria- An overview. *Lexology*.
[2] Benchmac & Ince. (2019, September 23). The legal framework for renewable energy in Nigeria. *Lexology*. https://www.lexology.com/library/detail.aspx?g=5c0acacf-88a2-47ae-a1a2-dd5c29009cd6
[3] Bush, C., et al. (2025, March 19). Solar PV: What are WEEE costs and who should pay? *Solar Power Portal*. https://www.solarpowerportal.co.uk/blogs/solar_pv_what_are_weee_costs_and_who_should_pay
[4] Constitution of the Federal Republic of Nigeria. (1999). Section 20 (environmental objectives).
[5] Consolidated Treaty on the Functioning of the European Union. (2008). Article 191(2). *Official Journal C 115/47*.
[6] Cooper, P. (2023, April). Closing down a solar farm. *Stephen Scown LLP*. https://www.stephenscown.co.uk/commercial-property/closing-down-a-solar-farm/
[7] Dentons ACAS-Law. (2024, February 6). Key highlights of the NERC Mini-Grid Regulations 2023. https://www.dentons.com/en/insights/articles/2024/february/6/key-highlights-of-the-nerc-mini-grid-regulations-2023
[8] Department for Business, Energy and Industrial Strategy. (2017, July). Decommissioning of offshore renewable energy installations under the Energy Act 2004: Guidance notes. https://www.gov.uk/government/publications/decommissioning-offshore-renewable-energy-installations
[9] Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE). (2012). *Official Journal L 197/38*.
[10] DSIRE Insight. (2023, October 27). The state of solar decommissioning policy: Then and now. https://www.dsireusa.org/resources/solar-decommissioning-policy
[11] Electricity Act. (2023). Nigeria. Section 165(1).
[12] Elias Gazette. (2024, October). Decommissioning and abandonment: Nigeria's experience in a global context.
[13] Environmental Impact Assessment Act. (1992). Nigeria.
[14] Environmental Impact Assessment Act. (2011). Nigeria.
[15] Federal Republic of Nigeria. (1989). *National Policy on the Environment*. Chapter 2, Section 1.
[16] Foundation Chambers. (2020, July 22). In brief: Renewable energy projects in Nigeria. *Lexology*. https://www.lexology.com/library/detail.aspx?g=61192a32-34b0-4ea2-91d8-15a90a27ad23
[17] G International Law and NRC staff. (2019). Decommissioning of offshore renewable energy installations. *BEIS*.
[18] International Bar Association. (2023). Navigating the regulatory landscape for distributed solar power projects in Nigeria. *IBA*.
[19] International Energy Agency. (2024). *Country Profile: Nigeria*. https://iea.blob.core.windows.net/assets/c0cba412-d48c-4712-9144-48f93bd9e277/CountryProfileNigeria.pdf
[20] International Labour Organization. (2024). Nigeria minimum wage – 2024. https://wageindicator.org
[21] McCullough Robertson. (2024, May 7). Unravelling decommissioning liabilities and security obligations for renewable energy infrastructure assets. *Lexology*. https://www.lexology.com/library/detail.aspx?g=6d47d0ab-2c79-4e29-b87f-bb7f00a2a4a7
[22] Minnesota Administrative Rules. (2004). Rule 7854.0500 subpart 13.
[23] National Environmental Standards and Regulations Enforcement Agency. (2007). *NESREA Act 2007*. https://www.nesrea.gov.ng/wp-content/uploads/2020/04/NESREA-ACT.pdf
[24] Nigerian Electricity Regulatory Commission. (2023). *Mini-Grid Regulations 2023*.
[25] The Electricity Hub. (2024). Nigeria exported electricity worth ₦181.62 billion to Togo, Benin and Niger Republic between January and September 2024. https://theelectricityhub.com/nigeria-exported-electricity-worth-n181-62-billion-to-togo-benin-and-niger-republic-between-january-and-september-2024