



THE USE OF RENEWABLE ENERGY SOLUTIONS IN BUILDING RESILIENCE IN HEALTH DELIVERY

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Theme:

- ▶ *Renewable Energy and Energy Efficiency in Achieving Ghana's Industrialisation Agenda*

Outline

- ▶ Introduction
- ▶ Importance of Energy in Health Care Delivery
- ▶ Health Delivery System in Ghana
- ▶ Energy Access in Health
- ▶ Why Renewable Energy in Health
- ▶ Impact of Renewable Energy on Health
- ▶ Examples of Renewable Energy Solution in Health

Introduction

- ▶ Health is a state of physical, mental and social well-being in which disease and infirmity are absent
- ▶ Universal health coverage ensures that all people have access to needed health services (including prevention, promotion, treatment, rehabilitation and palliation) of sufficient quality to be effective while also ensuring that the use of these services does not expose the user the financial hardship.

...Introduction

- ▶ Health services are delivered through a **health care delivery** system made up of people, institutions, and resources organised to **deliver health** care services to meet the **health** needs of a target population.

...Introduction

A well-functioning health system is built on availability of trained and motivated health workers, well-maintained infrastructure, reliable supply of medicines and technologies, backed by adequate funding, strong health plans and evidence-based policies



Importance of Energy in Health Care Delivery.

- ▶ Quality and safe health services ensure that people receive a continuum of *health promotion, disease prevention, diagnosis, treatment, disease-management, rehabilitation and palliative care services*, through the different levels and sites of care within the health system, and according to their needs throughout the life course.
- ▶ Quality healthcare requires a dependable source of energy and water. Reliable water supply depends on availability of energy
- ▶ Uninterrupted energy supply means uninterrupted health service delivery
- ▶ Energy is an enabler for health care delivery

Importance of Energy in Health Care Delivery.

Services	Need
Health Promotion	<ul style="list-style-type: none">• Pollution from unhygienic energy sources (<i>fire wood, fossil fuel etc.</i>) for cooking and lightening causes respiratory diseases and contribute to climate change which influence human health and spread of diseases• Media equipment Health education• Clean water availability
Disease Prevention	<ul style="list-style-type: none">• Cold chain to support for vaccine preventable diseases• Screening and testing devices• Health education, communication and e-health• Clean water availability

Importance of Energy in Health Care Delivery.

Services	Need
Medical services provision <i>(Diagnosis, treatment, disease management, rehabilitation, palliation)</i>	<ul style="list-style-type: none">• Prolonged opening hours• Wider range of medical services• Functionality of medical devices• General and medical/surgical lightening• Diagnosis <i>(including laboratory and imaging)</i>• Emergencies• Maternal health• Surgical care• Referral <i>(communication)</i>• Cold storage for medicines, blood, perishable products <i>(reagents, food etc)</i>• Availability of potable water• Prevent injuries <i>(injuries for needles and other sharp medical devices)</i>

Importance of Energy in Health Care Delivery.

Services	Need
Staff and patient well-being	<ul style="list-style-type: none">• Improves working condition• Increases staff moral• Staff retention in a particular location• Security for staff and patient• Access to information, training and education
Administration and logistics	<ul style="list-style-type: none">• Improved record management• Administration• Communication• Information management• Planning• Quality assurance
Health and safety	<ul style="list-style-type: none">• Sterilisation and reprocessing• Laundry• hygiene and cleanliness• Medical waste treatment• Clean water for drinking, cooking and hand washing

Health Delivery System in Ghana.

