SOLAR POWERING HEALTHCARE

Solar Aid

Photo: LendwithCare/Peter Caton

SOLARAID: A NEW WAY TO POWER HEALTHCARE

OVERVIEW

As COVID-19 spreads rapidly across sub-Saharan Africa, whole populations are left vulnerable as health care systems, without access to basic power and lighting, are struggling to cope. Now is the time to ensure that no health facility is without the light and energy it needs to deliver access to modern healthcare.

As a response, SolarAid is working with health partners and using the latest solar technologies with the goal of ensuring that, by the end of this decade, no clinic is left in the dark.

THE PROBLEM

Imagine having to bring a candle to a rural health clinic to avoid having to give birth in complete darkness. Imagine going through pregnancy without access to basic medical appliances such as fetal doppler to check on your baby's heartbeat. Imagine not being able to vaccinate your child, as there is no electricity available to keep vaccines at the right temperature.

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

This is a perennial problem which must be solved. The outbreak, and rapidly rising danger, of COVID-19 has made access to modern healthcare more vital than ever before.

You cannot provide access to modern healthcare, without access to electricity. You cannot fight a pandemic in the dark. The time for action, the time for change, is now.

Going back to normal is not an option.

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.

Furthermore, solar systems have traditionally needed 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.

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 re-purposed in order to power the increasing range of energy efficient medical devices, such as:

- ✔ **Medical grade lighting –** essential to 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
- ✔ **Fetal 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 – particularly in a pandemic
- ✔ **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 these clinics through our existing distribution network will provide 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.

OUR PLANS

We have already launched an immediate response to the COVID-19 outbreak in Malawi and Zambia by partnering with the respective Ministries of Health to distribute thousands of solar products to health facilities. We are now moving into our long-term plan which has been accelerated by this outbreak.

SolarAid is planning to equip 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.

With the rise 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 will also work with newly developed, plug and play, super insulated solar direct drive vaccine refrigerators that will enable the storage of key medical supplies at this time.

Understanding and Overcoming Barriers

While the provision of these systems in rural facilities will have an immediate and positive impact, 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, systems have failed due to the lack of spare parts, lack of technical knowledge at health facilities, lack of finance available to pay for expensive inverters and batteries when they fail. The lower cost of these systems will help address 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

Furthermore, the use of GSM technology will enable centralised support centres to remotely monitor the operation and performance of systems and provide remote advice to the health facility, thereby spotting and helping to fix problems with a system before the health facility is even aware of them themselves.

Overcoming Financial Barriers

Recognising that finance is a barrier, which can make it too expensive to repair systems such that they fall into disrepair over time, we will also be 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

We will be 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 longterm 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.

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 to start rolling out projects and monitor their impact.

By the end of this decade:

No one in Africa should be left in the dark: No home. No School. No Clinic.

Together, we will End the Darkness by 2030.