Shaping Climate, Health and Energy Nexus Adaptation Strategy (Building Nigerian Public Service Unions' Advocacy Capacity for Just Transition)

Public Service International Nigeria

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May 2025

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INTRODUCTION

1.1. Background and Context

The connection between climate change, energy and health sectors may not necessarily be apparent to members of the public service unions.[1] On one hand, Nigeria's Climate Change and Health Vulnerability and Adaptation Assessment Report (2024)[2] recognises the nexus between climate change and health.

"The effects of climate change have intensified the impacts of extreme weather events, changed the environmental suitability for infectious disease transmission, altered population movements, and undermined people's livelihoods, well-being, as well as physical and mental health. Besides exacerbating current health problems in Nigeria, climate change is expected to undermine health services, water and food supplies, infrastructure, and social protection systems. The resulting strain on health and social systems will disproportionately affect the vulnerable and the most disadvantaged, such as women and children, the elderly, people with disabilities, and the extremely poor, with climate change amplifying inequities."[3]

Climate change affects patients' health, health system resilience, and personnel effectiveness. Seen as a public health emergency, the climate crisis threatens lives and livelihoods globally, including in Nigeria. Rising temperatures, extreme weather events, and shifting disease patterns are increasing health risks, especially for vulnerable and disadvantaged populations. How can Nigeria advance a climate agenda that protects health and ensures no one is left behind? What are the health impacts of climate change while building a low-carbon, climate-resilient health system? How can Nigeria build climate-smart healthcare systems that address the impacts of climate change, as climate shocks continue to threaten health outcomes and stall progress toward universal health coverage?

In shaping Nigeria's approach to the climate, health, and energy nexus, it requires a focused attention on the impacts of climate change on public health and the health system, alongside the country's response efforts. Climate change is one of the greatest health challenges destabilising health systems, deepening inequities, and eroding the social, environmental and economic foundations critical to good health. The growing intensity of extreme weather events has disrupted rainy seasons and prolonged droughts. The increasing frequency of extreme weather exacerbates the threat from infectious diseases. The impacts of climate change on society pose a significant threat to the health and healthcare resilience of the most vulnerable communities. Strengthening climate-resilient health systems will enable Nigeria to respond more effectively to climate-related health emergencies, adapt to shifting disease patterns, and maintain essential health services capable of improving the population's well-being.

On the other hand, Nigeria depends on fossil fuel sources to power its economy. Nigeria's energy sector accounts for about 65 per cent of the country's total greenhouse gas (GHG) emissions. Figure 1 presents a breakdown of the energy sector emission profile. The combined contribution of flaring and

[1] Such as National Union of Electricity Employees (NUEE) and Medical and Health Workers Union of Nigeria (MHWUN).

[2] Released in October 2024, the report serves as the first firm step towards delivering on the commitment Nigeria made at COP26 to build a climate resilient and sustainable (low carbon) health system. Nigeria's Climate Change and Health Vulnerability and Adaptation (V&A) Assessment Report is expected to strengthen the national health system to deliver effective, efficient and resilient health services that foster the improved health status of Nigerians and accelerate sustainable development. The V&A highlights areas outside of the health system where climate change will have devastating impacts on health outcomes; it helps to identify important cross sector partnerships which must be established to protect the health and livelihoods of the people in the face of a more unpredictable climate. The results from the V&A provide a baseline that to be used to develop Nigeria's Health National Adaptation Plan (HNAP) which will serve as a national road-map for building a climate resilient health system.

[3] See, Nigeria's Climate Change and Health Vulnerability and Adaptation Assessment Report, Federal Ministry of Health, Abuja.

venting to the environment is about 80 per cent of emissions in the sector. The power sector, as a pillar, contributes 27 per cent to total emissions.

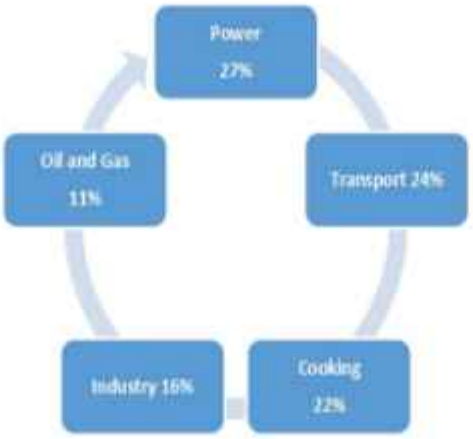

Figure 1: Nigeria's energy sector greenhouse gas emissions

High dependence on the oil and gas sector has also had significant costs for human well-being. These include environmental degradation in the Niger Delta, which has led to public health concerns, loss of agricultural livelihoods, insecurity, and conflict. This challenge is primarily caused by the combustion of fossil fuels, which involves the emission of large amounts of carbon dioxide, leaving significant concentrates in the atmosphere. Some of the adverse effects of burning fossil fuels include air pollution, water pollution, and climate change. These effects are caused by the products released when fossil fuels are burned. Air pollution has been found to cause respiratory disease, cardiovascular disease, and cancer. Children, pregnant women, and elderly people are all at higher risk of the negative health effects caused by air pollution. Water pollution produces acid rain and can lead to the acidification of freshwater sources like lakes and streams.

Climate change is a significant threat to ecosystems and human populations worldwide (see the box). Carbon dioxide emitted through burning fossil fuels plays a huge role in global warming.

Climate change has been described as long-term shifts in temperatures and weather conditions or patterns. Such shifts have been attributed to both natural and human activities. Global warming, seen as a long-term increase in temperature of the Earth's surface as a result of greenhouse gas emissions, has also been described as the leading cause of climate change. These shifts in average weather patterns and temperature over time, with the attendant increase in extreme weather conditions such as droughts, floods, heat waves, storms, wildfires, and hurricanes, have characterised climate change. The main greenhouse gases that are causing climate change include carbon dioxide and methane. Global warming is thus the result of human activities such as the burning of fossil fuels, deforestation, and industrialisation, and if left unchecked, is expected to further heat the world temperature from the 2 °C obtainable today to 5 °C by the end of this century. Experts warn that climate change negatively impacts every aspect of human life and is a threat to the survival of human life on the planet. Water resources, biodiversity, agriculture, air quality, human health, culture, infrastructure, and the economy are threatened by the hazards and environmental degradation that signal climate change.[4]

Both the grid-based and captive electricity supplies are largely generated from thermal power, covering gas-fired plants[5] and fossil-based diesel and gasoline generators. More specifically, "An

[4] See, Guardian Newspaper, November 27, 2024 at page 14.

[5] Nigeria's grid-based electricity supply system faces many challenges, including insufficient grid-connectivity capacity to meet demand, inadequate infrastructure, to make the country's abundant gas available for power generation, and an

estimated 50 per cent of the electrical energy consumed in the country is currently produced off-grid by diesel and gasoline generators of all shapes and sizes." (World Bank, 2011:77)[6]. Despite the potentials of greener sources, Nigeria's energy mix shows reliance on hydro-power generation has shifted towards thermal energy power with natural gas. A disaggregated insight into Nigeria's energy mix reveals that as of 2020, 77 per cent of power generation comes from gas and 20 per cent from hydro, while most of the remainder comes from coal.[7] This overreliance has raised concerns about energy security with frequent crises on gas-fired power plants and the climate change impacts of fossil fuels. Increasing carbon emissions in Nigeria and the rest of the world are connected to the rising dependency on fossil fuel-powered energy products and services. The carbon-emitting fossil fuels are known to be major contributors to global warming, which necessitates calls for an energy transition.

Thus, the intersection of climate change and health is evident in the growing health risks associated with rising temperatures, extreme weather events, and shifting disease patterns. The climate crisis is also posing a public health emergency concern, threatening lives and livelihoods in the country. At the same time, seasonal fluctuations in grid-based power supply, partly attributed to the impacts of climate change,[8] are becoming increasingly evident. This is compounded by an overreliance on carbon-emitting fossil fuels that have been historically contributing to GHG emissions implicated in the climate change crisis. Nonetheless, there is still a further need to deepen the understanding of interconnections between climate change, energy and health sectors from public service unions' perspectives.

The foregoing attempts to problematise the issue, shape the research scope, and focus sharply. Hence, the following questions are necessary:

i. *How has the energy and health sector(s) contributed to the climate change crisis?*
ii. *How has climate change affected and or impacted these two sectors in Nigeria?*
iii. *What are the implication(s) of energy transition for the electricity and health sectors in Nigeria?*
iv. *What challenges or risks do these two sectors face in light of the climate crisis and energy transition from the trade union lens?*
v. *What are the implications of energy transition in the power sector for electricity workers in Nigeria?*
vi. *Specifically, how has the unreliable electricity impacted the health sector, its workforce and health outcomes in the country?*
vii. *To what extent has the deployment of solar PVs addressed healthcare facility electrification needs and helped in building a climate-resilient and sustainable (low-carbon) healthsystem in Nigeria?*

Providing answers from the trade union perspective to some of the foregoing questions will contribute to shaping public service unions' just transition advocacy and engagement strategies, both in relations to energy transition plan for electricity sector and in the development of Nigeria's health Dsectoralď National Adaptation Plan (HNAP) intended as a national roadmap for building a climate-resilient health system. Hence, the research is contextualised within the Public Service International (PSI) new project which focused on just and equitable transition in the health and energy sectors in Nigeria and aimed at building capacity of public service unions in these two sectors to develop an advocacy plan for taking up climate related issues at the sectors specific level with federal, state and/or local government.

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inefficient transmission and distribution with limited coverage. See, Chapter 6 of Low-Carbon Development Opportunities for Nigeria, a World Bank publication (http://dx.doi.org/10.1596/978-0-8213-9925-5).

[6] Ibid., (http://dx.doi.org/10.1596/978-0-8213-9925-5).

[7] Source

[8] Participants from the Nigerian Union of Electricity Employees (NUEE) at one of FGD sessions disclosed that the now usual flooding, and heavy wind that sometimes prelude rains during rainy season impact on hydro power stations, as well as the intense heat and or bush burning, often affected transmission cables during dry season thereby impacted on the efficacy of seasonal power supply in the country.

The research thus focuses on the energy and health sectors and the implications of climate change and energy transition in these two sectors. An underlying assumption of the project underscores the need to have trade unions, professional bodies, including climate activists, play catalytic roles in ensuring governments implement climate change interventions that are socially just and not only reduce GHG emissions but also strengthen public services as a necessary part of their adaptation measures. As such, the research study will help the two trade unions involved in the project to identify areas for capacity building as well as potential areas for advocacy in order to improve the conditions of workers and the delivery of services in these sectors in the context of the climate crisis. The research will propose a set of recommendations, which can form the basis of advocacy plans that are then developed by the two affiliates. The research will also form part of the capacity-building process that the unions will undergo in 2025.

1.2. Rationale of the Study

Nigeria has made a clear commitment to build a climate-resilient and sustainable (low-carbon) health system.[9] The impacts of climate change on health and the health system, as well as efforts being undertaken to address the challenges posed by climate change on human health in the country, have been documented to be less than optimal. Public workers from utilities and care sectors have a role to play to advance a climate agenda that protects health and ensures no one is left behind. The need to enhance trade unions capacity and connect them with other civic groups advocating for climate-smart healthcare systems that can address the impacts of climate as climate shocks continue to threaten health outcome and stall progress toward universal health coverage is imperative.

PSI advocates for a just and equitable transition that is not only about moving away from a carbon-intensive economy, but also about addressing structural inequalities in society, protecting the rights and interests of workers, re-valuing women's work, strengthening democratic institutions, challenging corporate power and influence and redistributing wealth within and between countries. Nigeria currently faces an economic crisis, which is made worse by an energy crisis which has resulted in an insufficient energy supply for many decades. It is now also feeling the impacts of climate change, such as rising temperatures, increasing frequency of extreme weather events and environmental degradation, in ways that are increasing conflict in the country, decreasing access to energy even further, and negatively affecting the economy and socioeconomic development in general. Approximately 40 per cent of the population in Nigeria lack access to electricity. The number of households without access is particularly high in the rural areas, where households rely heavily on wood fuel, which not only contributes to GHG emissions, but also to health problems such as respiratory and heart diseases, lung cancer and eye irritations. In 2019, only about 13 - 18 per cent of households had access to clean cooking (from gas or electric stoves).[10]

Even households connected to the grid are frequently cut off, as Nigeria currently experiences electricity supply shortages, necessitating the widespread use of generators, and solar power at all levels of the economy. This ranges from households to businesses, factories, and government institutions. About 84 per cent of households and 86 per cent of companies make use of generators. In a 2020 study, it was estimated that around 30.5 GW of diesel and petrol-based generation capacity was available in the country.[11]

While Nigeria does not use much coal for generation, (it currently relies extensively on natural gas power stations and hydro-power), the externalities of diesel generators and wood fires for cooking impact on health quite significantly. At the same time, it has enormous potential to make use of renewable energy resources such as solar and wind. In particular, it has large potential for off-grid solar and wind through home or business systems and mini grids. These mini grids fall under the Rural Electrification Agency, separate from the on-grid system which consists of the transmission

[9] CF. Note 2, above "Nigeria's Climate Change and Health Vulnerability and Adaptation (V&A) Assessment Report."
[10] Nigeria Energy (2023) Renewable Energy Roadmap Nigeria: Summary of key recommendations and findings.
[11] Ibid., Nigeria Energy (2023) Renewable Energy Roadmap Nigeria: Summary of key recommendations and findings.

company of Nigeria (a public entity) and the privatised Generation Companies (GenCos) and Distribution Companies (DisCos). The health sector, already facing issues such as a lack of resources, inadequate infrastructure and insufficient health workers,[12] is seeing a worsening disease burden, heat -related illnesses and poor working conditions as a result of climate change. This is on top of the increased disease burden that is caused by the use of wood fires for cooking, and the health hazards embedded in this. It is often women, traditionally responsible for domestic work and care in the home, who must bear the consequences of lack of access to electricity, and the pollution caused by using sources of energy that are highly polluting. According to the World Health Organisation, it is estimated that 95 300 women in Nigeria die annually from wood-burning cooking fires.[13]

One of the infrastructural problems facing the health sector is the number of health facilities without access to consistent, reliable electricity. However, it is difficult to know how big this problem is given that there is a lack of information on the electrification status of health facilities. It is estimated that about 40 per cent of the functional primary health facilities that exist in Nigeria do not have access to electricity.[14] A consistent supply of electricity is vital in the health care sector for several reasons: it powers the fridges needed to keep medicines and vaccines at the right temperature and prevent the cold chain from being broken, powers medical equipment, ensures operations can take place without any interruptions in electricity, ensures emergency care can be provided and gives light at night time.[15]
Transitioning to renewable energy for both rural and urban dwellers, and in the health sector, would not only increase access to electricity and reduce GHG emissions, it would also reduce air pollution and contribute significantly to improving health conditions. Thus, it would both mitigate climate change and help the health sector adapt to climate change.

