



# CORPORATE PROFILE



**GREENPOWER<sup>TM</sup>**

*...partner for sustainable solutions*



## ABOUT US

**G**reenpower Overseas Limited is an engineering project company with expertise in renewable energy, Power Electronic, HVAC and Electrical services delivering bespoke solutions across various sectors of Nigeria and West Africa Sub-Region, Covering Telecommunication, Hospitality, Transportation, Real Estate and Infrastructure, Oil and Gas, Health Care and Government.

Commencing operation in 2002 as a small scale engineering enterprise, GreenPower was incorporated in 2006 and has grown in an unprecedented manner to have a portfolio of Sustainable Energy & Power Solutions, and a range of services which together can meet the demand from the industrial, public and commercial sectors on every scale.

Our growth is not just a result of our idea, it is evident of the leadership of our erudite management team, dedicated team of engineers and professionals, commitment to Research and development and customer satisfaction and the support of our customers.

We cover all area of engineering services covering Design, Procurement, Installation, Operation, maintenance and consulting.

Our team of engineers are competent, qualified, trained and well-motivated to meet and exceed your expectations at all times.

This document has been provided to give you an insight into the company

Thank you.

A handwritten signature in black ink, appearing to read 'Hon. Bamidele Faparusi'. It is written in a cursive style with some loops and flourishes.

**HON. BAMIDELE FAPARUSI. B.ENG, COREN, PHD  
MD/CEO**

### GREENPOWER OVERSEAS LIMITED



## 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.

### GREENPOWER OVERSEAS LIMITED



## *Our* COMMITMENT



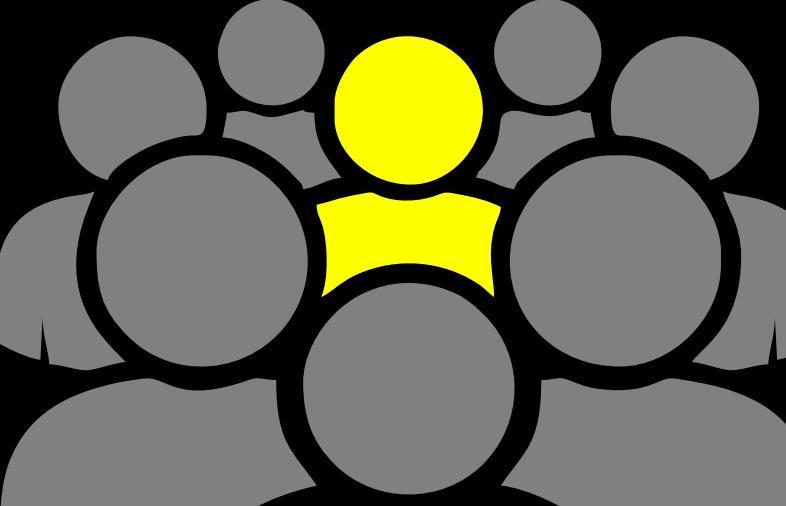
We are committed to the quality and integrity of our products and/or services, after sales support, and safety of our clients, our people and the environment.

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 PHILOSOPHY

### 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.



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.



