



**GREENPOWER**<sup>TM</sup>  
...partner for sustainable solutions

## COMPANY PROFILE





## About US

GreenPower GP partners with notable renewable energy and power generation companies across the globe in developing a practical approach to solving power and energy problems in Nigeria.

We have conducted diverse studies on renewable energy sources such as solar, wind, and biomass which has given us an in-depth understanding of suitable solutions for a different sector of the Nigeria economy.

We leverage our expertise in power systems and partnership with credible OEMs to provide a broad range of Solar Power solutions for every application.

Our practical methods and solutions to utilizing these energy sources to supply power for Residential, Commercial and Industrial applications are unique and differentiate us from competitors. There are huge untapped potentials of the solar energy and as the technology gets cheaper and conventional energy prices rise, it is an increasingly economic choice to go Solar and choose GreenPower GP as your solution provider.

Our specialist team is experienced in the professional application of photovoltaic systems to provide affordable fuel-free power at various locations. We provide the best design options and quality products available in the market, that can be integrated with any facilities, and are highly reliable.

We have developed expertise in the design, procurement, installation and maintenance of Solar PV systems with 20 years industry experience, our solutions are tailored towards customer-specific needs thereby offering the most cost-effective and reliable system.

The challenges of providing reliable electricity for drive Africa and of course Nigeria economy is no doubt enormous, aside from the insufficient power supply from utility companies, fueling the diesel generators that provide a not reliable alternative can be cumbersome, expensive and subject to scarcity. When electricity from a utility is unavailable or connecting to the grid is too expensive and unpredictable, the most cost-effective solution is to use solar PV solutions to generate your power. Our solar solution can generate power on any scale.



## Vision

Greenpower's vision is to be abreast of the global development in Power, Energy and Electrical technologies to set the industry standard for high quality products, services and customer satisfaction in engineering services across Nigeria and West African Region.



## Mission

- To provide the highest quality products, services, installations and maintenance at the most affordable price to our customers.
- To be the preferred regional partner for leading international organizations and OEMs in Power, Energy and Electrical technologies.
- To reward our employees and promote a safe work environment based on recognition of achievement, loyalty and strength.



## *Our* COMMITMENT

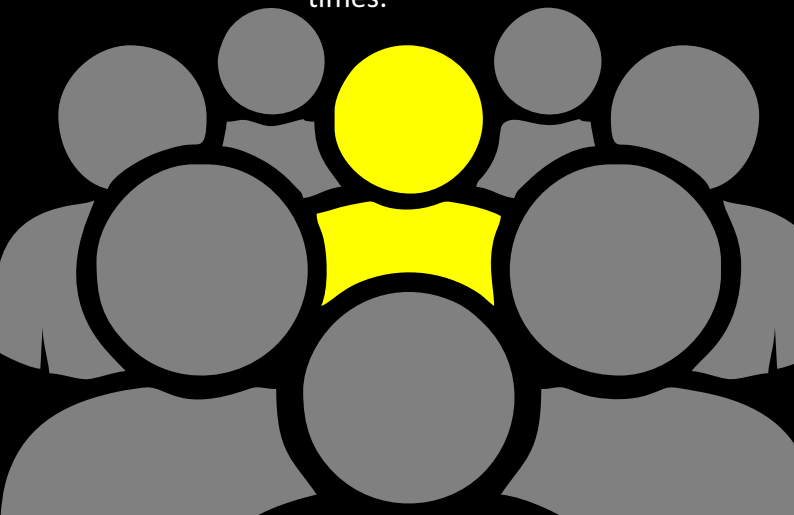


We are committed to the quality and integrity of our products and or services, after sales support, and safety of our clients, our people and the environment.

We understand and accept that each project is unique in requirements, and are committed to ensuring, based on our background, experience and skill-set, that our solutions are fitted to clients' real needs and expectations at all times.

## OUR PEOPLE

Our people are fundamental to our success, and represent the key to our future. Green Power leverages on dynamic base of dedicated team of experienced engineers and support staff who are passionate about our business, appreciate the value of our clients and willing to put in extra effort to ensure a world class delivery of sustainable solutions to our markets at all times.



## OUR PHILOSOPHY

We use an innovative "partnership Approach" to product and/or service delivery. This approach relies upon the involvement of our clients in every process to ensure required and expected deliverables are not compromised. Through this approach, we ensure an understanding of your specific energy and power needs, with a focus on designing and implementing tailor-made solutions in accordance with world best practice.