1.3. Objectives of the Study

From the terms of reference, the specific research objectives include:

1. To develop a clearer understanding of how climate change affects public health and energy sectors in Nigeria and the policy positions and actions government is taking in response to this.
2. To deepen the analysis of the interconnection between the health and energy sectors.
3. To identify specific areas of advocacy for the trade unions to take up.
4. To develop a clear understanding of the different organisations and structures involved in energy transition and climate change-related transition in the health sector.

The anticipated outcome of the research includes the following:
1. Overview of federal government approach to the transition to renewable energy – analysing both policy positions and actual implementation (practice). 2. Overview of the state of the health sector, particularly with the added burden of the climate crisis and the particular set of pressures this brings to bear on an already fragile health sector. 3. Overview of the impact of unreliable electricity in the health sector and on health facilities in particular and possible solutions to this problem. 4. Stakeholder mapping of organisations and structures involved in climate change, energy transitions and climate change related transitions in the health sector. 5. Recommendations /policy areas for both the health and energy sectors on improving conditions of workers in these sectors, as well as service delivery impacted by climate change.

1.4. Research Methods

[12] See for instance: The Lancet Nigeria Commission: investing in health and the future of the nation https://pmc.ncbi.nlm.nih.gov/articles/PMC8943278/
[13] https://ng.boell.org/en/clean-cooking-energy
[14] https://www.seforall.org/news/a-data-driven-approach-to-health-facility-electrification-in-nigeria
[15] https://www.seforall.org/publications/powering-healthcare-impact-factsheet

The methods of data collection used cover both desk-based and field-based participatory research methodology to explore how the impacts of climate change are experienced in both sectors, and how renewable energy can contribute to the improvement of health services and conditions in the sector. The study employs desk-based research and group interviews as a qualitative research method. Specifically, the research consultant held series of focus group discussion (FGD) sessions (remotely and in-persons) at the Federal Capital Territory (FCT), Abuja and Kaduna, Kaduna State with participants drawn from both the Medical and Health Workers Union of Nigeria (MHWUN) and National Union of Electricity Employees (NUEE) in March and May 2025 respectively. The demographics of the FGD participants include males and females from the two focal public service unions. In all, a total of 55 participants participated in the FGD sessions. Additionally, the consultant collected nuanced information through note taking at third party events and meetings attended in which government officials, climate experts, and users of energy and health services provided insightful narratives useful for the research

2.1 Overview of Health and Energy Situations in Nigeria[16]

Nigeria's health and energy indicators are generally poor (see box A) and not commensurate with the status of the country as a leading African nation with vast natural and human resources. Currently, Nigeria has one of the highest under 5 and maternal mortality rates in the world (see, table 1); in addition rising incidence of non-communicable diseases (NCDs) such as cancer, diabetes, and hypertension.

Box A: The Reality of Health and Energy Crisis in Nigeria

- Life Expectancy: 52years
- 130 of the 217 million Nigerians are poor (can hardly afford - food, shelter, transport, education, health access and clean energy transition)
- 45% of Nigerians mostly in rural areas have no access to grid electricity and are the poorest (little or no income)
- 55.4% of households have access to grid electricity; about 23% actually receive reliable power from the grid
- Nigeria has an energy demand of 32.1TW but Generates 14GW, and transmits max. 5000MW
- Nigeria suffers about 33 outages per month –Africa's highest
- Electricity consumption per capita one of the lowest in Africa and lowest among peer countries
- 55% of the population connected to the national electricity grid is underserved with an average of 6 hours of electricity.
- Over 20 millions mall fossil generators run daily in Nigeria due to the poor power supply.
- Renewables make up less than 3% of total power generated
- 2.5m connections/year is needed to close the energy deficit gap from 2020 to 2030 - Approximately 250,000 new off-grid systems required annually
- Over 80% of all Nigerian households still use solid biomass (firewood and charcoal) for cooking – NBS 2022
- About 80% or 174 million Nigerians lack access to LPG for cooking; mostly in rural areas – NBS 2022
- $14 billion is spent each year buying and operating small gasoline generators.
- Nigeria's daily firewood consumption stands at 266 million kg
- Over 98,000 Nigerian women die annually from the use of firewood
- Over 70% of Primary Health Care Centers in Nigeria lack access to reliable power supply – compromising their ability to deliver quality health services.

Source: see, HBS (2018). Improving Access to Clean Reliable Energy for Primary Healthcare Centres in Nigeria: Situation Analysis of PHCs in the Federal Capital Territory (The Potential for Green Development Options to power PHCs in Nigeria).

"According to the 2018 WHO NCD country profile for Nigeria, NCDs accounted for approximately 29 per cent of all deaths in Nigeria, with cardiovascular diseases responsible for 11 per cent, cancers - 4 per cent, chronic respiratory diseases - 2 per cent and diabetes -1 per cent. The World Malaria Report (2021) shows that Malaria accounts for 27 per cent of the global burden/cases and 32 per cent of deaths).

"Communicable Diseases still constitute a major public health problem: TB prevalence in 2021 remained stable at 219 cases per 100,000 people. Nigeria ranks 6th among the 30 countries with the highest TB burden in the world and 1st in Africa. HIV/AIDS prevalence is estimated at 1.3 per cent (NAISS-2018), and an estimated 1.8 million people living with HIV account for the fourth highest HIV burden globally. Although the last case of Wild Polio Virus was reported in September 2016, the country recorded 49 cases of circulating vaccine-derived poliovirus (cVDPV2) between 2022 and April 2023."

[16] Large part of texts and data on this particular page were culled from sections of the Presidential Health Reforms Committee's Final Committee Report, May 2023.

"In recent years, Nigeria has experienced major public health outbreaks. Currently, the Country is responding to two WHO-graded emergencies (The grading reflects the highest level of an emergency grade per country for ongoing public health events and emergencies, excluding COVID-19.): The two emergencies are the grade three North East humanitarian crisis and the Lassa fever outbreak."

Table 1: **Selected key Health Indicators (Nigeria vs Regional and Global Average)**

Key Indicators	Nigeria	Regional Average	Global Average
Life Expectancy at birth (both sexes)	54	58	70
Under 5 mortality rate (per 1000/LBs	124	95	48
Maternal mortality rate (per 100,000/LBs)	560	500	201

Source: Presidential Health Reforms Committee (PHRC), Final Committee Report, May 2023, at page 89.

Against these uninspiring pictures, there have been some areas of improvement. The Nigeria Multiple Indicator Cluster Survey (MICS) National Immunisation Coverage Survey (NICS) 2021 report reveals infant and under-5 mortality rates of 63 and 102per 1,000 live births, respectively. This is an improvement from the Nigeria MICS-NICS 2016 rates of 70 and 120, respectively." Nonetheless, Nigeria's healthcare system is characterised by "longstanding inequities, persistently poor health outcomes, and a deteriorating work environment for healthcare professionals." The Presidential Health Reforms Committee (PHRC) affirms, "Investing in health will enable Nigeria to unlock its immense potential and ensure that all Nigerians, regardless of their social class, can access quality health services."

According to the PHRC Final Committee Report (May 2023), "Nigeria's health system…has significantly under-performed, leading to poor population health outcomes and inequitable access to healthcare. The lack of health insurance coverage is a major reason for unaffordable healthcare and household impoverishment, particularly affecting the rural population and the urban poor. "The Nigerian healthcare system Dischotoriously inequitable, as nearly all its rural population and urban poor have no insurance coverage. In the urban areas, most formal sector employees are covered. There is also the rapidly rising cost of health care, which is driven by waste and inefficiency within the healthcare system itself, fueled mainly by misaligned incentives. Public providers receive supply-side subsidies yet charge user fees to beneficiaries. Consequently, while most health facilities are "public" in terms of ownership, they are really "private, for-profit" in terms of behaviour and interaction with users.

Table 2: **Total Number of Hospitals and Clinics by Ownership**

Area	Numbers	Per centage
Primary care	33,570	85.1
Secondary care	5,720	14.5
Tertiary care	150	0.4
Total Public	28,981	73.5
Total Private	10,459	26.5
Overall Total (Public & Private)	39,440	100

Source: Presidential Health Reforms Committee (PHRC), Final Committee Report, May 2023, at page 79.

Nigeria's healthorganiseds organised into three tiers of care; namely: primary, secondary and tertiary. As Table 2 indicates, the majority of health facilities in the country are primary healthcare centres (PHCs), of which thousands are publicly owned with different levels of functionality. "Primary healthcare is the foundation of the Nigerian healthcare system. It is delivered through a network of PHCs located in communities throughout the country. PHCs provide basic healthcare services, including preventive care, maternal and child health services, and treatment of common illnesses.

Secondary healthcare comprises general and specialist hospitals that provide more specialised services, including surgical procedures, diagnostic tests, and specialised care for chronic illnesses. On the other hand, tertiary healthcare comprises teaching hospitals and specialised medical centres that provide highly specialised medical services, including advanced diagnostic tests, specialised surgeries, and care for complex medical conditions. The private sector has a major role to play in service delivery, as it already accounts for 44 per cent of healthcare facilities in Nigeria. According to the Presidential Health Reforms Committee's Finance Report, "The private sector provides approximately 60 per cent of health service delivery, despite owning Dless thand an estimated 30 per cent of health facilities" (see figure 2).

Approximately 40 per cent of functional PHC facilities do not have access to electricity, and 80 – 83 per cent of PHCs are not powered using renewable sources.[17] According to the PHC Transformation Agenda: Strategy for PHC Revitalisation in Nigeria 2023, for healthcare infrastructures to contribute to desired health outcomes, they must be functional, safe to use, available 24/7, accessible, and acceptable to service users.

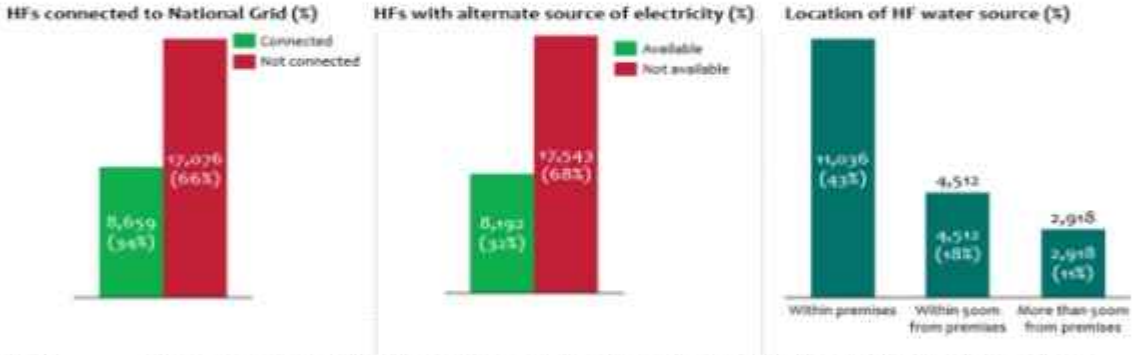

Figure 3: Access to Energy Sources for Health Facility Source: National PHC Infrastructural Assessment Findings (Electricity and Energy).