Solar



Power System



Consulting Services

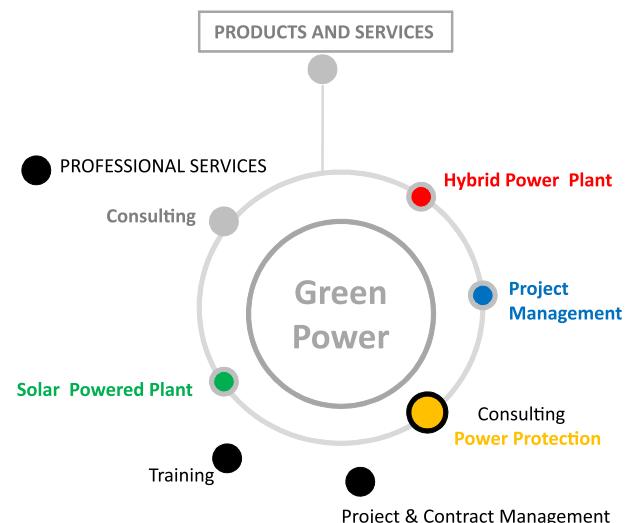
### OVERVIEW

#### Products

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

#### Professional Services

- Power Consulting
- Project & Contract Management
- Training



### GREENPOWER OVERSEAS LIMITED



partner for sustainable solutions

# SOLAR SOLUTIONS

Greenpower works with notable renewable energy and Power Generation companies across the globe in developing practical approaches to solving power and energy problems in Nigeria. We have conducted feasibility studies relating to sources of energy, evaluation and implementation. We leverages on our expertise in power and partnership with credible OEMs to provide broadest range of SolarPower solutions for every application.

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

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 and options available in the market, that can be integrated with any facilities, and are highly reliable.

## Hybrid Solar Solution

Our Hybrid power Plant is designed to reduce the operational cost associated with diesel & gas turbine and ensure regular sustainable power supply to off-takers in industries and residential estates.. Our Hybrid Power Plant effectively combine diesel or gas plant with renewable energy sources like photovoltaic, solar thermal and wind, whether for mini grid or a large commercial application, GreenPower is adequately experienced and positioned to design, install and commission a power plant suitable for your specific needs.



## Solar Products.

- Solar Panels
- Solar Charge Controller
- Solar Inverters
- Solar hybrid Inverter
- Solar Grid Tie



## Solar Applications

- Solar Captive Power Plants
- Solar Powered Streetlight
- Solar Systems for Telecommunications & Information Technology
- Solar Powered Water Pumping Systems
- Solar Vaccine Refrigerator
- Solar Cathode Protection Systems
- Solar Rural Electrifications
- Solar Lighting for Offices, Homes, Clinics, Schools etc.
- Solar Emergency Lighting Systems.



## GREENPOWER OVERSEAS LIMITED

**LAGOS:** 35b Unity Road, off Bank Anthony Way, Ikeja, Lagos. **ABUJA:** Tsukunda House, 1st Floor, Room B03, beside ECOWAS,Central Business District, Abuja. **EKITI:** Suite 12, Adedoyin Plaza, Awedele Street, Ado Ekiti. Tel: 01-3429170, 0803 719 1033, 0700 000 7777. E-mail: info@greenpowerng.com, greenpower\_engineers@yahoo.co.uk. Website: www.greenpowerng.com, www.buysolar-ups.com



## POWER ELECTRONIC SOLUTIONS.

Power Electronic is the core of our enterprise; we have developed practical approach to address numerous power challenges across all sectors of Nigeria economy.

Our partnership with leading OEMs especially Gamatronic, a division of Solaredge has positioned us as a market leader offering bespoke power system solutions in healthcare, Transportations, Education, Banking, Oil & Gas, Telecoms, Broadcasting, Industry etc.

Our practical methods and solutions are tailored towards the utilization of renewable energy to supply power to homes, offices, villages and remote facilities. This differentiates us from competition.

Our power electronic products as manufactured by Gamatronic for Power backup, Power protection, Control & monitoring, Energy storage and management include but not limited to the following:

**Interrupted Power Supply UPS System:** Standalone Micro UPS, Standalone GA UPS, Modular UPS, Rack Mountable UPS, Static Switch and Emergency lighting

**Telecoms Power supply:** DC power supply, DC/AC Inverter, DC/DC Converter and HPS Power supply unit  
**Control and Management System:** PSM+ UPS Management Software, GMAC5 UPS Monitoring system, G5 Control & management for Data centre.

