

Life Is On

Schneider
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Nigeria's blueprint for a brighter tomorrow

Schneider Electric and African Energy collaborate to realise UK Aid's vision of tackling Nigeria's power challenge

African Energy
Lagos State, Nigeria

solar.schneider-electric.com



Students enjoying the shade under a solar powered containerised system that houses a solar and storage solution

170 junior and secondary schools and 11 Primary HealthCare Centers (PHC) throughout Lagos State powered by solar

Background

In 2014, the UK Department for International Development (DFID) and the state government of Lagos joined forces to bring forth an ambitious project, **Lagos Solar**, to power public institutions by means of solar PV systems. Under the DFID tender and Lagos Solar, hundreds of schools along with almost a dozen Primary HealthCare Centers (PHC) throughout rural Lagos will be electrified by solar. This collaboration emphasises UK's strong investment in supporting Nigeria's path to a sustainable future, and demonstrates a commitment towards delivering clean and reliable access to energy to areas that are currently underserved.

Challenges

Nigeria is well-known for its vulnerabilities to widespread grid outages and unstable power. With a population of close to 175 million, the alarming reality of mass genset dependency or the sheer lack of access to the grid mean that tens of millions are far from a clean and stable source of power. The state of Lagos is the second most populous city in Nigeria, and is still rapidly growing. Many people reside in rural areas, and do not have any power supply at all. These populations suffer from a higher risk of poor health, whilst paying a large part of their livelihood for harmful and polluting energy. Communities that depend on diesel generators are impacted from greenhouse emissions, but what is even more disconcerting is that lives may be lost when there is fuel scarcity to run their only source of power. When this occurs, it's possible for hospitals to effectively stop running for over twelve hours. The expense is precious lives lost on life support or from the failure to receive medical treatment in time.

Customer Overview

African Energy is a wholesale distributor of the highest quality solar and renewable energy equipment, exclusively serving the African market. African Energy provides both equipment and training to entrepreneurs to help them meet the demands of their local markets.

Website: <http://africanenergy.com>



Africa's Source for Renewable Energy

Goal

To eliminate the costly and harmful dependence on diesel, and to deliver clean and reliable access to energy to rural schools and PHC's throughout Lagos State, Nigeria.



One of three Primary HealthCare Centers (PHC) in Ibeju Lekki with 25kW of solar installed

Solution

To bring this electrification initiative into fruition, **African Energy** brought on highly trained local Nigerian partners to lead this project with the Lagos State Electricity Board (LSEB) throughout 170 sites. The solution was carried out in two phases. In phase one, African Energy supplied all products directly, while phase two was run through a bidding process directed by Crown Agents for DFID.

Schneider Electric's **Conext family of solar and battery-based inverter/charger system** with online monitoring was selected as the most reliable technology for this initiative. It offers an integrated solution that is:

1. Modular and flexible to adapt to various power sizes and applications
2. Highly robust that handles the harsh and demanding environmental conditions of Africa
3. Simple to install, monitor and service by local technicians without any overseas transport or extensive training
4. Patented feature (US20100033124) for grid-connected solar and battery systems that maximises the use of solar while maintaining batteries to be fully charged. Thus extending the useful life by as much as 2-3 additional years



Interior view of solar powered container built with a modular system of battery-based inverters and charge controllers

“Conext XW+ models were selected for this project by LSEB because of their long-term record of reliability in Nigeria’s rugged market, as well as their patented technology to improve battery life in a solar and storage system.”

- Lincoln Dahl, Principal, African Energy

Conext XW+ System

- Conext XW+ battery-based inverter/chargers
- Conext XW+ MPPT 80 600 solar charge controllers
- Conext XW+ MPPT 60 150 solar charge controllers
- Conext System Control Panel (SCP)
- Conext ComBox



Learn more about the Conext XW+

132 of the 170 solar and storage systems installed

Size of Installation	Badagry	Ikorodu	Ibeju Lekki	Ikeja
5kW	6	29	9	18
7.5kW	2	8	3	1
10kW	5	9	2	-
12.5kW	4	3	1	1
15kW	10	7	5	-
10kW (PHC)	-	3	1	-
25kW (PHC)	3	1	1	-

For the complete list of sites, visit: <http://lagossolar.com/location>

Impact

By 2020, DFID estimates that solar powered schools and hospitals are expected to benefit 190,000 school pupils and 4.7 million clinic patients, and create more than 3000 jobs.¹ These numbers represent the remarkable impact that solar will bring to the future of Nigeria. This project has proved to be a blessing to every community that has received a solar PV system. Since the completion of this project, immediate changes have already been witnessed by local community members.

Residents of Epe, a suburban town and Local Government Area (LGA), can now pump water for days and health centers can accept baby deliveries in full force because power is now available at night. Doctors and staff no longer have to refer expecting mothers to more expensive hospitals, and costs of buying fuel for dilapidated generators have been eliminated.

Furthermore, some schools have been fitted with socket outlets to allow

¹ Solar Nigeria Programme, DFID Development Tracker
<http://devtracker.dfid.gov.uk/projects/GB-1-203674/>



Installation consisting of MPPT 80 600 charge controllers and XW+ inverterchargers



Secondary school located in LGA town, Badagry

students to charge their tablets, phones, and personal night lights. Students can now read well into the evening hours to prepare for exams. Science and computer laboratories are operating full-time instead of sitting idle for long periods.

Life is on

Lagos has set an electrifying example of how sustainable solar power is changing lives at this very moment. Reliable access to clean power is no longer a dream, and this project has paved the way towards a model of sustainability for the rest of Africa to follow.



Full exterior view of solar and storage solution for schools and PHC's throughout Lagos State, Nigeria

