

Renewable energy as a solution to the power challenges of public hospitals in Nigeria

One of the major issues challenging Nigeria is poor and epileptic power supply.¹ This cuts across all sectors but the impact on the health sector is enormous. Besides the poor power supply, the cost of providing power through the national grid to the public hospitals is enormous. The public hospitals have found it difficult paying those bills and this has led to disconnection of hospitals from the national grid.² These have led to public hospitals seeking alternative means of power supply. It had been reported that less than 30% of health facilities in low and middle income countries have access to reliable energy sources, truncating health outcomes and endangering patients in critical conditions.³

Hospitals are energy-intensive facilities that require significant amounts of electricity for heating, cooling, lighting, ventilation, water supply and operation of essential medical equipment.⁴⁻⁷ The daily activity of a hospital demands an enormous amount of electrical energy to meet medical and comfort needs.⁵ The high energy demand of hospitals is mainly attributed to various factors such as 24/7 operation, specialized medical equipment, temperature and humidity control, and lighting requirements.⁴ Modern health facilities in high- and middle-income countries are among the largest commercial consumers of energy.^{6,7} As healthcare facilities strive to provide optimal patient care, it becomes imperative to address the energy efficiency challenges to ensure the sustainability of healthcare delivery.⁴

Reliable power supply is associated with improvements in the quality of health care delivery.³ Poor power supply which is particularly apparent in low- and middle-income countries (LMICs), commonly disrupts essential health services.^{3,8} Unreliable electricity leads to insufficient use of health technologies, interruptions in the use of essential medical and diagnostic devices, vaccine spoilage, increased fuel costs and waste for health facilities – limiting healthcare capabilities in already disadvantaged areas.^{3,6} Stable power supply allows new heights in achieving SDG 3 (SDG 3) which seeks to guarantee healthy lives and promote well-being for all at all ages, and SDG7 which seeks sustainable energy for all in LMICs.³

In the search for alternatives, in the face of poor power supply, public hospitals resort to using diesel-powered generators. These generators are expensive to operate due to the increasingly high cost of fuel and its transport and storage.⁸ As equipment maintenance also may be a challenge, the unreliability of generators is thus a major issue.⁸ With these, there is a need to consider renewable energy particularly solar which offer not only environmental benefits but also the potential for cost savings, enhanced reliability, and resilience.⁷ By integrating renewable energy sources like solar, into their energy mix, hospitals can significantly reduce their carbon emissions.^{7,8} Renewable energy systems, combined with energy storage solutions like batteries, can ensure a steady supply of power during emergencies. Solar panels coupled with battery storage can provide backup power during grid outages, thereby enhancing a hospital's resilience to natural disasters or infrastructure failures. This makes renewable energy not just an environmentally responsible choice, but also a critical component in disaster preparedness.⁷ Although the initial investment in renewable energy technologies can be high, the long-term cost benefits are substantial.^{7,8} Solar panels have low operational costs once installed. Hospitals that integrate these systems can save significantly on energy bills.^{7,8} As energy prices from conventional sources continue to rise, the cost predictability of renewable energy becomes even more attractive.⁷ The future of hospitals lies in creating facilities that are energy-efficient, resilient, and environmentally friendly. As renewable energy technologies continue to advance, hospitals will be able to generate more power on-site and reduce their reliance on external grids.⁷

However, there are challenges that can still be encountered with renewable energy source. The high initial capital required for renewable energy installations can be a barrier for some healthcare facilities, particularly smaller or rural hospitals.^{7,8} Additionally, integrating renewable energy with existing infrastructure may require complex retrofitting. Governments and private sectors must collaborate to provide financial incentives and technical support to ensure that hospitals can transition to renewable energy smoothly.^{7,8}

The transition to renewable energy is no longer a luxury but a necessity for the hospitals of the future. As healthcare continues to evolve, hospitals must address their environmental impact while ensuring reliable and cost-effective energy sources. Renewable energy offers a sustainable solution that not only meets these demands but also positions healthcare institutions as leaders in the fight against climate change.⁷

In tackling the power supply challenge in public hospitals, the Nigerian Government has inaugurated an implementation committee for the proposed National Dialogue on Power in the health sector.¹ The provision of renewable energy source for the public hospitals should therefore be considered.

Although the policy has several strengths, such as its comprehensive approach and focus on improving conditions in rural areas, it also has notable weaknesses. The absence of specificity regarding economic incentives and improvements in salaries could undermine its effectiveness. Additionally, potential disparities in state-level incentive programmes might lead to the uneven distribution of health-care workers. The policy also does not directly address the issue of reducing working hours, which is a substantial factor in worker satisfaction.¹⁰

Incentive programmes go a long way in the retention of the health workforce. However, Nigeria's policy is less detailed in terms of economic incentives. Full implementation of the policy will encourage retention of the health workforce in the Nigerian healthcare system.

REFERENCES

1. Otokpa R. Navigating solutions to power in hospitals. New Telegraph, 8th April 2025. Available from : <https://newtelegraphng.com/navigating-solutions-to-power-deficit-in-hospitals/>. Accessed 15th April, 2025.
2. Mustapha MJ, Adeloye VA, Mustapha FB, Femi-Lawal V. 100 days without electricity at a Nigerian teaching hospital. Lancet 2025;405(10483):975-976.
3. Khogali A, Ahmed A, Ibrahim M, Karrar K, Elsheikh M, Abdelraheem E, Cluver L, Elmukashfi E. Building power-ful health systems: the impacts of electrification on health outcomes in LMICs. Psychol Health Med 2022 ;27(sup1):124-137.
4. Tomanek M. Energy Efficiency in Hospitals – towards Sustainable Healthcare, Builder 2024;320(3): 38-41.
5. Sánchez-Barroso G, Gómez-Chaparro M, Carretero-Ayuso MJ and García-Sanz-Calcedo J. Electricity in hospitals: solutions based on economies of scale. Building & Management, 2019; 3(3): 12-16.
6. Heinrich Boell Stiftung Nigeria. Improving access to clean reliable energy for primary health care centres in Nigeria: situation analysis of PHCs in the Federal Capital Territory.the potential for green development options to power primary health care centres in Nigeria. Abuja: Heinrich Boell Stiftung Nigeria, 2018.
7. Verma K. The role of renewable energy in powering the hospitals of the future. J Public Health Policy Plan .2024;8(5):256.
8. World Health Organization. Access to modern energy services for health facilities in resource-constrained settings: a review of status, significance, challenges and measurement. Geneva:WHO,2014.


Richard Chinedu Echem

Editor-in-Chief

Department of Surgery, Faculty of Clinical Sciences, College of Health Sciences, University of Port Harcourt, Port Harcourt, Nigeria.

Email: richard.echem@uniport.edu.ng

This is an open access journal and articles are distributed under the terms of the Creative Commons Attribution License (Attribution, Non-Commercial, ShareAlike 4.0) -(CCBY-NC-SA4.0) that allows others to share the work with an acknowledgement of the work's authorship and initial publication in this journal.

Access this article online	
Quick Response Code:	Website: www.phmj.org.ng
	DOI: https://doi.org/10.60787/phmj.v19i1.199
How to cite this article: Echem RC. Retaining the health workforce in the healthcare system of Nigeria Port Harcourt Med J 2025;19(1):1-2.	

