

# SOLAR POWERING HEALTHCARE

POWERING RURAL  
HEALTH FACILITIES  
IN ZAMBIA AND MALAWI

JUNE 2021



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# ABOUT SOLAR AID



## A LITTLE BIT ABOUT OUR ORGANISATION

SolarAid is an international charity set up to fight poverty and climate change. Our vision is of a world where everyone has access to clean, renewable, energy.

548 million people across Africa live without access to electricity. Without electricity, families, communities and businesses are limited. Millions rely on expensive and dangerous alternatives, such as candles and kerosene for basic lighting each night.

Solar lights and systems can transform rural communities overnight, providing much needed safe, clean and reliable light and power in homes, schools and health facilities.

Through its social enterprise, SunnyMoney, and partner organisations, SolarAid helps create access to solar power and lighting by catalysing solar markets and continually innovating to help ensure that no one is left in the dark.

2020, we set a mission to light up every home, school and clinic in Africa by the end of the decade - using safe, clean solar power.

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# OVERVIEW

Whole populations in sub-Saharan Africa are left vulnerable as health care systems, without access to basic power and lighting, are struggling. This problem has been exacerbated by the spread of COVID-19.

Now is the time to ensure that no health facility is without the light and energy it needs to deliver access to modern healthcare.

SolarAid is working with health partners, using the latest solar technologies and energy efficient appliances as we seek to ensure that, by the end of this decade, no health clinic is left in the dark.



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# THE PROBLEM

THREE OUT OF EVERY FOUR HEALTH FACILITIES ACROSS AFRICA ARE WITHOUT ACCESS TO ELECTRICITY.



In many rural health facilities across Africa, expectant mothers are asked to bring their own candle to avoid having to give birth in complete darkness. A majority of women have gone through pregnancy without access to basic medical appliances such as fetal doppler to check on their baby's heartbeat.

Many people struggle to get vaccinated when there is no electricity available to keep vaccines at the right temperature. Health workers are forced to perform life threatening procedures in darkness.

Three out of every four health facilities across Africa are without access to reliable power. One in four health facilities are without access to any power at all.

This is the reality of healthcare for millions of people across the continent. Too many rural health facilities do not have access to basic light or simple, modern medical appliances, which can save lives.

Women, together with young children and the elderly carry the greatest burden of poor healthcare, leaving whole populations vulnerable.

The outbreak of COVID-19 has made access to modern healthcare more vital than ever before.

This is a perennial problem. It is not possible to provide access to modern healthcare without access to electricity.

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# HEALTHCARE STATISTICS

## 3 IN 4

HEALTH FACILITIES ACROSS AFRICA  
lack access to reliable electricity.

## 1 IN 4

HEALTH FACILITIES ACROSS AFRICA  
are without access to any power at all.



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# THE CHALLENGE



Many solar projects have a history of failure as systems fall into disrepair over time, with limited access to the technicians, finance and spare parts necessary to ensure they remain operational.

Solar systems have also traditionally required qualified technicians to install systems, adding complexity to deployment.

Similarly, when systems fail, there is no one actively monitoring their performance and providing the support needed to repair them.

***"You can't do anything. You need light to examine your patients, and to run lab tests you need light. Not even the simplest things you can do without light."***

- Marianne Mwale, Laboratory Technologist, St. Paul's Mission Rural Health Centre, Zambia

# THE OPPORTUNITY



Newly developed plug and play solar systems, which do not require solar technicians to install them, offer the prospect of providing a rapid and low cost solution to the challenges facing many rural health facilities.

These systems are more efficient than traditional solar systems, as they focus on powering DC appliances, thereby avoiding the use of inverters, which are expensive and are often the weakest point in a solar system. They also make use of the latest, long lasting, lithium battery chemistries.

Originally designed to power household appliances, such as televisions, these systems can be repurposed in order to power the increasing range of energy efficient medical devices, such as:

Lighting – essential to keep facilities open after dark and ensure safe child birth.