## Our Business

With our global partners, we provide engineering services to critical sectors of Nigeria economy, Our work covers the Power Electronic, Renewable Energy, Electrical infrastructure and building services. Our experienced engineering team provides a range of services including, system design, project management, procurement, construction and operations & maintenance of various infrastructures.

Using leading industry software applications equipment and processes, GreenPower is capable of deploying a wide range of engineering and management solution for Oil & Gas, Healthcare, Banking, Real estate, Telecoms, Transportation, Military and broadcasting all at domestic, commercial and industrial scale.

### ENGINEERING SERVICES

- Project Management
- Procurement
- Installation
- Commissioning
- Operations
- Maintenance
- Design Management
- Facilities Maintenance
- Rehabilitations of substations and network (LV/MV & HV)
- SCADA/Substation Automation,
- Substation integrity surveys.



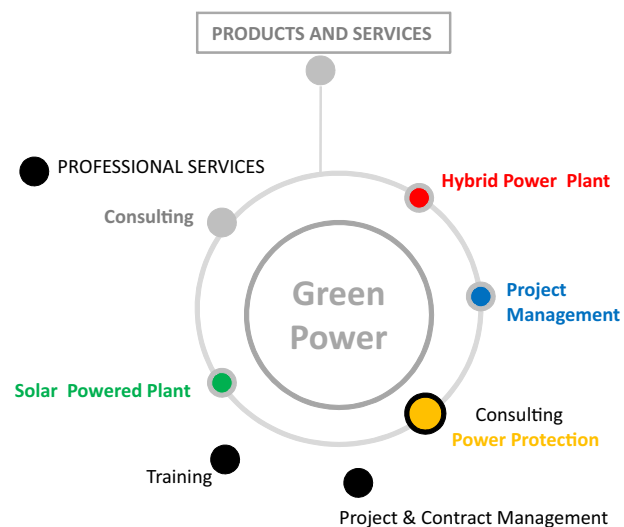
### OVERVIEW

#### Products

Solar Powered Plant  
Hybrid Power Plant  
Power Protection Systems  
C&M Systems

#### Professional Services

Power Consulting  
Project & Contract  
Management  
Training





# OFF-GRID SOLAR PV SOLUTION

'We support your dream to be energy independent and never pay electricity bills'

A technology developed to work for everyone. At GreenPower we are committed to helping save money and provide clean and reliable energy solutions to individuals, communities, Utility companies, corporate, NGO and Governments inform of Solar home systems, micro-grid, mini-grid, commercial and industrial solar.

