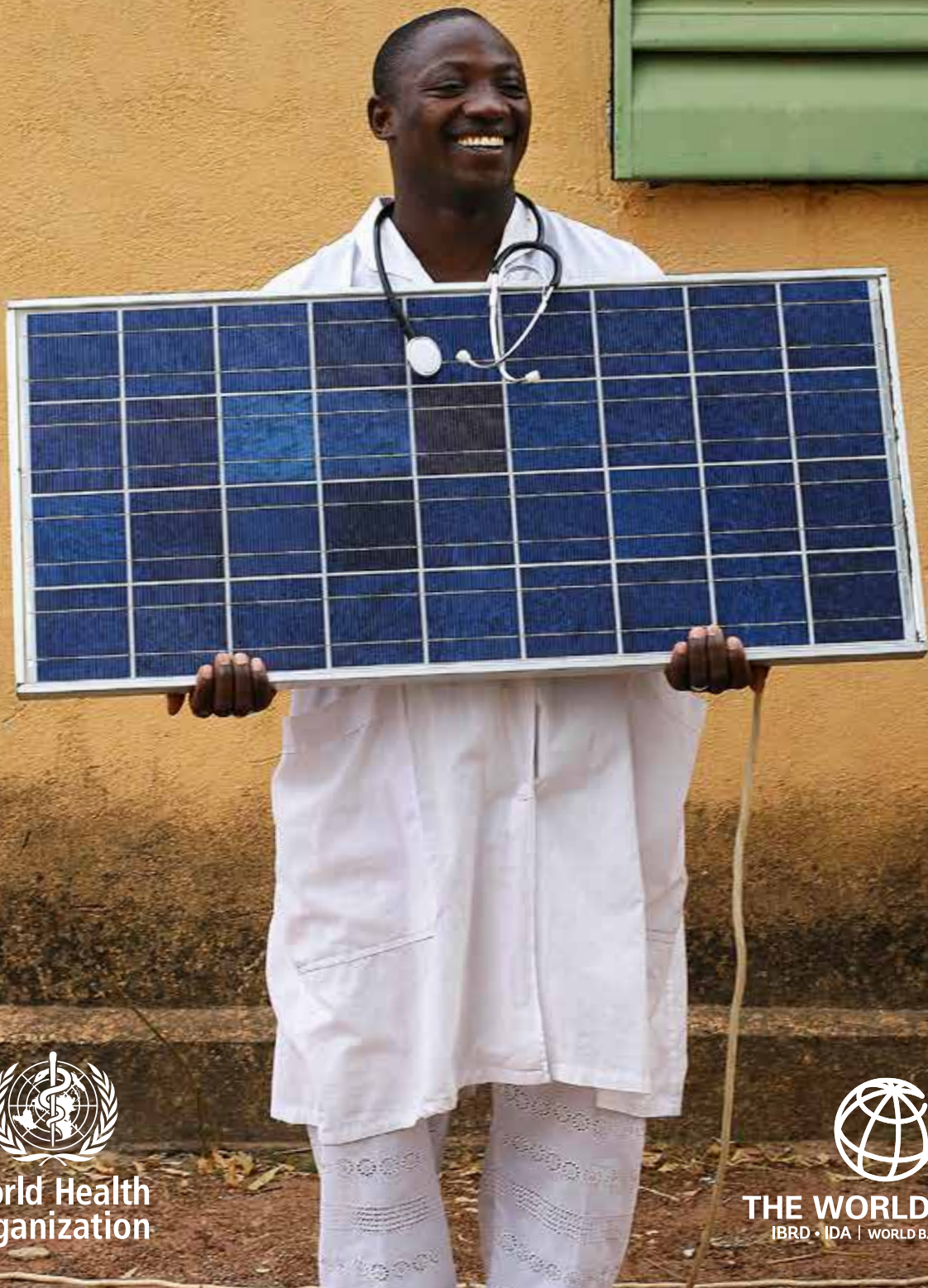


Access to

Modern Energy Services for Health Facilities in Resource-Constrained Settings

A Review of Status, Significance, Challenges and Measurement



World Health
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Photos

- *Cover*: Dr. Sidiki Toe with a new solar panel capable of powering a fridge and electric lights at the Kaara health centre, Mali (Photo: Abbie Trayler-Smith, Panos).
- *Chapter 1 cover*: Masougbo Chiefdom Primary Health Unit, Bombali District, Sierra Leone: During the rainy season and at night, the work of midwife Zainab Manserray is facilitated through the use of solar lighting (Photo: Abbie Trayler-Smith/H4+/Panos).
- *Chapter 2 cover*: An Ugandan nurse vaccinates a woman shortly after giving birth in a room illuminated by a solar-powered electric light affixed to the ceiling (Photo: Sam Wamani/Innovation Africa).
- *Chapter 3 cover, top*: Health worker performs a check-up at a newly-electrified health clinic in Ban Nongbuakham, Thakek District, Khammouane Province, Lao PDR (Photo: Bart Verweij / World Bank).