- ✓ Pulse oximeters – to measure the level of oxygen level in the blood
- ✓ Infrared, no contact thermometers – vital during the Covid-19 pandemic
- ✓ Blood pressure monitors – crucial when monitoring and assessing patients
- ✓ Foetal dopplers – to monitor the heartbeat of unborn children
- ✓ Head torches – to help medical staff direct light where it is needed
- ✓ Smart phones, radios and tablets – all vital for communication and access to information.
- ✓ Plug and play refrigerators – newly developed, to store vital treatments and vaccines



By combining the latest solar systems, which include GSM mobile technology which enable remote call centres to monitor system performance and provide remote support to the facility, with the latest energy efficient appliances, our project introduces the prospect providing access to a range of medical services to vulnerable rural populations for the first time.

Serving clinics through our existing distribution network is providing access low cost, long term operation & maintenance with income generation opportunities for local entrepreneurs who are already distributing similar systems to households.

By proving this model with the new combination of technology, we will have a significant impact on rural health care immediately and form a new best practice model to scale and have replicated across the continent.

***"I prefer the foetal doppler because with the foetal scope I was unable to hear if my baby was breathing. Now I can hear my baby and it makes me very happy."***

**- Olivia Chivita, Patient,**  
Chipembi Rural Health Centre, Zambia

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# OUR PLANS

SOLARAID IS EQUIPPING RURAL HEALTH FACILITIES ACROSS ZAMBIA AND MALAWI WITH THE LATEST PLUG AND PLAY SOLAR SYSTEMS AND MEDICAL APPLIANCES.



As a response to the COVID-19 outbreak in Malawi and Zambia, SolarAid partnered with the respective Ministries of Health to distribute thousands of solar products to health facilities. We have now moved into our long-term plan which was accelerated by the outbreak.

SolarAid is now equipping rural health facilities across Malawi and Zambia with the latest plug and play solar systems and medical appliances that will, overnight, enable health workers to deliver a higher level of modern health care services to vulnerable populations.

Considering the prevalence of COVID-19 cases, it is important all health facilities are able to quickly and efficiently prepare. Our work will help off-grid facilities stay connected, with phones charged, while also ensuring they are able to power 'non contact' infrared thermometers and pulse oximeters, both helpful when assessing potential cases.

We are also working with newly developed, plug and play, super insulated solar direct drive vaccine refrigerators that will enable the storage of key medical supplies.



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### **Understanding and Overcoming Barriers**

While the provision of solar systems in rural facilities is having an immediate and positive impact, which is demonstrating the impact plug and play systems and efficient appliances can have, our projects are also designed to address the perennial challenge of ensuring systems remain operational over time.

### **Ease of Repair**

Historically, many systems have failed due to the lack of spare parts, lack of technical knowledge at health facilities, lack of finance available to pay for inverters and batteries when they fail.

The lower cost of these systems helps overcome the financial barriers which prevent many solar systems from being repaired. Repair will also be easier through the use of the same systems and components which are being used to power the growing household market.

### **Remote Monitoring and Support**

The use of GSM technology is enabling centralised support centres to remotely monitor the operation and performance of systems. This enables us to provide remote advice to the health facility, helping to troubleshoot and fix problems with a system, without having to send out a repair technician.

### **Overcoming Financial Barriers**

Recognising that finance is a barrier, which can make it too expensive to repair systems, we are testing financial models which include the generation of revenue over time.

For example, we will be facilitating the sale of solar lights at facilities, to surrounding populations, that will help ensure that the funding is available to keep systems operational and in the service of rural populations.



## Scaling

As we bring power to rural health facilities, we are also modelling fee for service models designed to be affordable to health actors, while generating the finance needed by solar companies, to help solutions scale across the continent. In summary, our work will collect key data to demonstrate:

- ✓ The immediate and long term positive impact deployment can have on key health metrics and the range of services available at these rural health facilities including COVID-19 related tests with infrared thermometers and pulse oximeters.
- ✓ The business case that will enable the new wave of plug and play solar companies rising up across the continent to scale up this intervention across the country.
- ✓ How these systems and appliances can be rapidly deployed, without the need for solar technicians, and maintained by local solar companies.

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# NEXT STEPS



We have already identified health partners and health facilities that will benefit from this new and innovative initiative across Malawi and Zambia. We are now seeking urgent support that will enable us scale up this work and roll out new projects across new geographies to help ensure that no health facility in Africa is left without light and power.

For more information, visit [www.solar-aid.org](http://www.solar-aid.org)