PHC facilities across the country are at varying levels of functionality, with issues ranging from dilapidation (due to non-maintenance), inadequate electricity, lack of a waste management unit, and adequate water supply. As represented in figure 3, 66 per cent of Health Facilities (HF), only 34 per cent are connected to the National Grid, while 66 per cent of the Health Facilities are not connected to the National Grid. HF with alternative sources of electricity, aside from the grid, mostly using generator sets, are 32 per cent, while 68 per cent do not have an alternative source of electricity. Only 43 per cent of HF have water within their premise, and they also depend on electricity to access water. 60 per cent of primary health facilities are not connected to the national grid, while 68 per cent of them do not have an

[17] See, Heinrich Boll Stiftung (2018). Improving Access to Clean Reliable Energy for Primary Health Care Centres in Nigeria: Situation Analysis of PHCs in the Federal Capital Territory. Abuja: Heinrich Boll Stiftung Publication

alternative source of power supply. This implies that the majority of the health facilities do not have a source of electricity; this negatively impacts service provision, and storage of vaccines, particularly at night. Noteworthy is that 11 per cent of the facilities have their water source located more than 500 meters from the health centre, leading to poor infection prevention measures and practices.

In a recent editorial entitled *Solar Power in Hospitals*, Leadership Newspaper (May 15, 2025)[18] decried the grossly underfunded healthcare system in the country, describing it as a clear contradiction of the commitments made in the 2001 Abuja declaration by African Union leaders, who pledged to allocate at least 15 per cent of their annual budgets to the health sector. Nigeria has consistently failed to meet this obligation, as recent reports from the 2025 budget reveal that the provision is a mere 5.18 per cent. Failure to honour the Abuja Declaration is evident in its huge health infrastructure gap. This shortfall compromises the quality of care, leading to increased mortality rates and disease prevalence, ultimately diminishing the overall well-being of Nigerians.

Energy - Health Sector Nexus: evidence from the field research:

The series of Focus Group Discussion (FGD) sessions conducted[19] confirm that unreliable electric power supply impacts the delivery of healthcare services negatively, affecting the productivity, and spurred inefficiency of the healthcare professionals in carrying out their jobs effectively. According to the participants at a FGD Session with MHWUN in Abuja, "without power supply or electricity, the staff cannot carry out their work effectively,...look at the storage of vital vaccines, specimens, laboratory services are impaired, radiography services are in bed, neonatal services, and so many of them. Vaccines are being destroyed because of irregular power supply; as all our equipment works with electricity, so they will not function." They added: "There are certain responsibilities that work with time or time-bound...which can't be done due to non-reliable power supply." In fact, "There are some deliveries that require that you should do within a particular specific time and if there's no power supply at that particular time you can't do it, and it could be vital. If you are looking at the hospital sector, somebody who requires an emergency operation, for example cannot be carried out by that particular time, you have to start looking for alternative processes. And when it's not available, that could aggravate the health challenge." The FGD participants linked inadequate access to reliable electricity, lack of constant power has impacted on the health outcome. Evidence in the low uptake of the services as well as the poor health indices like maternal, newborn, and child health (MNCH).

In terms of energy situation, Nigeria's grid-based electricity supply system faces many challenges, including insufficient grid-connectivity capacity to meet demand, inadequate infrastructure, to make the country's abundant gas available for power generation, and an inefficient transmission and distribution with limited coverage (World Bank, 2011:77). In part for these reasons, an estimated 50 per cent of the electrical energy consumed in the country is currently produced off-grid by diesel and gasoline generators of all shapes and sizes. Unmet demand is also high, particularly amongst the many citizens who have no access to the grid and cannot afford off-grid power. Projecting the demand for electricity in Nigeria is especially challenging because of the difficulty in estimating the large amount of electricity produced by small, unregulated petrol and diesel generators, and quantifying the suppressed demand. As such, the unreliability of public power supply is well documented in lived experiences of virtually all Nigerians across generations.

[18] https://leadership.ng/solar-power-in-hospitals/

[19] The FGD sessions were held in March and May 2025 with MHWUN (Abuja and Kaduna) and NUEE (Abuja).

Lamentably, the improved power supply Nigerians anticipated prior to the privatisation of defunct Power Holding Company of Nigeria (PHCN) has remained elusive twelve years later, with no viable solution in sight. As a recent Leadership editorial recalls:[20]

> *"In November 2013, under former President Goodluck Jonathan, the federal government, through the Bureau of Public Enterprises, officially privatised the six successor power generation companies and 11 distribution firms unbundled from the defunct PHCN. According to the Bureau of Public Enterprise (BPE), investors paid $1.26 billion to acquire a 60 per cent stake in the distribution companies, while the government retained 40 per cent. The BPE generated $1.27 billion from the power plant sales for the six generation companies, bringing the total proceeds from the privatisation of the Discos and Gencos to $2.53 billion. Based on the exchange rate at the time, the value of both transactions was about N404 billion. The federal government still manages the transmission arm of the business through the Transmission Company of Nigeria. However, 12 years after the private investors took over the country's power assets, the sector has continued to grapple with daunting challenges that have stunted its growth.*
>
> *"So far, that has turned out to be a misplaced hope. But no one anticipated the bedlam in the nation's hospitals, where patients were asked to provide an alternative power supply to sustain relations in intensive care. The scandal trended in the media as Nigerians told their stories of how they lost loved ones due to power failure in hospitals, especially public ones. These unfortunate incidents have continued to recur in health facilities across Nigeria as generating companies (Gencos) and distribution companies (Discos) continue to offer excuses in place of electricity. For decades, the government at different levels, has failed to find a lasting solution to the issue of poor power supply, which has led to loss of lives, crippled businesses, and sent investors away from Nigeria. Government hospitals, which are expected to provide medical care for the sick and injured by offering specialised treatments, have become death fields as power failure continues to wreak havoc during surgeries and other emergencies. The situation has persisted despite [successive] administrations' efforts to reform the sector as it strives to find a reliable and sustainable alternative power source.*

Linking the impact of Nigeria's persistent power challenges to the healthcare sector, the newspaper notes, "Most health facilities, including teaching and general hospitals, are battling huge electricity debts running into billions of naira. Their managements continue to lament that despite paying huge bills, they still have to source funds to provide alternative power. To mitigate these challenges, the Leadership editorial of May 15, 2025 urge the federal government to prioritise off-grid solutions for its premier teaching hospitals, such as installing solar power to avert avoidable deaths caused by incessant power failure and provide debt relief to quickly rebound those already in huge debts. "We are not unaware of the extra cost implication of adopting the solar solution after years of wastage in other sources that have not yielded the desired result. In our view, it is time for the government to give commensurate attention to solar energy. Experts have continued to argue that it has advantages that make it preferable. It is cost-effective and renewable, ensuring a reduced cost in the long run."

Leadership Newspaper has urged the federal government to consider providing targeted subsidies to the health sector to reduce operating costs, which have been exacerbated by the skyrocketing cost of energy. As a signatory to the Abuja Declaration, Nigeria should fulfil its commitment to allocate 15 per cent of its annual budget to the health sector as a step toward building a robust and sustainable healthcare system. The right to health is fundamental; without electricity, hospitals, which should save lives, will continue to be the opposite. Decisive action in the energy sector should be taken to prevent this silent catastrophe from becoming a global model of systemic failure. Solar power may be a good starting point.

[20] https://leadership.ng/solar-power-in-hospitals/

2.2 Electricity and Primary Health Care and Climate Change Nexus

Box B: Poor energy access outcomes for health facilities:

- 57% of population have access to electricity
- 40% of PHCs without access to electricity
- 6-10 hours average power supply from any combination of sources
- Absence of electronic health, logistics and financial information systems

Poor quality of health care services and sub-optimal health outcomes

- Poor preservation of vaccines
- Poor water supply, sanitation and hygiene
- Maternal mortality 512/100,000 live births rank: 165/183
- Infant mortality 70/1,000 live births rank: 185/193
- Life expectancy rank: 205/208

Electricity is essential for the functionality of Primary Healthcare Centres (PHCs), powering various critical medical equipment necessary for effective healthcare delivery. Electricity plays a crucial role in the functionality of PHC facilities in Nigeria, significantly impacting their ability to deliver essential health services.

Approximately 40 per cent of functional PHC facilities do not have access to electricity and 80 – 83 per cent are not powered using renewable sources. Although ó 40 per cent of health facilities have no access to electricity, the majority of PHCs still have unreliable access to electricity from any combination of electricity sources.

The persistent power crisis at public healthcare came to a crescendo recently when the Ibadan DISCO cut off Nigerian premier teaching hospital (the University College Hospital, UCH Ibadan) power supply due to huge unpaid electricity debts. The staggering N100million monthly energy bill against UCH's N15million monthly overhead epitomise the problem. Similarly, a "Lagos hospital ÐFederal Medical Centre, Ebutte Mettad pays N20m monthly electricity bill for three hours of power in addition "to the consumption of 80,000 litres of diesel every month to ensure uninterrupted supply of power in the facility to maintain critical healthcare services."[21] Until a partner (Doctors Without Borders/Médecins Sans Frontières) installed 436 solar panels 250-kilowatt solar power system this year, for example, "Zurmi general hospital Ðin Zamfaraď had been cut off from the national grid. Insteadit had to rely on generators that consumed more than 3,000 gallons of fuel each month to power the medical facilities."[22] The system led to frequent and frustrating power disruptions.

"To improve patients' healthcare in northern Nigeria, Doctors Without Borders/Médecins Sans Frontières (MSF) embraced solar energy to power the hospitals under its support, facilities which have historically depended on expensive fuel-intensive generators. By moving to renewable energy, communities in the region now have better, more sustainable access to critical medical devices, medication and infrastructure. In addition to the consistency of using solar energy, transitioning to RE has meant that partners such as MSF can better respond to patients' needs. By spending less money and time to source and transport costly fuel to keep generators going – especially in remote areas – MSF has been able to devote more resources toward other necessary costs to keep our hospitals running and accessible to patients. Already, MSF is starting to see this through our other solar panel installations in Zamfara State – Talata Mafara and Gummi – and in the states of Borno, Jigawa, Katsina, Bauchi, Kano and Sokoto. "While there are still other steps to be taken to reduce MSF's overall environmental impact, switching to solar power is part of our work to create a more sustainable solution that will benefit patients and the communities".[23] Other partners' initiatives included the European Union's Nigeria Solar for Health Programme (NISHP) will provide power supply for 45 PHCs in five states. The NISHP aims to improve the country's healthcare system by providing solar power to public health facilities in participating states.

[21] See, Punch Newspaper, Saturday, May 17, 2025

[22] At an average price of N1000/litre, the Zurmi General Hospital spends 12million per month on fossil fuel amounting to N144 million annually to power itself.

[23] See, MSF: Nigeria: Harnessing solar power improves care in northern hospitals; Doing more to mitigate climate change.

"Before, it was extremely challenging," says the energy manager who worked on the project for five months. "Patients would be taken into surgery and there was always the risk of a power cut in the middle of the procedure. Now, with solar power, we have a stable and reliable energy source."

Importance of Electricity in PHCs

1. Powering Medical Equipment: Reliable electricity is essential for operating medical devices and equipment necessary for diagnostics and treatment. This includes life-saving machines, laboratory equipment, and other critical technologies that require continuous power supply.
2. Cold Chain Management: Electricity is vital for maintaining cold chain facilities that store vaccines and other temperature-sensitive medical supplies. Without consistent power, the efficacy of vaccines can be compromised, jeopardizing immunisation efforts.
3. Emergency Services: Many health services, including childbirth, require reliable lighting and power during night time operations. Inadequate electricity can lead to dangerous situations, such as delivering babies in poorly lit conditions.
4. Water Supply: Electricity is necessary for powering systems that provide clean water, which is essential for sanitation and hygiene in healthcare settings.
5. Extended Service Hours: With reliable electricity, PHCs can extend their operational hours, allowing them to serve more patients and provide care during emergencies at any time of day or night.

In terms of specific needs RE systems should address in health sectors; while virtually all the equipment requires energy (see table 3), the FGD participants stated that the critical medical equipment requiring constant electricity in a core hospital setting, include MRI machine, and CT scan machine. "You cannot run an MRI machine without light. You cannot run a CT scan machine without light, No radiologist equipment can work without light and laboratory services all requires energy, all laboratory equipment requires energy and, all time bound. Because we are sending in specimen at also time, we are expected to have results. So equipment, radiologist equipment, MRI, CT scan machine, and laboratory equipment all require alternative energy. The availability of reliable electricity significantly influences the operational capacity of PHCs. Facilities with consistent power supply are more likely to have functional medical equipment, leading to improved healthcare services. Conversely, many PHCs without reliable electricity face challenges such as equipment malfunction, limited service hours, and reduced patient care capabilities.

"In designing RE solutions for healthcare facility electrification (HFE), the solution providers must also sit together with the healthcare providers to identify core essential equipment and system and the volume of volts needed to provide properly sizing solutions. RE Solutions deployed in Kaduna for PHCs were based on 50kWa/h solar system. Otherwise, there could be challenges. For example, mismatch creates wastages and inefficiency. Previously, solar powered coolers, refrigerators have been piloted by the UNICEF dedicated to vaccine cold chain for immunization programme. That's why you see those PHC facilities where they have solar PV, solar coolers, etc. In the present reality, seeing that health system infrastructure is also having challenges and power is key to it. For almost those primary healthcare they consider as under the ward health system, that is, if you have about 7,000 wards across the country, you have one functional primary health care per ward. One of the functionality would be you have 50 kilowatts of power support."[24]

Evidence from the field:

[24] See, HBS (2018) and GGT (2021). "Solarization of Primary Healthcare Centers in Nigeria; A Policy Dialogue Report"

The effectiveness of the vaccination cold system is predicated on constant electricity. Vaccination programme cannot be effective without electricity (Power) supply. We've had also adverse reactions to vaccine due to poor storage as a result of irregular power supply. Disruption during surgical processes. Even mortuary services, some people now move to solar in term of alliterative power sources. The solarisation of healthcare centres can guarantee the efficacy and potency of vaccines, properly stored and refrigerated. The FGD participants see hopes in alternative power supply to the healthcare facilities; with solar powered healthcare centres: "Efficiency and effectiveness would be more assured, smooth surgical processes, smooth laboratory processes, accurate to result, etc. For workers posted to rural area, access to some of these amenities like water, electricity can motivate the staff and co in the rural areas." The solarisation of healthcare institutions hold promising in per-urban and out of reach communities far off from the grid systems.