- *Chapter 3 cover, middle*: In Port-au-Prince, Haiti, technicians prepare to analyze stained sputum smears for TB diagnosis using new, low-energy LED microscope technology (Photo ©FIND/M-C Gutierrez).
- *Chapter 3 cover, bottom*: A portable generator is readied to power equipment at the Fond Parisien Field Hospital, Haiti, established after the 2010 earthquake. Such generators are often the only power source off-grid or in emergency response (Photo: Marshall Segal).
- *Chapter 4 cover, top*: Transformers at a grid transmission station (Photo: Sozajiten).
- *Chapter 4 cover, middle*: Construction workers adjust equipment for the photovoltaic solar power system on the roof of University Hospital of Mirebalais, Haiti (Photo: Jon Chew / Partners In Health).
- *Chapter 4 cover, bottom*: In Aloha, Nepal, nurses and a midwife test the LED light powered by their new modular PV solar system, dubbed the “solar suitcase” (Photo: Dr. Bradley Wong/We Care Solar).
- *Chapter 5 cover*: Industrial electrical control panel (Photo: iStock).
- *Chapter 6 cover, top*: Midwife student Sahr Philip Sheku examines a patient with the help of a small solar-powered light in Bombali District, Sierra Leone (Photo: Abbie Trayler-Smith /Panos).
- *Chapter 6 cover, middle*: Natural ventilation design of a new South African health facility aims to curb cross-infection of patients with drug-resistant TB (Photo: Geoff Abbott, Council for Scientific and Industrial Research [CSIR] in South Africa).
- *Chapter 6 cover, bottom*: At Rikshospitalet in Norway, skylights provide daylighting in the recovery room for post-operative patients, reducing electricity requirements (Photo: Joel Loveland, University of Washington Integrated Design Lab).
- *Chapter 7 cover*: Women wait to vaccinate their babies at a health clinic in Mali (Photo: Dominic Chavez/ WB/Flickr).

List of abbreviations and acronyms

AFREA	Africa Renewable Energy Access programme	IEA	International Energy Agency
AC	Alternating current	kWp	Kilowatt-peak
BCG	Bacillus Calmette-Guérin	LED	Light-emitting diode
CD4	Cluster of differentiation 4	LSMS	Living Standards Measurement Study
CFL	Compact florescent light	MDG	Millennium Development Goal
CHP	Co-generation of heat and power	NRHM	National Rural Health Mission
DC	Direct current	PM	Particulate matter
D&C	Dilation (or dilatation) and curettage	PV	Photovoltaic
DECRG	Development Economics Research Group	SARA	Service Availability and Readiness Assessment
DOTS	Directly Observed Treatment, Short-course (for tuberculosis)	SE4All	Sustainable Energy for All
DHS	Demographic and health surveys	SPA	Service provision assessment
EC	European Commission	TB	Tuberculosis
ELISA	Enzyme-linked immunosorbent assay	TERI	The Energy and Resources Institute
GHO	Global Health Observatory	UHFWC	Union Health and Family Welfare Centre
GTF	Global Tracking Framework for Sustainable Energy for All initiative	USAID	United States of America Agency for International Development

Table of contents

Executive summary	1
1. Introduction	1
2. Energy as an enabler of universal access to health care	2
3. Energy requirements in health facilities: a closer look	3
4. Electricity supply in health facilities: trends and opportunities	4
5. Improving measurement of electricity access in health facilities	8
6. A 'multi-tier metric' to track electricity access in health facilities	8
7. Next steps and conclusions	9
1. Introduction	11
2. Energy as an enabler of universal access to health care	15
Current status of electricity access in health facilities: available data	16
Research into links between energy access and health services provision	18
3. Energy requirements in health facilities: a closer look	21
Classification of health facilities	21
Electrical equipment required for health services: devices, appliances and infrastructure	22
Improving energy efficiency of medical devices and appliances	25
Thermal energy needs of health facilities	26
4. Electricity supply in health facilities: trends and opportunities	31
Grid-based electricity supply and on-site electricity production	31
The increasing role of solar power in health facilities	32
High capital cost barriers to solar energy solutions	36
Optimizing energy demand and supply to limit costs, pollution and emissions	37
CHP and other on-site energy systems for larger hospitals	39
Health facilities as energy providers	41
A proposed framework for energy and health service linkages	42

5. Improving measurement of electricity access in health facilities	45
Needs and benefits of a monitoring metric	45
Attributes of electricity supply	46
Enhanced health clinic surveys and data collection tools	50
6. A 'multi-tier metric' for electricity access	53
Electricity access tier ratings for health facilities	54
Electricity access index: aggregation of tiers into a single value	57
Disaggregated data analysis	58
Limitations of the proposed methodology	59
Assessing supply in relation to demand: the 'electricity access gap'	59
7. Way forward	63
Next steps	63
Conclusions	66
Annex 1: A proposed SARA energy module: sample survey questions for multi-tier measurement	67
Annex 2: Compendium of existing health services surveys	73
Annex 3: Categorization of health care facilities	79
Annex 4: Comparing Costs and Emissions of Alternative Energy Strategies in a Scenario Using Conventional Medical Devices and Energy-Efficient Devices	80
Annex 5: Links to sources of values on indicative electricity demand for appliances and devices	93
References	97

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