



*Empowered lives.  
Resilient nations.*

# Solar for Health

Saving lives

Saving money

Saving the environment

## Introduction

Health facilities need power. Clinics, maternity wards, operating rooms, medical warehouses, and laboratories rely on electricity to power the lights, refrigerate vaccines, and operate life-saving medical devices. The inability to carry out these basic functions puts lives at risk. Yet all too often, particularly in remote areas, health facilities face significant power shortages. A World Health Organization (WHO) review revealed that one in four health facilities in sub-Saharan Africa had no access to electricity, while only 28% of health facilities and 34% of hospitals had what could be called “reliable” access to electricity (without prolonged interruptions in the past week).

UNDP’s Solar for Health initiative supports governments to increase access to quality health services through the installation of solar energy photovoltaic systems (PV), ensuring constant and cost-effective access to electricity, while also mitigating the impact of climate change and advancing multiple Sustainable Development Goals.

## Contribution to Sustainable Development Goals (SDGs)

Solar for Health can make a significant contribution to the 2030 Agenda for Sustainable Development and its commitment to 'leave no one behind' by reaching remote and under-served communities. Specifically, it can help countries in their efforts to achieve SDGs 3, 7, 13 and 17: good health and well-being, affordable and clean energy, climate action and partnerships. Broader development benefits include the creation of green jobs and the development of local manufacturing and markets for solar power. By training women as solar technicians to install and maintain solar panels, the initiative can also help countries advance SDG 5 on gender equality and women's empowerment .



# Impact

## Quality health services

Solar systems provide a stable, clean and reliable energy supply, even in the most remote locations, meaning more patients can access the health services they need. Quality healthcare requires a dependable source of power for multiple purposes, including temperature and hygrometry controls, adequate lighting systems, refrigeration, cold rooms and IT networks for efficient stock and management of information.

## Climate resilient health systems

Renewable energy is a means by which health systems can increase resilience to the challenges presented by climate change, including extreme weather events, droughts, and other events affecting the traditional power supply. The WHO Operational Framework for building climate resilient health systems highlights the need to take a wider perspective to the challenge of climate change, including a focus on renewable energy in health facilities and utilizing innovative technologies.

## Reduced carbon emissions

Energy access plays a vital role in enabling health care delivery but it can also inflict significant environmental harm unless it includes an explicit focus on progressively shifting to renewable energy by substituting fossil-based sources. The decommissioning of highly polluting and noisy diesel generators considerably improves the local environment around health facilities. The installation of solar systems under the current phase of the Solar for Health initiative will also reduce greenhouse gas emissions by an estimated 250K tons per year.

## Cheaper energy

Solar energy results in lower power bills for health facilities. These vital budget savings can then be reinvested to support other priority health programmes or infrastructure. Solar power also generates a rapid return on investment. We estimate a 100 per cent return on investment within 2 to 3.5 years, on average, when health facilities with unreliable energy sources are installed with solar power.

## UNDP Delivers

UNDP has significant experience and expertise in building resilient and sustainable systems for health, including the delivery of large, complex health programmes with the Global Fund and other partners.\* In addition, UNDP carries out extensive work to promote sustainable energy solutions.

UNDP is currently working to install solar systems in health facilities across Africa, the Arab States and Central Asia and investments are dependent upon the quantity of solar equipment required for the facilities.

As an estimate, an investment of US\$ 100,000 could provide solar facilities for 7 rural primary health facilities. On the other hand, an investment of US\$ 50 million could provide solar facilities for half of the health facilities in a medium sized country.

### **Programme management and technical support**

UNDP provides a dedicated specialized team to work in close collaboration with the government, national supply chain implementers and the private sector. This core team of experts includes a project manager, a finance and procurement officer and an engineer. Additional human resources are brought in as required.

### **International quality assurance**

Our significant expertise in providing project quality assurance means we have experienced teams that deliver day-to-day assistance, while also coordinating across countries and acting as a link with donors.

### **Standardized or tailor-made solutions**

For standard primary health care facilities, we can procure plug and play units of 5 to 15 KW, which ensure easy implementation and fast, cost-effective installation. For hospitals and other large health structures we deliver personalized equipment from a standard reference list.

### **Scalable solutions**

Solar for Health is designed to ensure flexibility, meaning that it can be initiated with relatively small contributions and scaled up as funding becomes available.

*\*see UNDP HIV, Health & Development Strategy 2016-2021: Connecting the Dots  
@ <http://tiny.cc/4yc3ky>*

## Examples of Solar for Health Projects

### Supporting HIV clinics in Zimbabwe

500 HIV clinics across Zimbabwe will be soon be equipped with solar power. Many clinics currently depend on four hours of unstable power supply a day but with solar installations they will have power 24/7 and patients can get the care they need, when they need it. When solar systems are installed, clinics will be capable of increased and improved services. The energy generated will be used to maintain the quality of medicines and laboratory reagents. Equipment sterilization will improve and cold-chain for vaccine storage will be safely maintained. Solar panels will also facilitate water pumping and water purification – a pivotal achievement in a country in which water-borne diseases are the major killers of children.

### Effective warehousing in Zambia

In Zambia, UNDP has been working in close partnership with Medical Stores Limited (MSL), an autonomous government agency mandated to receive, store and distribute pharmaceutical health products across the country. MSL has faced regular power interruptions in the past, affecting the effective running of warehouses, including the refrigeration of medicines and vaccines. With funding received from the Norwegian Emergency Preparedness System (NOREPS), UNDP has supported MSL to install a solar powered energy system, combined with an energy efficient temperature control system covering 3000 m2 storage space. With the solar panels in place, MSL can ensure the effective running of its operations, even when there is no power from the national hydro-powered grid. This is vital to ensuring quality health services to the Zambian population, as interruptions in power supply had previously led to delays in the processing of requests from health facilities across the country. Furthermore, the solar power system has also ensured cold chain pharmaceutical items remain stored at the desired temperatures.

UNDP partners with people at all levels of society to help build nations that can withstand crisis, and can drive and sustain the kind of growth that improves the quality of life for everyone. On the ground in **nearly 170 countries** and territories, we offer global perspective and local insight to help empower lives and build resilient nations

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