Table 3: Critical Medical Equipment Dependent on Electricity

No	Critical Medical Equipment Dependent on Electricity	
1	Diagnostic Equipment	✓ Microscopes: Used for examining samples and diagnosing diseases. ✓ Centrifuges: Essential for separating components of blood and other fluids for analysis. ✓ Blood Chemical Analysers: Used to perform tests on blood samples to assess health conditions. ✓ Haematology Analysers: For counting blood cells and analysing blood components.
2	Immunisation and Storage	✓ Vaccine Refrigerators: Critical for storing vaccines at required temperatures to maintain their efficacy. ✓ Deep Freezers: Used for long-term storage of biological samples and certain medications.
3	Life-Saving Equipment	✓ Radiant Infant Warmers: Provide heat to new-borns who are unable to maintain their body temperature. ✓ Incubators: Essential for premature or ill infants, providing a controlled environment.
4	Surgical Equipment	Various surgical tools and lighting systems that require electricity to function during procedures.
5	General Facility Operations	✓ Lighting Systems: Necessary for safe operation during night time or in poorly lit conditions. ✓ Communication Devices: Essential for coordinating care and emergencies, including telecommunication systems.
6	Water Supply Systems	Electricity powers water pumping and purification systems, which are crucial for sanitation and hygiene in healthcare settings.

Source: Compiled from literature, especially "The Factsheet of Energy Audit of Primary Healthcare Centres conducted in 2019/2020 by Heinrich Boll Stiftung (HBS), and partners including Good Governance Team (GGT). The Consultant was also part of the survey team.

Importance of a Socially Just Transition for PHCs to better address the health effect of climate change

"Every day, we witness how climate factors influence the health of communities around the world, from the rising frequency of extreme weather events to violent land disputes stemming from drought-ravaged farmlands that have diminished crop yields, the connection between climate and health is stark."

In the health sector, the just transition emphasises the need for clean energy solutions to improve health outcomes, particularly in under-served communities, and improving the work conditions of medical staffs.

For example, "Since installing 436 solar panels this year, the 250-kilowatt solar power system has consistently kept medical devices running, medications refrigerated and enabled emergency surgical procedures. A battery backup system also ensures hospital operations continue smoothly at night and during extended periods of cloud coverage. Patients in the hospital, including in maternity care, the neonatal intensive care unit and the cholera unit, have received improved healthcare. One "cannot overstate how the switch to solar panels has improved our ability to respond to malnutrition and pediatric emergencies by being able to better store vaccines and expand our outreach," says MSF country director in Nigeria. "At the same time, the introduction of renewable energy has strengthened the hospital's ability to provide consistent, quality care over the long term. By changing the infrastructure of what needs to be sourced, transported, stored and paid for, the hospital is now better equipped to deliver more reliable and uninterrupted care. And, because it is a cleaner energy source, it has a smaller environmental footprint, reducing its contribution to the climate crisis that is already impacting the people…" The installation of the solar project at Zurmi general hospital, ensuring a more stable and efficient power supply for critical medical services. Moments before the switch, many staff at Zurmi hospital held their breath, worried about how the change in power would affect medical operations. "We have people on oxygen tanks," says an MSF staff member, reminding the engineers about what was at stake. Very quickly, those fears turned to relief, as the transition went smoothly and the power remained stable throughout the day and into the following days."[25]

[25] See, MSF: Nigeria: Harnessing solar power improves care in northern hospitals; Doing more to mitigate climate change.

2.3 Spotlighting Nigeria's Climate Actions Policy Measures Landscape

Over time, Nigeria has adopted a deluge of policies, strategies and action plans that are related to addressing the national development challenge of climate change, as well as integrating environment and climate change management in socioeconomic development activities of the country.

Box B: Some of these policies and other strategic instruments include:

1. National Adaptation Strategy and Plan of Action on Climate Change for Nigeria (NASPA-CCN) 2011,
2. National Renewable Energy and Energy Efficiency Policy (NREEEP) 2015;
3. National Gas Policy (2017)
4. National Biodiversity Strategy and Action Plan (NBSAP) 2016;
5. National Forest Policy (NFP) 2010;
6. National Forestry Action Plan (NFAP) 1996;
7. National Policy on Environmental 2016;
8. Agricultural Promotion Policy (APP) 2016 – 2020;
9. National Climate Change Policy and Respond Strategy (NCCPRS) 2012;
10. National Policy on Drought and Desertification (NPDD) 2007;
11. Great Green Wall for the Sahara And Sahel Initiative
12. National Strategic Action Plan (GGWSAP) 2012;
13. National Agricultural Resilience Framework (NARF) 2013;
14. National Health Policy (2016);
15. National Water Policy (2012);
16. National Transport Policy (2016)
17. Nigeria Industrial Revolution Plan (2014)
18. National Gender Policy (2006),
19. REDD+ Strategy, 2019
20. Renewable Energy Master Plan (REMP)

As sub-national levels, some state governments have also come up with climate related measures; such as Lagos State Climate Change Action Plan (2021), which aims at attaining a zero-carbon Lagos in line with the targets and goals set out under the Paris Climate Change Agreement; Rivers State Climate Change Law (2022) as the first state to adopt the national climate change legislation. Similarly, both Delta and Niger states have initiatives such as Niger State's Green Economy Initiative Order No. 3 and Delta State Renewable Energy Policy Roadmap. Other state governments have also made one or two policy pronouncements with regards to climate mitigation and or adaptation measures and actions. The existence of a deluge of policy frameworks and measures at both national and subnational levels demonstrate Nigeria's commitments to achieve net-zero emission which are anchored under the building strong institutional framework, enabling climate change policies and legislative instruments, such as development of National Policy on Climate Change, Nationally Determined Contributions (NDCs), enactment of National Climate Change Act, Climate Change Financing as well as International Cooperation.

While the existence of plethora of policy measures at both national and sub-national level might indicate Nigeria's commitment to climate actions. However, the top-down approach, devoid of extensive participatory process, often results in inadequate consultations and exclusion of critical

stakeholders such as trade unions, marginalised communities, and other vulnerable groups. This is evident in the non-reflection of trade union perspectives in the formulation.

Health policy context

Landmark policies and plans

2004 Health Policy
Primary Health Care became the entry point and cornerstone of the National Health System.

2014 National Health Act
Legislative framework for all health-related matters. Basis for the regulation, development and management of a Health System and set standards for rendering health services in Nigeria.

2016 National Health Policy
Factored in global and national targets signalled by the Sustainable Development Goals (SDGs) and the push for countries to attain Universal Health Coverage.

2018-2022 National Strategic Health Development Plan (NSHDP)
Designed to operationalise targets specified in the National Health Act 2014 and National Health Policy 2016. Hinged on a vision "to ensure healthy lives and promote the wellbeing of the Nigerian populace at all ages".

Landmark programmes and interventions

- Primary Healthcare Under One Roof programme (PHCUOR): Backed by the 2014 National Health Act, the programme is designed to address the fragmentation in PHC delivery and bring the governance of primary care under a central body in each State.
- One PHC per ward programme: In line with 2016 National Health Policy and NSHDP, the programme was designed to make at least one PHC fully functional in each of the approximately 10,000 political wards in Nigeria.
- Basic Healthcare Provision Fund (BHCPF): A major financing reform introduced by the 2014 National Health Act is the establishment of the BHCPF to address critical supply and demand funding gaps that have limited access to healthcare services.

Source: collated from multiple sources

NPHCDA has outlined a vision to revitalise at least 10,000 PHCs across the country (61 PHC ward), improve PHC service availability to communities and strengthen linkages to referral hospitals. Type 2PHCs have been prioritised in the plan.

Renewable Energy Policy and Regulatory Guidelines

Policy/regulation	Description & relevance to the SAS sector
National Renewable Energy and Energy Efficiency Policy (NREEEP)	Policy guiding the renewable energy sector. Addresses renewable energy supply, utilization and financing, capacity building, and gender and environmental issues. Recommends increasing local investment in renewable energy via Nigerian capital markets.
National Renewable Energy Action Plan (NREAP)	Implementation framework for the NREEEP. Includes baseline data on renewable energy sources including standalone solar, and a total off-grid renewable energy target of 5,545MW by 2030. Provides for development of professional and technical courses on renewable energy, and increased investments of SAS projects.
National Energy Efficiency Action Plan (NEEAP)	Rollout of the Minimum Energy Performance Standards (MEPS) for refrigerators and air conditioners in September 2019. Includes baseline data and information on energy efficiency activities as well as energy efficiency targets.
Rural Electrification Strategy and Implementation (RESIP)	Continued inclusion of mini-grids and standalone solar systems in rural electrification efforts. The Rural Electrification Fund (REF) provides grants to mini-grid and SHS providers. REF Call 2 is currently underway.
ECOWAS Common External Tariff (CET)	In March 2020, Nigeria Customs Service aligned to the regional CET that fixes 10% duty for inputs and intermediate goods, which SAS components fall under. A standalone solar importation guide was developed by ACE TAF in 2019.

Policy/regulation	Description & relevance to the SAS sector
The Finance Act 2020	FIRS increased VAT to 7.5% from 5% in early 2020. Company income tax is currently 0% for small companies, 20% for medium-sized companies, and 30% for large companies. Under the Solar Power Naija programme, qualified solar assemblers will be given tax waivers.
Nationally Determined Contribution (NDC)	As Inter-Ministerial Committee on Climate Change has been set up to coordinate line ministries and agencies on Nigeria's action to mitigate climate change. NDC Sectoral Action Plan developed. Promotes adoption of SAS products to combat climate change.
Standards Organisation of Nigeria Conformity Assessment Programme (SONCAP)	The Standard Organisation of Nigeria (SON), in July 2020, released the first ever Nigerian National Standardisation Strategy (NNSS) for 2020-2022 and approved 168 standards, including for 'renewable energy and hybrid systems for rural electrification'. SON, with support from ACE TAF, approved quality standards for SAS products ≤350W. With technical assistance from GIZ/Nigerian Energy Support Programme (NESP), they are now developing standards for components such as PV panels, batteries, charge controllers, energy meters and inverters. SONCAP is a pre-shipment verification of conformity to standards process used to verify that SAS products for import into Nigeria conform to the applicable Nigerian industrial standards and technical regulations before shipment. This will help to provide the technical quality assurance needed for components that are deployed in the Nigerian market.
Sustainable Energy for All – Action Agenda (SEforALL AA)	Launch in 2020 of the Nigerian SEforALL Platform to provide access to digital, on-the-ground data to support electrification efforts. The AA promotes sustainable energy and energy access. Includes a target to increase total off-grid renewable energy capacity to 8,000MW by 2030.

Source: Mapping Climate, Health and Energy Nexus Adaptation Strategy
(Building Nigerian Public Service Unions' Advocacy Capacity for Just Transition)

2.4. Overview of Nigeria's Energy Transition Plan

The Nigerian Energy Transition Plan (ETP) is a comprehensive strategy launched by the government in 2021 to achieve net-zero emissions by 2060. This serves as a blueprint for sustainable energy development in Nigeria. Nigeria's Energy Transition Plan (ETP) aims to achieve multiple objectives grouped under five key pillars: environmental sustainability, economic growth and job creation, universal energy access, innovative financing mechanisms, and leadership in Africa's energy transition. The Plan presents a roadmap that requires an estimated investment of USD 410 billion, approximately USD 10 billion annually, to achieve carbon neutrality by 2060. Its key targets include reducing energy poverty for 100 million Nigerians, driving economic growth, and fostering regional cooperation among African nations[26,27].

As a comprehensive strategy to mobilise investments, improve private sector involvement, and create opportunities in the energy transition, the ETP aims to achieve net-zero emissions across five sectors by 2060. The ETP aims to accelerate the transition to a low-carbon, climate-resilient economy, utilising natural gas as a transitional fuel, and driving Nigeria's path to net-zero. Essentially, it will promote a fair, inclusive and equitable energy transition.[28] The ETP plans to create up to 340,000 jobs by 2030 and up to 840,000 by 2060, driven mainly by the Power, Cooking and Transport sectors.

The Plan is primarily anchored on the following thrusts: Poverty eradication through an improved standard of living for over 100 million people; Driving sustainable economic growth in key domestic commercial sectors; Providing universal electricity access to the entire population; Mobilising investments and private sector involvement by creating significant market opportunities in the energy transition process; Serving as a blueprint to Nigeria's commitment and ambition to achieving carbon neutrality; and Successfully steering the long-term job loss in the traditional energy sector that will arise from de-carbonisation.