**Power Protection System:** SVR Automatic Voltage Regulator AVR, Static Switch, Centric 300FC Frequency Converter, Isolation Transformers, Surge Suppressors

**Energy Solution:** Ultra Capacitors, High Power DC EV Charger, Power Conversion System, Emergency Lighting Protection.



### GAMATRONIC'S TECHNOLOGY

- \* True on-line technology shields against mains power voltage fluctuations.
- \* Total support for overloads achieved through connecting batteries using galvanic isolation.
- \* Reliable outputs under all circumstances: whether under load, connected to the grid or off the grid. Our UPS systems ensure stable voltage, frequency and wave shape under all grid conditions.
- \* Perform exceptionally in all environments – even extreme temperature, humidity, dust and dirt.
- \* Compact, small footprint and low weight.
- \* Low MTTR.
- \* Scalable: Modules may be added to increase the UPS system capacity at any time. This can even be done on-site by the client without changing to bypass or disconnecting the load.
- \* High efficiency up to 98% with true on-line functionality, and a Power Factor of 1



...partner for sustainable solutions



# DATA CENTRE INFRASTRUCTURE SOLUTION.

With ever-increasing data centre (DC) size and complexity, Data Centre Managers and IT professionals require the right configurations and equipments to covers everything needed to setup a reliable and resilient Data Centre, as well as remote management solutions that enable them to quickly and effectively access servers, network devices, and other mission-critical equipment.

GreenPower GP is well positioned to implement your Data Centre designs with precision and accuracy using the best quality products ensuring a conducive environment and best infrastructure for servers and other IT equipments

- \* Power Distribution System - PDU ,UPS,ATS, RP
- \* Precision Cooling System.
- \* Raised Floors
- \* Data Cabling and Cable Tray
- \* Fire Protection System FM 200
- \* Racks and Enclosures



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Website: www.greenpowernig.com, www.buysolar-ups.com



## BUILDING SERVICES ENGINEERING



As one of Green Power Overseas limited core services, together with our partners, strive to offer a high-level of expertise within the Mechanical Engineering discipline. We have a team of certified and licensed engineers who handle all our clients' jobs irrespective of the perceived magnitude.

### PLUMBING & MECHANICAL ENGINEERING SERVICES



Working with our partners, our engineers design for a variety of project and clients thus having an in depth knowledge base to pull from. We are able to provide assessments, recommend alternatives and provide a properly designed high functioning system to meet the client's very specific individual need. Our expertise covers a wide variety of mechanical design, Consultancy & Project Management, Engineering, Procurement & Installation, Operation and Maintenance services and implementation including:

#### PLUMBING & MECHANICAL ENGINEERING SERVICES

- Central Plant Heating and Cooling System
- Commercial waste and vent system.
- Boiler & Chiller Design
- Commercial domestics water and hot water system
- Cooling Tower Design
- Central domestic water heating plant design
- Pumping System
- Heating water, chilled water and condenser
- Commercial plumbing system design
- Water Piping System
- VAV System
- Sump pump/sewage ejector/lift station design
- Residential Heat Pump Systems
- Temperature Control Systems
- Computer Room In-Rack AC Systems
- Deionized water systems
- Existing System Renovations and Remodels
- Compressed air equipment and piping design
- Lab/Kitchen Exhaust Fan System

### GREENPOWER OVERSEAS LIMITED



# ELECTRICAL ENGINEERING SERVICES & SOLUTION



**GPE**lectrical design and delivers Electrical Engineering solution and has done so across Nigeria. Our operation covers

- \* Consultancy & Project Management
- \* Engineering, Procurement & Installation
- \* Operation and Maintenance services

## *Our focus areas include the following:*

- Intelligent Building Management system (IBMS)
- Telecommunication Infrastructure
- Security Solution (CCTV, Access Control, Perimeter Protection)
- Alarm Management
- Life Safety Solution (Fire Alarm, Voice Evacuation)
- In-building Entertainment and Display solutions
- Public Address system
- Building Automation System
- Interior and Exterior Lighting Design
- Electrical Services
- Short circuit Analysis
- Generator Design and Specification
- Computer Room UPS Design and Specification

We work with a range of partners to provide state of the art products and adding value adding solution in Hotels, Shopping Malls, Public and private Building.



## GREEN POWER OVERSEAS LIMITED



# LIGHTNING DETECTION, PREVENTION AND PROTECTION SOLUTIONS

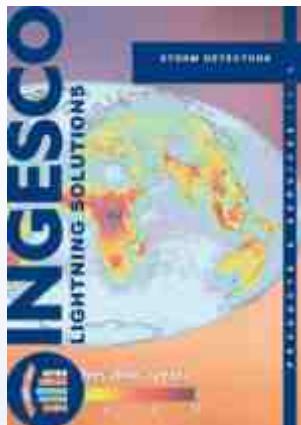
GreenPower - GPElectrical has developed a strategic partnership with INGESCO Spain to offer one of the best Lightning Detection , Prevention and Protection Solution to Nigeria market.