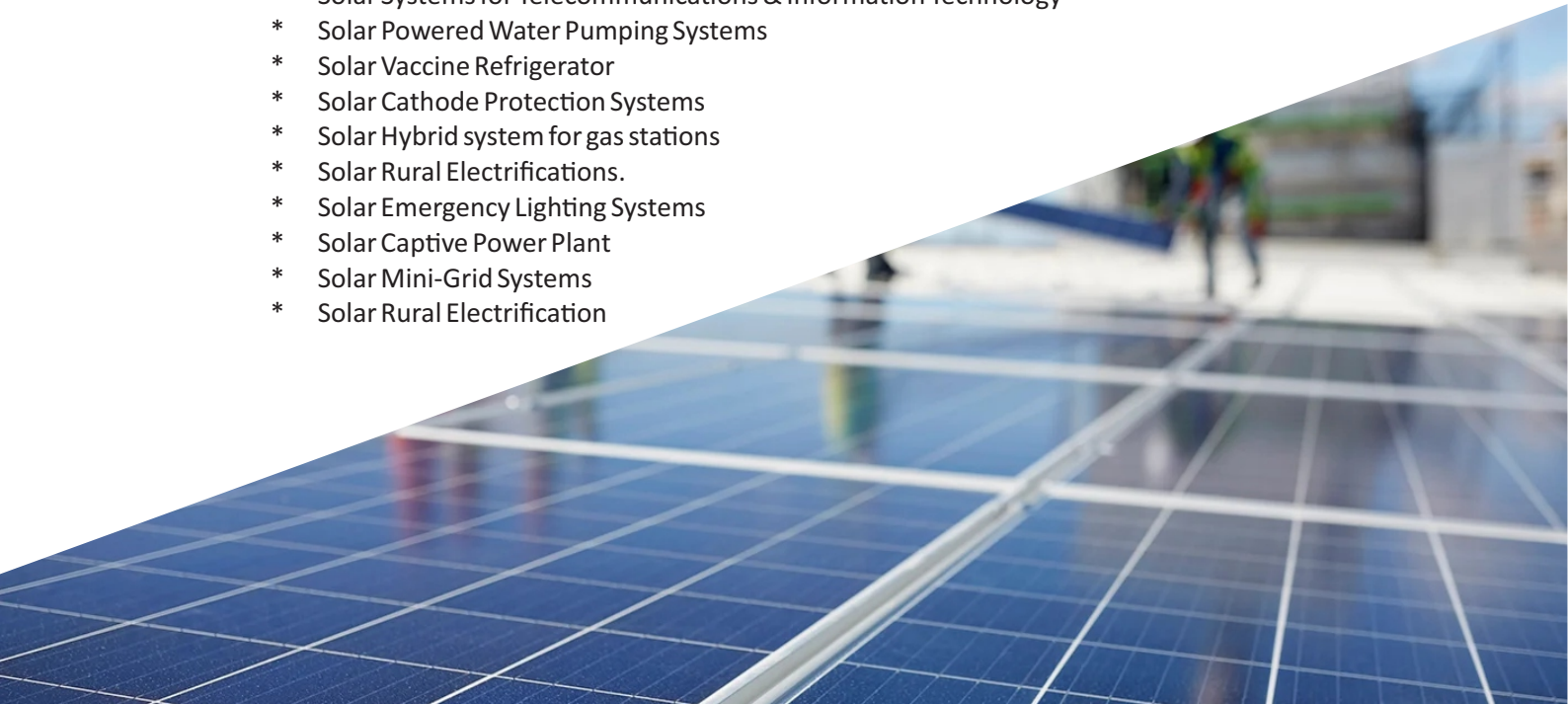
"Solar off-grid systems are the most cost-effective solution to generate power when the utility grid is not available or available but inadequate and unreliable"

When electricity from a utility is unavailable or connecting to the grid is too expensive and unpredictable, the most cost-effective solution is to use solar PV to generate your power. Our solar solution can generate power on any scale.

Off-grid Solar PV systems are also called standalone systems and it consists of PV solar panels, a charge controller, a battery bank, and a PV inverter. This solution can work anywhere and they have many advantages which are economical, social and environmental, solar systems run without noise, pollution-free, reliable, zero operational cost, minimal maintenance and above all ensures energy independence.

**We design off-grid solar PV solutions for residential, commercial and industrial applications such as;**

- \* Solar Powered Streetlight
- \* Solar Systems for Telecommunications & Information Technology
- \* Solar Powered Water Pumping Systems
- \* Solar Vaccine Refrigerator
- \* Solar Cathode Protection Systems
- \* Solar Hybrid system for gas stations
- \* Solar Rural Electrifications.
- \* Solar Emergency Lighting Systems
- \* Solar Captive Power Plant
- \* Solar Mini-Grid Systems
- \* Solar Rural Electrification





# OUTDOOR **INDEPENDENT** SOLAR POWER PLANT

"We are Solar Independent Power Producer 5KW to 5MW"

Our outdoor Independent Solar Power Plant provides electricity to remote, offsite and off-grid locations. The containerized system is pre-installed and tested, ready to be delivered to your location like a conventional fossil fuel generator.

The system is designed to prevent theft as all the system components (inverters, batteries, charge controller, distribution panel) are well secured in a well-ventilated metal container while the solar array is securely installed on the container minimizing civil works.

These Solar Power Plants are scaled from 2KW to 5MW, we can, therefore, deploy 5KW, 10KW, 15KW, 20KW, 100KW, 500KW, 1MW, and 5 MW depending on the power requirement of your application. The output voltage can be single or three phases.

This cost-effective solution is suitable for outdoor, offsite, small or large scale power demand applications such as:

- \* Telecommunications Base Stations
- \* Offsite ATM Machines for Banks
- \* Fuel dispensing Stations
- \* Field Military Formations.
- \* Real Estate
- \* Rural Hospitals
- \* Eco-Friendly Hotels
- \* Farm settlement
- \* Off-grid commercial and industrial applications





# SOLAR RURAL ELECTRIFICATION

We generate electricity through Solar energy source to power rural homes, rural clinics, religion center, community center, small cartage industries, etc, this solution takes three different formats as highlighted below

- \* Solar Battery charge station (SBCS)
- \* Standalone system.
- \* Distributed Solar Power Plant

Meanwhile, either or both designs can be implemented depending on the community settlement layout, concentrated, scattered or l settlement.