The success of ETP will require an unprecedented shift away from fossil fuels to RE sources, including significant investment. A media report[29] estimated that Nigeria will require approximately $500 billion additional financing beyond the business as usual (BAU) investments to achieve a net-zero-emission target by 2060. The report added that "significant progress has been made toward achieving the initial objectives of the ETP" with $16.1 billion in funding commitments made towards the ETP implementation. Previously, the Nigeria's Energy Transition Office (NETO) estimated that to deliver net-zero target by 2060, Nigeria requires ƃUSD 410 billion (between 2021 - 2060); USD 150 billion net spend on generation capacity, USD 135 billion on transmission and distribution infrastructure, USD 79 billion on cooking, USD 21 billion on industry, USD 12 billion on transport and USD 12 billion on oil and gas de-carbonisation. Another estimate reveals the Plan requires the sum of US$1.9 trillion investment by a full transition in 2060. This is an annual requirement of $10 billion.[30] Nonetheless, NETO has identified an initial USD 23 billion investment opportunity across a portfolio of projects, out of which ƃUSD 17 billion is estimated as funding required through the private sector, across generation, transmission, distribution, metering, gas commercialisation, clean cooking, e-mobility, and healthcare.

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[26] https://www.iddri.org/sites/default/files/PDF/Publications/Catalogue percent20Iddri/Rapport/Ukama_NIG_v05.pdf

[27] https://climateactiontransparency.org/wp-content/uploads/2023/08/Nigeria-Just-Transitions-Inception-Workshop-Report-compressed.pd

[28] https://ukniaf.ng/2024/03/19/what-you-need-to-know-about-nigerias-energy-transition-plan/#:~:text=How percent20much percent20will percent20this percent20cost,the percent20creation percent20of percent20new percent20markets.

[29] See, the Guardian Business, Friday 13 December 2024.

[30] Ibid.

Undoubtedly, The Nigerian ETP represents a bold step toward achieving sustainable development while addressing pressing socio-economic challenges. Its success will depend on effective implementation, robust financing mechanisms, and strong political will. If executed properly, the Plan could position Nigeria as a leader in Africa's transition to clean energy while improving the quality of life for millions of its citizens. However, for the trade unions, one of the key labour concerns with the ETP is that "the discussions around energy transition have been majorly on investments, climate, with little or no focus on the workers".[31]

Additionally, it has been raised that the Plan is largely premised on private sector investment in renewable energy rather than being conceived as a publicly driven transition to renewables. In response, the National Labour Congress have called for more public-focused energy transition policies.
"The Nigeria Labour Congress demands energy sufficiency, efficiency, sustainability and affordability anchored on a determined effort by the Nigerian state to embrace policies that enable public ownership of energy concerns, diversify into renewable energy sources, effectively manage gas as a transition fuel and put an end to gas flaring in all oil platforms in Nigeria."

The trade union perspective on energy transition is centred on the concept of a "Just Transition", which is ensuring that the shift to renewable energy does not leave workers behind and is driven through the public sector. According to the World Economic Forum (2021),[32] a just transition is a transition away from fossil fuel-based energy resources to cleaner renewable sources implemented in a way that addresses not only environmental sustainability but also provides decent work, enhances social cohesion, and helps to eradicate poverty.

This notion of 'just energy transition' focuses on sectoral equity. Sectoral equity in energy transition refers to the fair distribution of costs and benefits of transitioning to a low-carbon economy among different sectors of society, including marginalised communities, to prevent further social inequality. Hence, policymakers are expected to ensure that internal disruptions caused by the shift away from traditional energy sources are implemented to minimise job losses, social and economic dislocation, and the exacerbation of poverty.

In 2013, the International Labour Organization (ILO) adopted a notable resolution that aimed to promote sustainable development, decent work, and green jobs. This resolution laid the groundwork for creating the ILO Guidelines for a just transition towards environmentally sustainable economies and societies for all and the Paris Climate Agreement in 2015. Both the ILO Guidelines and the Paris Agreement emphasise the importance of a just transition and the creation of decent work as critical components of climate change. The International Trade Union Confederation (ITUC) emphasises this, with their slogan; "No job on a dead planet", highlighting the urgent need for change.

The Just Energy Transition (JET) is equitable energy solutions. The transition to renewable energy resources must prioritise equity, ensuring that low-income and marginalised communities benefit from clean energy initiatives rather than being burdened by the negative impacts of fossil fuel extraction and pollution. It must also provide access to clean energy without job displacement, as well as ensuring that the clean energy solution is accessible to solve their problem. The JET campaign, which involves trade union centres, CSOs and development partners such as ActionAid Nigeria, FES, and government departments like the NCCC Secretariat, focuses on creating a sustainable and equitable shift from fossil fuel dependence to renewable energy resources, particularly in the health and energy sectors. This initiative can effectively address the socioeconomic impacts of climate change while promoting environmental sustainability.

[31] https://www.pengassan.org/news-media/the-pengassan-energy-and-labour-summit-kicked-off-today-17-october-2022-at-the-transcorp017
[32] https://www3.weforum.org/docs/WEF_Fostering_Effective_Energy_Transition_2021.pdf

The leadership of the National Union of Electricity Employees, during the 7th Quadrennial/12th Delegates Conference, concluded that if renewable energy source replaces fossil fuel, it would reduce climate change in Nigeria. The NUEE leadership noted that the world is already moving towards energy transition. Thus, "Government should encourage and harness the abundant renewable energy source as against the use of fossil fuel to improve power generation and reduce the effect of climate change in Nigeria, as the world is moving towards a just energy transition."

Overall, it is considered that trade unions in Nigeria are committed to ensuring that the energy transition is not only environmentally sustainable but also socially just and equitable. In spite of the prospects of the ETP, the trade unions in Nigeria are not satisfied with the efforts put forth by the government for a just energy transition.

Health is not explicitly listed as one of the primary sectors in the ETP, but it is indirectly addressed through initiatives aimed at improving air quality and public health by transitioning to cleaner energy sources for cooking and electricity generation. Improved access to clean energy is expected to have significant positive health impacts, particularly in reducing respiratory illnesses associated with indoor air pollution from traditional fuels; including tree planting campaigns in cities and other urban centres as a public health measure against heat wave arising from high temperature.

PHCs' Electricity Access Challenges

Despite its importance, many PHCs in Nigeria face significant challenges related to electricity access:

- **Inconsistent Supply**: A large number of PHCs experience unreliable power supply due to a weak national grid. Reports indicate that around 40 per cent of functional PHCs lack access to electricity altogether.
- **Limited Renewable Energy Use**: Although there are initiatives to electrify PHCs using renewable energy sources like solar power, only about 20 per cent of these centres currently utilise such technologies effectively.
- **Investment Barriers**: Many public PHCs operate on limited budgets that restrict their ability to invest in reliable electricity solutions or pay for operational costs associated with energy supply.

Barriers in utilisation of RE solutions within health facilities; Evidence from the field:

We've seen that some places have solar installed yet there are barriers to using them as are there insufficient number of people, who have been trained on how to operate those installed solar solutions within the facilities. For example, at a PHC facility inside Kaduna metropolitan city, a security man was only exposed to how to put the solar inverter on and or off, elsewhere in same Kaduna state, FGD participants reported issues of bordering on theft and vandalisation by miscreants as key barriers. Also, another key barrier mentioned was procedure or the protocol to replace spoilt batteries. Mostly, the assigned in-house personnel and RE solution providers are not properly synchronised which rise the risk of total breakdown of installed solar power system especially whenever there is issue with the system. So the protocols can lead to lack of quick response which can lead to inefficiency of the activities in the facilities connected to the solar…there must be a better approach to in place to train some staff to also do some of those little technical things.

Another barrier identified relates to prompt requisition by government to quickly supply items to a particular facility for equipment maintenance. According to the FGD participants: "Poor maintenance, the items they supplied, the people or workers who are responsible to take care of those things, to maintain those things are not there. Sometimes they are there but to pay them becomes a problem. If to pay them becomes a problem, those items become out of use because nobody's there to maintain them. So I look at it as a barrier because if it means that government can supply let's say an AEDC grid light, they will be the one to maintain it. But when they install facilities like a solar and some other things, the maintenance there becomes a barrier. Those things will be there but how to put them to use becomes a problem in most cases.

Hence, the existing culture of poor maintenance is one barrier to PHC solarisation in Nigeria. But unlike the normal grids where perhaps when they are connected to the hospitals, the pre- or post-paid meters, or if it is diesel for generator, the resources to buy electricity from the grid system, fuel and maintenance... If those things are not available, it becomes a barrier. However, for RE solutions, the providers would need to provide training for assigned in-house personnel who would be required to step-down the training in a way that won't divert the attention of the facility from their primary responsibility to secondary. Thus, there is need to identify one or key resource person in the organization that would train two other staff to identify and monitor one or two things that will likely happen and report back to RE solutions providers. The one that they can quickly fix, they fixed it. They one they can't fix, they report back to them. But time lag between those communications could be a challenge. So part of the solution would be a kind of community ownership using existing community structures such as Ward or Village Health Committees tapping from the community resourcing such as optimizing services of technically trainable persons in that community who understand those things, who can be assigned together with the staff of the hospital to do more due diligence on it in the context of decentralised energy system as most of the solar solutions are either standing alone, or mini-grid, off-grid solutions.

The RE solutions are molded almost like grid systems, with solutions providers serve some environments. And part of the design is that the PHCs, for instance, serve as the nucleus of socioeconomic development of that area. That if they site a PHC facility at the centre of the community, it can be a nerve for other community activities. Community women can go there for ante-natal services. They can go there even at the evenings for other social and economic activities, hold their town hall meetings (THMs) and could serve other productive activities such as providing a kiosk where people charge their phone batteries and pay little money to cover some of the maintenance cost. The fragmented PHC ownership structure creates a budget bottleneck. "If the PHC is owned, who funds the recurring expenditure there, the payment of staff, the administrative costs? These are some of the barriers that might impact the effective utilization of the solar systems.

"..Community ownership. It's our own. We won't spoil it..." - FGD participant

The FGD participants highlighted that stakeholder engagement is essential for cultivating community ownership and should be prioritised before the implementation of any government interventions. According to them, if community ownership is not mainstreamed through gatekeeper engagement before government installs anything in the community, it would be difficult to make the people own it, and ensure the systems are not spoilt or vandalised.

"But if you do it, they say it belongs to government they will vandalise it. But once there is ownership, this thing belongs to us, the traditional rulers are aware that it is ours. The citizens know that our hospital depends on this everybody will protect it. But if it's for government, the same community will vandalise it, not knowing that it's their own. So that's the benefit of stakeholder analysis."

However, there is a need to investigate how well community engagement and ownership are implemented before installing solar power systems in pre-urban and rural PHCs, especially in areas with high security risks, as several FGD participants noted that vandalism and theft remain major challenges at their facilities (Kaduna, May 2, 2025).

In any case, it is important to mainstream community engagement and sensitisation to forestall vandalism and theft of installed solar solutions in community healthcare centres.

"How to engage the community is through the community leaders. By the time you have the consent of community leaders, they will be the ones to announce it further to their subjects. So by the time the community are carried along, some of this maintenance, government

doesn't even need to go into those maintenance, the community can do it by themselves. Like in my place, close to where I live in my own village, there is a bubble that has been installed in a primary school close to us. Most of the time, that thing has been installed by the government, the maintenance lies down to the community. If the borehole gets the faulty a portion of us who are not even residing in the village at the moment do contribute."

In other words, community resourcing will play a crucial role in the maintenance of the deployed energy solutions, as this has been effective for developmental project sustainability, particularly in the southeast region of Nigeria.

Health Sector's Vulnerabilities due to Unreliable Energy Access

Reliable energy access is crucial for the efficient functioning of health systems. However, unreliable or absent of energy sources severely compromise healthcare delivery, threatening lives and undermining development goals. Table 4 highlighted areas of vulnerability in the health sector caused by unreliable energy access.

