



## VAYA Energy brings electricity to a Primary Healthcare Centre in Nigeria—powered 100% from solar and storage

### Introduction

The Primary Healthcare Centre (PHC) located at Dakwa, in the Abuja Municipal Area Council (AMAC) of the Federal Capital of Nigeria has no access to electricity. Established in 2014, this PHC provides first-line health services to a community of about 600 people. Health workers have had to rely on kerosene lanterns at night and had no way of storing medicines that required refrigeration.

Providing electricity to the PHC will go a very long way in improving the overall social and economic development of a community. As part of our Corporate Social Responsibility (CSR), VAYA Energy took up the task of designing, financing and installing a solar powered system that provides electricity to the Dakwa PHC 24 hours a day without interruption.

### Project Overview

As a new company, headquartered in the Federal Capital of Nigeria, VAYA Energy believes in the value of providing for communities where it operates. To demonstrate this, we initially chose to focus on the Primary Healthcare sector.

Our Dakwa project provides electricity for lighting and light loads. By ensuring that the PHC premises are well lit at night, security is also improved. The Dakwa PHC was an obvious choice because it was completely off-grid with no access to electricity.

The objectives of the project include;

- Provide the PHC with electricity to power critical devices including lighting, refrigeration as well as provide night time perimeter lighting for security
- Educate the staff of the PHC and surrounding community on the use of solar photovoltaics (PV) for electricity generation
- Involve the community in the various stages of building the system
- Showcase VAYA Energy's commitment to support communities and the environment.

### SUMMARY

#### Challenge

Bringing access to electricity in a sustainable way to a completely off-grid Primary Healthcare Centre in a community with no access to grid power.

#### Solution

A solar and storage system that includes:

- **Inverter:** Schneider Electric Conext SW2524 2.5kW 24VDC battery-based inverter/charger
- **Charge Controller:** Schneider Electric Conext MPPT 60 150 solar charge controller
- **Solar Modules:** (12) 3kWp Yingli Solar Modules
- **Monitoring System:** Conext ComBox Communications Device
- **Batteries:** (4) Deka Solar Photovoltaic Deep-Cycle VRLA, Gel Batteries 8G4D

Accessories

- Conext System Control Panel
- Conext Battery Monitor

## Solution

Our solution consists of 3kWp Solar PV off-grid DC-coupled system with a Schneider Electric Conext 2.5kW Inverter providing electricity to the Primary Healthcare Centre. As most of the load demand is at night for lighting purposes, the application of the Conext SW+ DC-coupled system was recommended over an AC-coupled solar system. The PV system fully charges the battery during the daytime and ensures a sufficient battery state of charge to support the power requirement at night.

The solar modules manufactured by Yingli Solar, are key in ensuring the system harvests as much power from the sun as available. This ensures power is available to the system from as early as 7am up to about 6pm daily. The battery storage system provides power when the sun is not available.

As this is a completely off-grid solution, it was very important to ensure a reliable storage system was used. The Deka Solar Photovoltaic Deep-Cycle Gel Batteries were chosen because of their extreme reliability. These Batteries are maintenance free and have a longer discharge and less charging time than most other batteries.

The Conext ComBox monitoring solution installed, provides detailed history of system performance and events with rich visualisations on PV yield, load profile, and battery status. Data collected by Conext ComBox can be further utilised in better optimising and planning similar systems.

## Impact

This project has an immediate impact on the community. Since its completion, improvements have been witnessed by local community members. Most importantly, the PHC can now conduct baby deliveries after sunset, as power is now available at night and drugs and vaccines can be stored properly in refrigerators.



“A Schneider Electric solution was chosen for this project because of the high reliability of their products, along with Schneider Electric’s strong support and service from the local team.”

- Aminu Dahiru, Chief Operations Officer, VAYA Energy



As part of VAYA Energys' corporate responsibility, the PHC was provided with a refrigerator, fans and all lamps were replaced with energy saving CFL lamps.



Kerosene lanterns used by health workers before the installation of the solar system.



### About VAYA Energy

VAYA Energy Solutions Limited Nigerian based renewable energy company focused on the deployment of solar-generated electricity solutions for Utility, Commercial, Residential and Rural Customers. VAYA Energy provides solar energy consultancy services and is involved in the design and installation of off-grid backup solutions as well as hybrid and grid tie solutions.

Contact us at <http://www.vaya-energy.com> to discuss your solar energy needs or send an email to [info@vaya-energy.com](mailto:info@vaya-energy.com)