## **SOLAR BATTERY CHARGE STATION (SBCS).**

SBCS is a centralized charging station where batteries are charged and recharged at a central location in a community {like a fuel station} where users can recharge their storage battery at the control and subsidized price. The beneficiaries will be provided with equipment that will exclude the solar modules; these pieces of equipment are of two models.

Model: GP/RP01. – Basic system

Model: GP/RP02. – Standard system.

Please note that these models were designed based on our projections, we can design models to meet your requirements.

Either of this equipment will be installed at the users' resident, the user will be recharging their storage battery at the SBCS.

It is recommended that one charging station can support 50 households depending on capacity.





### **STANDALONE SYSTEM**

This is a typical solar homes system which provides charging facility at individual household contrary to the battery charging stations where a user must take their storage battery to the station for a recharge. Here the storage battery receives charges every day from the solar cell installed on the roof. This system is restricted to only two models in this proposal due to its relatively higher procurement cost. This system design is a more sustainable option because users do not have to worry about moving the storage battery from their homes to BCS for recharge.

### **Distributed (Mini Grid) Standalone System**

We generate the electricity at a central point in the community and distribute accordingly through a mini-grid to power rural homes, public facilities and street lights

Our Solar standalone solution can be used to bridge the energy gaps and to address energy poverty in rural communities, a hybrid system can also be designed to combine energy from the sun and energy from the wind using solar panels and wind turbines. This design is most appropriate for a fairly large rural community where the power requirement is high.

“helping to embrace a cleaner and environmentally friendly energy source like Solar in combating climate change and power shortage in Nigeria.”

“Our Solar Solutions help address SDG 7 and 10 which is access to clean and affordable energy and reduce inequality respectively”







# SOLAR POWERED STREETLIGHT

Recently in Nigeria, unreliable and inconsistent electricity from the grid has made rubbish the importance of street lighting, therefore we have.

Solar-powered streetlight design by us can provide adequate illumination to your premises and parking lots for 12 hours a night, 7 days a week, day in day out for years with little or no maintenance required.

## **Benefit:**

The benefit of this system cannot be overemphasized, there are economic benefits, social benefits, environmental benefits, technological benefits just to mention but a few

However, the summary of the benefit you can derive from our solar security light is highlighted as follows

- \* Environmental friendly as the system does not emit any fume, toxic or non-toxic to the environment.
- \* Zero operational cost. (i.e X amount spent on diesel monthly will be reduced by up to 50%)
- \* Equipment long life span, ( modules are over 25 years, batt over 5 years, LED over 18,000 hours or 4 years)

## **Other Benefits**

- \* No dredging through existing road, sidewalks or landscape
- \* Automatic operations (dusk-to-dawn )
- \* Easily and quickly deployed in almost any location.
- \* NO wiring run from the grid
- \* NO cuts through existing roads, sidewalks or landscaping.
- \* Little or NO Maintenance
- \* NO Utility bill
- \* Full system warranty. ( 1 year)





# SOLAR POWERED VACCINE REFRIGERATORS.

Solar Direct Drive refrigerators deliver the same reliable performance as the mains-powered version without any need for battery storage during off-peak operations, that is overnight or in low light conditions, etc

This refrigerators guarantee never to freeze vaccines and never to expose them to elevated temperatures. Vaccines are kept safe in the absence of any power supply for days, and days, at a constant 4°C ambient.

"The most innovative new cold chain technology of the year" – SureChill

We partner with Surechill, the world's best innovative cooling technology company to deliver a wide range of Solar Direct Drive SDD refrigerators to meet everyday cooling needs across different sectors.

- \* Medical
- \* Afri-food
- \* beverage
- \* Retail
- \* Animal production
- \* Home appliances

Sure Chill was named as the award winner at the prestigious Global Cold Chain Forum in Boston, USA. The award, which received entries from around the world, was judged by a panel of industry-leading experts from Merck, Novartis, US Pharmacopeia and others.