Table 4: Area of Health Sector Vulnerabilities to unreliable dirty energy access

No	Areas of Vulnerabilities	Highlighting Vulnerabilities
1	**Impact on Critical Health Services**	• **Surgical Procedures: Unreliable energy disrupts operating rooms, causing delays or cancellations of life-saving surgeries. Power outages can halt the use of critical equipment like anesthesia machines and surgical lights.** • **Emergency Services: Lack of power compromises emergency services, including the inability to operate ambulances, communication systems, and life-support machines.** • **Maternal and Neonatal Care: Unreliable energy affects incubators, delivery room equipment, and neonatal warmers, increasing infant and maternal mortality rates.**
2	**Diagnostics and Laboratory Operations**	• **Diagnostic Equipment: Power fluctuations damage sensitive diagnostic tools like X-ray machines, CT scanners, and MRI machines, limiting diagnostic accuracy** • **Laboratory Tests: Energy-reliant laboratory procedures, such as blood tests and microbial cultures, are hindered by power shortages, leading to delayed or incorrect results.**
3	**Cold Chain and Vaccine Storage**	• **Vaccine Efficacy: Vaccines require constant refrigeration. Power outages break the cold chain, leading to spoilage and reduced effectiveness, especially for temperature-sensitive vaccines like those for polio or COVID-19.** • **Medical Supplies Storage: Unreliable energy impacts the storage of blood, insulin, and other temperature-sensitive drugs, leading to wastage and shortages.**
4	**Patient Monitoring and Life Support**	• **Life-Support Systems: Equipment like ventilators and dialysis machines depend on continuous power. Interruptions can lead to critical failures and**

		fatalities. • Patient Monitoring: Automated monitoring systems, such as heart rate or blood pressure monitors, cease functioning during outages, compromising patient safety
5	Water Supply and Sanitation	• Clean Water Access: Many healthcare facilities rely on electrically-powered water pumps. Power outages lead to water shortages, affecting hygiene and increasing infection risks. • Sterilization: Energy-dependent sterilization processes for surgical tools and equipment are compromised, raising the likelihood of hospital-acquired infections.
6	Healthcare Infrastructure	• Lighting: Poor lighting due to unreliable energy makes night-time care difficult, risking patient safety and worker efficiency. • Information Systems: Health information systems, including patient records and digital health tools, rely on continuous power for operation and data security.
7	Healthcare Worker Productivity and Safety	• Work Environment: Unreliable energy affects heating, ventilation, and air conditioning (HVAC) systems, creating uncomfortable working conditions. • Safety Concerns: Power outages compromise hospital security systems, including surveillance cameras and access control, putting staff and patients at risk.
8	Healthcare Access in Rural Areas	• Service Gaps: Rural healthcare centers are often the most affected, operating without energy backups or reliable grids. This limits service delivery and discourages skilled healthcare workers from serving in these areas. • Telemedicine: Unreliable energy disrupts telemedicine services, which are vital in remote areas for specialist consultations and follow-ups.
9	Cost Implications	• Increased Operational Costs: Healthcare facilities resort to expensive alternatives like diesel generators to maintain operations during outages, diverting resources from patient care. • Infrastructure Damage: Power fluctuations damage medical equipment, increasing maintenance and replacement costs.
10	Public Health and Epidemic Response	• Epidemic Surveillance: Reliable energy is essential for data collection, reporting, and coordination in epidemic responses. Outages hinder these processes, delaying containment efforts. • Treatment Centres: Energy disruptions in specialised treatment centres, such as those for tuberculosis or COVID-19, reduce capacity and efficacy in managing outbreaks.

Source: Compiled from literature, especially "The Factsheet of Energy Audit of Primary Healthcare Centres conducted in 2019/2020 by Heinrich Boll Stiftung (HBS), and partners including Good Governance Team (GGT).

Opportunities in Renewable Energy Sources

Renewable energy presents several opportunities for improving health outcomes and mitigating climate change in Nigeria:

- **Improved Health Outcomes**: Access to renewable energy can enhance healthcare delivery by providing consistent power for medical facilities. This can lead to better patient care through improved lighting, refrigeration for vaccines, and the operation of medical equipment.

- **Economic Growth**: Investing in renewable energy can stimulate job creation within the green economy while reducing reliance on fossil fuels. This transition can foster sustainable economic growth and reduce energy poverty.

- **Environmental Benefits**: Shifting towards renewable energy sources reduces greenhouse gas emissions, contributing positively to climate change mitigation efforts. This shift can also improve air quality and reduce health risks associated with pollution from fossil fuels.

- **Enhanced Healthcare Delivery**: Reliable access to clean energy can improve the functionality of healthcare facilities, allowing them to operate efficiently and provide essential services without interruptions.

- **Reduction of Health Risks**: Transitioning to renewable sources reduces reliance on polluting fuels like diesel, which contributes to respiratory diseases and other health issues associated with air pollution.

- **Economic Savings**: By reducing operational costs associated with fuel purchases for generators, healthcare facilities can allocate more resources toward patient care and infrastructure improvements.

- **Improved Access to Services**: Solar-powered PHCs can operate for longer hours and provide a wider range of services, leading to increased patient attendance and better health outcomes.

- **Cost Reduction**: Transitioning from diesel generators to solar power significantly reduces operational costs for healthcare facilities, allowing funds to be redirected towards enhancing healthcare services.

- **Environmental Benefits**: Utilising solar energy will mitigate climate change impacts by reducing reliance on fossil fuels and decreasing greenhouse gas emissions associated with traditional power generation methods.

Table 5: Benefits of a Just Energy Transition for Members

No	Benefit	Highlights
1	**Improved Service Delivery**	Reliable energy ensures consistent operation of critical equipment, vaccine storage, and emergency care, improving healthcare outcomes.
2	**Reduced Operational Costs**	Renewable energy solutions, such as solar power, lower energy costs for hospitals and private clinics, freeing up funds for other services.
3	**Better Working Conditions**	Reliable electricity enhances the work environment, reducing stress from power outages and improving staff morale.
4	**Healthier Communities**	Cleaner air due to reduced fossil fuel use leads to fewer cases of pollution-related illnesses, reducing the patient burden on healthcare facilities.
5	**Professional Development Opportunities**	Training in renewable energy and energy efficiency build the capacity of members, positioning them as leaders in sustainable healthcare.

Source: Compiled from literature, especially "The Fact-sheet of Energy Audit of Primary Healthcare Centres conducted in 2019/2020 by Heinrich Boll Stiftung (HBS), and partners including Good Governance Team (GGT).

Case Studies of Interventions: Electrifying Health Facilities[33]

There are several cases and reports highlighting the implementation of solar energy solutions for PHCs in Nigeria, demonstrating significant improvements in healthcare delivery and addressing energy challenges. The Nigerian government, through the Rural Electrification Agency (REA), has also reportedly energised scores of HF nationwide with 50-kilowatt containerised solar hybrid systems across Nigeria's six geopolitical zones, including the Federal Capital Territory (FCT), Abuja.[34] The REA's interventions are aimed at closing the energy gap in off-grid communities and improving energy access in the health sector.

It should be noted that many small-scale renewable energy RE projects powering PHCs in Nigeria are delivered through private sector-led models, often under profit-driven arrangements rather than direct public sector implementation. For instance, a RE entrepreneur powered 21 PHCs in Oyo State under the Energy-as-a-Service model (85 per cent Power Africa Grant, 15 per cent Equity). Similarly, through private sector CSR, Volsus Energy powered one PHC in Karu, Abuja, while GVE reportedly connected 21 PHCs to mini-grids under a private sector delivery framework.

However, while these interventions have been instrumental in expanding energy access, it is important to clarify that the private sector's role is typically limited to installation and maintenance. According to the FGD participants, ownership of the installed energy solutions systems remains with the government, and no direct or hidden costs are borne by patients or healthcare workers. Funding for these projects is usually sourced from public budget allocations, development or donor grants, or CSR contributions. Even where the private sector is incentivised to implement such projects, the financial risks are often underwritten by government entities such as the Ministry of Finance, REA, or their sub-national counterparts, making these interventions similar to conventional public procurement contracts.

Nevertheless, some stakeholders have expressed concerns about the long-term sustainability of the private-sector-driven approach, particularly in the absence of strong community engagement or in-house maintenance capacity. There are ongoing discussions on the need to train healthcare facility staff for basic system upkeep. Yet, caution has also been advised to avoid adding pressure to already overstretched human resources for health.

This reflects Nigeria's current delivery model, but it also highlights the need to examine alternative approaches. Drawing on global experience from organisations such as PSI, exploring hybrid or community-led energy service models could provide useful insights for future program design and policy direction.

Few Selected Case Studies:

1. Dakwa and Karu Primary Health Care Centres: These centres have successfully implemented off-grid solar PV systems, resulting in improved healthcare delivery. The availability of reliable electricity has enabled better medical services, including refrigeration for vaccines and enhanced lighting for surgeries.

[33] The case studies are drawn largely from GGT (2022). Solarization of Primary Healthcare Centers in Nigeria: a Policy Dialogue Report; GGT (2020). Improving the Functionality of Primary Healthcare Centres in Nigeria (Prioritizing Policy and Legislative Actions for Optimal Basic Healthcare Services beyond COVID-19; and HBS (2018), op.cit.

[34] https://rea.gov.ng/rea-nep-addressing-nigerias-public-health-issues-provision-solar-hybrid-systems/

2. Lagos Solar Power Project: This initiative aims to implement solar power solutions in multiple PHCs across rural Lagos, benefiting around 4.7 million patients. The project has shown immediate positive impacts on healthcare delivery, including improved reliability of services due to consistent power supply from solar energy systems.

3. Karshi Primary Healthcare Centre: A study demonstrated the design and implementation of a solar PV system at this facility, which faced challenges due to unreliable power from diesel generators. The transition to solar energy is expected to enhance healthcare service delivery and reduce operational costs associated with energy supply.

4. Kaduna Solar for Health Programme: This program has successfully equipped numerous PHCs in Kaduna State with sustainable solar energy solutions, ensuring 24-hour access to healthcare services. The initiative has installed about 2MW of solar power across various health facilities, significantly improving the healthcare environment for over 100 communities.

5. PIND Initiative in the Niger Delta: The Partnership Initiatives in the Niger Delta (PIND) has implemented clean energy solutions in 12 PHCs across Delta, Ondo, and Bayelsa states. This initiative aims to enhance service delivery by providing reliable electricity for essential healthcare operations, leading to increased patient satisfaction and reduced operational costs.

Reports of Focus Group Discussion Sessions and Summary of Key Findings

A series of focus group discussion (FGD) sessions were held with both Medical and Health Workers Union of Nigeria (MHWUN) and National Union of Electricity Employees (NUEE) at the former's national headquarters in Abuja on Thursday, March 6, 2025 and Kaduna North Metropolitan City PHC, Kaduna on May 2, 2025.

The NUEE participants at the FGD session maintained that their union is supportive of transition to renewable energy in Nigeria. According to them, "Yes, the stand of NUEE is clear on this. We have keyed in. And that is evident in our participation in a series of programmes on just transition. So our stand is very clear. And we have keyed in. We must move. That is what it means." They contended that "the future is moving toward energy transition" (FGD, March 2025). A participant disclosed that "NUEE has tried to organise training in collaboration with other unions to train electricity workers to have first-hand information. And also prepare ahead of what's going to happen. Because it's obvious that the future is renewable energy."

In terms of the impact of climate change on the energy sector and the safety of workers in the sector, the FGD participants identified potential job loss, dwindling union members.

"So the impact is job loss…Because by the time renewable energy comes to stay, the people, the DISCOs, the owner of DISCOs will not, will really have no need for staff in their sector. Leading to job loss and at the same time loss in our members as a union. Because if somebody is not in the power sector he cannot be a NUEE member."

In terms of climate change induced specific challenges affecting the workers in the sector, the participants pointed out that, "most of our equipment are outdoor equipment. And climate change has necessitated rise in temperature. A lot of these equipment have rubber seals and some other things that are degradable due to high temperature. This could lead to either leakage of gas, at least, for equipment that are gas based. Then leakage of oil for equipment that are oil based. That is, why "pertaining to safety of staff, for example in my own organization we normally push that the engineers that are on the field should have enough safety boots, and PPE. We encourage the

management to get enough for the staff or engineers that are on the field. At least the safety boots and the environment should be conducive for them. And pertaining to motivation, we are working on motivation to encourage the staff on the field to get something that can motivate them to be on the field.
"During raining seasons, the electricity industry usually have a lot of issues that usually lead to blackouts. For example, there are many (electrical) faults on the ground that would need to be attended. The wind and or floods during the raining seasons could affect the overhead connection. And maybe, due to the shortage of workforce, they cannot be everywhere at a particular time. So we found out that the engineers, the field workers, might have overburdened, just to satisfy or ensure that they restore the supply. I think during that season electricity industry face so many problems.

Similarly, there are issues associated with dry season as its impacts on the electricity sector have been identified. For example, participants noted that their colleagues working outdoors during the hot weather face the risk of cancer of the skin.

"Let me also use this issue of weather, this very hot weather. We always have this emission for those that are on the field. The impact sometimes you see workers having cancer of the skin. "Because of radiation or emission, what are the dots, what are those things we need to know that we also have to take into cognizance so that when these things come on board we don't just start looking for coping strategies as everything that have a good side have a bad side?"

Again, *"We discovered that in energy sector, that's electricity industry, we discovered we have transformer limitations. Because that's where you find out that you load shed. You need to load shed because the transformers cannot carry all the loads. You manage load. Load management. So that's why you see that they have to load shed in some places to let some people have light for two to three hours despite the batch A, batch B. So you discover that you have transformer limitations because of the heat weather.*

"And again, before you know we start saying maybe, maybe it's about raining. Rainy season is about coming, we say okay, there's enough water in the dam. Because sometimes we say there's shortage of water or shortage of gas. So those are some of the things that will affect during climate change. Additionally, during rainy season, like I said before, we discover that a lot of poles falling and wires on the ground and other things. And we are short of the workforce. We need more helping hands. We need more engineers. Because you discover that some they will be tired. They have been exhausted. They will still say, "go and do this. Go and do this". Because of fear and all that they will not resist. They will go. And that's where you find hazard on the line.

"Because of the situation, the weather, maybe government has to, you just have to carry this one to government. We need to move for this underground connection. Because during the rainy season there's a lot of shortage. As in power outage usually occur. In Abuja it normally rain. Even when the rain is about to fall, they will take the light. I don't know maybe it only happens to those that are in the outskirts of the town. Maybe it doesn't happen in the town. But I believe it happens everywhere in Nigeria. When it's about to rain they take off the light because they don't know what can happen. The wire will fall. The pole will...I think we need to encourage them in the power system that we should go just the way they use to normally do in abroad. This underground connection so that all this power outage will stop very soon. And it also affect people because when wire fall, when poles fall, people may be electrocuted.