Lightning is an electrical activities in the atmosphere and is one of the most dangerous and destructive natural occurrence known to mankind with its attending effect on electrical and electronics equipments, therefore early detection, prevention and protection means safe guarding sensitive electrical and electronic equipments from being struck.

INGESCO is a specialist in solutions for the prevention and protection against lightning, the company was established in 1973 with its headquarters in Barcelona (Spain) and has grown to become a leading company in the design, manufacture and control systems for the prevention and protection against lightning. The company offers high quality products entirely manufactured in Europe and in accordance with international standards.

Products range covers

- \* External Lightning Protection
- \* Grounding Systems
- \* Control Systems
- \* Surge Arrestors
- \* Storm Detector and Thunderstorm Warning System (PREVISTORM®)



## APPLICATION OF LIGHTNING PROTECTION SYSTEMS

GPElectrical /INGESCO lightening protection systems can adapt to different industries such as : Oil & GAS, chemical, electrical, mining, energy, agriculture, defence, government, healthcare, leisure and tourism, banking, communications.



## POWER FACTOR CORRECTION

In electrical engineering, electrical energy supply to homes, businesses and factories has both resistive and inductive loads, therefore *power factor* is the ratio between Real Power and Apparent Power. In an electrical installation, it is desirable to have power factor of 1, which is called unity PF where all the electrical energy supplied are used for productive work.

Power Factor is the measure of energy waste in an electrical installation and is calculated as the ratio of real power (Actual usable power) and apparent Power (Actual usage + Unusable power), it is a power inefficiency in electrical network

### Benefit of Power factor correction

The unusable Power is a wasted power that must be paid for, homes and business pay an average of 15% more for Power factor, imagine what will be saved if power factor are corrected, 15% savings on electricity bill may run into millions of Naira over a period of say 10 years, aside lower electric bill , it also Improve voltage to equipment enhance long equipment lifespan doubling the life of your electrical equipment,

Individual or Company planning to go Solar or Diesel Generator need to correct power factor in their electrical network else the cost of setting up may be 20% more than actual, corrected power factor means your load demand will be reduced which will positively affect the sizing of your solar system or diesel generator

Power Factors below 80-.85 draw more current than they are actually using will heat up your electrical cables and this may cause line failure, disrupt your operation which cost you money and time.

So why not start by correcting total facility energy inefficiency? By having Power Factor Correction technology equipment installed at your facility, not only will you eliminate the costly Power Factor Penalties you are being charged by utility companies, you'll use less power as a whole, and create more room for growth and expansion in the future!

The Return on Investment for Power Factor Correction can be anywhere from 6 months to 1 years, The best part is, after the equipment pays for itself, the savings go directly to reducing your bottom line... For life.

| S/NO | BUILDING TYPE       | AVERAGE POWER FACTOR |
|------|---------------------|----------------------|
| 1    | Office Building     | 87 - 92              |
| 2    | Hospital            | 80 - 92              |
| 3    | Industrial Building | 60 - 85              |
| 4    | Schools             | 85 - 91              |
| 5    | Airports            | 75 -85               |
| 6    | Restaurant          | 75-85                |

| Waste on Power Factor                  | 15%       |
|--|-----------|
| Monthly Electric Bill                  | 6,000,000 |
| Monthly Excess Payment due to PF Waste | 900,000   |
| Estimated Cost of correction           | 5,000,000 |
| Payback Period                         | 6 month   |



# POWER AUDIT.

Several millions of Naira is lost daily to fire and inefficient loads due to poor electrical infrastructures in as little residential apartments to as large as industrial complex, most importantly, aside lost of critical company and personal assets to bad electrical installations, lives are lost too.