# SOLAR WATER PUMPING SYSTEMS

Sunlight and water are essential to all life on earth. GreenPower has combined these two vital factors in an exceptional pumping system: the Solar Powered Water Pumping System. Solar Panels generate electricity directly from Sunlight, no fuel is needed. This electricity is then used to pump water. Solar-powered systems are especially suitable for areas that are not connected to the grid or have limited access. Solar Water Pumping system has zero operating costs and low maintenance requirements which make it an alternative to diesel-powered water systems in rural communities and agricultural settlements.

Although the initial capital cost of a solar-powered water pumping system is relatively higher, this cost is the only expense to be incurred in the entire life of the system since there are no running costs. As a result, the solar system is cheaper in the long run than a diesel system.

## RELATIVE MERITS OF SOLAR WATER PUMPING SYSTEMS

### Improved Water Supply

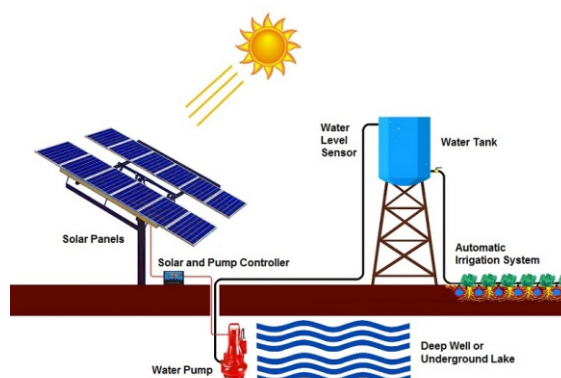
This is as a result of:

- \* Elimination of maintenance of generators
- \* Elimination of fuel quality problems
- \* Greater pump reliability
- \* Better systems performance

### Reduced Running Costs

This is due to:

- \* Elimination of diesel/petrol fuel costs
- \* Elimination of diesel/petrol transportation costs
- \* Lower pump maintenance costs
- \* Reduced need for back-up generator where there are fuel supply or repair problems;



## LONG TERM BENEFITS

This is a result of:

- \* Longer equipment life (solar array 25 years,). The only moving part in the solar water pumping system is a hermetically sealed stainless steel ac motor that drives the pump. The brushless motor used eliminates periodic servicing. If servicing is ever necessary, the simplicity of the entire system and the accessibility of the motor make it a simple matter. The only maintenance required by the solar array is periodic wiping off the dust from the surfaces of the panels.
- \* Reduced logistical problems arising from non-availability of working generators
- \* Reduced logistical problems arising from system shut-downs
- \* Long Term reliability





# GP Solar Hybrid IPP

The GP Hybrid IPP is a carefully design and develop solutions to fill energy gaps for commercial and Industrial sector. it was designed with the intention to ensure reliable, stable and cost-effective power supply for businesses displace diesel generator as the primary alternative power source to grid power. we can customize or upgrade any existing plants to fit your budget and power demand.

The hybrid IPP comprises of the SolarPV, the Hybrid Solar Inverter HSI, the Gas Generator, the Automatic Transfer Switch ATS, the Energy Storage System ESS, the Load Distribution Panel and the Control & Monitoring System, all are design and configured to meet customer energy requirement.

- \* The solutions are flexible and at the same time customized to your energy need.
- \* Our products are tested, reliable and of good quality
- \* Our engineers are professional and smart,
- \* Our after-sales support is second to none, in fact we support our equipment till end of its life.

“From as little as 10KW to power a small commercial building like hotels, hospitals, schools etc, to as high as 10s of MW for factories, communities etc”





## PROJECT REFERENCE

### DESIGN, CONSTRUCTION, OP& M OF 60KW SOLAR HYBRID SYSTEM FOR SERVICE STATION

#### Project Description:

60kw Solar Hybrid system to power service station

**Objective:** Reduce energy cost by over 50%

**Year Installed:** 2015

**Location:** Oniru Victorial Island

**Project Value as at 2014:** N55Million



### DESIGN, PROCURE AND INSTALLATION OF 30KW SOLAR HYBRID SYSTEM FOR FIRS DATA CENTRE

#### Project Description:

30kw Solar Hybrid system to power Data Centre

**Objective:** To ensure steady power supply

**Year Installed:** 2011

**Location:** Ikeja - Lagos

**Project Value as at 2010:** N32Million





## PROJECT REFERENCE

### PROCUREMENT AND INSTALLATION OF 10KVA STANDALONE SOLAR SYSTEM FOR OANDO GAS PLANT

#### Project Description:

10kw Solar Standalone system for desanding unit

**Objective:** To ensure clean and steady 24v power supply for PLC in desanding unit

**Year Installed:** 2012

**Location:** Ikeja - Lagos

**Project Value as at 2008:** N15Million



### DESIGN, SUPPLY AND INSTALLATION OF 20KW SOLAR MINI GRID

#### Project Description:

20kw Solar Mini Grid in 4 communities

**Objective:** To provide power for rural community with 50 house holds, 5 public facilities and 20 street lighting points.