"...one of my major problems in this country is short of staff. Remember those days that we have these people: NEPA, during dry season you see them... they'll go out each pole, the grasses around that pole will be cleared...pole base clearing during dry season will be cleared because they know that hunters they burn bush. Farmers, they burn bush, so that it will not affect that pole. But now you hardly see that. Now back to maintenance aspect too. We know that this climate now, we are in the dry season now. Very soon we will move to rainy season. What are the measures they are putting in place to protect those things High tension? The poles, cables crossing the zinc. So those are the things

we need to... Then there's shortage of manpower. There's real short of manpower. And even though there's privilege to hire those manpower, they will not hire enough that will do the job."

The grid-based energy systems are also not immune to the risks of vandalism. During the FGD session with electricity workers from the NUEE, participants noted that, "vandalisation has become a major challenge" partly attributed to the frequent collapse of the national grid. More lamentably, key factors identified as making vandalism of electricity infrastructure easier include substandard equipment, corruption, staff collusion, and power cut. For the participants, "you cannot vandalise without an electricity staff being among them. There cannot be any vandalisation without an electricity staff as in power (Insider).

"It's easier to vandalise equipment when there's no power…" Sometimes, the management, instead of getting the real equipment, they go for substandard equipment. That's a major challenge in the power sector. Where you have a specific equipment to buy, a specification, but because you want to cut corners, you see them getting the substandard equipment which has hampered the growth of the electricity sector in that aspect. You talk about vandalisation again it has become a major challenge. If you have the statistics, for this year alone, the power sector has recorded over five or six grid collapses..." At times because in a way if the climate we are in the dry season, the weather is tense, if you're using substandard equipment it has direct impact on the equipment. Then again the erosion. So, I think we need to encourage, motivate and educate our people also more so that they will not be collaborating with all these outsiders. In my office (NEMSA)[35], we normally test metre. We have metre testing stations... So for now we just gotten our certificate 17025 that standardised us to test the metre accurately. And because of the climate change our staff are being trained and retrained on that area.

Undoubtedly, notwithstanding the concerns of job loss and union membership on hazy energy transition may pose to the workers in the electricity sector, the participants weren't oblivious of the potential positive impacts of energy transition as parts of mitigation strategy to avert climate crisis. They are optimistic or convinced the opportunities expected in greener economy in the sector of the future might neutralised the potential risks of job losses.

Undoubtedly, while participants expressed concerns about potential job losses and the implications for union membership due to the uncertain nature of the energy transition, they were not oblivious to its potential benefits. Many acknowledged that a well-managed energy transition could serve as a key mitigation strategy in addressing the climate crisis.

"I remember the first time this Band A issue came up. It was all over the news especially in the hospitals lamenting the high rate of electricity tariff. Small hospitals were going into extinction because they could not afford to pay electricity bill. So the impact is much because it affects resources. It affects major equipment because if they don't have light it becomes difficult for them to carry out major operations. There are seamless operations that supposed to take time but because of light. And that also impacts on the citizens because if you go hospitals the things you are supposed to do for twenty thousand before is now hundred thousand. Because they are using generator or increase in electricity tariff, it has impacted on their own financial strength. So you see that this things is really eaten up Nigerians. If you going to renewable energy, but at least there should be some cushioning effect. Lack of reliable or twenty four hour electricity supply to the health facilities in particular, has a very strong negative impact on the work they are doing.

"I think government should prioritise general hospitals mostly with renewable energy. Because masses visit general hospitals. And they believe it's affordable to them. And that's where a lot of people go. I may believe also that they have a lot of equipment because of government funding. So, I will suggest that government should prioritise the general hospitals for deployment of RE solutions so

[35] NEMSA (Nigeria Electricity Management Safety Agency)

that people can flow in there and be rest assured that their live is secured. Secondly, when there's power I believe that all those doctors who are japaing (meaning outbound migration of skilled workforce), when they have enough equipment to work, most of them will be encouraged to stay. Because it's part of the motivation. Because when there's enough equipment, there's conducive environment for them to work, they will stay especially those who have passion for their work.
"In addition, some of their facilities, facilities they use in the hospital, the items need to be refrigerated or get spoiled. Let's say for instance now let say there's a particular vaccine that's supposed to be refrigerated for a particular number of hours. And there's power outage. And the hospital is not financially capable of improvising to keep that vaccine, to keep it the way it's supposed to be to keep the effectiveness of the vaccine. Because if light goes off it's going to affect the effectiveness of the vaccine. Then secondly, I think government should go for medical equipment that is solar dependent. Because it's obvious power, electricity will not stay because we don't have a stable supply of electricity in the country. And then looking at issue of gas, solar and other means of generating electricity. So, I think government should give solar dependent equipment to medical workers."

The hike in grid electricity tariffs, particularly for those on Band A customers[36], have led to blackouts of many public healthcare institutions in the country. This is exemplified by the recent disconnection of power supply to the University College Hospital (UCH) Ibadan due to huge electricity debts the premier teaching hospital owed the Ibadan Distribution Company (DISCO). The situation raises serious public concerns on healthcare facilities electrification (HFE) in Nigeria, and has catalysed the health governance stakeholders to push for subsidised grid electricity tariffs for all publicly-owned healthcare facilities across the country. The stakeholders urged both government and the DISCOs to treat healthcare facilities deferentially in terms of electricity tariff charges given the fact that public health institutions are not profit-driven entities. This is in addition to the call for the installation of solar solutions for healthcare electrification needs through corporate social responsibility (CSR). From the foregoing, there is no doubt that Renewable Energy (RE) have a role to play in the electrification of public healthcare institutions in the country. It is therefore important for key stakeholders, including the trade unions to actively engage in conservation on energy transition at all levels. Hence, there is a need to develop capacity to engage in social dialogue and policy influencing skills to demand for increased public investments in RE solutions to power healthcare facilities, including advocacy for a just energy transition rooted in job security, social protection, and decent jobs by the trade unions and their partners in civil society, academia and the media.

The key findings from these FGD sessions are summarised below:

1. Trade Unions are supportive of climate actions that are based on just and equitable transition, and adaptation processes that carry the workers along, respect their rights and help facilitate resilience and social protection. Hence, to the trade unions, "just transition represents a transformation from carbon-based economic activities to low or zero economy in a manner that limits or prevents the negative impacts of climate change, the negative impacts of transition on workers, their families and communities."

2. Notwithstanding the lack of data on the total numbers of solar PVs or the amount of installed capacity, the insights from the FGD sessions suggest growing popularity of solar power solutions in the HF electrification across the country. Aside public interventions through REA and sub-national governments, many partners delivering healthcare interventions at state levels now factor in the provision of solar energy solutions to power the facilities they are supporting.

3. The solar power solutions being installed at the level of PHCs are designed as stand-alone solar-home-solution (SHS) ranging from 5kVA to 50-kilowatt containerised solar hybrid systems. Initially, the installed solar-powered solutions were dedicated to critical energy

[36] Band A category of customers are with 20 hours and above of electric power supply daily. Band B are those below 20 but more than 15 hours of electricity per day, those on Band C are below 15 hours but more than 12 hours, Band D are those below 12 hour of electricity per day.

needs such as vaccine cold chain. However, increasingly, the installation are now being scale up to cover all critical HF electrification requirements; particularly at the benefiting PHCs. From both desk and field research conducted, there is no evidence that the patients paid any cost, open or hidden for all the installed solar power for HF electrification. Governments, development partners, as well as private entities through their CSR bore the existing funding models used to roll out the solar powers at the public PHC facilities. However, maintenance remains a key unresolved challenge in ensuring the long-term sustainability of solar power systems in the healthcare sector. According to participants in the series of FGD sessions, the model now being strongly advocated includes promoting community ownership through training and incorporating both dedicated in-house hospital staff and trainable community volunteers to support routine system maintenance.

4. Rising heat wave associated with increased high temperatures due to climate change has altered the weather patterns over the years. The FGD participants noted that "prolonged exposure to high temperatures – both day and night – can exacerbate heat stress, increase mortality rates and reduce productivity. Experts warn that "extreme heat during the day, followed by unusually warm nights, may interrupt the normal physiology of sleep and thus poses severe risks to human health according to a study published by Lancet." Thus, the impacts of climate change on the health sector and the safety of workers have been highlighted to include low productivity, increased demand for healthcare services, poor service delivery, heat stroke, dehydration, burnout, stress, mental health challenges, skin cancer, and more.

5. Limited or inadequate knowledge of policy responses and measures to combat climate change, as well as those aimed at ensuring a just transition, remains low among the rank and file of the two unions. This is despite growing concerns that these categories of workers are among the most vulnerable to the impacts of climate change and face potentially higher risks of job loss in the event of an uncoordinated or haphazard transition. Put simply, the knowledge of concept of a "just transition" is yet to percolate down the general membership of health and medical union and electricity workers as many of them appear not well familiar with the term.

6. The contours of transition in the medical and health sector remain obscure; because the linkages appear not clearer or the fears of potential job losses from energy transition are likely not directly visible for the sector. Yet, Energy is one of the most critical infrastructures that a public healthcare institution or any health facility needs, without which hospitals or healthcare facilities cannot function optimally. Unreliable electricity continues to undermine the delivery of critical healthcare services that require uninterrupted, 24-hour power supply. This challenge is compounded by the fact that many public healthcare institutions lack consistent access to electricity, as evidenced by the six-month blackout at UCH, Ibadan.

7. Renewable Energy (RE) have a role to play in the electrification of public healthcare institutions in the country. Hence, there is a need to develop capacity to engage in social dialogue and policy influencing skills to demand for increase public investments in RE solutions to power healthcare facilities, including advocacy for a just transition rooted in job security, social protection, and decent jobs by the trade unions and their partners in civil society, academia and the media.

8. The FGD sessions also recommended de-skilling, re-skilling and up-skilling of workers to ensure just transition.

9. "Access to drinking water, adjusting work schedules, increasing hospital capacity during heat waves and tree planting, including advocacy for heat action plans (HAPs) suggested. "Heat waves can negatively impact mental health, causing increased irritability, anxiety and potentially exacerbating existing mental health conditions. They can also disrupt sleep, leading to further stress and cognitive difficulties."[37]

[37] Nzogi, Ibe "Tackling Climate Change, Heat Waves in Nigeria; Urgent Action"; Health Situation: Leadership, Sunday, March 16, 2025: 21

Spotlighting Key Stakeholder Mapping at Glance

Stakeholder Mapping - Government, Donor/Development Partners, Development Finance Institutions/Financiers and the Private Sector

Government

Federal:

- Federal Ministry of Health
- National Primary Health Care Development Agency (NPHCDA)
- Federal Ministry of Power
- Rural Electrification Agency (REA)
- Federal Ministry of Water Resources
- Federal Ministry of Science and Technology
- National Health Insurance Scheme (NHIS)
- Federal Ministry of Environment
- Federal Ministry of Finance, Budget and Planning
- Standards Organisation of Nigeria
- Energy Commission of Nigeria
- Nigeria Customs Service
- Office of the President and Vice President

State:

- Govt Institution with oversight on Power/Energy/Health
- State Min. of Planning & Budget
- Office of the Executive Governor
- Local Government Chairpersons

Donors/Development Partners

Active development partners

- ACE TAF
- GIZ NESP
- Power Africa NPSP
- NOMAP
- UK NIAF
- Heinrich Boll Stiftung Nigeria
- SE4ALL
- USADF
- GEAPP
- RMI
- SUNREF
- Rockefeller Foundation (RF)
- UNDP GEF
- JICA
- EU
- AECF
- Husk
- Power Africa
- USAID-IHP
- ECOWAS
- AECOM
- Africa Clean Energy–Technical Assistance Facility
- USTDA
- WHO
- GAVI
- Global fund

DFIs /Financiers/Investors

- World Bank
- UNDP
- African Development Bank
- All On
- Infracredit
- Acumen
- African Finance Corporation
- Sterling Bank
- First City Monument Bank
- Chapel Hill Denham
- Helios
- DFC
- Grofin
- ElectriFi
- NSIA
- NDPHC
- Development Bank of Nigeria
- Bank of Industry
- Bank of Agriculture
- Norfund
- IFC
- Gef

Private Sector

* Arnergy Ltd * PAS Solar * VESTA * Schneider * Just StandOut Ltd *Blue Camel * Okra/SAO * Sosai Renewable Energy *EM-ONE * GVE * Greenmax * Havenhill *Volsus Energy * Schneider Electric *Arnergy *Vesta Healthcare *Vaya Energy *Ice Commercial Power

Industry Association – Power Sector/ Think-tank

Industry Associations

- REEEA Alliance
- REAN
- AMDA
- SEPAN
- GOGLA
- Tetra Tech International
- Deloitte
- CrossBoundary
- Nigeria Economic Summit Group (NESG)
- McKinsey
- Clean Tech Hub
- Nextier Power
- World Resources Institute
- A2EI
- Good Governance Team

