



“A RELIABLE SOLAR HYBRID SYSTEM, WITH BATTERY BACKUP, WAS REQUIRED TO POWER DIAMOND BANK’S ATMS THROUGHOUT THE DAY, AS WELL AS OPERATE THE LOW-VOLTAGE DEVICES REQUIRED AT NIGHT.”

Edwin C. Enwegbara, Eauxwell Nigeria, Ltd.

Diamond Bank's Solar-Powered ATMs Victoria Island, Nigeria

System specifications:

- **Batteries: (16) Trojan L16RE-B* Deep-Cycle, Flooded Batteries**
- **Solar Modules: (20) 3.5kWp SolarWorld AG Solar Modules**
- **Inverter: SMA Sunny Island SI5048 5kW 48VDC**
- **Charge Controllers: (2) Steca TAROM 4401**
- **Monitoring System: (1) SMAWebbox**
- **Equipment Supported: ATMs, Closed-Circuit TV for Surveillance/Security, Fire Alarm, Burglary Alarm, Signage Perimeter Lighting**

Serving as the main business and financial center of Nigeria, Victoria Island's business district has expanded rapidly over the last 25 years. Today, Victoria Island is one of Nigeria's busiest centers of banking and commerce, with most major Nigerian and international corporations headquartered on the island. The recent implementation of a "cashless policy" by the Nigerian government has resulted in fast-tracking the deployment of ATMs at multiple locations by the nation's many banks to ensure bank customers have access to their funds when needed, regardless of banking hours.

A major challenge to the operation of these ATMs is the unreliability of the country's electric grid, which goes down six to eight hours at a time, and in certain situations can be completely unavailable for up to 24 hours. A reliable

power source became the primary obstacle for deploying ATM machines. The lack of a dependable power source to support the operation of an ATM 24 hours a day, seven days a week significantly impacts the ability of customers to access their bank accounts for any given period of time.

With the challenge of an erratic power supply and lengthy blackouts, Diamond Bank worked with Eauxwell Nigeria Ltd. and systems integrator The Solar Shop Ltd. to develop an alternative backup power solution designed to keep their ATMs operational 24/7. Combining Trojan Battery's expertise in energy storage with Eauxwell's "know-how" in deploying solar systems, a reliable solar hybrid system was successfully developed to operate the bank's ATMs located across the city. The backup power system also operates low-voltage devices at night including surveillance and security cameras as well as alarm systems.

Prior to implementing a solar power solution, Diamond Bank used diesel generators to operate ATMs and related equipment in the evening and on weekends. However, the cost of diesel fuel became increasingly expensive and the generators produced noxious emissions. With the implementation of the solar power backup solution, the bank is now saving significant costs and is marketing itself as a "green," environmentally friendly company.

Diamond Bank's Solar-Powered ATMs

Victoria Island, Nigeria



The type of solar power solution required to power the bank's ATM applications required the use of deep-cycle battery technology to provide reliable energy storage. Trojan's Premium line was chosen for this project because the batteries are specifically designed for deep-cycle use and optimized for deep discharge and recharge cycles characteristic of renewable energy systems. In addition, Trojan L16RE batteries were selected due to their excellent cycle life performance as well as their ability to offer optimum functionality in tropical environments and regions, such as Victoria Island.



Batteries used in renewable energy systems often operate in partial states of charge for extended periods of time, and the Trojan Premium Line has been designed to deliver maximum life under these conditions. The combination of a robust grid design, thicker separators and advanced paste formulation contribute to the reliability and peak performance of Trojan's deep-cycle batteries. Trojan has applied its more than 85 years of battery engineering expertise in designing batteries specifically for renewable energy systems. As a result, Trojan offers customers with the best long-term value when considering the total cost of ownership over the life of the battery.

In addition, it was of paramount importance to Diamond Bank that the battery manufacturer had a distributor locally who would be responsible for supporting them should any quality issues arise in the future. Trojan's alliance with Eauxwell turned out to be the perfect fit to meet this customer requirement. The combination of the expertise and capabilities offered by both Eauxwell and Trojan Battery has resulted in a successful strategy to provide residents and businesses of Victoria Island reliable and consistent access to their bank accounts 365 days a year.

*The L16RE-B battery has transitioned to the Solar Premium SPRE 06 415 battery.



For more information:
Trojan Battery Company
trojanbattery.com

Eauxwell Nigeria, Ltd.
www.eauxwell.com



Trojan batteries are available worldwide.

We offer outstanding technical support, provided by full-time application engineers.

call 800.423.6569 or + 1.562.236.3000 or visit trojanbattery.com

12380 Clark Street, Santa Fe Springs, CA 90670 • USA or email re@trojanbattery.com

© 2017 Trojan Battery Company, LLC. All rights reserved. Trojan Battery Company is not liable for damages that may result from any information provided in or omitted from this publication, under any circumstances. Trojan Battery Company reserves the right to make adjustments to this publication at any time, without notice or obligation.