**Year Installed:** 2006

**Location:** Bungudu Local , Zamfara

**Project Value as at 2006:** N160Million



# CASE STUDY

## 60KW SOLAR HYBRID POWER PLANT FOR TOTAL GAS STATION

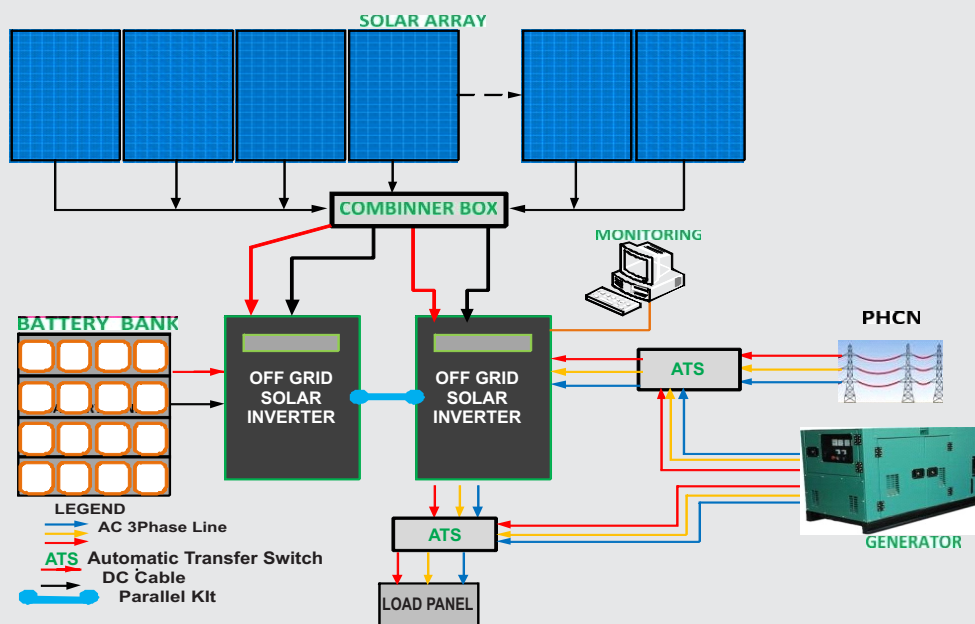
**Project :** Design, Construction and Operations & Maintenance of Solar photovoltaic power systems for Service station

**Client:** Total Nigeria Plc

**Scope:** Supply and Installation of 60KW Solar Hybrid System for Petrol Stations



### SYSTEM ARCHITECTURE



### RETURN ON INVESTMENT {ROI} ANALYSIS

*It takes just 5 years to break even.*

#### Diesel power generation cost accounting

Power	Hr/Day	Day	Total: KWH	Total Of Year KWH	L/KWH	L/Year @50% Run time	Total Fuel Cost/Year @ N170 per Ltr	Generator Fix cost + 2years maintenance	Total NGN/Y ear
80KW	11	30	13,200	158,400	0.48	38,016	N6.46m	4m	N10.46m

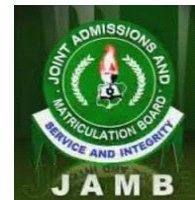
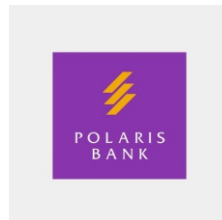
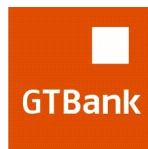
Power	Solar Panel	Junction box	Power System	Battery	Solar tents	Installation /cabling cost	Total Cost/(=N=)
60KW	N13.7m	N0.3m	N5.6m	N13m	N7.4m	N10m	N50m

#### Return On Investment

Cost-recovering years	The System can use years	Diesel Annual Fueling cost(=N=)	Annual Maintenance Cost (N)	Economic benefits (=N=)
<5	25	N10.2m	N0.6	>N216m



## our clientele







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