Health Sector Association/ Union

- Nigerian Medical Association (NMA)
- Medical and Health Workers' Union of Nigeria (MHWUN)
- National Association of Nigeria Nurses and Midwives (NANNM)
- Association of Medical Laboratory Scientists of Nigeria (AMLSN)
- National Association of Community Health Practitioners of Nigeria (NACHPN)
- Association of Medical Social Workers of Nigeria (AMSWON)
- Nigeria Society of Neonatal Medicine (NISONM)
- National Primary Health Care Development Agency (NPHCDA) Staff Union
- Paediatric Association of Nigeria (PAN)
- Association of Residents Doctors (ARD)

Sources: adopted from HBS publications

Table 6: Database of Trade Unions and Professional Associations in Nigeria's health and medical sector with their areas of interest

S/N	Trade Unions and Professional Associations	Area of Interest
1	Nigerian Medical Association (NMA)	Professional association for registered medical doctors and dentists in Nigeria.
2	Medical and Health Workers' Union of Nigeria (MHWUN)	Represents various medical workers, including health inspectors, medical records workers, and dispensary overseers.
3	National Association of Nigerian Nurses and Midwives (NANNM)	Represents registered nurses and midwives in Nigeria.
4	Pharmaceutical Society of Nigeria (PSN)	Professional association for pharmacists in Nigeria.
5	Association of Medical Laboratory Scientists of Nigeria (AMLSN)	Represents medical laboratory scientists in Nigeria.
6	National Association of Community Health Practitioners of Nigeria (NACHPN)	Represents community health practitioners across Nigeria.
7	Nigerian Dental Association (NDA)	Professional association for dental practitioners in Nigeria.
8	Association of Radiographers of Nigeria (ARN)	Represents radiography professionals in Nigeria.
9	Health Information Managers Association of Nigeria (HIMAN)	Represents health information management professionals in Nigeria.
10	Nigerian Optometric Association (NOA)	Professional association for optometrists in Nigeria.
11	Association of Medical Social Workers of Nigeria (AMSWON)	Represents medical social workers in Nigeria.
12	Nigerian Society of Physiotherapy (NSP)	Professional association for physiotherapists in Nigeria.
13	Association of Psychiatric Nurses of Nigeria (APNON)	Represents psychiatric nursing professionals in Nigeria.
14	Environmental Health Officers Association of Nigeria (EHOAN)	Represents environmental health officers in Nigeria.
15	Association of Public Health Physicians of Nigeria (APHPN)	Represents public health physicians in Nigeria.
16	Nigerian Veterinary Medical Association (NVMA)	Professional association for veterinary doctors in Nigeria.
17	Association of General and Private Medical Practitioners of Nigeria (AGPMPN)	Represents general and private medical practitioners in Nigeria.
18	Guild of Medical Directors (GMD)	Represents owners of private hospitals in Nigeria.
19	Nigerian Association of Patent and Proprietary Medicine Dealers (NAPPMED)	Represents patent medicine vendors in Nigeria.
20	Society of Gynaecology and Obstetrics of Nigeria (SOGON)	Professional association for gynaecologists and obstetricians in Nigeria.
21	Society for Family Health (SFH)	Focuses on improving family health and reducing disease burden through advocacy and programs.
22	National Association of Nigerian Nurses in Critical Care (NANNCC)	Represents critical care nursing professionals in Nigeria.
23	Nigerian Union of Allied Health Professionals (NUAHP)	Represents allied health professionals like physiotherapists, radiographers, and medical lab scientists.
24	Nigeria Society of Neonatal Medicine (NISONM)	Specialises in neonatal health and care for premature babies.
25	National Primary Health Care Development Agency (NPHCDA) Staff Union	Represents workers in the agency, focusing on primary health care.

26	Nigeria Association of Dermatologists (NAD)	Focuses on skin health and dermatological issues.
27	Nigeria Association of Orthopaedic and Trauma Surgeons (NAOTS)	Represents orthopaedic and trauma surgeons in Nigeria.
28	Society for Occupational and Environmental Health Physicians of Nigeria (SOEHPON)	Advocates for workplace safety and occupational health.
29	Nigerian Hospital Pharmacists Association (NHPA)	Represents pharmacists working in hospitals.
30	Nigerian Thoracic Society (NTS)	Focuses on respiratory health and the treatment of lung diseases.
31	Paediatric Association of Nigeria (PAN)	Promotes the health and well-being of children in Nigeria.
32	Association of Residents Doctors (ARD)	Represents medical doctors in residency training across Nigeria.
33	Nigerian Society of Anaesthetists (NSA)	Represents anaesthesiologists and promotes safe aesthetic practices.
34	Nigerian Cancer Society (NCS)	Advocates for cancer prevention, treatment, and research in Nigeria.
35	Association of Community Pharmacists of Nigeria (ACPN)	Represents pharmacists operating in community practice.
36	Nigerian Health Economics Association (NiHEA)	Promotes research and advocacy in health economics and financing.
37	Medical Rehabilitation Therapists Board of Nigeria (MRTBN)	Regulates and advocates for the rehabilitation therapy profession in Nigeria.

Source: Stakeholders Mapping Database

These organisations play crucial roles in representing various professionals within Nigeria's health sector, advocating for their members' interests, and contributing to the development of healthcare policies and practices in the country. These groups and associations actively work towards improving service delivery and the work environment in Nigeria's health sector. These health sector groups can play a significant role in advocating for and driving a just energy transition by aligning their focus with the intersection of health, energy, and environmental sustainability.

Recommendations and Call to Actions

Energy Resilience in Healthcare:

- Advocate for reliable, clean energy to ensure uninterrupted power for critical medical equipment, vaccines, and laboratory services.
- Emphasise renewable energy as a solution to reduce frequent power outages in hospitals and clinics.
- Advocate for energy-efficient healthcare facilities powered by renewable energy at the national, state and local government levels.
- Push for government policies that prioritise renewable energy investments in healthcare delivery, especially in rural areas. These should endear state and local governments to invest in RE for PHCs.
- Highlight the link between energy access and improved health outcomes across platforms.

Health Impacts of Fossil Fuels

- Highlight the adverse health effects of pollution from fossil fuels, such as respiratory diseases, cancer, and cardiovascular illnesses.
    - Advocate for a shift away from fossil fuels to reduce disease burdens linked to pollution.

Rural and Underserved Communities

- Push for equitable energy distribution, ensuring rural health centres have access to clean and affordable energy.

Climate Change and Health

- Advocate for renewable energy as a means of mitigating climate change impacts, which disproportionately affect health outcomes (e.g., increased heat stress, disease outbreaks, and flooding).

Energy Efficiency in Hospitals

- Promote energy-efficient infrastructure in healthcare facilities, including LED lighting, solar water heaters, and energy-saving medical equipment.

Core Messages for Advocacy

1. **Energy for Health: Renewable Energy Saves Lives:** Emphasise that access to reliable energy in healthcare facilities is a matter of life and death.

2. **Healthy People, Healthy Planet**: Draw the connection between transitioning to clean energy and reducing pollution-related diseases.

3. **Empowering Healthcare with Renewable Energy**: Advocate that renewable energy ensures uninterrupted healthcare services, especially in emergencies.

4. **A Clean Energy Transition is a Public Health Imperative**: Stress that fossil fuel pollution is a major health crisis, and transitioning to clean energy can save lives.

Potential Areas for Advocacy

1. **Just Transition Policies:** Advocate for the development of comprehensive just transition policies that prioritise job security, skills development, and support for workers affected by the shift to renewable energy.

2. **Increased Investment in Renewable Energy**: Lobby for government investment in renewable energy projects that create jobs and improve service delivery in health facilities.

3. **Social Protection Measures:** Push for social protection policies that safeguard workers during transitions, including unemployment benefits, retraining programs, and health insurance coverage.

4. **Access to Clean Energy for Health Facilities**: Advocate for policies that ensure healthcare facilities have access to reliable renewable energy sources, improving service delivery and patient outcomes.

5. **Community Engagement Initiatives**: Promote community awareness campaigns about the benefits of renewable energy and climate resilience, engaging local populations in advocacy efforts.

6. **Collaboration with Environmental Organisations**: Form alliances with environmental NGOs to strengthen advocacy efforts around climate justice and the rights of workers impacted by climate change.

7. **Monitoring and Accountability Mechanisms**: Establish mechanisms to monitor the implementation of climate policies affecting workers in both the energy and health sectors, ensuring accountability from government bodies.

Call to Actions

These targeted call-to-action strategies provide comprehensive pathways for health sector groups to champion a just energy transition, ensuring that it aligns with the needs of their members while addressing broader systemic challenges. These groups can:

1. Advocate for government policies mandating the integration of renewable energy into public health facilities.

2. Call for a national fund dedicated to powering rural health centres with renewable energy or integrate into the BHCPF.
    - Advocate for the inclusion of renewable energy financing in the **Basic Health Care Provision Fund (BHCPF)** framework to ensure consistent funding for clean energy solutions in primary healthcare centres, especially in rural areas.
    - Call for a dedicated percentage of the BHCPF to be allocated toward renewable energy infrastructure to power health facilities, reduce operational costs, and enhance service delivery.
    - Engage with the National Primary Health Care Development Agency (NPHCDA) and other stakeholders to prioritise renewable energy adoption as a critical element of improving primary healthcare access under the BHCPF.
    - Partner with donors contributing to the BHCPF to champion renewable energy as an essential investment for achieving universal health coverage.
    - Advocate for transparency and accountability in how BHCPF funds are utilised to ensure allocated resources are effectively deployed to renewable energy projects for healthcare centres.
3. Advocate for the inclusion of renewable energy goals in Nigeria's National Health Strategic Development Plan (NHSDP) and other frameworks at the national and state levels.
4. Call for subsidies, tax breaks, or grants to support public Healthcare facilities transitioning to clean energy from the Federal and State governments.
5. Collaborate with lawmakers to propose or strengthen laws supporting renewable energy adoption in the health sector.
6. Frame clean energy adoption as not just an environmental imperative but a direct investment in public health and service equity.
7. Advocate for tools and technical support to assess energy needs and implement cost-effective renewable energy solutions from the Rural Electrification Agency (REA).
8. Collaborate with renewable energy providers and associations like REAN- Renewable Energy Association of Nigeria (REAN) to train health workers and facility managers on the maintenance and management of energy systems.
9. Conduct grassroots campaigns to educate the public on the link between clean energy, better healthcare, and improved health outcomes.
10. Highlight case studies and testimonials from health centres that have adopted renewable energy, showcasing improvements in service delivery.
11. Establish regional hubs to spread knowledge about renewable energy's role in advancing healthcare outcomes.
12. Collaborate with renewable energy companies, NGOs, and donors to roll out pilot projects for renewable-powered healthcare facilities.

13. Approach international development organisations like WHO, DFID, EU, USAID, GIZ, JICA, and the embassies to fund renewable energy adoption for health facilities.
14. Encourage private companies and legislators to fund clean energy solutions for underserved health facilities as part of their CSR programs and constituency projects.
15. Push for investments in studies that explore cost-effective renewable energy solutions for Public healthcare facilities.
16. Collaborate with stakeholders to map energy challenges in Public healthcare facilities and prioritise solutions.
17. Advocate for decentralised renewable energy systems (e.g., solar mini-grids) to serve remote and rural health centres.
18. Develop programs to ensure women-led health centres are prioritised in renewable energy projects, promoting gender equity in healthcare delivery.
19. Advocate for a Just Transition Framework that includes retraining fossil fuel workers and engaging communities impacted by the transition.
20. Advocate for transparency in the allocation of renewable energy investments in the health sector.
21. Develop benchmarks to track renewable energy adoption in healthcare facilities and ensure measurable impact.
22. Encourage citizen-led monitoring of energy projects to ensure inclusivity and avoid resource mismanagement.
23. Promote cooperative models where healthcare facilities pool resources to fund and maintain renewable energy systems.
24. Encourage worker-led partnerships to establish or support renewable energy businesses that cater to the public healthcare sector.
25. Position the healthcare sector as a key stakeholder in achieving Nigeria's climate commitments under the Paris Agreement.
26. Participate in global health and climate forums to showcase Nigeria's efforts and attract international support.

Areas for Capacity Building and Advocacy for Trade Unions in the Context of the Climate Crisis

Capacity Building Areas

1. Educate members on how energy efficiency can reduce operational costs, enhance service delivery, improve their work conditions, and safe health delivery.
2. **Climate Change Education and Awareness:** Develop training programs focused on climate change impacts, renewable energy technologies, and sustainable practices to empower union members with knowledge.
3. **Skills Development and Retraining:** Implement skills audits to identify gaps in workforce capabilities and provide retraining opportunities for workers transitioning from high-carbon jobs to green jobs.
4. **Policy Formulation and Advocacy Skills:** Train union leaders on how to effectively engage in policy advocacy related to climate change and energy transitions, ensuring they can influence relevant legislation.

5. **Resource Mobilisation**: Equip unions with strategies for mobilising resources and funding for sustained engagement and capacity building around climate issues, including partnerships with NGOs and international organisations.

6. **Information Exchange Networks:** Establish platforms for sharing best practices, experiences, and resources among trade unions both nationally and regionally to enhance collaborative efforts.

7. **Building Institutional Mechanisms**: Strengthen internal structures within unions to address climate change issues, including dedicated committees or task forces focused on sustainability.

8. Health Sector Focus: Provide specific training on the intersection of climate change and health, emphasising the importance of reliable energy sources for healthcare delivery.

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