The danger is that, bad electrical installations is a time bomb and often ignore by many due to ignorant and believe that God will Protect, it is recommended that power audit should be conducted annually like health check to determine its status, integrity and capacity to continue to function as designed. "Yes, God protect but we must do the needful"

Power Audit business and family is all about safety, economy and sustainability.

## What is Power Audit

Power Audit is an engineering activity with objective to evaluate and report risks within electrical infrastructure. Identify anomalies and propose solutions, also identify short term remedies while the long term solutions may be implemented in phases subject to severity of the issues identified and budget constraints of customer.

The audit will entail us to conduct thorough load studies from simple current measurements and hot spot checking at termination points to detailed power analysis using sophisticated power analyzers over several weeks to generate useful data on peak demand , usage patterns electrical transient harmonics, frequency analysis and utility power quality.

## Scope of the Audit

- \* Determination of power quality of the facilities under investigation
- \* Determination of power quality needs of critical equipments ( redundancy and availability)
- \* Single point of failure analysis,
- \* present constraints, capacity , risk and redundancy analysis
- \* Continuity and integrity of connections checks
- \* Quality and capacity of existing electrical equipment
- \* Power protection system analysis
- \* Earth integrity test.
- \* Cable sizing and Coding
- \* Circuit breaker trip setting and fault current carrying capacity reviewed
- \* Circuit breaker coordination review
- \* Monitoring and report
- \* Comprehensive report with measurement and recommendation

## Benefits of the Audit

- \* improving power quality of the facilities especially to critical equipment
- \* The chance of fire outbreak due to bad electrical installation and appliances is reduced to near zero.
- \* It is economic, safety and sustainability gain
- \* Power audit reduces electric bill by more than 30% as inefficient loads are identified and taking out of the power network
- \* Valuable work hours are protected and dirty electricity can damage critical electronic working tools like computers, printers, and switches etc., disrupting business activities.

Considering the above assertions, we therefore ask that you commission us to carry out the power audit of your facilities which is in tandem with the saying "prevention is better than cure"



## GREENPOWER GP ENERGY AUDITS

GP Energy Audit is a structured engineering service with a clear objective to understanding the energy consumption patterns of a facility, be it a household, commercial building or industrial setting. The Energy Audit is most required before deployment of alternative power supplies like solar or inverter systems in other to establish how energy that would be deployed will be used effectively and efficiently

To begin with, the external environment of the facility is very critical aspect of the audit and it is always the first point of call such as North-South orientation of facility, type of external wall, vegetation around the facility and window surfaces, while the interior inspection will cover electrical installations and appliances, electricity and water consumption patterns. And finally the behavioral pattern of users

For Energy Audit to be effective, people should be exposed to an education and awareness campaign in order to effect behavioral change over use of air conditioners, fridge access or switching on-and-off lights in unoccupied rooms or spaces. Adopting best practices could factor 15% cost reduction benefits to the occupants. Some of the measures could involve retrofits, replacement of incandescent with fluorescent light bulbs or ageing equipment upgrades as cost-saving measures.

### Benefits of Energy Audit

An energy audit is required to determine the energy consumption associated with a facility (home, business offices, factories etc) and the potential savings associated with that energy consumption.

An energy audit provides enormous benefits to eliminate waste maximize efficiency and optimize energy supply.

- \* Reduced Project cost on alternative Power supply
- \* Reduce Electricity Bill on utility power supply
- \* Help the environment reduce greenhouse emission
- \* It helps you to increase the life span of the equipment in your facility.

### Meanwhile, Business facility energy audit affects three key factors:

- \* Profitability through optimization of energy expenditure
- \* Productivity through optimization of equipment and processes
- \* Performance, thanks to the rationalization of energy use.

Use of trees and vegetation prototypes to shield direct sunlight or aquarium provide coolant effects minimizing over dependence on air conditioners. Similar benefits can be obtained through the installation of heat protective insulations in the ceiling or walls. Over time, snowballing savings obtained from corporate greening options, or reductions in the consumption of electricity and other utility bills could provide opportunity cost investments in once-unaffordable insurance or health care benefit schemes.

GreenPower GP provides this energy auditing consultancy for a fee although the fee will be added as part of project cost if the prospective clients eventually purchase our solar solution, however the responsibility of acquiring alternative renewable green energy appliances becomes the incumbent's prerogative.