Level	Institutions/Facilities
National level	<ul style="list-style-type: none">• Ghana Health Service• Teaching Hospital• Specialized hospitals
Regional	<ul style="list-style-type: none">• Regional Health Directorate• Regional Hospitals
District	<ul style="list-style-type: none">• District health directorate• District hospital
Subdistrict	<ul style="list-style-type: none">• Health Centres
Community	<ul style="list-style-type: none">• Community Health Planning and Services (CHPS) compounds• Clinics• Maternity homes

Energy Access in Health

- ▶ Access to electricity (electricity penetration) in Ghana is one of the highest in the subregions
- ▶ All our hospitals are connected to the national grid
- ▶ Majority of the health centres are also connected to the national grid
- ▶ Some of the Community Health Planning and Services (CHPS) Compounds and clinics are also connected national grid
- ▶ *Access to energy ideally means that the energy provided is Adequate, Available when needed, Reliable, of good Quality, Convenient, Affordable, Legal, Healthy & Safe*

Energy Access in Health

Though majority of our health facilities are connected to the national grid we still have some health facilities (Health Centres, CHPS and Clinics) which are off-grid and require alternative form of energy to enable them

Other challenges include

- ▶ Quality of the electricity supplied in some parts of the country which contribute significantly to breakdown of important and expensive medical equipment
- ▶ Availability and Reliability of the electricity – experience intermittent blackout of varying duration
- ▶ Affordability - overall cost of healthcare in the country is determine by the input cost

Why Renewable Energy?

- ▶ Energy is essential in health delivery
- ▶ There are numerous devices, appliances or equipment that are used in providing a wide range of services which cannot be operated when there is no energy available
- ▶ Health facilities in communities without access to energy are limited in their ability to deliver quality health services, partly due to a lack of appropriate, affordable and accessible energy services.

Why Renewable Energy?

- ▶ Whenever electricity is not available or cannot be relied on, some or all health services to be provided will be interrupted.
- ▶ Consequence of lack of energy is that health service(s) will also not be available or will not be provided or if provided, quality may be compromised
- ▶ To ensure consistent availability of health delivery, renewable energy can address some of the challenges in the energy needs in health delivery

Why Renewable Energy?

Renewable energy such as solar can contribute to more resilient health systems

- ▶ Can provide reliable power supply for core health services and programs
 - ▶ Can enable uninterrupted systems for data management
 - ▶ Maintain cold chain for vaccines
 - ▶ Power X-Ray machines
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- ▶ Health facilities in communities without electricity from the national grid can address their energy need by implementing renewable energy solutions

Why Renewable Energy?

- ▶ Health facilities connected to the national grid always need a secondary backup electricity supply (*e.g. Power generators has been the predominant solution*)
- ▶ Health facility depending on their size, can be considered as a community or township with varied needs of energy (*Each energy need is unique – some can easily be addressed using renewable energy solution*)

Possible areas in health delivery that can be considered for renewable energy solution include;

- ▶ General lightening and special medical lightening
- ▶ Powering energy efficient medical devices equipment
- ▶ Water pumping and heating
- ▶ Cooking

Impact of Renewable Energy on Health Care Cost

- ▶ Renewable energy solution especially solar has
 - ▶ higher initial capital cost
 - ▶ maintenance cost
 - ▶ battery replacement cost
- ▶ Renewable energy has
 - ▶ relatively lower running cost
 - ▶ high reliability and stability
 - ▶ does not damage equipment
- ▶ Overall and long term impact on health care cost could be relatively lower

Examples of Renewable Energy Solutions Implemented in Health

- ▶ Solar system to power X-Ray Machines
- ▶ Solar system to power vaccine fridges with standalone unit
- ▶ Solar to power direct solar drive fridges
- ▶ Solar to power entire health facility including staff accommodation, security lightening and boreholes with centralized solar PV power solution
- ▶ Biogas system for cooking

Acknowledgement

- ▶ The role of energy services in the health, education and water sectors and cross-sectoral linkages ITP/0874 6
- ▶ WHO

A large, mushroom-shaped rock formation is the central focus of the image. The rock is dark brown and has a smooth, rounded top that tapers into a narrower base. It is situated in a lush green park with many trees and other rock formations in the background. The text "THANK YOU" is overlaid in white, serif font across the middle of the rock.

THANK YOU