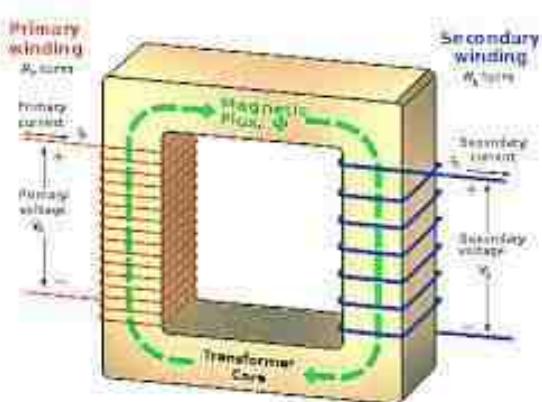
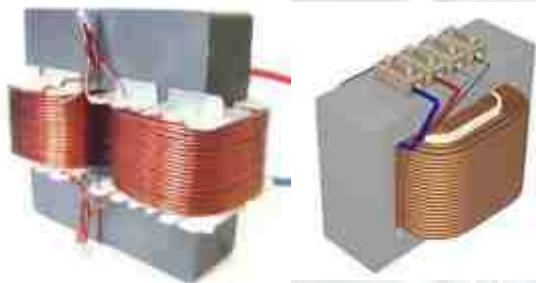
### The Energy Auditing format and assessments

- \* The need for energy management
- \* Energy as a manageable expense
- \* How and where the energy enters the facility, department, system or piece of equipment?
- \* Where it goes and how it is used?
- \* Any variances between inputs and uses;
- \* How it can be used more effectively or efficiently.

### GREEN POWER OVERSEAS LIMITED



## TRANSFORMER WINDINGS



Working with our partners, we are experts in sales, supply and maintenance of Transformer with varying capacity as small as 50kva to power transformer of 10MVA and above. We use high quality electrical conductor for the windings and this depends upon the transformer application, but in all cases the individual turns are electrically insulated from each other to ensure that the current travels throughout every turn as expected.

For small transformers, in which currents are low and the potential difference between adjacent turns is small, we ensure the coils are wound from high quality enameled magnet wire while for larger power transformers, we ensure we wound with high quality copper rectangular strip conductors insulated by oil-impregnated paper and blocks of press board.



## ELECTRICAL MOTOR WINDINGS

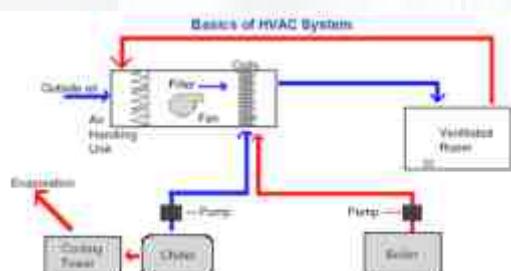


At Greenpower Overseas, we are professionals in electric coil winding. These are electromagnetic used as components of electric motors to provide the magnetic field needed.

We specialize in the winding of electric motors, transformers, and generators. The shape and dimensions of our winding are designed to fulfill the particular purpose intended.

We adjust Parameters such as inductance, Q factor, insulation strength, and strength of the magnetic field in the design of our different coil windings.

The Coil winding that we do are structured into several groups depending on the type and geometry of the coil our client wants.



## HEATING VENTILATION & AIR CONDITIONING

Green power overseas limited, we are a top player in the HVAC (Heating, ventilation & Air condition). We Install and maintain diverse heating, ventilation and air conditioning systems. Be it absorption or compression system, we are available for site visit, survey, audit, design/engineering, installation and maintenance with the support of our technical partner. Sales, supply, installation, maintenance of split units, cassette units, floor standing unit of various sizes. Water chillers, AHUs, VRF system are our area of expertise and specialization.

We lay out wires and pipes to complete HVAC systems, perform general and preventative maintenance on HVAC systems, ensure that all installations are done in accordance to the set standards, Handle conduit running for HVAC equipment, respond to emergency situations in order to resolve issues on an immediate basis.



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